Rural Medical Education Guidebook

SECOND EDITION



Published by Rural Wonca

Rural Wonca

The WONCA Working Party on Rural Practice

Editor: Professor Alan Bruce Chater

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

WONCA Rural Medical Education Guidebook

Second Edition

Editor-in-chief: Alan **Bruce** Chater (Australia)

Editors: Jim Rourke (Canada) Roger Strasser (Canada)
Ian Couper (South Africa) Steve Reid (South Africa)

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PREFACE TO SECOND EDITION

Dear Readers

The first edition of the Rural Medical Education Guidebook has been widely downloaded, both in its complete form and as individual chapters, and has been widely cited. It remains a useful reference for those who want ideas to support their own foray into rural medical education – especially those who are starting on the journey of setting up a programme in their area for the first time. It distils the knowledge of authors around the world and makes it available in one place. The solutions in the chapters are examples of how rural medical education can be established where it needs to be – in rural sites for and by the doctors and staff who understand those communities. Without this, rural recruitment is a hollow promise.

This second edition includes a few additional chapters which supplement the original chapters which remain contemporaneous and relevant. Having noted some recent developments and evidence around a number of issues, the editors commissioned chapters on these areas. These included how to start where nothing exists, especially in resource challenged areas; and the multiplier economic benefit to the communities in which rural-based medical education is established. We also felt that the issue of gender equity and its importance needed more emphasis. Some specific topics linked inextricably with rural context – namely social determinants and agricultural health – needed to be addressed; and we wanted to highlight the ever-present issue of addressing mental health within the constraints of rural contexts.

The work of our own Rural Seeds – harnessing social media to establish innovative programmes including mentoring – are highlighted and the evidence for the use of remote technology to support training is explored by one of our most experienced supervisors.

I would like to thank the new authors for their support. I hope that these chapters and the original ones will continue to inspire and support the spread of rural-based training of medical and other health students around the globe. I would also like to thank again Janet Giddy and Penny Morrell for being the engine room driving the compilation of this edition.

As Professor Roger Strasser says, *"students cannot be what they cannot see".* We hope this resource will make the pleasure of rural practice and education more visible from centres of learning and from within rural communities.

Enjoy this second edition – and we look forward to your feedback for our next iteration.

Good reading.



Professor Alan Bruce Chater
Chief Editor
Rural Medical Education Guidebook
and Chair Rural Wonca

PREFACE TO FIRST EDITION

We are very excited to launch the *WONCA Rural Medical Education Guidebook* at the 12th WONCA World Rural Health Conference, Gramado, Brazil.

The roots for the Guidebook go back to 1992 when a very important meeting was held on the sidelines of the WONCA Global Family Doctor conference in Vancouver, Canada. At this meeting an interested group of rural practitioners saw the need for WONCA to develop a specific focus on rural doctors. As a result, the Rural WONCA (Working Party on Rural Practice) (WWPRP) was formed. The group set about producing a visionary roadmap for rural medical education in the form of a seminal document, the WONCA policy on *Training for Rural Practice 1995.* This was followed four years later by further recommendations made in a companion document, the WONCA policy on *Rural Health and Rural Practice 1999,* which was revised in 2001.

The first international rural health conference was organised in China by the WWPRP in 1996 – with subsequent events being held in South Africa (1997), Malaysia (1999), Canada (2000), Australia (2002), Spain (2003), USA (2006), Nigeria (2008), Greece (2009), the Philippines (2011), Canada (2012) and Brazil (2014). These gatherings bring together rural medical doctors, nurses and other health care providers, along with educators and community leaders who share their passion, experiences and ideas to develop rural health, rural medical education and rural communities.

The initial educational focus has been accompanied by an emerging realisation that rural medical education (RME) is not only good education for medical students and graduate learners but is a prerequisite for addressing the rural workforce shortages, as it exposes young health professionals to the rich and diverse experiences that rural practice offers.

Why this Guidebook?

Despite the increasing literature and growing evidence for RME, our colleagues around the world expressed the need for a how-to book of practical strategies and ideas for training health care workers for rural practice.

In response to this, over 70 health care professionals who have expertise in some aspect of rural medical education and practice were approached to write a chapter based on their knowledge and practical experience in their own countries. Initial drafts were presented in 2009 at a workshop at the Crete WONCA Rural Health Conference and were further discussed and developed in 2011 by an editorial group who met in Bellagio, Italy, supported by The Rockefeller Foundation.



The Rural Medical Education Guidebook editorial group meeting in Bellagio, Italy. May 2011

Putting it all together

The editorial team who met in Bellagio created an overarching structure for the Guidebook and commissioned rural educators and practitioners from a range of countries to write chapters (and gladly accepted offers of others). The editors have been working actively with the authors on the Guidebook since 2011, resulting in this final collection of chapters as seen in the contents page below.

In editing these wide range of manuscripts, we endeavoured to develop coherence across the chapters through a common standard and similar format, while not imposing a uniform writing style. Rather, we wanted authors to be able to retain the freedom to express their concepts in their own 'voice' so that readers could hear both their challenges and the efforts required, often in contexts of considerable resistance. While the experience presented is necessarily largely medical in nature, it also includes a range of insights about education and social processes that are intrinsic both to learning generally and to rural and remote contexts in particular.

Overview of contents

This open source Guidebook has been published on the web in order to be easily downloadable and accessible around the world. The chapters have been arranged into five themes with sub-themes, as follows:

1. OVERVIEW: FRAMING AND RESOURCING OF RURAL MEDICAL EDUCATION AND PRACTICE
   - 1.1 Theory, values and social accountability
   - 1.2 Resourcing rural health: funding and human resources
   - 1.3 Gender and cultural considerations in rural practice
2. MEDICAL EDUCATION IN RURAL SETTINGS
   - 2.1 Rural medical schools and colleges
   - 2.2 Teaching, learning and assessment in rural medical education
   - 2.3 Personal support and social considerations in rural health practice
   - 2.4 Clinical research in rural settings
3. PROFESSIONAL AND TECHNICAL SUPPORT FOR RURAL MEDICAL EDUCATORS
   - 3.1 Professional support and development for rural medical educators
   - 3.2 Technical support for rural medical educators
4. UNDERGRADUATE MEDICAL EDUCATION
   - 4.1 Overview of undergraduate rural medical education
   - 4.2 Undergraduate student recruitment and selection
   - 4.3 Undergraduate curriculum and models of delivery
5. POSTGRADUATE MEDICAL EDUCATION
   - 5.1 Postgraduate training and professional development
   - 5.2 Advanced clinical skills training

The Guidebook aims to be a useful resource amongst rural colleagues - to cross-fertilise experiences and build a stronger and more vibrant community of rural health care practitioners and medical educators.

What next?

There are necessarily gaps and emphases in this collection that suggest that other chapters could be added. In addition there will be innovations and new experiences in the future that this Guidebook would be well placed to publicise.

So, if you see a gap that you feel you could fill, please do let us know. We are keen to see the Guidebook grow as a resource of ideas and practical tips that can inspire all of us to be the most helpful to our rural communities around the world.



Assoc Professor Alan Bruce Chater (Australia)
Editor-in-chief

And on behalf of the editors: Jim Rourke (Canada) Roger Strasser (Canada) Ian Couper (South Africa) Steve Reid (South Africa)

Acknowledgments

Thank you to the Chair of the WONCA Working Party, John Wynn-Jones, for his personal support and to WONCA as an organisation for supporting the concept and for publishing the manuscript on the web.

Thanks to the many committed authors who have stayed the distance on this project.

Thank you to Janet Giddy and Penny Morrell for co-ordinating the production of the Guidebook, including the editing and layout of all the chapters.

Thanks to the Memorial University of Newfoundland Faculty of Medicine and the Northern Ontario School of Medicine for their financial-support of the project.

Thanks to the Rockefeller Foundation for funding the planning meeting in Italy in 2011.

CONTENTS

Theme 1:
OVERVIEW: FRAMING AND RESOURCING OF RURAL MEDICAL EDUCATION AND PRACTICE

1.1 Theory, values and social accountability

1.1.1 'What brings us together': The values and principles of rural medical education - *Steve Reid, Paul Worley, Roger Strasser, Ian Couper, James Rourke*

1.1.2 Integrating public health and medicine - *Denise Donovan*

1.1.3 From the village to the globe: The social accountability of rural health practitioners - *Robert F Woollard*

1.1.4 The challenges of health systems in developing countries - *Victor Inem*

1.1.5 Attaining rural health equity in Africa - *Ian Couper & Jannie Hugo*

1.1.6 Attaining rural health equity in Asia - *Fortunato Cristobal & Ian Couper*

1.2 Resourcing rural health: Funding and human resources

1.2.1 The socio-economic benefits of rural medical education - *Roger Strasser*

1.2.2 Resourcing rural health – how to start rural training where none exists - *Ian Couper& Marietjie de Villiers*

1.2.3 Health systems and funding of rural-based medical education - *Michael Jong*

1.2.4 Balancing medical education and the needs of the rural health service - *Ian Couper*

1.2.5 Addressing rural health workforce shortages: The pipeline concept - *Tom E Norris*

1.2.6 Recruiting students to rural medical careers - *Blaire Schoales*

1.2.7 Establishing a rural curriculum from an urban academic medical centre – *Tom E Norris*

1.2.8 Health outcomes and the balance of primary care physicians vs specialists - *Tom E Norris*

1.3 Gender and cultural considerations in rural practice

1.3.1 Intercultural competence in rural medical practice - *Leonardo Vieira Targa*

1.3.2 Gender and culture in agricultural communities - *Susan Brumby*

1.3.3 Developing gender and cultural awareness for rural practice - *Susan P Phillips*

1.3.4 Women and rural medical practice: The importance of doing it differently in the 21st century - *Jo Wainer*

1.3.5 Indigenous cultures and health in Canada: A primer for rural physicians and health care professionals - *Darlene Kitty*

1.3.6 The interface between orthodox and traditional health practice - *Chris Ellis*

Theme 2:
MEDICAL EDUCATION IN RURAL SETTINGS

2.1 Rural medical schools and colleges

2.1.1 Foundations of a rural medical school: People, places and patients - *Tarun K Sen Gupta*

2.1.2 Operating a multi-site rural-based medical school - *Roger Strasser*

2.1.3 Developing a new rural medical school in North America - *Roger Strasser*

2.1.4 Developing rural medical schools: The history of Tromsø and Northern Norway - *Ivar J Aaraas & Peder A Halvorsen*

2.1.5 Rural medical education in Sabah, Malaysia - *Osman Ali & Muhammad Tauffik Mohd Noor*

2.1.6 Setting up Delta State University Medical School, Nigeria - *Victor Inem*

2.1.7 Developing a rural medical school in Australia - *Richard Hays*

2.1.8 The ACRRM: Advancing the discipline of rural and remote medicine in Australia - *Thomas Doolan & David Prideaux*

2.2 Teaching, learning and assessment in rural medical education

2.2.1 Rural areas: Valuable learning contexts for medical students - *Wendy Graham*

2.2.2 Making medical education practical in rural settings - *Dawn DeWitt*

2.2.3 Academic service learning and rural education - *Jannie Hugo*

2.2.4 Building capacity for integrated clinical learning in rural settings - *Sue Berry, Marion Briggs & David C Marsh*

2.2.5 Assessment in rural medical education - *Tim Wilkinson*

2.2.6 Assessment in rural medicine: How to measure and motivate achievement of abilities - *Richard Murray & Tarun K Sen Gupta*

2.3 Teaching specific topics in rural contexts

2.3.1 Teaching the rural determinants of health - *Steve Reid*

2.3.2 Teaching and learning in agricultural health - *Scott Kitchener*

2.3.3 Teaching mental health care in rural communities in Canada - *Michael Jong*

2.4 Personal support and social considerations in rural health practice

2.4.1 Boundaries and balance: Managing relationships in rural practice - *Leslie Rourke & James Rourke*

2.4.2 The art of mentoring learners in rural health settings - *Barbara J Doty & David Schmitz*

2.4.3 Mentor-mentee programme: mentoring in areas without established rural training pathways - *Karine Kersting Puls, Veronika Rasic, Amber Wheatley & Mayara Floss*

2.4.4 Addressing personal difficulties during rural placements - *Suzanne Allen*

2.4.5 Enhancing the integration of medical students into rural communities - *Lisa McFayden & W Ian Cameron*

2.4.6 Supporting the spouse of the rural doctor and integrating the learner's family into rural settings - *Anne Chater*

2.5 Clinical research in rural settings

2.5.1 Clinical research in rural practice - *Len Kelly*

2.5.2 Clinical randomised controlled trials in rural primary care settings - *Athina Tatsioni & Christos Lioni*

Theme 3: PROFESSIONAL AND TECHNICAL SUPPORT FOR RURAL MEDICAL EDUCATORS

3.1 Professional support and development for rural medical educators

3.1.1 Rural clinical educator support - *Paul Worley*

3.1.2 Teaching rural clinical educators - *Jane Greacen*

3.1.3 Growing academics: faculty development in rural and remote contexts - *Sarah Strasser*

3.1.4 Professional development and support for clinical educators - *Con O'Maonaigh*

3.2 Technical support for rural medical educators

3.2.1 Rural medical training via distance education and remote supervision - *Patrick Giddings & Jeanette McLaren*

3.2.2 Teleconferencing in rural and remote medical education - *Kristian Krogh, Katherine Gray & Debra Nestel*

3.3.3 E-learning: A basic approach for rural clinical educators - *Peter G Baker*

3.3.4 Web-based networking: A case study - *Peter Hutten-Czapski*

3.3.5 Enhancing rural medical education through web-based access to libraries - *Patty Fink*

Theme 4: UNDERGRADUATE MEDICAL EDUCATION

4.1. Overview of undergraduate rural medical education

4.1.1 Excellence in 'bush medical schools': The value of rural education - *J Campbell Murdoch*

4.1.2 Optimising rural medical learning - *Alan Bruce Chater & Janine Wyatt*

4.1.3 Undergraduate medical teaching in rural and remote settings - *Sarah Strasser*

4.1.4 Developing rural undergraduate medical education in Wales - *Martin Green*

4.1.5 Multinational medical student clubs - *Ian Cameron*

4.1.6 Rural seeds: innovation and rural health care - *Mayara Floss, Andressa Cavalcante Paz e Silva, Karine Kersting Puls, Ana Júlia de Araújo, e Marcela Araújo de Oliveira Santana, Paola Iana Fucks da Veiga, Amber Wheatley, Veronika Rasic*

4.2 Undergraduate student recruitment and selection

4.2.1 Medical school admissions policies targeting rural students - *Pamela Stagg*

4.2.2 Recruiting medical students from rural areas - *Sue Page*

4.2.3 Promoting rural practice through student selection - *Tarun K Sen Gupta & Louise Young*

4.3 Undergraduate curriculum and models of delivery

4.3.1 Models for undergraduate rural health placements - *Jane Doherty*

4.3.2 Short-term rural placements for medical students - *Ian Couper*

4.3.3 The community-oriented clinical clerkship: Short-term student placements in rural primary health care - *Theodoros Vasilopoulos*

4.3.4 Parallel consulting in rural medical education - *Lucie Walters*

Theme 5: POSTGRADUATE MEDICAL EDUCATION

5.1 Postgraduate training and professional development

5.1.1 'Training in place': The evidence for effective remote clinical supervision – *Ewen McPhee & David Farlow*

5.1.2 Training in family medicine for rural practice in Canada - *Maureen Topps*

5.1.3 Training in family medicine for rural practice in the USA **-** *David Schmitz & Barbara J Doty*

5.1.4 Health service management training for rural doctors **-** *Ian Couper*

5.1.5 Implementing a professional development framework for rural and remote doctors **-** *Di Wyatt*

5.1.6 Postgraduate pathways to rural medical practice - *Tarun K Sen Gupta & Andrew McKenzie*

5.1.7 Professional development programmes for rural doctors **-** *James Douglas*

5.1.8 Credentialing and re-certification of rural doctors **-** *Jane Greacen*

5.2 Advanced clinical skills training

5.2.1 Supporting rural procedural practice **-** *Alan Bruce Chater*

5.2.2 Maintenance of emergency skills in rural practice **-** *David Campbell*

5.2.3 Advanced clinical skills: The use of simulation for the development and maintenance of skills for rural practitioners **-** *Debra Nestel, Leanne Rogers, Kirsty Freeman, Kathy Brotchie & Marcus O Watson*

5.2.4 Advanced skills training for rural doctors **-** *James Douglas*

5.2.5 The making of a rural general surgeon **-** *G William N Fitzgerald*

LIST OF ACRONYMS

ACLS	Advanced Cardiac Life Support
ACRRM	Australian College of Rural and Remote Medicine
ADZU	Ateneo de Zamboanga University (Philippines)
AGPT	Australian General Practice Training
AI	American Indian (USA)
ALS	Advanced Life Support
AMC	Australian Medical Council
AN	Alaskan Natives (USA)
APACPH	Asia Pacific Consortium of Public Health
APLS	Advanced Paediatric Life Support
ARI	Acute Respiratory Infection
ARIA	Accessibility/Remoteness Index of Australia (Australia)
ASL	Academic Service Learning
ATLS	Advanced Trauma Life Support
BCG	Bacillus Calmette–Guérin (vaccine)
BEME	Best Evidence in Medical Education
CARMS	Canadian Resident Matching Service (Canada)
CBE	Community-Based Education
CCC	Comprehensive Community Clerkship (Canada)
CEICL	Community-Engaged Integrated Clinical Learning (Canada)
CFEP	Client Focused Evaluation Programme
CFPC	College of Family Physicians of Canada (Canada)
CJRM	Canadian Journal of Rural Medicine
CLERC	Clinical Learning Embedded in Rural Communities (Australia)
CLIC	Continuous Longitudinal Integrated Clerkships (Australia)
CME	Continuing Medical Education
COBES	Community-Based Experience and Services
COPC	Community-Oriented Primary Care
CPD	Continuing professional development (points)
CPI	Consumer Price Index

CPR	Cardiopulmonary Resuscitation
CQU	Central Queensland University (Australia)
CSDS	Queensland Health Clinical Skills Development Service (Australia)
DBS	Direct-Broadcast Satellite
DREEM	Dundee Ready Education Environment Measure
DUI	Driving Under the Influence
EGPRN	European General Practice Research Network
EMST	Early Management of Severe Trauma
ENT	Ear, Nose and Throat (surgeons)
ER	Emergency Room
FACRRM	Fellowship of Australian College of Rural and Remote Medicine (Australia)
FARGP	Fellowship of Australian Rural General Practice
FM	Family Medicine
FRACGP	Fellowship of Royal Australian College of General Practitioners
FTE	full-time equivalent (posts)
GCSA	Global Consensus for the Social Accountability of Medical Schools
GEMP	Graduate Entry Medical Programme (South Africa)
GP	General Practice / General Practitioner
GPA	Grade Point Average
GPET	General Practice Education and Training
HD	High Definition
HNPCC	Hereditary Non Polyposis Colon Cancer
HUGS	(Working) Holidays for Undergraduate Students (Australia)
ICE	Integrated Community Experience
ICL	Integrated clinical learning
ICU	Intensive Care Unit
IMCI	Integrated Management of Childhood Illness
IMG	International Medical Graduate
IPE	Inter–Professional Education
IQR	Interquartile Range
IRTT	Integrated Rural Training Tracks (USA)
JCU	James Cook University (Australia)

JMOs	junior medical officers
LCME	Liaison Committee for Medical Education (Canada)
LIC	Longitudinal Integrated Clerkship (Australia)
LMS	Learning Management System
LNG	Local Northern Ontario School of Medicine Group (Canada)
MCC	Medical Council of Canada (Canada)
MCQ	Multiple Choice Question
MMI	Multiple Mini-Interview
MOHE	Ministry of Higher Education (Malaysia)
MOOCS	Massive Open Online Courses (Canada)
MOPS	Maintenance of Professional Standards (Australia)
MSF	Multi-Source Feedback
MTRP	Medical Training Review Panel (Australia)
NACOE	Native American Centre of Excellence (USA)
NCAHS	North Coast Area Health Service (Australia)
NCMEC	North Coast Medical Education Collaboration (Australia)
NHS	National Health System (UK)
NOMP	Northwestern Ontario Medical Programmes (Canada)
NOPS	Northeastern Ontario Postgraduate Specialty (programmes) (Canada)
NOSM	Northern Ontario School of Medicine (Canada)
NSW	New South Wales (Australia)
NT	Northern Territory (Australia)
NTRCS	Northern Territory Rural Clinical School (Australia)
OR	Operating Room
OSCE	Objective Structured Clinical Examination
PALS	Paediatric Advanced Life Support
PBL	Problem-Based Learning
PBRN	Practice-based Research Network
PDA	Personal Digital Assistant
PDP	Professional Development Programme
PHTLS	Pre-hospital Trauma Life Support
PRCC	Parallel Rural Community Curriculum (Australia)
PSAP	Physician Shortage Area Programme (USA)

PUPUK	Program Perkongsian Universiti Keluarga (Malaysia)
QI	Quality Improvement
RACGP	Royal Australian College of General Practitioners (Australia)
RACMA	Royal Australasian College of Medical Administrators
RAMUS	Rural Australian Medical Undergraduate Scholarship (Australia)
RCPSC	Royal College of Physicians and Surgeons of Canada (Canada)
RCSWA	Rural Clinical School of Western Australia (Australia)
RCT	Randomised Control Trial
RDAA	Rural Doctors Association of Australia
REST	Rural Emergency Skills Training (Australia)
RIME	Reporter-Interpreter-Manager-Educator (Australia)
RIP	Rural Incentives Programme (Australia)
RLRP	Rural Locum Relief Programme (Australia)
RMEC	Rural Medicine Education Centre (Malaysia)
RMFN	Rural Medical Family Network (Australia)
ROS	return-of-services
RPGP	Rural Procedural Grants Programme (Australia)
RRMEO	Rural and Remote Medical Education Online (Australia)
RTP	Regional Training Provider
RTT	Rural Training Tracks (USA)
RUSC	Rural Undergraduate Support and Co-ordination (Australia)
RVTS	Remote Vocational Training Scheme (Australia)
RWAV	Rural Workforce Agency Victoria (Australia)
SMS	Short Messaging Systems
SNO	Student Network Organisation
SOM	School of Medicine
SPs	Simulated Patients
SRPC	Society of Rural Physicians of Canada
SSC	Student Selected Component
StAMPS	Structured Assessment using Multiple Patient Scenarios
TC	Teleconferencing
TRUST	Targeted Rural Underserved Student Track (USA)
TUFH	(Network) Towards Unity For Health

UBC	University of British Columbia (Canada)
UCPWP	UMS-Community Partnership in Wellness Programme (Malaysia)
UCRH	University Centre for Rural Health (campus) (Australia)
UDRH	University Departments of Rural Health (Australia)
UMAT	Undergraduate Medicine and Health Sciences Admission Test (Australia)
UMS	University Malaysia Sabah (Malaysia)
UOW	University of Wollongong (Australia)
US	United States (of America)
VoIP	Voice over Internet Protocol
WHO	World Health Organisation
WIRHE	Wits Initiative for Rural Health Education (South Africa)
WONCA	World Organisation of Family Doctors (Previously '**W**orld **O**rganisation of **C**olleges and **A**cadamies of General Practice/Family Medicine')
WRITE	WWAMI Rural Integrated Training Experience (USA)
WWAMI	Washington, Wyoming, Alaska, Montana and Idaho (USA)
WWPRP	Rural WONCA (Working Party on Rural Practice)

Chapter 1.1.1

'WHAT BRINGS US TOGETHER': THE VALUES AND PRINCIPLES OF RURAL MEDICAL EDUCATION

Steve Reid
University of Cape Town, South Africa
Paul Worley
Flinders University, Australia
Roger Strasser
Northern Ontario School of Medicine, Canada
Ian Couper
University of Witwatersrand, South Africa
James Rourke
Memorial University of Newfoundland, Canada

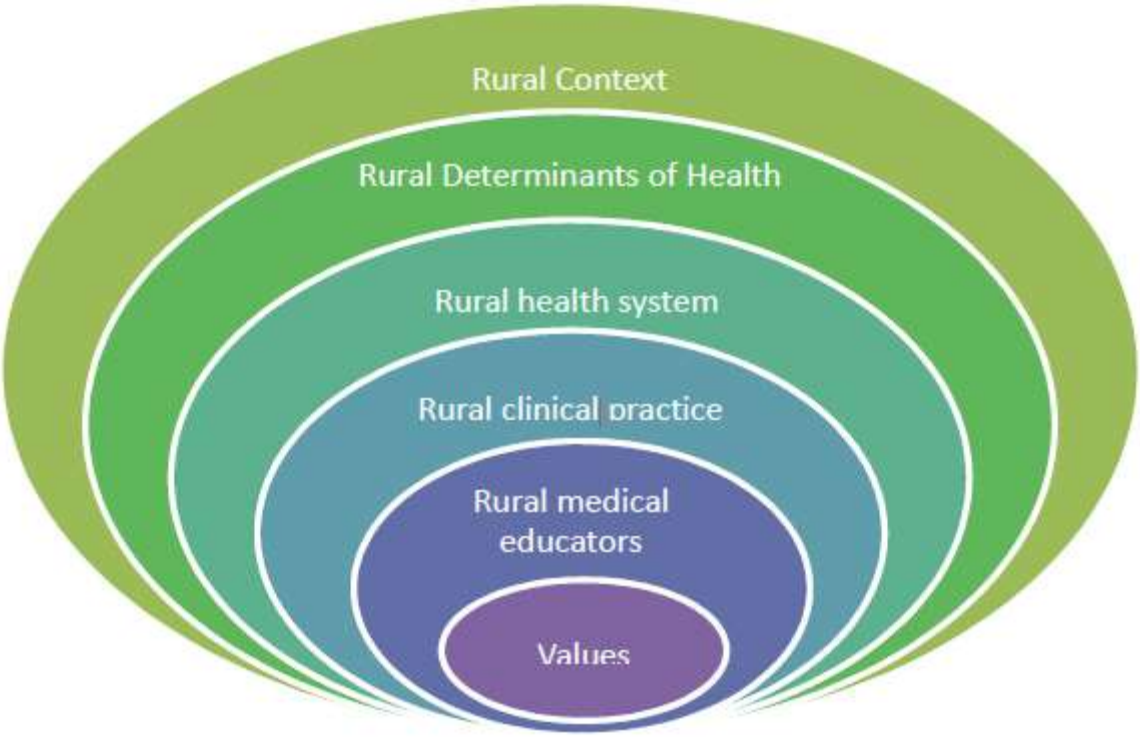
Introduction

Rural practitioners all over the world share a range of experiences, systems and practice in a variety of circumstances that are determined by the rural environment. These lead to a set of principles and values that are also shared, but they are implicit and are not often made explicit. This chapter aims to make these more visible, not in order that they be accepted, so much as to offer them for discussion and debate as a prelude to the rest of this guidebook.

What is it that brings us together as rural health practitioners and medical educators? Is it more than the rural environment? Is it the kind of challenges that we face that are similar? Is it the health systems that we work in? Or is it the kind of work that we do, or the education we received? Maybe it is just the sort of people we are as rural practitioners. It could be the values that we share - those softer ideas that are not often shared clearly out loud, but which are nevertheless very significant.

Diagram 1 gives a schematic representation of the possible relationships between these issues.

Diagram 1:
The context of rural medical education



The rural context

The rural context is shaped by a variety of forces that together create a complex backdrop to the work that we do. There are not only geographic factors such as distance and topography that are an obvious feature of the rural context, but there are also specific environmental, political, economic, historical, cultural and social elements that play more or less significant roles in different countries and situations (1).

The **geographic elements** are the most visible components of the context: wide open spaces, large distances between settlements, and agricultural or natural landscapes inform one's mental picture of rural areas. Topography - the shapes and features of specific rural places such as mountains, rivers, and coastlines - are also important in considering access to health services, for example, as well as the particular affinity that we ascribe to certain landscapes. Roads, rivers and other avenues for transport play a major role in constraining or allowing rural communities access to all forms of activity, not only health services.

Diagram 2:
Perspectives of the rural context



Environmental elements of the rural context include agriculture, mining, forestry, fishing, wilderness and recreational areas, in addition to more dispersed patterns of settlement. In developing countries, agricultural areas are often distinctly divided between commercial farms as private businesses, and subsistence agriculture through communal or tribal ownership by indigenous peoples. In developed countries there is also a contrast between family-owned farms and corporate farms operated by employees for the benefit of distant shareholders. These different forms of environmental use directly influence patterns of prosperity or poverty, and hence health and illness. In addition, wilderness areas generate their own patterns of ill-health through natural disasters and injuries; for example many rural hospitals have to cope with large numbers of major road traffic injuries where high speed roads pass through rural areas.

The **political and economic forces** that operate in a country have particular ramifications in rural areas. Specific policies that affect rural communities – for example with respect to the allocation of land to one group or another within a society – can create tensions that may lead to unrest and even civil war in rural areas. More often rural areas with their widely distributed populations are

marginalised in the political process, being 'out of sight and out of mind' to politicians who tend to focus on larger gatherings of people in the cities. Traditional leaders play a more significant role in the political process in rural areas. There is also an interdependence between urban and rural dwellers, especially in developing countries, with families divided between the two by the pressures of migrant labour. The 'movers and shakers' in a community tend to migrate to urban areas, which are by nature places of networking and commerce, and always will be. In many African contexts, people who move to the cities retain a connection to the ancestral home, where they will often return when they are ill, but especially when they are old or dying.

In terms of **historical and cultural context**, rural citizens often have a strong sense of community identity and heritage, a sense of belonging or of ownership that is linked to the land. Historical events and movements, dispossessions and shifts in communities are remembered and others are commemorated.

In some countries, a tension exists between the traditional or indigenous ways of life and the western ways, which has direct implications for the way that health is understood, and the ways that health care is sought. However each community has its own unique set of strengths and challenges, and these diverse perspectives have been successfully integrated in a number of rural communities.

There is a qualitative difference in the nature of **social relations** in rural areas (2). It is quite possible to see a whole community, either by looking at a landscape or actually meeting the people at a community gathering. This happens very seldom in a city. Rural systems are smaller and less complicated than urban systems – there are fewer people, fewer agencies, less overall activity and more space. Because of this, it is possible for students to understand a rural community more fully than they might in the complexity of city life.

It is important to note that rural communities are in transition globally, even under threat – not only in terms of urbanisation, but also in terms of some of the values and perspectives that are attributed to them. The burden of diseases is changing - for example in terms of rapid increases in chronic illness - as is the pace of change itself.

The rural determinants of health

Arising from the contextual background, a number of distinct factors play a direct role in determining the patterns of health, illness and disease in rural communities. They can be separated into determinants arising from geographic realities on the one hand, and those of a developmental nature on the other. An 'asset-based' perspective of rural areas (3) tends to emphasise the inherent strengths and positive features of rural life, including social capital, individual and community resilience and an outdoor lifestyle, in contrast to a deficit view which focuses only on the gaps and deficiencies.

In terms of geography, distance and topography clearly create logistical challenges in access to healthcare. In most developing countries, the cost of transport is a major deterrent to accessing help for health-related concerns, even for health promotion. So those at the greatest distance from health facilities receive the least care, which is reflected in Tudor-Hart's concept of the 'Inverse Care Law' (4).

The Inverse Care Law

'The availability of good medical care tends to vary inversely with the need for it in the population served.'

Furthermore, the relative isolation of those living in rural areas in turn leads to a self-reliant attitude that has been described as 'rugged individualism', which results in delays in seeking help for medical advice, and late presentations of disease (5).

In addition to the geographic realities, there are also **developmental aspects** of rural health that include the political, social and economic elements described above. These are particularly obvious in developing countries, but have an impact in every nation regardless of the economic status. Where resources allow, efficient transport systems for emergency care, as well as information and communication technology, can be utilised to mitigate the effects of geographic distance, but the political and social determinants of rural health are significant even in relatively affluent circumstances. In both developed countries and developing countries, most rural areas have objectively higher levels of poverty, fewer resources and less access to facilities. The social determinants of health play a significant role in this discourse (6) – particularly the relationship between health and socio-economic status (7), but also the impact of culture and beliefs about health in certain communities.

Childhood development and the quality of basic education is one of the foundational determinants of health (8), and access to quality education has been clearly shown to affect people's health, health literacy, health-seeking behaviours, and agency in navigating complex health systems.

Rural health systems

Taking into account the rural determinants of health, rural health systems require an intersectoral and developmental approach to health problems at a population level. The most effective engagements are those that aim at the integration of clinical practice and public health interventions in rural communities, through a truly comprehensive primary health care approach that includes intersectoral work as well as community engagement and participation. Well-functioning referral systems are crucial, as well as the reciprocal support systems from urban centres.

The concept of community-oriented primary care (COPC), a precursor to primary health care as defined at Alma Ata in 1978, is a useful approach for clinical practitioners entering the broader field of rural health (9). It begins with making the links between clinical practice and community-wide initiatives in health, and undertaking a community survey that seeks to understand the characteristics, including the strengths and weaknesses of the community as a whole. Since communities are complex and are burdened by many diverse health issues simultaneously, a systematic prioritisation process is necessary to arrive at a clearer community 'diagnosis'. Selecting the most pressing needs for action, an inclusive team is then constituted and a plan formulated with clear targets to address the issue.

This requires a very broad range of skills from a multi-professional team working in an interdisciplinary way, as the issues are complex and inter-related. For example, addressing the dietary preferences of indigenous people that predispose them to obesity and diabetes, or negotiating cultural norms of sexual practices in the light of the HIV epidemic, requires a multi-disciplinary approach at a community level that is beyond the capacity of any individual person or single discipline.

Rural medical practice

The unique characteristic of rural medicine is the very wide scope of practice that is demanded of rural doctors. They are generalists par excellance, to a much greater extent than their urban colleagues and, as such, require particular attributes and special training. On the one hand the need is for excellent procedural skills, particularly in emergencies when backup is a long way away, while on the other hand the skills for dealing with communities are also crucial. Over and above the wide minimum scope of skills, rural practice in different places demands different skill sets for specific needs. Starfield has shown that comprehensive care by generalists is not only more cost-effective, but also leads to better health outcomes at a population level than compartmentalised specialist care (10).

Beyond the skills set, there is the choice of a long-term commitment to a rural community that develops into a sense of identity, which is linked to a working lifestyle, a network of relationships continued over time, and a particular landscape.

Working in a rural community where resources and technology are not immediately accessible requires practitioners to make the most of whatever is available, often under challenging circumstances. As Plato is said to have written: 'necessity is the mother of invention'. By contrast with urban dwellers who have alternatives, the unique preserve of the rural practitioner is the flexibility demanded by the principle of 'any patient with any problem, anytime and anywhere' (11). Dealing with uncertainty and balancing relative risks is a central part of the job. The rural situation demands adaptability not only in terms of the technical tasks, but also in learning the language and customs, and understanding the geography and the social hierarchy of a community.

Relationships are significant, particularly long-term relationships with patients over generations: these give rural practice a deep sense of meaning as well as better outcomes (12). Similarly, longitudinal relationships between preceptors[a] and students give rural medical education special significance. Over time however, there

[a] A preceptor – or clinical instructor – is a clinician (person who has core clinical skills) who provides clinical teaching at a rural (distant) site. They may work full-time or part-time for the medical school / training institution in a paid or honorary capacity.

is a need to take a break from the 'fishbowl' experience of a small community after a number of years to gain fresh perspectives, and one of the tensions of rural practice is between this deep long-term approach and an increasing trend towards part-time work and mobility in the younger generation of doctors.

Family issues hold particular value, and the spouse of the rural medical practitioner is often a crucial partner in the sustainability of rural practice (13). Bringing up children in a rural environment is an enormous benefit when they are young but becomes more challenging the older they get, when boarding school or home schooling may become the only alternatives. The lack of high quality education is a deterrent to health professionals with families living in more isolated areas and thus has an effect on health care delivery.

Intrinsic to rural practice and to rural medical education are a number of other characteristics that are not often made explicit, but are nevertheless observable (14). These include issues such as resilience or tenacity, together with a commitment to social justice and caring that is complemented by a sense of adventure and the determination to make a difference.

The principles of medical education for rural health

The social accountability of responding to rural community needs is the core principle of rural medical education. The main raison d'etre of rural medical education is to develop a sufficient number of appropriately trained rural doctors to meet the needs of rural communities. Underpinning this are some key principles, as well as some key challenges (15). Rural communities and rural health care providers should be engaged, involved and supported in the develoment and provision of rural medical education. Students from rural communities should be proportionally represented in medical schools. Medical school education should maximise and optimise rural relevant content and rural experiential learning through community engagement (16). Rural oriented vocational training should develop the interest, knowledge and contextual competencies for rural generalist pracitice.

Rural medical education has been shown to produce excellent generalists with sound clinical reasoning skills, who are better able to successfully integrate and manage the impact of social determinants of health on the individual patient and family, than those students have not had a rural experience. Kaufman states that 'in rural communities, the social forces impinging on health can be more readily

defined, while opportunities for intervention are more accessible to the students' (17). Beyond the value of providing appropriately skilled and motivated doctors for rural areas, rural placements during medical education are therefore valuable in their own right as an educational strategy (18), wherever the graduates decide to practice in the long run.

Various rurally-oriented medical schools have developed a range of principles and values that underpin their approach to rural medical education. For example the Northern Ontario School of Medicine (NOSM) maintains the following principles in its academic programmes: inter-professionalism, integration, community orientation, inclusivity, generalism, continuity and dedication to inquiry (19). The School of Medicine and Dentistry at James Cook University aims to: 'lead positive change in health and medical care for communities of tropical Australia and beyond through socially accountable health education, discoveries, partnerships and advocacy that make a difference. Underpinning our work is a shared commitment to social justice, a passion for innovation and a commitment to excellence' (20). Memorial University of Newfoundland's Medical School Mission is 'to enhance the health of the people of Newfoundland and Labrador by educating physicians and health researchers; promoting lifelong learning; conducting research in biomedical, clinical, applied health sciences, community health and medical humanities; engaging communities and decision makers; and collaborating to apply the best available evidence in the formulation of policy and the organization and delivery of care' (21).

Worley proposed that community-based educational programmes can be analysed in terms of relationships (22), and proposes values such as integrity as being central to the quality of education (23), bringing a different perspective to the discourse. Rather than medical knowledge and skills being central to the educational process, he suggested that the relationships of teacher to learner, and of practitioner to patient, as well as of the educational institution to the community that it serves, are the most important foci of rural medical education.

A specific conceptual framework for rural medical education may be provided by the idea of 'critical place-based pedagogy' as proposed by Grunewald (24) - where place-based pedagogy is '… grounded in the resources, issues and values of the local community and focuses on using the local community as an integrating context for learning at all levels ... making learning more relevant to the lived experiences of students, teachers and citizens'.

While place-based pedagogy is appropriate in terms of the geographic determinants of rural health, we need the concepts of critical pedagogy as originally described by Paulo Freire (25) to guide us in the educational arena with respect to the developmental aspects. Critical pedagogy takes as a central concern the issue of power and class in the teaching and learning context. In the following quotation from Giroux (26), the word 'teachers' has been replaced by the word 'doctors' in order to make the principles more immediate to health sciences education:

> 'We must get away from training [doctors] to be simply efficient technicians and practitioners. We need a new vision of what constitutes [medical] leadership so that we can educate [doctors] to think critically, locate themselves in their own histories, and exercise moral and public responsibility in their role as engaged critics and transformative intellectuals'.

The values of rural medical educators

Educators involved in rural medical education appear to share an implicit set of values, which are proposed here for discussion. Most come into education after years in rural practice which gives rise to a flexibility and resilience, with a 'can do' attitude to challenges that promotes educational innovation. The commitment to social justice and fairness which drives most rural medical educators, in terms of access to high quality health care for all rural people, is a major component of social accountability of the rurally-oriented medical schools.

Closely related is the value of respect for diversity and a cultural sensitivity that allows for a commitment to the whole person, including students from a variety of backgrounds. It has been observed that rural doctors are 'naturally effective teachers' (27), not only in terms of the variety of learning opportunities that are facilitated, but also through a natural teaching style that encourages active learning.

Finally the community orientation of rural medical educators often sets them apart from their colleagues, and they value a collaborative approach to community-based education (28).

Conclusion

The geographic and developmental determinants of rural health arise from the nature of the rural context, in terms of its historical, political, economic, social and behavioural aspects. These shape the health systems that develop to respond to the patterns of illness and the burden of disease in rural areas. All of these factors determine the character of rural clinical practice and practitioners who, in turn, influence the principles and values of rural medical education in the academic environment.

Although each country is unique and each medical school is different, the principles and values that are shared by rural medical educators are remarkably consistent throughout the world. They are literally 'what bring us together'.

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Avenue des Arts 7-8
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Belgium

secretariat@wonca.net

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Chapter 1.1.2

INTEGRATING PUBLIC HEALTH AND MEDICINE

Denise Donovan
Université de Sherbrooke, Canada

Public health and its achievements

Public health refers to 'all organised methods … to prevent disease, promote health, and prolong life among the population as a whole' (1). It is responsible for many of the major improvements in the health of populations and individuals. Quarantine, which has been in use for hundreds of years, was a major advance in the control of communicable disease long before the idea of microbes was introduced. When John Snow removed the handle of the broad street pump, he showed the way to prevent waterborne disease and reduce outbreaks.

Tracing the history of mortality from tuberculosis, for instance, shows that long before the BCG vaccine and effective therapies were introduced, the mortality was declining because of improved housing, working conditions and nutrition. Currently, however, the threat of tuberculosis is increasing again because of two major public health issues: the HIV epidemic and antibiotic resistance.

More recently, public health has reduced the epidemic of lung cancer in many countries through its actions against tobacco consumption and against the use of asbestos.

Public health is now facing some important challenges - including the global obesity epidemic and the health consequences of global warming - and it continues to grapple with health inequity caused by social inequality and modifiable determinants of health.

Definitions and scope of public health

For the purposes of this chapter, the term 'public health' signifies a population perspective on health rather than a single science or discipline. It is based in medicine, epidemiology, biology, physics, sociology, economics, and other sciences; it uses management, marketing, community development and other techniques, and it employs a multitude of expertises from medical professionals to community workers and from engineers to community leaders.

Although there are a number of differing lists of core public health functions, there is broad agreement on what public health does – and this can be classified in two categories. The first category, which is aimed at ***prevention of disease and promotion of health***, includes population health surveillance; prevention of disease and injury; promotion of health and healthy behaviours; detection, investigation and response to outbreaks of disease, such as the implementation of disease prevention and health improvement programmes; and emergency and disaster preparedness and response. The second category of public health action is concerned with the ***organisation of health systems***, including health policy analysis, planning and managing programmes and strengthening community capacity (2).

Public health services and their organisation differ from country to country and often within countries as well: not all public health services are responsible for all health promotion activities. Indeed many health promotion activities are likely to be the responsibility of an organisation outside the health care system. For instance, the creation of built environments, a factor in health, is likely to be under municipal or county responsibility; and education departments are generally responsible for ensuring adequate curricular time is devoted to physical exercise. As such, many public health services can act only in collaboration with other services.

Most countries or regions have a service labelled public health or something similar, which is involved at least in the detection and prevention of infectious disease in the community. Responsibility for other public health functions may be found within the branch known as public health or within other organisations. In other words, public health expertise is generally diffused through various organisations in a society.

Public health and medicine

The main difference between public health and medicine is that the former is mainly interested in the health of populations, which has an impact on the individuals in the population, while the latter is mainly interested in the health of individuals, which has an impact on the health of the population. While the overall aims of the two are thus similar, the ways of achieving them are different. Both disciplines are necessary if these aims are to be achieved. Furthermore, each is likely to be more effective if the two work in synergy rather than against each other (3).

In view of the variability of the provision of public health services, the diversity of functions and the range of sciences that contribute to it, however, it is unsurprising that few medical practitioners have a clear idea of what public health is and what it does. While at least certain aspects of public health have been included in medical training curricula for some time, more recently countries such as Canada, the United Kingdom (UK), the United States (USA) and Australia have redefined learning objectives in public health for medical graduates.

Canada has produced an online textbook on public health (4) - probably the only comprehensive public health text book aimed at medical students and the clinical professions – and a recent issue of the *American Journal of Preventive Medicine* (5) was devoted to reports from the conference 'Patients and Populations: Public Health in Medical Education' organised to showcase best practices in North America.

Teaching in public health is often the responsibility of non-physicians[1], or physicians not involved in individual patient care, so that many public health teachers are not in a position to make links between public health and clinical subject matter. By absorbing the 'hidden curriculum' common in large hospital centres, students can come to view public health as an unimportant subject that reduces the time available for learning exciting high-tech medicine. As a result, it is not surprising that many students find public health uninteresting and irrelevant to the practice of clinical medicine (6). These attitudes are likely to persist as students progress to become practising physicians.

1 A 'physician' here (and in North America generally) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

Provoking discussion and thought

A number of authors have explored ways of raising interest in public health topics by developing series of questions that can be used to explore the public health issues of clinical scenarios.

Jacobsohn et al look specifically at hospital policies based on in-patient scenarios (3) - while Stone proposes a framework that links the main themes of public health with clinical actions of prevention, diagnosis, treatment and follow-up (7). Gillam and Maudsley list the 'Liverpool Seven Pointers toward a population perspective on health' (8) - and Harper proposes a series of questions linked to seven contexts of the clinical encounter (9). Finally, Trevena et al link the 'Sydney 8 questions' to population health learning objectives (10).

Although these proposals are all written in the context of undergraduate education, they are also relevant to postgraduate and continuing medical education and the questions and themes would be very useful for initiating discussion around the concepts of public health.

Integrating clinical practice and public health knowledge

Although public health and medicine each have a different focus, when integrated into clinical practice, public health knowledge, attitudes and skills can improve the quality of care provided and is essential to practice in a number of ways. Most physicians use public health concepts in practice, although they may not be aware of it. Being able to define the public health knowledge, skills and attitudes they apply may assist physicians in improving the quality of their care and their contribution to the health patients and the community. Some examples of this follow.

Individual patient-physician encounter

At the core of medicine is the encounter between physician and patient. During these encounters, the concept of the determinants of health and of the socio- ecological model of health provides an understanding of why the patient became ill and his chances of regaining health. The determinants of health may also determine the patient's capacity to deal with disease and to follow the physician's advice. Familiarity with models of health behaviours provides the physician with pointers on how to counsel on lifestyles and treatment.

Investigation and diagnosis

Epidemiology, the science that describes disease in populations and a basic science of public health, has given rise to clinical epidemiology and evidence-based medicine. In many medical schools, these are now perceived as part of clinical medicine.

Epidemiology and evidence-based medicine are essential to efficient investigation, accurate diagnosis, and effective decision-making with regard to the management and interpretation of new information generated by research. As results of general epidemiological enquiry often underlie health information on the frequency of disease in populations, being able to interpret this information allows physicians to prioritise differential diagnoses according to the lifestyles and the determinants of the health of their patients. Explaining the impact of avoidable risk factors, the meanings of test results and the risks and benefits of different ways of managing disease requires knowledge of a number of epidemiological concepts.

Accurate diagnosis and management of environmental disease requires the physician to take an environmental history (11) and have knowledge of how to control environmental disease or knowledge of local public health services which may be required to solve the problem.

Preventive intervention

Preventive intervention is perhaps the most obvious way in which physicians put public health knowledge, skills and attitudes into practice. Physicians may intervene as part of a public health programme, for instance by participating in vaccination programmes, by setting up in-practice prevention programmes or by using opportunities for clinical prevention. To do so, physicians need to be up to date with public health programmes and clinical prevention guidelines.

For areas where there are no national or regional evidence-based preventive care guidelines, there are a number of reliable sources that provide guidelines as well as discussions of the evidence and rationale for the guidelines. This gives physicians information on the risks and benefits of the interventions which they can discuss with their patients. Examples are

the Canadian Task Force on Preventive Health Care (http://canadiantaskforce.ca/) - although inactive for a number of years, it has recently been regrouped
the U.S. Preventive Service Task Force (http://www.uspreventiveservicestaskforce.org/)
the Australian Guidelines for Preventive Activities in General Practice (the red book) (http://www.racgp.org.au/your-practice/guidelines/redbook/).

The approach to disease management is not very different from the approach to prevention, both are based on assessment of the risks and benefits of interventions, which may include watchful waiting. As prevention differs from treatment in that it does not tackle an existing problem, differences in ethical values may come into play.

Practice population

To maintain the health of the people in their area, physicians assess the needs of their practice population and community, orient their practice to meet those needs and advocate for the health of the local community. Here again the physicians are using epidemiology and applying the principles of health promotion; community development and empowerment. The 'five-star doctor' is one expression of this expanded role (12); and 'community-oriented primary care' (COPC) is another (13).

Where it is implemented successfully, COPC is likely to have a positive impact on the health of patients and the community – but its implementation is often undermined by barriers from the health systems and lack of adequate training. Even if not formally and fully implemented, COPC can contribute to improvements in health (13).

Physicians also play a role in protecting populations from environmental and transmissible disease. As diagnosticians in direct contact with patients, they are in a unique position to identify and report unusual occurrences of disease. They are also well placed to assess possible disease sources and advise on how to reduce the spread of disease. In doing so, they are familiar with the basics of outbreak prevention and control as well as with local public health services.

Practice organisation

As those responsible for patient safety, the prevention of medical error, and the efficient use of resources, physicians use quantitative and qualitative methods to audit their practice. They borrow from management science to prioritise and implement change and to develop practice systems that improve the delivery of care. The Australian 'Green book' gives practical advice on how to improve delivery of preventive care, some of which can be adapted to improving patient management and follow-up (14).

As part of the health system, physicians collaborate with other professionals to provide a comprehensive service. They know the resources in their area and they know how to advocate for their improvement. In so doing, they apply notions of health service organisation as well as leadership and communication skills. They also balance the needs of individuals against the needs of their practice population, employing concepts from health economics as well as applying the ethics of population medicine.

Finally, physicians use the principles of infection control to prevent iatrogenic infections and cross infections between patients attending their practice.

Issues specific to rural areas

All these roles and responsibilities apply as much to general practice as to other branches of medicine - and as much to rural as to urban practice. However, the type, place and context of practice influence the depth of competence required in different aspects of public health.

The physician in a rural general practice is likely to be one of the few health professionals in the area. In small regions, they may have privileged contact with influential people and organisations – and indeed, they may be seen as a resource for all types of health issues, including public health and community issues. This provides an excellent opportunity to advocate for health, practice health promotion and influence health protection practices and infrastructure.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.1.3

FROM THE VILLAGE TO THE GLOBE: THE SOCIAL ACCOUNTABILITY OF RURAL HEALTH PRACTITIONERS

Robert F Woollard
University of British Columbia, Canada

Introduction

Throughout the world people in rural areas have fewer health professionals available and lead shorter lives on average than those living in urban environments. This inequitable state of affairs has persisted for decades but only in recent years has the world's attention, and that of the medical profession, been drawn to address it. The global gradient of inequitable distribution of health professionals between urban and rural areas, together with the associated gradient of population health status, has been well established by the World Health Organisation (WHO) and others (1, 2). At issue is the question of what can be done about it and what might the roles of existing and future rural practitioners be in addressing the issue?

This chapter seeks to explore the social responsibilities and social accountability of rural practitioners in addressing this challenge — both in their local villages and in the global commons.

Social accountability (3,4) is a concept that has gained increasing currency around the world as health professionals and health systems wrestle with obvious and increasing divergence between health resources (both human and fiscal) and the peoples' needs for those resources. The chapter outlines how social accountability is defined and how rural practitioners and communities are particularly suited to animating and studying the concept in the real world of front line health services. It goes on to point out the educational and professional development contributions that rural practice can make to the development of future professionals and their work well beyond the rural domain.

What is special about rural?

The practice of medicine in rural areas of the world presents a loom on which to explore and express the major themes of life, health and healing. Indeed, perhaps it is at the scale of the village, the town, the valley that we are best able to see the threads of lives that weave the tapestry of our understanding of health, illness, suffering and healing. This is true at the close scale of the lives and families of the people we are privileged to treat. The lessons taught and learned in the thousands of rural villages are also applicable at the global scale in which all of our lives are embedded.

In rural areas the factors that influence health (the social determinants of health) become evident in ways that statistics and demographic maps such as the World Health Report can only crudely represent. At the same time, the relationships required to negotiate the pathway back to health by individuals who have fallen prey to illness are more evident and often more susceptible to influence by physicians[1] and other health professionals than can be evident from the perspective of a large urban institution. The necessity for all health workers in the community to communicate and link their activities with the real and immediate lives of those in their care fosters the kind of interdisciplinary and patient-focused action that is the theme of all reports and policies attempting to address the hoped for renaissance of primary health care(5,6,7). This is not to say that it is universally done well but, of necessity, it is at least attempted on a regular basis.

Why does rural matter?

Yet, in spite of these factors there is a world-wide difference between the health status of citizens in urban centres and those in rural areas. This gap, in such crude indicators as life expectancy, is variable in its immediate causes and extent but in no country is it less than two years and in some it exceeds two decades. Probably only a modest amount is due to availability of health services. Much of it is due to factors well beyond the traditional view of the formal health system and specific health policies. Nonetheless, rural physicians are regularly turned to by their communities

1 A 'physician' here (in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in Internal Medicine.

to assist in responding to perceived threats to the local populations. These threats may relate to environmental concerns, traffic accident prevention, recreational and cultural developments, social inequities, addiction services and a host of other issues that may arise in a particular community at a particular point in its history.

This is the nexus where primary care and population health meet, where care for the individual patient can inform and be informed by the factors that influence, not only the health of that patient, but the health of the community. It is also the place where policies and activities of the health system must similarly inform and be informed by the policies in the many other social realms that have an influence on the health of the populations. These cross influences are well known and the importance of the interdependence between the health and educational systems in particular are well articulated in the report of the Global Commission on Health Professionals for a New Century (8). Translation of the *intent* of co-ordination and collaboration into *action* is much slower to achieve at anything like a universal scale. At the level of rural health such practices are not only seen but can inform policy 'up the food chain' by the insights gained and the examples given of effective achievement. A good example is co-ordinated community level actions of health and education workers to create 'dry grads' as alternatives to the drinking, driving and youthful deaths that contribute inordinately to the shorter life spans of rural
citizens.

What can rural practitioners do?

This is where rural practitioners and their organisations can make a powerful difference. Whether it is with the local council, provincial policy, the Society of Rural Physicians of Canada or the Wonca World Rural Health Conference; the perspective rural practitioners bring, grounded in place and daily practice, provides an essential element of any hoped-for solution.

Why is this so? Because rural practice is ground zero in the socially responsive practice of medicine (9,10). It is the place where actions and their consequences, where causes and their impacts are most readily seen and where interventions are often possible - interventions that have an impact on the lived lives of patients and the communities that foster or challenge their health. Rural practitioners are drawn into responding to matters that affect their patients' health. This can range from lobbying for appropriate equipment and services, through leading development initiatives and on to community animation to protect the environment and its influence on health. Needs are more clearly perceived at this scale and the

responses are often more evident. Hope for a positive impact is also less likely to be overtaken by the seemingly overwhelming paralysis by analysis that is often a feature of larger, more complex environments.

However, social responsiveness is only one step along the pathway to social accountability. It is helpful to think of the social obligations of a profession along a continuum — from social responsiveness through social responsibility to social accountability. The WHO has defined the social accountability of medical schools as having:

> '…the obligation to direct their education, research, and service activities towards addressing the priority health concerns of the community, the region, or nation they have a mandate to serve. The priority health concerns are to be identified jointly by governments, health care organisations, health professionals and the public' (4).

As we shall see, this definition has been expanded through a Global Consensus for the Social Accountability of Medical Schools (GCSA)(11) but for our purposes it is sufficient to make the distinction outlined by Boelen and Woollard (12), in part because it shows the rich possibilities for rural practitioners to contribute to the profession's search for its very soul — its ethos of service to those in need of its work.

> 'The term social **responsibility** of an educational institution implies awareness of duties regarding society and the term social **responsiveness** the engagement in a course of actions responding to social needs. The term social **accountability** adds a documented justification for the scope of undertaken actions and a verification that anticipated outcomes and results have been attained' (12).

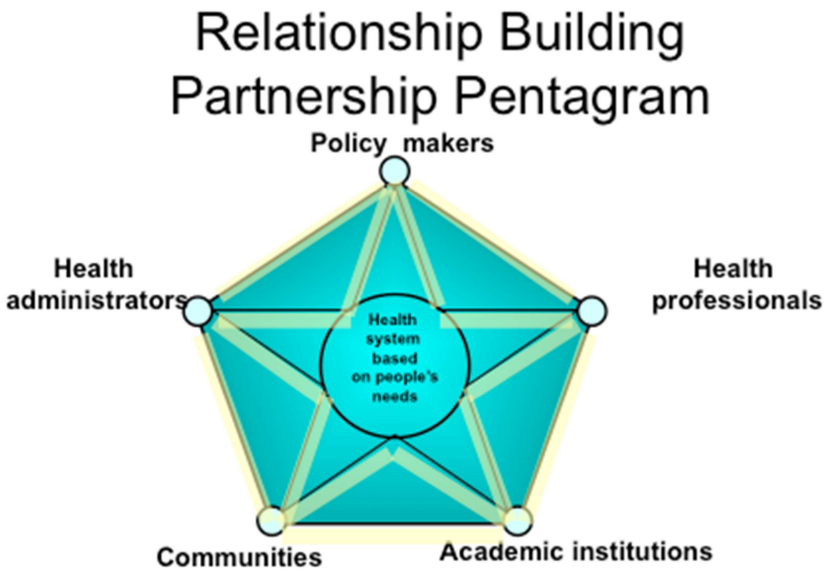
This refers to the medical school and, in concert with the GCSA referenced above, calls for a serious re-examination of the current state of most medical schools in North America and elsewhere.

As they turn to this task, the faculties have a precious, often unrecognised and certainly under-utilised resource at their disposal. This is the increasing number of rural practitioners and practices that are becoming faculty[2] as Canadian medical education becomes an increasingly distributed enterprise. More undergraduate and postgraduate training is being conducted in rural areas than ever before. This is often characterised as an attempt to acquit the schools' social obligations to help

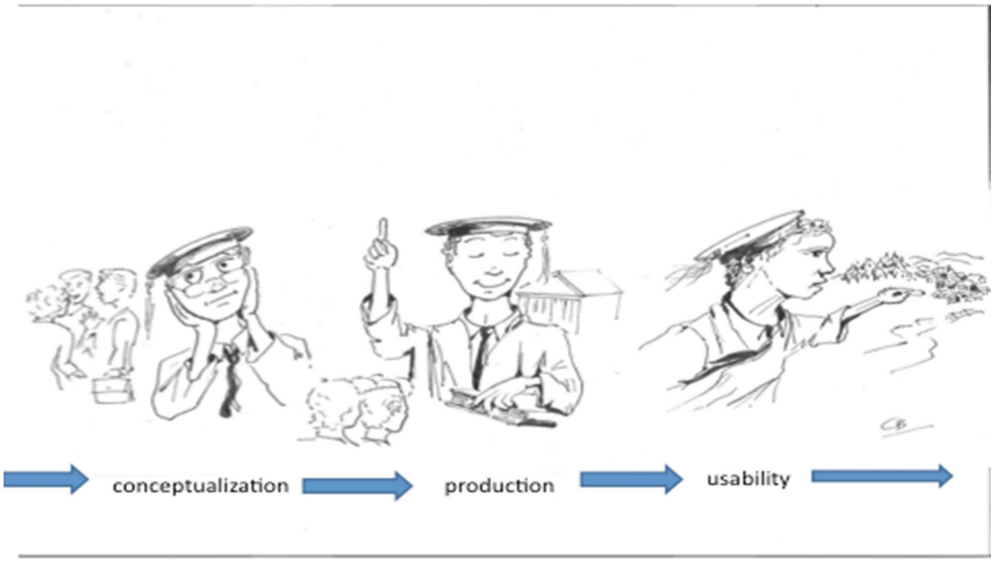
2 Here, 'faculty' refers to a member of academic staff.

mitigate the maldistribution of their graduates — disproportionately choosing urban and specialised careers in spite of the acknowledged need for rural generalists. There is, indeed, evidence that this is working since graduates trained in rural and Northern programmes are far more likely to choose careers in similar areas.

However, even in explicitly distributed programmes such as that at the University of British Columbia (UBC), the numbers are small compared to the needs. The vast preponderance of graduates from other parts of the programme are not obviously committed to serving in areas of need. In common with most schools in Canada, UBC does not behave as if it is taking responsibility for what its graduates do after they have been licensed. There are increasing calls (12,13) for medical schools to move beyond simply producing doctors in traditional ways and to conceive of their responsibility and accountability for participating with society in *conceptualising (C)* the kind of physicians society needs, *producing (P)* such physicians and then following through to ensure their graduates are *usable (U)* in addressing the priority health needs determined by a five way partnership including the academy, health professionals (of many kinds), policy makers, health managers and, above all, the communities themselves.



This ***CPU*** model will be much aided and achieved by and with the increasing numbers of rural faculty teaching students where the connections are both demonstrable and palpable. Success achieved here can then be translated into the more complex and often confusing urban scale where connections between practice and impact are generally less evident.



(Credit: Charles Boelen)

Why be socially accountable?

Why should physicians hold themselves accountable in this way? And why should rural physicians in particular have an especially acute sense of this obligation? The reason arises directly from the 'social contract' that professions have with society.

For over a decade, the profession on both sides of the Atlantic has been wrestling with the issue of professionalism as it pertains to physicians: a clear articulation of this is given in *Medical Professionalism in the New Millennium. A Physician Charter* (14).

> 'The medical profession everywhere is embedded in diverse cultures and national traditions, but its members share the role of healer, which has roots extending back to Hippocrates. Indeed, the medical profession must contend with complicated political, legal, and market forces. Moreover, there are wide variations in medical delivery and practice through which any general principles may be expressed in both complex and subtle

> ways. Despite these differences, common themes emerge and form the basis of this charter in the form of three fundamental principles and as a set of definitive professional responsibilities.'

These three principles are

> principle of primacy of patient welfare
> principle of patient autonomy
> principle of social justice.

The complicated and complex environment in which the profession must work is no simpler in the rural environment. However, the manner in which the principles are made manifest and the '...political, legal, and market forces..' that influence our work are often more immediate and sometimes more tractable than in an urban environment.

While often feeling beleaguered in the face of time and complexity, physicians have been given inordinate privileges by being able to do important and remarkably satisfying work, as well as being compensated rather well in both material and social measures. These privileges are particularly true in rural practice where we daily confront the results of our work - both our triumphs and our tragedies. These rather immediate feedback loops carry within themselves the capacity to teach us both the technical skills that are refined during practice in rural communities; and our understanding of the true meaning of healing. By allowing us to see the causes and manner by which our patients become ill, they provide a window whereby we can see the potential for upstream interventions that will mitigate or even prevent the illness the next time or with the next patient. No lives are more replete with 'teachable moments' than those of rural practitioners. Their capacity to marshal these moments on behalf of both their patients and their communities is a mark of their learned capacities as healers.

The pleasure of this repeating experience of doing things that matter and seeing the results thereof in the lived lives shared with patients and in community is so rewarding that it should not be churlish to say that some 'tuition' is due! Notwithstanding the 'sweat equity' of frequent call, persistent availability, family strains and high tension practices; perhaps society might reasonably expect that the wisdom derived from this experience be shared at a scale where it can build a different world than the one that brought illness to patients and community in the first place. As Rudolf Virchow said in the 19th Century:

> 'It is the curse of humanity that it learns to tolerate even the most horrible situations by habituation. Physicians are the natural attorneys of the poor, and the social problems should largely be solved by them' (15).

And in this century others have somewhat plaintively asked:

> 'What good does it do to treat people's illness and then send them back to the *conditions* that made them sick?'

This will inevitably call upon us to work with people, sectors and policies beyond the formal health system and our local communities. This commitment to collaborative and positive social change lies at the core of social accountability.

Why does the scale of our work matter?

Social accountability exists at a range of scales - from the individual practitioner through local partnerships to professional organisations, the schools where physicians are trained and continues up to the scale of global citizenship. At each level it is informed by the responsibilities that accrue to physicians by virtue of the social contract for the privileges granted.

At the local level it is reflected in the sometimes onerous call schedules and the collective responsibilities rural practitioners frequently show in gaining special skills (anaesthesia, surgery, obstetrical, etc.) that become necessary in their particular communities in order or preserve the services that are required. It is frequently exemplified by exhausted practitioners continuing to serve beyond reason simply because there is no one to hand off to.

Indeed, it is often such practitioners that are willing to invest their efforts in teaching the next generation of physicians - often with the hope (but without the guarantee!) that long-term support will be found through recruitment of those they teach. There is growing evidence that programmes grounded in such teaching *do* produce more graduates willing to serve in rural and underserved areas of practice. This is a high order example of social responsibility and, if it is achieved through working in conjunction with health authorities and educational institutions, is a clear and commendable expression of social accountability. It should not go unnoticed that the capacity of rural practitioners to fulfill these tasks is grounded in their daily practice of social responsiveness.

It is these lessons learned through being responsive, observant and useful that can be brought to the table in regional collaborations. Students can participate in learning these lessons in a way that is frequently denied by their experience in large urban institutions. The increasing presence of rural educational experience, often in interdisciplinary settings, is not only acquainting students with highly skilled clinicians. It also provides unique lessons in collaborative practice, communication skills, clinical decision making and professionalism. While the teaching resource is not inexhaustible, it represents a palpable example of social accountability and the cross-sectoral work that is embodied in social accountability. A case can be made that many aspects of the students growing professional identity can be best taught at the scale of the rural community and its more personal relationships. This growing identity can then be applied in the more impersonal milieu of urban society — to the enjoyment of the developing practitioner and the benefit of patients.

For the practitioner who stays in rural community practice these insights, readily grasped by the observant student during rural rotations, are constantly refined and applied across the range of practice and community issues; issues that can profoundly affect the health of patients and the health of the community as a whole. Whether these insights relate to environmental hazards, local economic development, the adverse effects of inequities, social discrimination or cultural development; they frequently provide a scaffold on which to influence relevant policy well beyond the village. Presentations and engaged social and political action can have remarkable influence at the municipal, provincial, national and even international levels. The work of Jenner and Pasteur arose from the villages of Britain and France respectively to develop the systems of mass immunisations that have had dramatic impact on the lives of millions — even to the virtual elimination of smallpox and the near eradication of polio.

How do we link the scales from the village to the globe?

Clearly Jenner and Pasteur did not set out with plans to conquer disease all over the world. Nor did they have the tools of modern communication and transportation that allow rapid dissemination of innovation — both for good and for ill. Indeed, the lad who received the first successful rabies vaccine travelled some distance by horse and wagon to see Pasteur, saved by the long, slow incubation period of the virus.

But most areas of the world now have remarkable connections for communication and even transport compared to previous generations of practitioners. Combined with the growing effectiveness of telemedicine, the professional and personal isolation once a feature of rural practice is somewhat less onerous. Such connectedness can be a mixed blessing if not supported by ongoing and mutually respectful human relationships, the kind of relationships that are often a feature of rural practitioners and patients.

The disparity of numbers of health practitioners of all types in rural areas of the world has proven to be an intractable problem. Some advances are being made through educational and policy interventions. Ultimately success is likely to be achieved by the use of a career cycle model that attracts practitioners, not necessarily for their whole career but for increasing portions of their and their family's lives.

Social accountability is being, and likely to continue being, a similar career/life cycle phenomenon. There is a strong axis of connection between students, young and late career professionals who do rural practice and international service. This may take place at different ages and stages of a given professional's career and may be reflective of a high order ethos of service in those who serve in these two areas. The rich connections so forged weave the tapestry of healing and social accountability from the village to the globe — and back again.

Conclusion

Social accountability is a central part of the social contract that health professionals have with the communities and societies within which they serve. In return for the privileges and enjoyment that comes with the practice of medicine, society reasonably expects that our skills, knowledge and acquired wisdom be dedicated to the good of others. The professional code of ethics (16) carries in its fundamental principles this expectation at two levels:

1. consider first the wellbeing of the patient;
2. consider the wellbeing of society in matters affecting health.

This obligation exists across a range of scales from interactions with individual patients and their families through societies at the level of the village to the interactions of the profession as a whole with global population. It calls upon our educational institutions to similarly dedicate their efforts in teaching, research and service to similarly devote their efforts (11).

At no scale is this principle more obvious, practical and enjoyable than at the level of the rural practitioner. Here, we can both see and influence some of the many factors, policies and institutions that contribute to both the health and the suffering of our patients. As dedicated healers, this can place us in a position to not only deal with the immediate problems of our patients but to learn from those many interactions and provide insight and influence over the social and political forces that determine health. The principles and practice of social accountability call upon us to use that influence to create a future marked by mutual caring and constructive change, one that builds health rather than compromising it — in social, environmental and economic terms. This becomes increasingly so as rural practitioners become progressively engaged in the education of future health practitioners.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.1.4

THE CHALLENGES OF HEALTH SYSTEMS IN DEVELOPING COUNTRIES

Victor Inem
University of Lagos, Nigeria

What is a health system?

The World Health Organisation(WHO) defines a health system as 'all the activities whose primary purpose is to promote, restore, or maintain health' (1) while the World Bank defines it more broadly to include factors interrelated to health, such as poverty, education, infrastructure and the broader social and political environment (2).

A country's health system is influenced by the national economic system. A good health system consists of five inter-related components.

the development of health resources;
organised arrangement of health resources;
delivery of health care;
economic support; and
management.

Simply put, a health system is a coherent whole consisting of many inter-related parts, both sectoral and inter-sectoral. It also includes the community itself, which together with the formal health system affects the health of the population.

The term 'health system' therefore encompasses the workforce, institutions, commodities, information, financing and governance strategies that support the delivery of prevention and treatment services. Its core functions consists of providing essential health services, generating human and physical resources, financing these services and resources, and collecting data to inform planning and policy development. Further, responsible leadership is necessary to guide and co-ordinate these interdependent functions towards the best possible outcomes
The main objectives of a health system are to respond to people's needs and expectations by providing services in a fair and equitable manner.

Health systems in developing countries

The current health systems in developing countries are founded on systems designed during the colonial rule to cater to the needs of colonial troops, civilian expatriates and a small native population of favored urban elites. About half a century ago, the responsibility for planning and providing health and medical services for entire populations, most of whom were rural and more than half of whom were living below the poverty line, fell upon the doctors. Having been trained in the colonial power system and being unable to understand the size and complexity of the health problems, weaknesses and strengths of their own country and with no training in planning, organisation and management, their reactions were to expand the existing medical services with slight modifications. As a result, developing countries were left with systems of medical care which were very much Western and urban-centred and which failed to meet even the basic needs of the vast majority of the population living in rural areas.

In considering the impact of the legacy of colonialism on health systems in developing countries, a significant historical and current role has been played by mission hospitals and other faith-based organiSations in providing health services specifically in rural areas. Almost half of the health services in some African countries are run by churches, in parallel to government systems in rural areas. Private sector services tend to be mostly offered in urban areas, although a number of private general practitioners are often found in rural areas as well. So there are three health systems in rural areas that need to be considered: public (government), non-profit (faith-based) and private.

It became quite obvious to those who had been working in the rural areas for some years during the African post-independence period that these systems were not meeting the health needs of the people.

Urban and rural developmental challenges

The consequences of prolonged lack of rural development are capable of devastating the economic and political life of any nation. The neglect of rural development as an essential national goal has led to the migration of youth from rural areas to urban centres. This trend has escalated the problem of unemployment, particularly among young graduates. Some unemployed women go into prostitution as a survival strategy, thus escalating the prevalence of sexually-

transmitted infections which, in the context of the HIV/AIDS pandemic in Africa in particular, constitutes a major threat.

In developing countries there are often gross service inadequacies in urban centres - of basic municipal services like potable water, electricity, refuse sewage systems as well as educational facilities and residential accommodation. Coupled with decreasing interest in agricultural work and the severe lack of access roads in the rural areas, food scarcity continues to worsen.

Effect of socio-economic conditions on the disease burden

Overcrowding of urban centres caused by lack of adequate housing contributes to the prevalence of communicable diseases. In addition unhealthy life styles (diet, lack of exercise, smoking and alcohol use) aggravates the prevalence of non- communicable diseases. The quadruple burden of disease - comprising non- communicable disease, communicable diseases, mental health and trauma - is becoming a modern-day plague in developing countries.

In addition to promoting disease, the lack of health facilities and other basic necessities of life discourages medical doctors and others health care providers from residing and working in the rural areas. This tends to perpetuate the urban-centric nature of the health service, with severe overcrowding and overburdening of the urban hospitals. These lead to a decrease in the quality of care and lives of the population, as well as an overall reduction in productivity in the country which, in turn leads to poor national economy - and the vicious cycle continues.

The overall health care problems have been further compounded by the following factors:

1. The inverted pyramid structure of health care delivery, in which about 65% to 80% of the people live in rural areas while only about 20% of existing health care is available to them. On the other hand, 20% of the people live in the cities and towns and receive 80% of the medical and health care.
2. The hour glass effect in which resources are made available to primary and tertiary health care systems with little or no emphasis on secondary care.
3. Most fully qualified doctors, nurses and other health staff will not live in rural areas; and, of those who do, many are not fully able to relate to the rural people.

4. Sixty to eighty percent of all deliveries are conducted by indigenous midwives, generally known as traditional birth attendants.
5. Various national health schemes are vertical programmes funded /run by international aid agencies addressing, for example, TB, HIV/AIDS, leprosy.
6. Some programmes have begun to be integrated - like the IMCI (integrated management of childhood illness) - but the impact on the population is doubtful.
7. Vital statistics recording etc., have been introduced from time to time. This is usually necessary in the early stages of providing improved health services but, in the maintenance stage of these programmes, considerable duplication of activities has occurred with many health programmes having their own sets of workers running alongside government services
8. Various NGOs were not relating to, or were running parallel to, government health programmes.
9. Private Public Partnerships are viewed with suspicion by both parties.

Recommendations to address the multiple challenges of health systems in developing countries

Achieving better rural health requires a large number of interrelated actions, ranging from the formulation of comprehensive health policies to the identification of disadvantaged groups whose health needs must be clearly specified.

Not all developing countries are the same. This diversity means that the countries themselves will have to decide their priorities for action depending on differences in the conditions affecting health, the quality and the quantity of public and personal health services, access to external / donor funding and so on.

A system of health care which would reach the majority of the rural population in spite of the barriers constituted by difficult terrain, geographical isolation and poverty, needed to be evolved.

The primary health care or primary care approach is recommended as the structural arrangement to plan, deliver, supervise, monitor and evaluate the impact of services delivered to the rural population.

Conclusion

Doctors need to be trained to recognise the social determinants of disease. The training of young doctors provided by medical schools does not always take the realities of developing countries into full consideration and what is taught is not always relevant to the socio-cultural, economic and health needs of the majority of people among whom doctors work.

Some steps to re-orient young doctors to 'serve the people' have been introduced in the form of rural internships, youth corps services , mobile hospitals, medical camps, etc., but have failed to generate a real interest and desire among them to go out to the rural areas.

Attracting and retaining doctors and health personnel generally in the rural areas of is a major challenge to the provision of health care to people in developing countries which, among other things, needs to be addressed.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.1.5

ATTAINING RURAL HEALTH EQUITY IN AFRICA

Ian Couper
University of the Witwatersrand, South Africa
Jannie Hugo
University of Pretoria, South Africa

Introduction

Equity is defined as the absence of systematic inequality across population groups (1). Systematic inequality – or inequity – is a stark reality in Africa, as it is in many developing countries. While inequity between rural and urban areas is a worldwide phenomenon, it is often more extreme in poorer countries and in most of Africa.

Inequity is a complex issue and addressing it requires some understanding of systems theory and the interconnectedness between economics, politics, health, agriculture etc. It cannot be done by medical practitioners alone, yet it is critical that doctors understand and can respond to the issue of inequity, and, more importantly, are able to be advocates on behalf of the poor.

This is even more important in rural communities where doctors are often amongst the few voices ready and able to speak up on behalf of these marginalised and less powerful people. Rural training needs to take this into account. It needs to be developed in partnership with local communities, where the local people are involved in a way that improves development and equity.

Primary health care is fundamental to any approach to addressing the issue of inequity in health care (2, 3). Thus any approach to medical training that does not ensure the production of sufficient numbers of well trained primary care doctors within an understanding of a philosophy of primary health care, will do very little to address the issue of equity.

Universities which play a role in addressing inequity in society do so by accepting responsibility and accountability for social and distributive justice. This challenges the university to engage with communities in a way that leads to increased justice and welfare. Inequity in health and health care is a key issue to be addressed in health science faculties. In December 2010 a Global Consensus for Social Accountability of Medical Schools was produced through an eight-month process - involving about 130 organisations and individuals from around the world with responsibility for health education, professional regulation and policy-making - culminating in a conference in East London, South Africa (4). This represented a serious attempt to address the issue of inequity in health care through medical education

Medical education's role in reducing rural inequity

The question here is how medical education can influence equity, particularly in a resource-scarce continent such as Africa, where there is huge inequity between urban and rural health care, as well as private and public health care. By shifting attention to more rural, public health care, academic institutions can help to ensure that resources are given to these, and legitimise them as places of work and practice. Too often medical schools perpetuate and reinforce the inequity that exists, instead of being transformative with a view to changing it. Contributing to a decrease in health inequity should be seen as an integral part of undergraduate medical education (5).

Medical education can contribute to promoting equity through social accountability. This implies that the processes of designing, implementing and following up educational programmes entails that they are not only of high quality but are also relevant to the needs of citizens and society as a whole and are effective in improving the provision of national health care (6).

Development of learning activities in rural areas has the potential to address inequities – and the establishment of rural learning campuses can be the starting point of a rural development initiatives. The cost of illness and disease can be devastating for the economic survival of families in rural Africa as, even when free services are available (and in most countries, they are not), the costs of accessing care can still be high. Improving the health of the rural communities enables them to

avoid these devastating costs and optimises the chances of being economically active. If rural learning activities and the establishment of rural learning campuses can contribute to improving health care and health outcomes, they can also contribute towards the potential for economic development – including increasing local human capital by recruiting rural young people to undertake health care studies.

Developing rural campuses brings resources into rural areas and can be the catalyst of many other local developments. Resources that come in are financial and material, but also include skills, knowledge and people. The development of rural campuses should be done in a way that promotes local economic development – and care should be taken to make maximum use of local people to be involved in the development and maintenance of the facilities. In addition, student and staff accommodation could be provided by local people who rent it to the university and the staff and students.

Recruiting young people from rural areas to study health sciences is a long-term development process that addresses inequity. The challenge of selection is such that in one community in South Africa, we were unable to find sufficient students who were eligible for entry into medical school, and who would be able to participate in our rural scholarship programme (the Wits Initiative for Rural Health Education - WIRHE). To address this required the development of a life skills programme in high schools, working with learners in their final year to help them set goals, to discuss their future aspirations and to understand opportunities for future study. This led to a dramatic increase in applications for the scholarship, resulting in identifying a handful of suitable students.

Rural medical education is almost always more expensive than standard urban-based medical education. It is not a cheap solution. Yet this extra expenditure and allocation of resources is critical for equity; equality of outcomes requires unequal and preferential expenditure of resources. At the same time, there are innovative models that entail placing students in rural areas where the communities themselves become hosts for the students, and cater for their accommodation and nutritional needs because they see the value of the programmes, making it a cheaper option. (The question in terms of equity is why they should have to do that when urban communities do not!)

In Africa mid-level medical workers, or associate clinicians, play a crucial role in medical care in rural areas. In most countries these clinicians are trained in non-university settings. However, in South Africa a programme was developed where associate clinicians are trained in a three-year Bachelors programme in university health science faculties, based on similar programmes in the USA. Students are recruited mainly from poor rural communities and a large proportion of the training takes place in rural areas, preparing graduates for the context in which they are expected to work. Through the development of high quality medical training for associate clinicians, medical schools can contribute to reducing inequities in rural health care.

Addressing inequity is an underlying value in rural education and needs to be considered in all aspects of this work, especially in areas where inequities are significant. To achieve equity, additional resources including resources for medical education, must be allocated to those with sub-standard health status (7), such as in rural Africa.

What's the evidence?

There is clear evidence of the ills of inequity and the beneficial impact of primary care in terms of reducing inequity (2, 8, 9).

While direct evidence for the role of medical education is not clear, there is evidence for the effect of selection and training of students on where they practice (10).

An illustrative anecdote

When the University of Pretoria developed training sites in the rural areas of Mpumalanga in South Africa, full-time university-appointed family physicians moved into rural districts and provide training in these rural areas for final year medical students, residents in postgraduate family medicine, clinical associates (mid-level medical workers) and nurse clinician students.

In addition improvement projects in maternal and child health and the management of chronic illness create integrated activities in these districts – and university staff and students initiate interventions that lead to better outcomes. Ongoing interventions and evaluation of these projects are undertaken to improve health and health care and decrease inequities.

(A similar model is being used by the University of the Witwatersrand in North West Province in South Africa.)

Broader applicability

In order to achieve a sustained and significant reduction of inequity, similar activities are necessary in other sectors of society including other collaborative or parallel tertiary educational interventions. The concept of a rural campus needs to be extended to include multiple programmes and faculties.

Practice pearls

The challenge of a resource-constrained environment requires innovation and creative ideas.
Medical education can be a vehicle to drive change in the health service and to improve equity.
A commitment to equity requires a complete re-orientation of the mindset of a faculty[1], towards social accountability.
Standards for measuring social accountability are now available.

What not to do

Potential pitfalls to avoid include:
assuming that rural medical education is cheaper or requires fewer resources!
expecting immediate impact; be there for the long haul.

1 Here, 'faculty' is an organisational unit within a university comprising a cognate collection of departments– e.g. a Health Sciences Faculty.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.1.6

ATTAINING RURAL HEALTH EQUITY IN ASIA

Fortunato Cristobal
Ateneo de Zamboanga University, Philippines
Ian Couper
University of the Witwatersrand, South Africa

Introduction

In the Philippines, health is mostly available to only a privileged few. Health inequality has become a glaring reality, making it an accepted norm in life across social groupings. While there are many contributors to the complexity of health disparities, research has identified a wide range of social and environmental determinants linked to health inequalities. This includes how we train our health gate keepers, who are the health professionals responsible for patients' interface with, and entry into, the health care system.

The training of our health workers, particularly doctors, is based on a curriculum adapted from Western models, which focuses predominantly on individual health care, is hospital based, and is dependent on specialists and technology. This means that our graduates are not well-equipped for the realities of our society, and are easily poached by richer countries.

Those who remain to serve locally have inappropriate competencies, in a context where the underlying causes of ill health and disparity are mostly socially and environmentally determined and controlled. The failure to train them with the appropriate competencies to meet the current realities produces a helplessness in doctors. While this has become the complacent surface norm, it need not necessarily be so. A small medical school in the southern Philippines, the Ateneo de Zamboanga University School of Medicine (ADZU-SOM), decided to go against the prevailing power structures and to train appropriate doctors – and in so doing have succeeded in reversing the trends in health indicators for the region.

While about 60% of graduates from the 38 Philippine medical schools practice outside of the country, citing that the country cannot match the salaries and service conditions offered in wealthier countries the ADZU SOM was founded on the belief that if doctors are trained appropriately, with an understanding of health as both a medical and a social phenomenon, and equipped with the skills to work in and alongside local communities, this loss of doctors can be turned around.

What's the evidence?

Between 1998 and 2009, of the 220 graduates from ADZU-SOM, 210 took the national board exams and 200 had passed by 2009.

Compared to the 60% loss of medical graduates across the country, 90% of ADZU SOM graduates are still serving the southern Mindanao region, and 95% remain in the Philippines. Of these, 75% are in government service and 50% are working in formerly doctorless rural areas. The 4% who went abroad served for six to eight years before leaving the country.

Since the first graduates entered into practice in 1998, there has been a dramatic improvement in infant mortality – much greater than in other areas in the Philippines (see Table 1).

Table 1: Infant Mortality Rate
(deaths per 1000 live births)

Area	1995	2003	2008
South Western Mindanao Region	55.6	14.6	8.2
National Capital Region	46.9	26.8	24.0

Discussion

The Zamboanga Peninsula is the south-western tip of the southernmost island in the Philippines archipelago, Mindanao. It is a predominately rural region with 3.8 million inhabitants, and Zamboanga City is the centre for regional health services.

In 1994, 80% of the 100 municipalities in the region (mostly rural) lacked a doctor. The region had one of the highest birth rates and infant mortality rates in the country and had a high incidence of malnutrition and infectious diseases - including neonatal tetanus, measles, malaria, typhoid, schistosomiasis, cholera, tuberculosis, rabies, leprosy, malaria, and dengue fever. Few physicians were willing to move to this underdeveloped area because of civil unrest arising from continual armed conflict between 'rebel' groups (Muslim secessionist groups) and government forces, this further contributing to poor health in the population. There was limited access to potable water and proper sanitary facilities, limited health facilities, few health workers, difficulty accessing medicines and medical supplies, and significant logistic challenges in organising healthcare delivery.

In the early 1990s a group of rural doctors in Zamboanga, frustrated by the continuing lack of doctors in their region and the resultant poor health outcomes of people living in their communities, decided that one way to address this situation was to start their own medical school. In 1993, seven concerned physicians, five community civic leaders and three educators convened and established the Zamboanga Medical School Foundation (ZMSF) with an initial working capital of US$500 (1).

Local clinicians from the region who were undertaking postgraduate specialist training overseas deliberately sought out and engaged with people with medical education expertise. In addition, the University of Calgary provided access to its Problem-Based Learning (PBL) curriculum, and continued to support the initiative through faculty exchanges for the first four years.

The School was developed and has been sustained over 15 years by a spirit of volunteerism, which has been fundamental to the social capital that has been so critical to its success. The Ateneo de Zamboanga University (ADZU) contributed rooms at its campus without fee. Doctors from the region developed and taught the curriculum without any salary except for a gratis fee of US$20 per month. The School has only three direct employees (secretary, librarian, research assistant), and the academic faculty consists of local health service employees and private

practitioners. The Dean is employed by the health service. Local civic leaders raised funds and sought assistance from international philanthropic agencies to keep student fees at an affordable level.

The key starting point in the process of attaining equity through training is to understand and define the mission of the school. ADZU SOM was established very specifically to address the problems of its region. Its curriculum was developed around the needs of the region at the same time as ensuring that national standards were addressed.

The curriculum incorporates small group PBL and community-based learning from the first year. Problem-based learning cases are based on regional and national priority health problems. After first tackling the problem in a PBL case, students then visit government hospitals where a real patient with similar problems is seen. Here they learn the bedside competencies of physical examination and communication skills.

Problem-based learning and case-based learning occurs for four months per semester for the first two and a half years. The fifth month of each semester is spent living with people in a variety of small communities where the students' knowledge of individual health care is expanded into population health care. In the second semester of the third year students commence continuous clinical attachments in hospitals, including 24-hour duty every third day.

For the entire fourth year, the students live in the community, implementing the full community programme they started developing in their first year. This community programme includes community development focused on health issues and direct health care provision supervised by the local community leaders/health volunteers, locally-based community doctors, university faculty, and alumni graduates working in the area. In the final year, students return to regional hospitals to integrate their clinical practice, after learning basic medical and public health skills in small communities throughout the region.

Both curriculum and assessment are driven by a competency outcome approach, rather than by reference to a traditional input-oriented model.

Community immersion enables student to integrate the ongoing development of their skills in providing medical services, their involvement in health management through community development projects and their growing understanding of health research. More significantly, bonding occurs between students and communities so that they begin to identify with the problems of the villages. The concept is that the students are the catalysts that facilitate the communities, using collaborative intersectoral approaches, to establish their health problems (diagnosis), strategise around ways of tackling their problems and mobilise local resources to provide the solutions to their own health problems. In this way, the community becomes empowered so that it can stand on its own when the students disengage.

Student-initiated research and development projects in the communities have had significant impact. This has included building pit latrines in the 80% of the region without this basic amenity, improving access to potable water, increased immunisation rates, determining risk factors for TB DOTS (directly observed therapy – short course) default, developing cottage industry income generation, and the creation of home vegetable gardens. Community interaction with the medical school has resulted in improved health knowledge and behaviours among local health workers, mothers, traditional healers and primary caregivers, leading to a better referral system from the remote areas (1).

An illustrative anecdote: A student's perspective

Insight into my Transformative Journey in Medicine – by Dr John Michael Dellariarte (a recent medical graduate of ADZU School of Medicine)

> 'Our civilisation has seen great men and women whose works have changed the way we live. We have never been so capable of solving the problems that plague humanity than now because of the sacrifices of these men and women. But why do these problems still continue to prevail? Amidst the advancements in medical knowledge and technology, we seem to find it difficult to discover the missing link. When we first came to our community, we were armed with Physiology, Medicine, Surgery, etc., thinking that these would be enough to help make a community healthier. But much of the realities of the community are not written in these textbooks.

To reach our community, we had to utilise a motorised boat to cross a lake. When the people of the community saw us coming from afar, they ran to their homes and hid; we could see them run through the green rice fields and into their homes which were made of bamboo, palm leaves, and other light materials. How could we help them if we could not even interact with them? The health workers told us about how timid the Subanens were as a people. During our immersion in the community we found out that the Subanen children have to walk several kilometres along the lake's borders, through muddy and thickly forested paths, to get to their school. When it is raining, they put their uniforms in plastic bags and put them on when they get to school to prevent them from getting dirty from the mud.

On that day we made a covenant to champion our children who face such extraordinary impediments in the pursuit of their education, since we believe that education is pivotal and formative to a child's attitude, which will eventually determine the decisions he makes in the future as an adult, among which are decisions that he will make in terms of their health. We asked the teachers of these children how they were doing in school. The teachers said they were doing well. They said the children would usually be able to sleep in class, because they get tired walking on their way there. With the help of donors and indigent banka-makers [boat-makers], we set out to build 44 yellow boats to ferry children to school. These bankas [boats] can seat six to seven children at a time. After this, they have more energy to get them through class. The Yellow Boats bridged a gap, by connecting the people to opportunities for development: school, health centre, the wider community.

One day, we went back to the Subanen community, and this time, they were all on the lake shore to greet us when we arrived. The evolution of a very timid people to a people who are virtually partners in every health project is an extremely powerful and life-changing experience, most of all to us medical students. To have been part of a people's discovery of their potential is a distinct privilege. We set out with the intention to make a positive change in the community, but it was us who were changed. We learned that as health care workers, it is also our role to develop the collaborative capacity of the people in a community so that they may someday be able to negotiate their needs to relevant social entities on their own in the future.'

Broader applicability and implementation

The ADZU School of Medicine has become part of the Training for Health Equity network (THE net), which is demonstrating the application of social accountability principles around the world. The same principles can, with adaptation, be applied to any context.

Practice pearls

Key issues

The mission of the ADZU SOM is specifically to provide solutions to the changing health problems of the South Western Mindanao region.
The curriculum combines an understanding of the biomedical model (disease-oriented, individual health care focus) with a social model (health-oriented, population health focused).
A combined five-year MD MPH programme is run, which aims to develop both health care skills and a health development perspective.
Students spend progressively more time in rural communities, until the whole of the fourth year is at community-level; the philosophy is of 'communities forming students and students transforming communities'.
Problem-based learning, community-oriented education and competency-based evaluation are interwoven.
The 12 priority health problems of the country, together with the most common health problems of the region, became the core curriculum.
Graduates are expected to have competencies as self-directed learners, physician clinicians, health researchers, physician teachers and physician managers.

Lessons learned

It is not resources that are the biggest limitation; if there are transformative ideas and people who are willing to try them out, the resources will be found.
Training in a socially accountable way can transform the health care of a region.
For doctors to be re-designed, the teachers need to be re-designed.
So-called global standards may often be inappropriate.
There is a need to be oneself as a school – independent, self-critical and self-respecting – in order to address the health priorities of one's own communities.

What to do

Focus on the values that are being transmitted to students.
Find your allies and work with them.
Allow students to develop a relationship with one community over time.
Expose students initially to communities for a short period, and then let them return to the school to reflect. Do this repeatedly until they are comfortable.
Place students in sites which make it difficult for them to leave on weekends.

What not to do

Don't try to adapt a traditional curriculum. Radical transformation is required.
Don't wait for permission. Lead the way.
Don't waste time arguing for the value of what you are doing – actions and results speak louder than words.

Conclusion

A small medical school has shown that it can reverse the trends in doctor movement and in health indicators by adopting a socially accountable approach to medical education, as a step towards attaining equity in health outcomes.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.2.1

THE SOCIO-ECONOMIC BENEFITS OF RURAL MEDICAL EDUCATION

Roger Strasser[1]
Northern Ontario School of Medicine, Canada

Introduction

While other chapters in this guidebook highlight the proven success of Rural Medical Education (RME) in producing rural practitioners, there is nonetheless the perception that RME is expensive and that the additional costs may not be justified. This perception is based on the usual urban model of medical education involving large classes at universities and in academic health centres/teaching hospitals, with associated comparatively lower per learner costs.

By way of contrast, RME generally involves small groups of learners at multiple sites in regional, rural and remote communities. Consequently, this model is associated with additional costs for transport, communications, educational infrastructure and housing, and learner and faculty support.

In this context, it is important to consider the complete picture — including from the perspective of communities — in order to assess the return on investment or value for money of expenditures related to implementing rural medical education. This chapter explores the wider socio-economic benefits of rural medical education.

Evidence

In the USA and Canada, there have been many studies which assess the economic impact of medical schools and academic health centres but relatively few studies focusing on medical education in regional and rural settings.[1] The most common study design is the Input-Output model. This determines the economic impact of an initial investment in the economy of a predefined area by tracking how the investments recirculate within that area, depending on the interdependencies of the region's industries, and uses regional- and industry-specific multipliers. The Economic Base Theory model requires considerable longitudinal data and uses a population-sensitive equation to yield community specific multipliers.[2]

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1 Prof Roger Strasser is Professor of Rural Health and Founding Dean Emeritus at the Northern Ontario School of Medicine.

Almost all published studies on the economic impact of medical schools and academic health centres utilise variations of the Input-Output model, many undertaken by the American consulting firm Tripp Umbach.[2] There is often a strong emphasis on research funding and related employment, usually in the larger urban centres. For example, Tripp Umbach calculated the direct effect of Canadian medical schools by including operating expenditures and spending by students and visitors. Their analysis concluded that in the 2012-13 fiscal year (FY), Canadian faculties of medicine and teaching hospitals had a total economic impact of $66.1 billion and supported 295,000 jobs.[3]

There is a common assumption that education and services in rural areas are second class or of a lesser standard. It is also often assumed that these small-scale operations are inherently less efficient. Generally, these assumptions are accepted without any investigation as to whether the evidence supports them. One exception is analysis by the Australian Independent Hospital Pricing Authority (IHPA) that explored the cost effectiveness of small rural hospitals. This has shown that some services in small rural hospitals cost less, particularly where the service providers are rural generalists and there are more than 1,000 average complexity patients served in the year.[4]

Northern Ontario School of Medicine

The Northern Ontario School of Medicine (NOSM) opened in 2005 and is the first school in Canada to be established with an explicit social accountability mandate focused on improving the health of the people of Northern Ontario, a vast region with many underserved remote rural communities. NOSM was created with the support of northern communities, health care organisations and two universities — Laurentian in Sudbury and Lakehead in Thunder Bay — with the expectation that NOSM would bring benefits to these stakeholders, as well as to Northern Ontario as a whole. NOSM's model of distributed community engaged learning has led to the active involvement of more than 90 communities across Northern Ontario in NOSM's educational and research activities.[5-7]

Economic impact

In this context, NOSM collaborates with the Centre for Rural and Northern Health Research (CRaNHR) at Laurentian and Lakehead Universities to undertake a series of tracking and impact studies,[8] including studies of the economic impact of NOSM for FY 2007-08 and 2014-15.[1,9,10] In FY 2007-08, NOSM had been operating for three years, with its charter class being one year away from graduation.

Since then, NOSM has produced ten cohorts of medical graduates and has assumed responsibility for postgraduate training in family medicine and eight other general specialties. NOSM also administers education programmes in Northern Ontario for dietitians, rehabilitation therapists, physician assistants, pharmacists and medical physicists, as well as continuing education professional development and graduate studies. In addition, NOSM promotes health careers to young people in Northern Ontario, particularly through high school health sciences summer camps, and has an active research programme throughout the region.[7]

Using the Economic Base Theory model, the CRaNHR studies included expenditures on research, as well as medical and health professions education programmes and salary payments to postgraduate trainees/residents. An established formula was used to estimate a low and a high economic impact, and to estimate the impact on full-time employment.[1,9,10]

In FY 2014-15, a total of $57.6 million was spent in NOSM's service region, consisting of $46.4m spent on NOSM's education and research programmes, as well as support for clinical teachers, and $11.2m was spent by the learners. More than three quarters (77%) of spending occurred in Northern Ontario's two largest population centres (Sudbury and Thunder Bay). All of this spending translated into an economic impact in NOSM's service region of $122m to $134m in FY 2016-17. For Sudbury and Thunder Bay, this impact ranged from $39m to $48m. The smaller Northern Ontario communities also saw an impact ranging from $0.7m to $5.4m.

NOSM's employment of around 362 full-time equivalent (FTE) positions translated into an estimated total of 729 to 802 FTEs in the region.[10] Further analysis in the 2009 study showed that the economic benefits flowed to the small communities as well as the larger population centres at a rate that is roughly proportional to the number of learners in the community.[1] Overall, expenditures in FY 2016-17, combining government funding and learner spending, translated into a substantial positive economic impact to the region of 2.2 to 2.5 times the original investment by the Ontario government.[10]

These findings are likely to underestimate the full economic impact because of the study design and also because it has excluded visitor spending, construction costs, changes in recruitment incentives paid by the community to attract physicians, local economic activity of health practitioners who relocated to the area because of NOSM, and spending by research graduate students.[10]

Social impact

The 2009 study also explored the social impact of NOSM through individual and focus group interviews. Several of the 59 interviewees remarked that the dollar amount could be small to moderate but had broader economic implications.

In terms of social impact, interviewees reported that NOSM is a source of civic pride and an affirmation of the North's potential as the region enlarges its knowledge-based economy. According to interviewees, NOSM has enriched the reputation of the universities and affiliated health care institutions, thereby enhancing the ability to recruit new doctors, researchers and scientists to the North. Interviewees anticipated that NOSM graduates will ultimately relieve the chronic physician shortage in Northern Ontario. Interviewees also remarked that Francophone and Indigenous students enrolled at NOSM and the School's commitment to cultural competency training should help alleviate the shortage of doctors serving these population groups.[9,11]

The most impressive social impact finding was a sense of community empowerment summed up in the phrase "if we can do a successful medical school in Northern Ontario, we can do anything". The establishment of NOSM and its distributed programmes offered opportunities for change and challenges to the status quo. Following the success of NOSM, Laurentian University has established an Architecture School in 2013 and Lakehead University opened a Law School in the same year.[6]

Health care professionals

More recently, a study in 2015 assessed the impact of NOSM on recruitment and retention of doctors in underserved communities in Northern Ontario with populations up to 11,000 people. The main research question was: 'What are the changes (if any) in recruitment and retention expenditures and practices in Northern Ontario underserved communities that have recruited NOSM graduates?'

Ten key informants were interviewed from eight communities that were successful in recruiting family doctors who were NOSM graduates. All key informants agreed that NOSM plays a prominent role in the doctor recruitment to underserved communities in Northern Ontario. Five out of eight Northern Ontario communities that previously struggled with chronic doctor shortages have moved to a more stable situation with a full, or almost full, complement of family physicians (FPs) over the past five years. In these five communities, the shortage of FPs has decreased from 30 vacant FTE positions to only one FTE vacancy. There is much less dependency on doctors hired on short-term contracts (such as locum tenens).

"Decreasing desperation" in recruiting doctors has led to a reduction in the amount of financial incentives offered. For example, one community reduced their spending from $200,000 to $50,000 for a four-year return of service agreement. All communities reduced their spending on travel and attendance at career/job fairs in the south of Ontario.[12]

An holistic view

The findings in these studies show that when considering the cost of medical education, it is important to look at the whole picture and not just the level of government expenditure per learner. For Northern Ontario, the high level of Ontario government contribution to NOSM is justified by the substantial return on investment for participating communities.

Broader applicability

The NOSM impact studies demonstrate the importance of considering the complete picture in order to assess the return on investment or value for money of expenditures on rural medical education.

This perspective is consistent with the findings of a 2015 World Bank study entitled *The Economics of Health Professional Education and Careers: Insights from a Literature Review* which commented:

> *'The marked differences in return to medical specialization relative to medical generalism and primary care and to serving the rural, remote, and disadvantaged relative to the urban elite for all health professionals exemplify the conflict between health labor market forces and stated policy intentions. ...*
>
> *It may be easier to improve returns to the choice to train for socially valued roles by allocating training subsidies accordingly. Community-based and*
> *-focused training schools have demonstrated their greater capacity to produce health professionals for socially valued roles in a diverse range of settings. This understanding should also influence the distribution of public subsidy to a greater extent than is usually the case."*[13]

In 2016, the World Health Assembly adopted the *Global Strategy on Human Resources for Health: Workforce 2030,* which highlighted the World Bank estimated shortfall of 18 million health workers if the *Sustainable Development Goal 3* (Good Health and Well-Being) is to be achieved by 2030.[14] Later in 2016, the United Nations High-Level Commission on Health Employment and Economic Growth report entitled *Working for Health and Growth: Investing in the Health Workforce* recommended a paradigm shift from viewing health expenditure as sunk cost to human capital investment. One of the commissioners and Nobel laureate economist, Prof Joseph E Stiglitz stated

> *'The Commission concludes that, to the extent that resources are wisely spent and the right policies are put in place, investment in education and job creation in the health and social sectors will make a critical positive contribution to inclusive economic growth.'*

The Commission recommended five immediate actions including to accelerate investment in transformative education, skills and job creation.[15]

This recommendation reflects the view not only that health expenditure contributes to economic growth, but also that investments should be focused on producing a health workforce that has the skills and commitment to provide care where it is needed, responding to population health needs. This approach is consistent with social accountability which the World Health Organization (WHO) defines for medical schools as 'the obligation to direct education, research and service activities towards addressing the priority health concerns of the community, region and/or nation they have a mandate to serve'.[16] Over the last decade, the Training for Health Equity network (THEnet), a global network of socially accountable health professions education institutions, of which NOSM is a founding member, has explored many dimensions of socially accountable health workforce education, including socio-economic impact. THEnet concludes that:

> *'Health workforce education that is socially accountable, aligned to meet the needs of the societies served and uses a collaborative approach to define and meet those needs, promises to be a key mechanism to maximize the impact of educational investments.'*[17]

Social Return on Investment

Taking this further, there is growing interest in the concept of Social Return on Investment (SROI) which is a framework for measuring and accounting for a much broader concept of value than economic value. It seeks to reduce inequality and environmental degradation and improve wellbeing by incorporating social, environmental and economic costs and benefits.

SROI measures change in ways that are relevant to the people or organisations that experience or contribute to it. It tells the story of how change is being created by measuring social, environmental and economic outcomes and uses monetary values to represent them. This enables a ratio of benefits to costs to be calculated. Money is simply a common unit and, as such, is a useful and widely accepted way of conveying value.[18]

What to do

A key to success in demonstrating the socio-economic benefits of rural medical education is to **start recording data and measuring specific indicators,** quantitative and qualitative, from the very beginning. This includes tracking students, beginning with the admissions process, and following them through undergraduate medical education to postgraduate education and rural practice, as well as recording expenditures. In developing and implementing this research, it is important also to be guided by community perspectives.

It is also essential to undertake the first study of the economic impact early so that pre-existing medical education can be documented as a **baseline** and the new rural medical education expenditures can be identified and monitored. When considering economic impact, it is important to look at the **whole picture of expenditure**, including economic benefits to the communities and cost savings resulting from improved local access to care.

In addition to economic impact, it is useful to **study other impacts** including social impact, employment impact, quality and quantity of workforce supply, the learners/graduates' experiences — and, ultimately, health outcomes. Always keep the **overall focus on population health needs** as the ultimate indicator of successful rural medical education.

What not to do

There will be many doubters and detractors as you develop and implement rural medical education. In most cases, their views will be based on assumptions and convictions which are not supported by evidence, although they may be presenting 'conventional wisdom'. It is important to listen to and respect the views of all critics without allowing them to distract you from your ultimate goals.

Avoid the trap of **adopting benchmarks and indicators used by established metropolitan medical schools**. It is important to describe success in your own context. Develop target indicators which measure your success quantitatively and qualitatively. Always maintain your **commitment to quality and standards**, so as to counter the assumption that anything rural is substandard or second-class.

Conclusion

This chapter has provided an introduction to the socio-economic benefits of rural medical education, with an emphasis on demonstrating overall return on investment, or value for money by considering the complete picture, including the communities' perspectives. This is particularly important to counter the common perception that the additional costs of rural medical education are not justified. Northern Ontario School of Medicine provides one example of a rural medical school which has demonstrated substantial socio-economic benefits to Northern Ontario, as well as measuring other impacts on the region.

The developing concept of Social Return on Investment presents an opportunity for a more contextualised approach which is consistent with social accountability and the global recommendations of the United Nations and World Health Organization.

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World Organisation of Family Doctors (Wonca)
12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 1.2.2

RESOURCING RURAL HEALTH – HOW TO START RURAL TRAINING WHERE NONE EXISTS

Ian Couper[1]
Marietjie de Villiers[2]
Stellenbosch University, South Africa

Introduction

So, you have been given the go-ahead by your Dean to start a rural training programme in your faculty or school – but where, when, and how do you start? The aim of this chapter is to provide practical guidance on how to approach setting up a new rural medical training programme or a new rural clinical school for the first time, with limited resources.

Actually, it very seldom starts this way. If you have already received the go-ahead from faculty or school management, you have probably been engaged in the process for quite some time already. Developing a rural training programme requires lots of groundwork, developing relationships amongst role players being the most critical component. You need to have the passion and the ideas which you can reinforce and develop, supported by the extensive literature that now exists on rural medical training. The motivation for rural training, for instance, can be categorised into workforce benefits, educational advantages and health service impact[1] – but you need to bring other people on board in order for this to go anywhere.

Bringing people on board

Charles Boelen introduced the notion of the Partnership Pentagon (or Pentagram), referring to the key role players with whom we need to engage for any project aiming to meet people's health service needs to be successful. These are policy makers, health managers, health professionals, academic institutions and communities.[2] This Partnership Pentagram also needs to be engaged in developing rural training.

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1 Prof Ian Couper is the Director of Ukwanda Centre for Rural Health and Professor of Rural Health in the Department of Global Health at Stellenbosch University, South Africa. He is also a visiting professor in the Centre for Rural Health, University of the Witwatersrand.

2 Prof Marietjie de Villiers is Professor in Family Medicine at Stellenbosch University, South Africa, and Principal Investigator of Stellenbosch University Collaborative Capacity Enhancement through Engagement with Districts (SUCCEED).

Stellenbosch University Collaborative Capacity Enhancement through Engagement with Districts (SUCCEED) performed a scoping review on decentralised medical training that led to the development of a framework for effective distributed training in the health professions. The scoping review and the framework foreground relationships as being at the centre of effective rural training,[1] the goal being to create a win-win situation that enables everyone to buy into the plan. Describing the role players in the development of the parallel rural community curriculum, Paul Worley and colleagues refer to the need for symbiosis which encapsulates this notion of everybody buying in because they all get something out of it.[3] This is the critical work to be done in starting rural training.

Thus one needs to be talking to the health service managers, ensuring that they can see what rural training can offer them, as well as persuading urban-based academics in the faculty or school regarding the positive difference rural training can make. Rural health professionals who will be supporters and supervisors of students, and thus a vital resource, need to come on board early and can be fellow champions.

The local community is also a very important resource in terms of making students feel welcome, identifying accommodation, providing psycho-social support, etc. Students can play a very important role as advocates for the community and, while funding may be required for them to undergo rural training, they also substantially contribute to the health service, and often to the local community itself.

Policy makers and bureaucrats in the academic institution and amongst the health service partners also need to see what the programme can offer to them – but if you have all the others on board, the momentum may become unstoppable.

Funding

Establishing rural training can be expensive but creative ways can be considered to address resource issues. In many instances, there are ways of doing things that can help to save money and, if there are good partnerships with goodwill, many possibilities exist. Good examples of this are health services allocating to clinicians part of their work time for supervision of students, because they know that students add benefits to health care; they can also provide learning spaces for students within the health facility that can be renovated at a small cost by the academic programme.

Community-based accommodation, or the handing over of hospital-based accommodation that is no longer used, have also occurred. Using interactive communications technology to provide support to students and preceptors is obviously essential in this regard, and this does not require sophisticated infrastructure; indeed, we find that in low-bandwidth environments simple Skype or WhatsApp video calls often work better than any expensive platform – and can be just as effective.

It is important not to set up a programme based on substantial external grants, unless these are used solely for initial infrastructure development, as sustainability can become a major issue. Rather than starting big and having to pull back, it is better to do less and depend largely on goodwill – and then grow the programme over time, and slowly develop resources. Adding sweeteners to persuade staff members at any level to take this on creates an unfortunate precedent that should be avoided.

Evidence and experience

This chapter presents the collective experience of the authors in South Africa in planning and setting up rural training sites, based on three main sources.

Firstly, in 2011 Stellenbosch University (SU) established the first Rural Clinical School (RCS) in Southern Africa.[4] Secondly, the Centre for Rural Health at the University of the Witwatersrand was involved in setting up rural training for final year medical students in resource-poor settings.[5] Thirdly, we conducted a scoping review of distributed learning[1] which assisted with a process to develop a framework for effective distributed training; this, in turn, led to the publication of twelve tips for distributed health professions training.[6]

In addition, the authors have been involved in working with and/or evaluating other programmes across Africa and beyond.

Illustrative examples

The SU RCS was established in the town of Worcester in the Western Cape province of South Africa as part of the university's Ukwanda Centre for Rural Health (CRH). It was established for long-term placement of final year medical students comprising both a regional hospital rotational model and a district hospital-based longitudinal integrated clerkship model. Ukwanda CRH was fortunate because the university used various grants to build a campus in Worcester mainly for the use of the RCS.[4] Compared to anything equivalent in more developed countries, however, the RCS runs on minimal staff, relying on their passion and dedication.

Many of the things that have been learned through this process are currently being used in the development of what is potentially a new RCS in the much underserved area of Upington in the Northern Cape province, where a newly built regional hospital is struggling with human resources (the recruitment and retention of health professionals). An academic partnership has thus been enthusiastically welcomed by hospital management, health professionals and local community members, providing an excellent basis on which to build an RCS, starting in the hospital without any additional infrastructure. A commitment from Ukwanda CRH to provide ongoing, regular on-site and distance support is matched by a commitment from hospital management to designate staff time towards the project and to commit clinicians to supervising students during placements.

Another critical element has been to start with a variety of health professions programmes together – that is, not just with medicine but also occupational therapy and physiotherapy (amongst others). This makes it a truly collaborative venture which bodes well for economies of scale becoming possible.

The Centre for Rural Health at the University of the Witwatersrand set up rural training for medical students in the North West province of South Africa, with minimal resources.[5] Often in the turmoil of this significantly under-resourced setting, characterised by inadequate infrastructure and administration, it was easier to ask for forgiveness than permission!

Many district hospital sites were so appreciative of the contribution that students made to health services – in terms of patient care, quality improvement activities and staff morale – that they were willing to provide free accommodation for the students and, in some cases, even providing meals for them. Most importantly, they allowed nurse practitioners and medical officers to be involved in supervising students as part of their duties. Critical in this was not being presumptuous or abusing the relationship, but instead always making sure that the local management team was aware of students and the role they were playing, providing and receiving feedback, tailoring student tasks to support the work of the health service, and not burdening local staff with unnecessary administrative or assessment work.

Part of the ongoing relationship is being sensitive to the needs of sites. Examples include giving a site a break from students when local factors determine this (such as someone being on leave); and making sure that students are constantly placed in sites which prefer this to ensure the accommodation gets used only for its intended purpose and not for something else.

Broader applicability

Resourcing issues will differ widely across different contexts and countries. In some situations, initiatives will be supported by government funding (from the education or health sectors, for example), or there will be long-term grant funding – while in many places there are no additional resources available. Here rural training can only be introduced through the support of partners and by reprioritising and re-allocating funding, which is never popular. Internal subsidisation within systems to allow for such training is often needed, which requires courage and commitment.

We have experience of both well-resourced and poorly-resourced environments, and believe that the fundamental principles outlined are nonetheless the same. Without good relationships and without a common vision amongst the partners, the presence or absence of resources will not be a factor that prevents successful development of rural training. Successful rural training depends more on resourcefulness than resources – ideas, creativity and enthusiasm should underpin the development of training regardless of what resources are available. There are multiple factors that enable rural training to happen – as outlined, for example, in Page and Birden's article on what makes rural medical placements successful.[7]

Practice pearls

In SUCCEED we have developed a short list of Simple Rules that encompass these factors, following the Simple Rules concept developed by Eoyang and Holladay.[8] While developed more generally for distributed training, we believe these rules are equally useful for establishing and continuing effective teaching and learning in rural environments, as they facilitate planning not only for compliance, but also for coherence. They are listed under the next section on 'What to do'.

What to do

1. **Build and maintain relationships:** Many players are involved in rural training and all of them are important to the success of the programme. It is good to invest in relationships early and continuously.
2. **Move towards a shared vision:** All partners should understand and commit to working towards a shared vision for rural training across multiple levels and perspectives.
3. **Fulfil roles and responsibilities:** Each role player has specific responsibilities, and effective rural training requires them to agree to, and fulfil, their commitments to such.
4. **Balance needs and provide support:** Throughout the rural training process all role players should contribute to addressing the needs of others, and at the same time should receive support in terms of their own needs.
5. **Engage with learning:** Students' learning should be the primary focus for all facets of the rural training programme, with constant reflection on how to improve learning.
6. **Evaluate and provide feedback:** Feedback from, and back to, all role players ensures programme quality and continuous improvement.

What not to do

- Don't change your focus away from innovation to searching for funding.
- Don't promise lots of resources to make rural training happen, or set up a model based on external time-limited grant funding, or provide extra payments to role players in order to get things started.
- Don't expect everyone to be happy all of the time, but also don't ignore criticisms and complaints that arise, as well as unspoken expectations from role players.
- Don't expect to be thanked for the work you are doing – when it happens, celebrate!
- Don't think that you will not make mistakes as you set up your rural training programme; be ready to acknowledge them when they occur and to learn from them.
- Don't rely on volunteerism; while this will work in the short-term, everyone needs to be getting something out of the project in the longer term, although this could be very different from financial compensation.
- Don't plan short rotations; longer and longitudinal rotations have superior training effects.
- Don't forget to involve the students in planning, implementation and evaluation of rural training initiatives.

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Wonca Working Party on Rural Practice
World Organisation of Family Doctors (Wonca)
12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 1.2.3

HEALTH SYSTEMS AND FUNDING OF RURAL-BASED MEDICAL EDUCATION

Michael Jong
Memorial University, Canada

Introduction

A strong medical workforce is an essential component for an effective health system. Training capable and motivated doctors for rural communities is necessary for achieving national and global health goals of achieving health equity for all. Well-trained doctors and equitable distribution of physicians[1] correlate with positive health outcomes.

The training of the medical workforce requires a functioning health system and adequate financial resources. These are the same elements for a successful rural programme.

Most health systems and medical schools operate with various forms of mixed private-public funded models. Funding may come directly from governments to the medical school/programme or indirectly from governments through universities, hospitals and health boards/authorities. Other sources of funding are research funds, endowments, foundations and philanthropists and payments from patients.

In many underdeveloped countries key challenges include low public/private investment in health; low economic growth rates; dearth of comprehensive health financing policies and strategic plans; extensive out-of-pocket payments.

Health systems

Health systems need not be simply a drag on resources, as is often believed, but rather can be part of improving health and achieving better economic growth (1). Evidence in this regard can be used as justification for securing funds from all levels of government and businesses for medical education in the local region.

1 Here a 'physician' (and in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

In the United States where medical schools are largely privately funded, government funding of departments of family medicine is significantly associated with the expansion of the primary care physician workforce and increased accessibility to physicians for the residents of rural and underserved areas. This is also associated with a change from sub-specialty training in favour of primary care (2).

Responding to the social accountability mandate can help medical schools secure funding. In the Canadian context, both the Northern Ontario School of Medicine and the Medical School of Memorial University received funding from governments because of their rural mandates.

From a health system perspective it is more cost-effective to provide all the training of rural core skills during undergraduate and postgraduate medical school training. This is especially true in resource-poor countries. The benefits of diverting limited funds from in-service after medical schooling to pre-service training programmes were found in health education institutions in Bolivia, Ecuador, Egypt, Ethiopia, Indonesia, Moldova, Morocco, Nepal, the Philippines, Tanzania, Uzbekistan and Viet Nam (3-7). In resource-poor countries, there are two main challenges of in-service compared with pre-service training:

Funding for in-service training is difficult to secure from national and/or district health budgets, and presents substantial personnel time diverted from patient care, particularly for resource-constrained health facilities.

The limited number of in-service trainers are more expensive, yet often have high rates of turnover and attrition. Pre-service training is associated with lower costs and increase returns to investment. Pre-service training is more effective than in-service because of the captive student audiences who are less likely to be absent. It also allows for leveraging of limited training resources within the medical school.

Funding models

Funding for medical schools can come from various sources:

directly from government to the medical school
from universities and hospitals
private funding
charitable donations / bequests
research grants

Understanding government funding

Government funding generally comes from taxes. In resource-poor countries novel approaches to revenue generation is particularly important. New sources of funding for governments can come from improvement in efficiency of tax collection, re-prioritising budgets and innovative revenue generation e.g. taxes on tobacco, air tickets and foreign exchange transactions. Providing the evidence and lobbying for taxation of products that are deleterious to health and well-being of the population can assist government to make the right decision. Decisions about health care funding are inevitably political. Changes in funding involve redistribution of resources.

An example of how to generate new funds for rural medical education is provided by the McLennan County Medical Education and Research Foundation (McMERF), a non- profit, teaching and research institution and medical treatment facility. McMERF obtains funding from the Texas State Government, patient revenue, hospital and local funds. The institution received the state funds for implementing a mandatory one month rural rotation. The additional funds allowed them to create a 3rd year clerkship in family medicine. At the same time, McMERF also increased its funding base through grant appeals, fund raisers, and corporate and private giving programmes (3). Like most medical schools McMERF relies on a diversified sources of funds.

Improving one's success in securing funding includes being vigilant for opportunities. One of the opportunities is the 2010 Patient Protection and Affordable Care Act in the United States that is meant to provide universal health care for all Americans. The Act is associated with funding, such as the Rural Physician Training Grants to medical schools to develop programmes to recruit students most likely to practice in underserved rural areas. In 2012-2013 this amounted to US$4million a year. There are also other opportunities for rural medical education.

Orchestrating press releases and media interviews by national medical organisations, in conjunction with the publication of a new study highlighting the inequities between rural and urban parts of the country, can gain attention from governments. When the Canadian Medical Association and the Society of Rural Physicians of Canada sent out press releases the day before the publication of the study on recruitment and retention of physicians in rural Canada, the flurry of media attention caught the attention of the Ministry of Health. This occurred towards the end of the fiscal year and lead to one-time funding of C$33 million for family medicine residencies in underserved communities. One time funding is more likely towards the end of the fiscal year, as it is largely drawn from unspent or reserved contingency budgets. Long-term funding requires more persistent lobbying and funding and is usually announced when the government's budget is released.

Rural physicians usually have a close connection with their communities, businesses and politicians, following the care they may have provided for the person and/or family. Local business desires a healthy workforce. Large companies such as the mining industry often set aside charitable funds that can be directed to medical education. Large corporations have strong lobbies within the government and if they believe in the value of rural medical education, can deliver the message to the inner sanctum of government. Government is more likely to act if they heard the same message from multiple sources.

Key messages to deliver to funders

Rural communities have poorer health status. Improving access to health care is one solution as it not only helps to improve health outcomes but is an important economic development strategy for many rural communities.
Training of the medical workforce is best done in the setting that best approximates their future practice. Training rural doctors is best done in rural communities.
Generalism and primary health care has greater impact on population health. Use evidence from research by Barbara Starfield available at www.globalfamilydoctor.com/InternationalIssues/BarbaraStarfield.aspx.

A project management model (Figure 1)

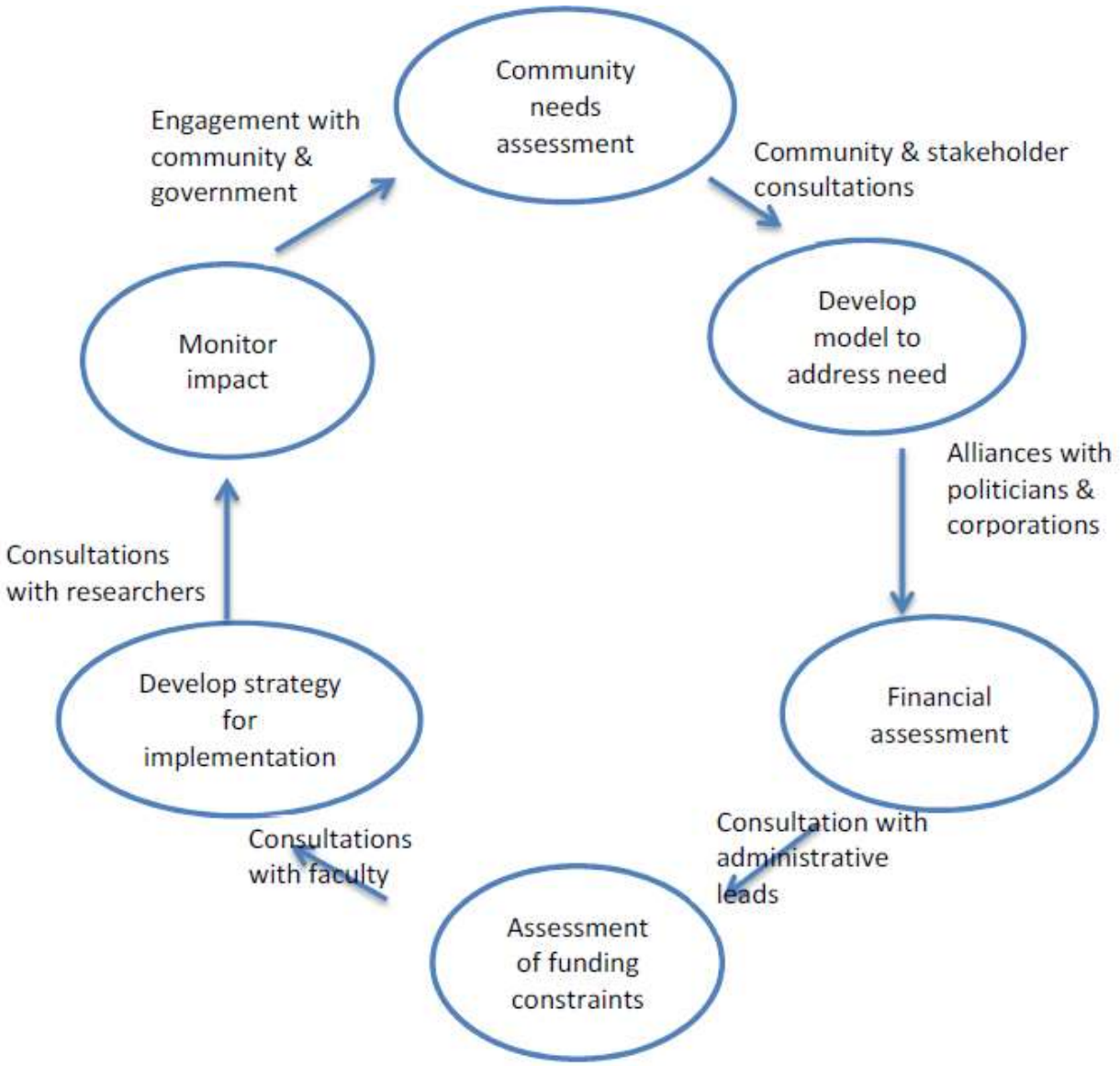
Health systems and medical education should be socially accountable and address the needs of the population. When starting a rural medical programme a needs assessment of the rural population should be the first step. The assessment is done in conjunction with consultations with key stakeholders including formal and informal leaders of the rural communities. The programme model should be designed to meet local health needs and value systems. Alliances with the business communities and community leaders will help with gaining commitments from politicians.

The development plan for a rural-based programme should include a business plan. A financial assessment of the cost of the programme should be developed with the assistance of the administrative leads in the medical school. It is usual to expect financial constraints from funders – and these should be discussed with the faculty[2] in the programme to work out how to best implement the programme within the financial limits. A governing board, which often include influential members of the community, can offer solutions. Local stakeholders including the health institutions may be able to help out with in-kind and monetary contributions since medical students and faculty contribute towards the provision of health care.

2 'Faculty' is another term for members of academic staff.

It is advisable to have a research team develop and implement an evaluation plan with input from the local stakeholders and funders. The results of the impact of the rural medical programme should be shared with the local community. Use the media and politicians to garner interest and support for continuing enhancement the programme. This should lead to another cycle of community needs assessment and engagement.

Figure 1:
Project Management Model



Practice pearls

Key issues

Politics play a major role in the funding of many medical schools. The buy-in from the leadership of the government and the ministry of health is essential for successful implementation.

One-time funding from unspent budgets in government departments at the end of the fiscal year is possible especially if there is evidence that this funding will offer a solution to a demonstrated need.

Multi-year funding is more likely following repeated lobbying at all levels of government – municipal/town, provincial/state and national/federal. Medical organisations at each level are likely to be the most effective lobbyists – e.g. the local hospital lobbies the municipal government and the national government is more likely to pay attention to national medical organisations.

Although senior bureaucrats/administrators report to the political minister of their departments, having them on side is important. Understand the working of bureaucracy – remember bureaucrats stay in the same department when ministers are reshuffled. Senior policy analysts and the secretary of state or privy councils are important people to convince of the value of rural-based medical education. Privy council are the brains of the cabinet and advises the ministers of the issues in the country.

Be prepared to offer solutions to address problems. For example, training physicians to improve rural health care can maintain a healthy rural workforce leading to better productivity in the extraction of raw materials and in agriculture in rural areas; reducing urbanisation of population.

Corporations with businesses in the local communities want a healthy workforce and are often willing to contribute financially to improve health care. They need to be persuaded with evidence that rural-based medical education will enhance the recruitment and retention of medical workforce and the betterment in the provision of health care.

Large corporations have a large lobby in governments and can influence decision-making amongst politicians to support rural health infrastructure and financing.

What to do

Engage local communities, health systems and governments.

Do the research on rural health to show the health disparities in the country and how to address the disparities.

Be opportunistic and arrange for the release of the publication of the research with press releases from the national medical organisation that can represent rural health. Politicians monitor the media.

Use the office of local politicians, especially if they are in the governing party and have a cabinet position.

Offer political gains for politicians; allow them the opportunity to announce funding and thank them in public.

Provide the evidence for the need for a rural-based medical education and provide the potential solutions on how this can happen.

Use personal stories to drive the point home – women (mothers) and children, especially in under-developed countries, tug at the heart.

Solicit corporate partnership especially from corporations that have interests in the rural region and lever their contributions for other funds.

Engage the CEOs of the major corporations to lobby governments for funding of rural medical education to meet the needs for medical workforce.

Diversify funding sources – governments, research funds, private sectors and charities.

Set up charitable status through a foundation to encourage corporate and private donations.

What not to do

Do not ask for less than needed but at the same time be realistic.

Do not bring up issues without potential solutions.

Do not be afraid to ask.

Conclusion

A medical school has a mandate to be socially accountable to the funders and the population where it is located. Medical training can be successful if it is associated with an effective health care system - and an effective health system is dependant on successful medical training programme.

When seeking funding for a rural-based medical education, provide evidence of health disparities in the rural population, and of how enhancing the health of rural population can enhance the economy of the country. Offer rural-based medical education as a solution to address health disparities.

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Chapter 1.2.4

BALANCING MEDICAL EDUCATION AND THE NEEDS OF THE RURAL HEALTH SERVICE

Ian Couper
University of Witwatersrand, South Africa

Introduction

There is often tension between medical students' needs for education and the health service's needs for health care provision to continue without interruption. Practice- or service-based teaching is an important way of bringing these closer together, but there are risks inherent in this. On the one hand, students may be seen as workhorses to provide service and to allow more patients to be seen. On the other hand the demands of students for supervision and mentoring may cause frustration and impatience on the part of health care service. It is important that these are held in balance.

Worley (1) has provided a model within which to view this tension, as part of a number of critical relationships which need to function together in symbiosis - symbiosis being a mutually beneficial partnership between persons, organisations or concepts of different kinds (2). One such partnership is the university-student-health service relationship. These partnerships need to be managed carefully within an understanding of service learning, where students are expected both to provide direct service to a community as well as to learn about the context of the service, the connection between this service and their academic outcomes and their responsibilities as citizens (3). Service learning is really about a balance between the goals of the faculty and those of the service.

The tension between a student's educational goals and the service goals of the health care facility can be instructive for students if they see themselves as part of the solution (3). Conversely the tension can be very negative if students see themselves as unwelcome and part of the problem (4). There is a need to address this tension within rural medical education programmes, particularly because rural health services are often more vulnerable to small changes. Ways need to be found to ensure that the goals of both parties are being addressed, as this will strengthen the relationship.

Creating symbiosis

It is thus important to look at structuring educational processes and content to maximise the benefit for the local health service. This may involve, for example, structuring the way that clinical patient care is offered to ensure that students both receive adequate supervision and assist the load of mentoring physicians.

General practitioners have described many ways in which precepting students have added value to what they do (5). Furthermore, opportunities for building in specific activities which can enhance the contribution of students to the health service should be sought. For example, students in the final year integrated primary care rotation at the University of the Witwatersrand (South Africa), who spend six weeks in primary care sites, are required to do a health facility audit and a quality improvement project. These projects are implemented by working together with local health care teams, and are presented to local managers who can benefit from using the report to improve the facility.

Medical students can play an important role in facilitating multi-disciplinary teamwork in the management of patients. For example, students who are required to do a case report on a patient requiring rehabilitation, can present the case to the team of doctor, nurses, physio- and occupational therapists, community health workers, etc, at which time practical patient management decisions are taken. This can be applied to a range of different patients. In this way, student deliverables prompt the rest of the team to do what they should be doing anyway. This approach proved to be invaluable in energising the multi-disciplinary team at the remote Madwaleni Hospital in the Eastern Cape province of South Africa (Dr Richard Cooke, personal communication).

The impact can and should be greater than such specific contributions, however. Ideally, the presence of students should assist in transforming the health service so that a learning culture is adopted. Involving a range of local health service providers in the teaching of students, and developing seminars for students which are open to the local health care team, can foster a culture of learning amongst the local health service staff (6, 7). In other words the presence of an academic programme can assist to transform the health service into a learning organisation.

Ideally, the local health service needs to reach the point where the presence of students is seen to be essential for its future. When this happens, managers have realised that their future human resource solutions will come from their involvement with students, and they thus commit themselves fully to supporting the academic programme.

In an example of this, health service managers in sites in South Australia that are used by the Parallel Rural Community Curriculum of Flinders University describe how they see the presence of students within their facilities for a year as very positive for two reasons. Firstly they understand the training of students to be essential for the future of the health service, in terms of workforce issues; but secondly the presence of the students has transformed their facilities into learning organisations, affecting the entire health care team(6).[1]

What's the evidence?

There is evidence that the presence of medical students can both improve the clinical services offered (8), and increase patient satisfaction (9). Preceptors[2] indicate that the presence of students improves clinical practice (10).

In a series of articles, Walters and colleagues have shown that, in terms of individual service providers, there is a range of benefits from having students in the health service. These include variety from routine consulting; intellectual stimulation; personal learning; perception of themselves as teachers and clinicians; the sense of giving back and future recruitment; and that, through the central role of the doctor-student relationship, reciprocity between medical student learning and patient care develops (5, 11-13). When the triangular relationship among doctor, patient and student is functioning at its best, students progress from being largely passive, to competing with the patient for the doctor's attention, to finally meeting their own needs through the delivery of patient care (5).

In a general practice setting, patients report that, when consulting with students, they learn more and have more time to talk (14, 15).

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1 Note that this implies a decentralisation of decision-making to the local health service.

2 A preceptor - or clinical instructor/adjunct faculty – is a clinician (person with core clinical skills) who offers clinical teaching at a distant (rural) site.

An illustrative anecdote

Students in the final year integrated primary care rotation at the University of the Witwatersrand, who spend six weeks in primary care sites, were placed in Taung Hospital, a remote rural district (level 1) hospital about four and a half hours from Johannesburg, South Africa.

As part of this rotation and as mentioned above, students are required to do a health facility audit on one aspect of the facility, followed by a quality improvement project. The local management saw this as a golden opportunity, and requested each group of students to tackle a separate part of the hospital – the outpatients' department; the maternity unit; the female ward, etc. At the same time the management committed themselves to assisting with resources for the quality improvement activities that arose from these. As a result, for example, signboards were put up in the hospital, benches were acquired for patients waiting in the antenatal clinic, etc. The hospital team looked forward to each new group of students arriving because of what they would be working on.

In another example from the same programme, successive groups of students took on the task of training hospital workers - from health professionals to cleaners - in basic cardiopulmonary resuscitation, until all staff had been trained.

Broader applicability

These principles do not apply to medical students only. Ideally the whole health care team should be involved, both in terms of the range of students who are placed in facilities and in terms of the members of the local health care service who are involved in teaching.

Practice pearls

Students must make a contribution to service in rural practice. They must be seen as a benefit rather than a burden.
Students can be effective change agents, through the effective use of collaborative quality improvement projects, health facility audits, providing up-to-date guidelines, sharing resources, etc.

The involvement of a university should transform a local health service into a learning culture, impact positively on the community and instil pride in the health care team.
Long-term buy-in of the health service may be determined by the perceived workforce impact.

What not to do

Don't take the health service for granted.
Don't base an academic programme around one person in a local health service – it needs to become institutionalised.
Don't let students be separate agents – the more integrated they are, the more buy-in there is from the health service and the more students benefit.
Don't let the local health care team feel they are just being used (and thus abused); even in the absence of financial incentives, there are many ways to make them feel appreciated – certificates, gifts, honorary lectureships, letters of commendation from the dean, invitations to faculty functions, signage for sites to recognise them as a teaching facilities, etc.

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Chapter 1.2.5

ADDRESSING RURAL HEALTH WORKFORCE SHORTAGES: THE PIPELINE CONCEPT

Tom E Norris
University of Washington, United States of America

Introduction

The shortage of rural physicians[1] is worldwide in scope, persistent in nature, and steadily worsening. Although the situation is worst in developing countries, it is also very common in developed countries like the United States (1, 2, 3). The shortages of physicians in rural areas are consistently most severe for primary care disciplines, with family physicians accounting for the majority of rural physician shortages (4). As a result, it is often extremely difficult, if not impossible, for rural primary care physicians to recruit additional physicians to their practices. Thus, succession planning, chronic short staffing, and problems covering call and vacations become major tribulations for rural physicians. In turn, these troubles can lead to burnout, moving or leaving practice, or early retirement. All of these worsen the situation for the physicians who remain.

One proven approach to rural primary care physician workforce shortages is the pipeline concept. This metaphorical concept visualises the sequence of educational programmes that are experienced by a future rural physician from high school through graduate medical education as a pipeline (5). Awareness of this pipeline principle, coupled with involvement of rural physicians with students and residents who are transiting the pipeline, can have a positive impact on workforce shortages by recruiting more physicians to practice in rural places.

1 A rural physician is a generalist doctor who works in rural areas with no proximate specialist support.

Discussion

Although it is a metaphor for the educational and career choice decision process of a future rural physician, the pipeline process has been repeatedly demonstrated and mentioned in the medical literature. The various portions of the pipeline, and possible areas for involvement by local physicians, are as follows:

1. Role modeling for young children in your practice — some future rural physicians decide on their eventual careers based on the rural physician role models that they are exposed to as children. When you see children in your practice, use the time to encourage their interests in healthcare.
2. Career days — many middle schools and high schools offer annual career days for their students. Volunteer to speak at these events when they occur. They offer a chance to influence interested students toward rural primary care.
3. College students — if you have a college near you, volunteer to serve as a speaker, panel member or advisor for their pre-medical club. Many of these students will need an observation experience in a medical practice in order to successfully apply to medical school. Endeavour to offer these experiences to those who are interested. Many times these early exposures have remarkable long-term impacts.
4. Medical students — many medical schools seek opportunities for their 'pre-clinical' medical students to spend some time each week as observers in clinical settings. If you can offer these experiences, you can provide the students with an early exposure to rural practice. During students' 'clinical years', medical schools offer electives and require clinical clerkship[2] experiences. If you can arrange to locate one of these experiences in your practice, you will have recurrent interactions with medical students during an important part of their medical education.
5. Residents[3]— most primary care residents have several months of elective time during their residency programmes. If you are able to develop a rural practice rotation in your clinical setting, you will have the opportunity to interact with many residents who are nearing the end of their educational process and who are often seeking a long-term practice site.

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2 A clerkship – or placement or rotation – is a structured clinical learning opportunity / context.

3 A resident – also referred to as a registrar or vocational trainee – is a qualified doctor who is part of a structured training programme.

Participation in the pipeline at one or more of its levels can be very useful in recruiting new physicians to your community. Additionally, evidence suggests that practicing physicians who play a role in the medical education process have better professional career satisfaction than those who do not participate.

What's the evidence?

Phillips et al (6) and Rabinowitz et al (7) map what influences medical student and resident choices and how medical school programmes can increase the rural physician supply.

An illustrative anecdote

The author of this chapter spent ten years of his practice life in a rural community in central Montana in the United States. During this period the practice developed a clinical elective through which a second or third year Family Medicine resident could be placed in the practice for one or two months of their residency education. In the third year of this programme, a resident who had grown up in Montana participated in the elective and decided that he wanted to join the practice after he finished residency. Two months after completion of his training, he moved to our community and joined our practice. If he had not been exposed to the opportunity during residency pipeline, it is unlikely that the connection, or the outcome, would have taken place.

This was over twenty years ago, and the physician described here is still practicing in the rural community.

Broader applicability/application

Although the pipeline described here has been researched most widely in the United States, Canada, and Australia, the principles upon which it is based should be valid in other countries. Although the specific opportunities for other rural sites in both developed and developing countries will depend on the specific sequence of career choice and medical education components utilised in the country in question, the fundamental principles should be transnational.

Practice pearls

What to do

Use career days and other opportunities to expose rural elementary, middle, and high school students to the possibility of a health care career.
Offer local pre-medical students the chance to observe in your ambulatory and hospital practice.
Serve as an advisor or speaker for pre-medical clubs or classes at nearby universities.
Volunteer to serve as a community preceptor[4] for first and second year medical students at nearby medical schools.
Work with nearby medical schools to offer clerkships or other clinical educational experiences.
If a residency is located near your practice site, seek opportunities to serve as a teacher or preceptor for the residents, preferably at your practice site.

What not to do

Do not ignore the opportunity to participate in the pipeline — it can make a real difference in bringing new physicians into your local workforce.

Conclusion

Rural physician workforce shortages can have a significant impact on physicians who practice in rural sites. Recruitment of new physicians to expand or replace rural primary care providers can be daunting. The pipeline concept offers a proven approach that can dramatically impact recruitment success.

4 A preceptor – or clinical instructor or adjunct faculty – is a clinician (person who has core clinical skills) who provides clinical teaching at a rural (distant) site. They may work full- time or part-time for the medical school / training institution in a paid or honorary capacity.

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Chapter 1.2.6

RECRUITING STUDENTS TO RURAL MEDICAL CAREERS

Blaire Schoales
Northern Ontario School of Medicine, Canada

Introduction

In 2004 just under a quarter (21,1%) of the Canadian population resided in rural areas, while 9,4% of physicians practiced in rural communities (1). This disparity underlines the necessity of having strategies to recruit students to rural medical careers.

Rural-origin students

While family medicine graduates with a rural background are 2,5 times more likely to be in rural practice than those from larger towns and cities (2), students with rural backgrounds are under-represented in medical schools in Canada (3), despite their applications being competitive (3,4,5). As social accountability requires that medical schools take appropriate measures to increase the number of rural-origin students, pipeline strategies to increase the number of applicants from rural areas have been recommended. These include outreach programmes to rural schools and opportunities for rural students to attend science and health-related programmes (6).

Admissions and selection processes have been identified as an important aspect of recruiting students to rural medical careers. Strategies include an 'adjustment factor' or advantage for students of rural origin – which entails setting targets for rural enrolment and the inclusion of rural members as interviewers or admissions committee members (6, 7, 8, 9, 10, 11).

Attracting urban students

Positive rural-based learning experiences during undergraduate and postgraduate training can make a valuable contribution to attracting doctors to rural areas (12, 13, 14, 15) as these can increase the interest in rural practice among students from urban backgrounds (16).

Financial incentives and return-of-services (ROS) commitments are additional ways of recruiting urban students to rural or underserviced areas. While incentives may be successful in initial recruitment, however, these doctors may be less likely to be retained than those who voluntarily chose a rural area (17). Other factors that may influence a choice of rural practice include a partner's predisposition to rural life and their career potential in a rural setting (6).

The Northern Ontario School of Medicine

The Northern Ontario School of Medicine (NOSM) is Canada's newest medical school. It is located in Northern Ontario with two main campuses in Sudbury and Thunder Bay, approximately a thousand kilometres apart.

The NOSM was incorporated in 2002 with a social accountability mandate – realised through, among others, its admissions process and the curriculum which has a rural focus on underserviced populations. This includes all students undertaking three integrated Community Experiences (ICE) in their first two years. At the end of the first year there is a four-week ICE placement in an Aboriginal community followed in the second year by two four-week ICE placements in rural and remote communities.

A Comprehensive Community Clerkship[1] (CCC) comprises the third year of the NOSM curriculum. This is a longitudinal integrated clerkship during which each student lives and learns in one of the large rural or small urban communities outside of the two main campuses in Sudbury and Thunder Bay (18).

To date three classes have graduated from NOSM. The Canadian Resident Matching Service (CARMS) results indicate that 65% of all NOSM graduates have been matched to residencies in family medicine. Many of these have been matched to the NOSM rural-focussed family medicine residencies as well as family medicine programmes elsewhere in Canada with a rural focus. As the first NOSM graduates who subsequently entered family medicine residencies are about to graduate, there is no data yet on the long-term practice location.

1 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

Rural family medicine residency programmes

Prior to the establishment of NOSM, two family medicine residency programmes were established in Northern Ontario in the 1990s. In Northwestern Ontario this was through the Northwestern Ontario Medical Programmes (NOMP) under the auspices of McMaster University – and in Northeastern Ontario through the Northeastern Ontario Medical Association Corporation (NOMEC) in association with this University of Ottawa (18). A study of the graduates of these two family residency programmes found that 67,5% of all person years of medical practice were in Northern Ontario or rural areas outside of Northern Ontario (19).

Specialty training

Prior to the establishment of NOSM specialty training took place in Northeastern Ontario under the Northeastern Ontario Postgraduate Specialty (NOPS) Programmes. A study of NOPS participants (from 2000-2006) found that they were more likely to practice in Northeastern Ontario than matched non-participants.

A strong association was found between the length of training in Northeastern Ontario and practice in Northeastern Ontario and avoidance of practice in metropolitan areas (20).

Practice pearls

What to do

Undertake pipeline initiatives to increase the number of applicants with rural background to medical schools.
Incorporate rural experiences into undergraduate medical school.
Incorporate rural experiences into postgraduate training.

What not to do

Don't rely on only one approach or initiative to increasing recruitment to rural medical practice.

Conclusion

Student recruitment to rural medical careers includes pipeline initiatives, increased enrolment of students of rural origin through admissions policies and procedures, and positive rural learning experiences throughout undergraduate and postgraduate education. These strategies are necessary to ensure the appropriate supply of doctors in rural practice.

While this chapter has focused on student recruitment to rural medical careers, the principles discussed may be relevant to other health related disciplines.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.2.7

ESTABLISHING A RURAL CURRICULUM FROM AN URBAN ACADEMIC MEDICAL CENTRE

Tom E Norris
University of Washington, United States of America

Introduction

The shortage of primary care physicians[1] in the United States (US), especially in rural areas, is a decades old problem, and one that is worsening (1,2,3,4,5). Similar shortages in the rural physician workforce are being seen worldwide (6,7,8,9). There is clear evidence supporting the notion that having medical students or resident physicians spend time during their education and training in rural areas increases the likelihood that they will eventually choose to practice in a rural area (10,11,12).

Unfortunately, almost all medical schools and academic medical centres, as well as most graduate medical education programmes, are located in urban areas. This mismatch between the need for an increased rural physician workforce; the importance of spending education and training time in rural areas; and the location of medical schools, academic medical centres, and residencies[2] is not helpful in addressing the rural physician shortages. The solution to this dilemma is the development by medical schools of specific rural curricula, utilising decentralised educational strategies to educate and train medical students and residents in rural areas. Several institutions have developed proven strategies to accomplish this task.

1 A 'physician' here (and in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

2 A resident – or registrar – is a qualified doctor who is part of a structured specialist training programme. Residencies are described slightly differently across countries. For example in Britain/Australia they are 'vocational training'; in South Africa, 'postgraduate training' – while in Canada they are 'postgraduate medical education' and in the USA, 'graduate medical education'.

This chapter will explore several of these strategies – including targeted admissions processes, decentralised medical schools, rural longitudinal integrated clerkships[3], integrated rural medical school curricula, and residency rural training tracks.

Discussion

There is an antidote to urban academic medical education that will result in many students making rural career choices. With the dual problems of rural physician shortages, coupled with urban locations for most academic medical centres, a specific strategy must be adopted in order to achieve the desired outcomes of career choices that include a primary care specialty and location choices that are rural.

Optimally medical education institutions will develop a strategic sequence of activities, leading toward clearly defined rural primary care goals. Ideally the medical school undertaking this task will have a proven ability to provide a decentralised educational programme. The sequence must begin with the admissions selection of new medical students who grew up in rural sites. The next step is exposure to a curriculum designed to teach the students about health equity, particularly as it involves rural underserved patients. The subsequent key step is to teach as much of this curriculum as possible in rural settings with experienced physicians who can serve as both role models and teachers. Continuity of both patient care and teaching is important, and the model of rurally located longitudinally integrated clerkships has proven to be quite successful in this regard.
Preferably the medical school rural curriculum will interdigitate seamlessly with the curriculum of a rurally-oriented or rurally-located graduate medical education programme — perhaps a rural training track residency.

While any of these steps taken singly may increase the number of students who eventually enter rural primary care practice, all of the steps taken sequentially will dramatically increase the chances of success.

3 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

Illustrative case study:
University of Washington WWAMI TRUST Programme

The University of Washington and the rural northwestern US states of Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI) have developed a decentralised rural medical education programme (TRUST) that contains all of the components noted above.

Let us track a real student, who we will call Jane Doe, through the programme.

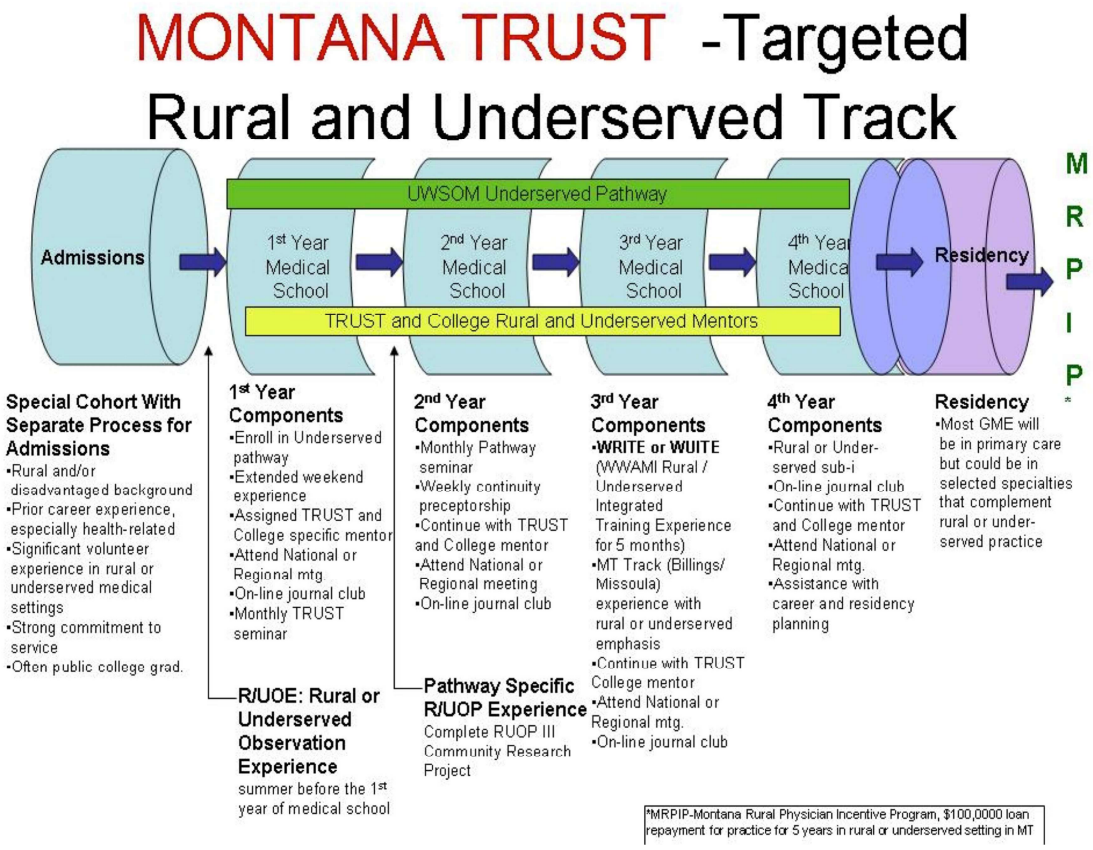
Jane grew up on a cattle ranch in southeastern Montana. The nearest community had a population of 2 000 and was 20 miles from Jane's home. She was a good student, with a strong interest in science and health care. Although she originally considered veterinary medicine, she decided in high school that she wanted to be a physician. Jane attended a state university in Montana and did well, majoring in cellular biology. In 2006 she applied to the Montana WWAMI programme and was admitted to the new TRUST programme in 2007. The programme admitted five Montana medical school applicants each year, with requirements that the students must plan to enter rural practice and must have a rural background; Jane met both requirements.

In addition to a special admissions programme, TRUST included the first year of medical school in a small town at one of WWAMI's decentralised first year sites. The TRUST curriculum was specifically designed as a sequence of proven experiences for rurally-bound medical students. Detailed components of the TRUST curriculum are outlined in Figure 1 below.

Shortly after admission, and several weeks before medical school classes began, Jane was assigned to a rural community in Montana and to a rural family physician. For the next four years Jane spent segments of time in the same small town, learning under the guidance of the rural preceptor[4], with the patients in the preceptor's practice. Jane enjoyed several key TRUST factors, including patient, community, and preceptor continuity. This continuity was strongly emphasised in the third year of medical school which included a 20 week longitudinal integrated clerkship in her continuity community (WRITE—WWAMI Rural Integrated Training Experience).

4 A preceptor - or clinical instructor/adjunct faculty – is a clinician (person with core clinical skills) who offers clinical teaching at a distant (rural) site.

Figure 1: WWAMI Montana TRUST Curriculum



By early in her fourth year of medical school, Jane had confirmed her decision that she wanted to be a rural family physician. She arranged a month-long sub-internship in the only family medicine residency in Montana, one of the 20 family medicine residencies affiliated with the WWAMI programme's family medicine residency network. She loved the experience and the residency loved her. Working through a special plan that allowed her to become part of the residency outside of the National Resident Matching Programme, Jane signed a contract with the residency that would allow her to become a resident there upon graduation from medical school. The residency worked with Jane to allow her to continue to spend time in her 'continuity community' during her residency. Jane is now a resident and plans to enter practice in the same continuity community that served as her classroom during medical school and residency.

Practice pearls

What to do

In order to successfully educate and train medical students and residents who will eventually choose to practice in a rural area, academic health centres must include the following factors in their programming:

Target candidates for medical school admission who have grown up in rural areas.
Maximise time spent in rural settings during medical school and residency.
Increase continuity experiences with rural patients during medical school.
Increase continuity of educational experience with rural preceptors or attending physicians during education and training.
Design a curriculum that is specifically developed for medical students and residents who will eventually care for rural and underserved patients.

What's the evidence?

There is significant evidence to support each of the key points presented in the Practice Pearls section above.

Admitting the right students is very important. A recent study of Jefferson Medical College graduates by Rabinowitz and colleagues indicated that growing up in a rural area is one key predictor of future rural practice (13). Furthermore, Gill and associates found that a rural background for Canadian medical students increased the likelihood that they would enter family medicine practice (14).

Time spent in rural educational sites during medical school is another factor in educating physicians who will eventually practice in rural areas. At the University of Newcastle in Australia, Rolfe and colleagues found that both rural background and rurally-located education are important for future rural doctors (15). For over 40 years, the University of Washington's WWAMI programme has educated medical students using a highly decentralised system in which many students spend the first year of medical school in smaller communities and most students spend at least some of their clinical clerkships in rural sites (16,17). The outcome has been that more students have chosen rural practice and primary care. Similarly, Worley and his colleagues at Flinders (Australia) found that students who spent a year in a rural longitudinal integrated clerkship (LIC), compared to those who spent a year at an

urban tertiary site, were more likely to enter rural primary care (18). This study also emphasises the importance of rural continuity experiences for students who eventually choose rural practice. Walters and colleagues, also at Flinders, also found that rural LIC's that provide students with continuity experiences with both patients and teachers positively influence primary care and rural career choices (19).

After graduation from medical school, spending some (or all) of one's residency in a rural setting helps create rural physicians (10). Multiple studies have considered rural residency pathways as an entry into rural practice. In the US, Rural Training Tracks (RTT) has been widely accepted as an approach to locating residency training in rural sites. Outcomes studies have shown the success of this strategy in rural practice choices (20).

Special medical school curricula designed for future rural physicians have been developed by several schools. James Cook University (Australia) has reported on outcomes indicating that their graduates who have participated in the rural curriculum are more than twice as likely to enter rural practice than graduates of other Australian medical schools who have not had a specialised course of study (21). The WWAMI programme has had similar experiences with its Targeted Rural Underserved Student Track (TRUST) (unpublished data).

Broader applicability and implementation

Although the programming approach described here outlines a proven arrangement that allows an urban academic medical centre to train physicians for rural primary care, the same general principles could be applied to other special physician training needs. For example, a suburban medical school that wished to train students for underserved urban practice could utilise the same sort of decentralised educational principles and strategically sequenced curricular programming that is described here for rural primary care.

Conclusion

Abraham Flexner, whose report for the Carnegie Foundation one hundred years ago laid the foundation for modern American medical education, said, "The small town needs the best and not the worst doctor procurable. For the country doctor has only himself to rely on: he cannot in every pinch hail specialist, expert, and nurse. On his own skill, knowledge, resourcefulness, the welfare of his patient altogether depends. The rural district is therefore entitled to the best-trained physician that can be induced to go there"(22).

Flexner was right, and our job is to select bright young people from rural places and provide them with a medical education that does not turn their aspirations toward urban specialisation. This can be done by urban academic medical centres through decentralised medical education and a purposefully designed curriculum. This will allow our medical school and residency graduates to become the 'best doctors' that Flexner visualised.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.2.8

HEALTH OUTCOMES AND THE BALANCE OF PRIMARY CARE PHYSICIANS VS SPECIALISTS

Tom E Norris
University of Washington, United States of America

Introduction

Optimally functioning health care systems must comprise of adequate numbers of physicians[1], the most advantageous proportions of specialists and primary care physicians, and their best possible geographic distribution. In much of the developing world, as well as in some developed countries, overall shortages of physicians create challenges for patients who need medical care, especially disadvantaged patients who lack financial resources.

In many countries where the general number of physicians is adequate, however, the ratio of primary care to specialty care physicians is unsatisfactory. Health systems with inadequate numbers of primary care doctors, coupled with excessive specialists, not only result in poor primary care and overall health outcomes, but also result in substantially higher costs. It means that many people do not have a personal primary care physician, resulting in inadequate preventive health services, scarce capabilities to manage chronic diseases, and deficient or chaotic organisation of referrals to specialty physicians. A system that has too few specialists is also inefficient, however, requiring primary care physicians to practice outside of their areas of expertise, thus disadvantaging patients. The optimal ratio has not been precisely determined, but a system in which at least half of the physicians are primary care doctors has been shown to have better health outcomes.

Over the last 65 years, the United States health system has evolved from having inadequate numbers of physicians, most of whom were generalists, to having adequate numbers of physicians, although characterised by excessive specialists, inadequate numbers of primary care physicians, and overall geographic maldistribution. The results of this unfortunate evolutionary occurrence have been very high costs coupled with unimpressive outcomes on almost all health metrics.

1 A 'physician' here (and in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

The case for primary care physicians

Starfield and her colleagues have carefully reviewed the evidence for the hypothesis that adequate numbers of primary care physicians - defined as general internists, family physicians, and general pediatricians - are associated with better health outcomes (1). They considered a number of health metrics, including total and cause-specific mortality, low birth weight, self-reported health, and others. These metrics were examined with consideration of the linkages between the supply of primary care physicians and health metrics at different geographic levels in the United States (US).

In the United States

Starfield noted that Shi and colleagues (2,3) showed that those US states with the highest ratios of primary care physicians to population had better health outcomes for multiple causes of mortality, including heart disease, cancer, stroke, infant mortality, low birth weight, and self-reported health. These findings persisted even after controlling for the patients' socio-demographic measures and lifestyle factors. In 1998 Vogel and Ackerman demonstrated that adequate supplies of primary care physicians were associated with both longer life spans and fewer low birth weight babies(4). Starfield's work has catalogued a large number of increasingly sophisticated studies confirming that higher percentages of primary care physicians are positively associated with better health metrics.

2003 analyses reported by Shi and colleagues showed that, over time, the supply of primary care physicians in the US was significantly associated with lower all-cause mortality, whereas a greater supply of specialty physicians was associated with higher mortality. When the supply of primary care physicians was further disaggregated into family physicians, general internists, and pediatricians, only the supply of family physicians showed a significant relationship to lower mortality (5). In further exploration of this finding, Shi and colleagues demonstrated that the rate of stroke, the rate of low birth weight infants, and the rate of infant mortality are directly proportional to the number of primary care providers in an area (6, 7). In Florida, Campbell found that a one third increase in the supply of family physicians was associated with a 20% decrease in the mortality rate from cervical cancer. These changes were seen with increases in both family physicians and general internists, but they were not seen with increases in obstetrician-gynecologists (8).

Starfield and colleagues consistently found that more and better primary care resulted in better health metrics, lower all-cause mortality, and longer life expectancy. They calculated that an increase of one family physician per 10 000 patients, or a 12,3% increase, would result in a 5,3% improvement in overall health, or a decrease of 127 617 deaths per year in the US. (9). This finding clearly supports the notion that in the US, more primary care physicians, coupled with a larger proportion of primary care physicians present in the total count of physicians, would result in improved health outcomes.

Internationally

Studies of international settings have revealed similar findings to those seen in the US and have allowed comparisons between the health metrics in different countries based on their primary care physician workforces.

In an extensive time-series analysis of 18 industrialised countries, Machinko and colleagues found that the stronger a country's primary care orientation, the lower the rates were for all-cause mortality, all-cause premature mortality, and cause-specific premature mortality from several common diseases. This relationship persisted even after allowances were made for GDP per capita; total numbers of physicians; percentage of elderly; alcohol and tobacco consumption; and other population related factors (10).

Interestingly, the US scores over the time series rose slightly, although they were still low compared to the other countries. This was almost entirely due to increased participation of US patients in health maintenance organisations using a higher proportion of primary care physicians (11).

Much attention has been paid to the role of primary care physicians in dealing with populations with health disparities - and the findings have been similar. In socially deprived areas the number of primary care physicians per population, as well as the ratio of primary care physicians to the total number of physicians, has a direct bearing on the health of the population. Shi and Starfield found that income inequality and primary care were significantly related to self-reported health, but the overall supply of primary care physicians substantially reduced the impact of income inequality on self-reported health (12).

Costs

In addition to a clear relationship to better health and better health outcomes, the supply of primary care physicians is directly related to lower health care costs. Baicker and Chandra have shown a linear decrease in Medicare spending in the US, along with better quality of care, as the number of primary care physicians in an area increases. Conversely, the supply of specialists was associated with more spending and poorer care (13).

Overall benefits

Starfield has postulated that six factors may be responsible for the benefits seen with larger numbers and greater proportions of primary care providers:

1. greater access to needed services;
2. better quality of care;
3. a greater focus on prevention;
4. early management of health problems;
5. the cumulative effect of the main primary care delivery characteristics; and
6. the role of primary care in reducing unnecessary and potentially harmful specialist care.

The overall situation - based on the data that have been presented with regards to health care outcomes, costs, number of physicians, and ratio of primary care physicians to specialists - can be summed up in the following table:

Table 1:
Costs and effects of the distribution and types of physicians

Number & Type of Physicians	Overall Health & Health Metrics	Cost of Care
*Low physician to population ratio	Decreased overall health	Low
*Adequate physician to population ratio *Adequate proportion of primary care physicians *Adequate proportion of specialist physicians	Improved overall health	Moderate
*Adequate physician to population ratio *Low proportion of primary care physicians *High proportion of specialist physicians	Decreased overall health	High

The case of the United States

One might wonder, then, why the situation in the US is quite different from much of the world which has good overall health and health metrics with reasonable health care costs as a result of having adequate numbers of physicians, coupled with proportions of primary care physicians to specialists.

The fundamental difference seems to be that in most countries, health care is a basic service provided by the government, while in the US health care is treated as a commodity that is mostly provided by businesses. In the US there are substantial economic rewards associated with becoming a specialist, particularly much higher salaries and prestige, compared to those associated with becoming a primary care physician.

Recently the overall cost of health care in the US, now nearing 20% of GDP, has forced both government and business to take a critical look at health care costs and quality. The situation is one in which health care costs are threatening to make the US less competitive in international business, and that may offer the incentive needed to catalyse a change in the overall US health care system.

Conclusion

In summary, in order to have high quality affordable health care, people and nations need adequate numbers of physicians, with proper proportions of primary care and specialty doctors, coupled with geographic distribution that allows reasonable access to care.

A review of the data clearly demonstrates that the impacts on health, as well as health care costs, of a specialist based health care system, are negative. To avoid the negative impacts of specialty-based health systems, such as the current system in the US, health systems must be based on a firm foundation of primary care physicians.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.3.1

INTERCULTURAL COMPETENCE IN RURAL MEDICAL PRACTICE

Leonardo Vieira Targa
Caxias do Sul University, Brazil

Cultural competence: conceptualisation and institutional

Cultural competence in health care can be simply and practically conceptualised as the ability of systems and people within them to provide care to patients with diverse values, beliefs and behaviours, including tailoring delivery to meet patients' social, cultural, and linguistic needs (1). Other terms for cultural competence which have slightly different meanings include 'cultural responsiveness', 'cultural awareness' and 'cultural sensitivity'. The term 'intercultural' is also frequently used to indicate that science is also a cultural model and health professionals are also entwined in cultural nets.

Life and death, illness processes and the search for relief are all complex and are always culturally lived. Failure to provide culturally appropriate care can lead to patient dissatisfaction, poor adherence and adverse health outcomes (2); it can also be related to dissatisfaction of health professionals. Cultural competence skills must therefore be included in the curricula of all health professionals.

Health systems and cultural competence

Cultural competence is considered a characteristic of good medical practice and of an adequate health service and/or system (3). The more a health system is oriented to primary care, the closer it will come to achieving cultural competence, given primary care's characteristics of continuity, comprehensiveness, co-ordination, and decentralized access. This is further supported by ensuring that cultural competence is embedded in the philosophies, mission statements and policies of health educational institutions (4), and health services.

Some features of a health system that help to attain better cultural adequacy include using territorial definitions of the populations served; ensuring there are adequate population:health resources[1]; decentralized policies; the use of local and regional diagnosis as the start point of planning actions; and ensuring some continuity of professionals[2]. (This is especially important in rural and remote areas, considering the shortage of health professionals in these areas (5).)

Local information

There tend to be clear cultural differences between rural communities and those living in urban centres; and there is a strong feeling in rural communities that they are different from, and have special qualities not found in the cities (6). In addition there are often significant cultural differences between communities in rural areas – so assumptions cannot be made about the homogeneity of rural people.

Stereotyping prejudices and the perceptions of heterogeneities inside groups often leads to preconceptions and discrimination. This does not mean that common characteristics cannot be useful when used carefully, however. Local demographic and epidemiologic patterns, as well as anthropological information, can be helpful and should be made accessible to health professionals and students wherever possible.

While geographical access to health services is important, for a health service to be fully accessible it also needs to address other factors – like language, gender sensitivities, hours of opening – which would contribute to guaranteeing cultural competence and greater accessibility (7).

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1 The ratio of people / health teams matters in the sense that 'cultural competence' (medical quality, access, continuity etc) are very hard to achieve when there are not enough health professionals to properly serve the people.

2 When health professionals move often it can take them time to learn the 'cultural issues' in an area.

Educational, training and health care processes

Cultural awareness among health professionals

The Rural WONCA (Working Party on Rural Practice)'s *Policy on Rural Practice and Rural Health* (8) and for indigenous health (9) recommended that health professionals receive education and training in cultural awareness – and it is indeed important that all those involved in educating health professionals are trained in diversity and cultural questions.

Wherever possible, diversity among educational staff (at all institutional levels) should be correlated to local and regional patterns (4). Some professional recruitment and retention strategies for rural areas can help to democratise access to health schools, through decentralising institutions and facilitating training positions which enhance the representativeness of minorities (10).

In addition, the importance of language in health care and cultural competence should never be underestimated. For example, physicians' self-rated language ability were independently associated with patients' reports of interpersonal processes of care in patient-centered domains (11).

Rurally-oriented medical education

Experiences of different kinds of rurally-oriented medical education (12) has shown it to be as good as, or even better than (13), their urban counterparts. One of its strong points has been the added value of culturally lived health experiences. Students based in tertiary hospitals did not mention continuity or the importance of understanding a patient's cultural background, as rural students did (14).

Culture in the curriculum

The Rural WONCA (Working Party on Rural Practice)'s *Policy on Rural Practice and Rural Health* (8) recommends that people of different cultures be engaged in the design, execution and evaluation of education, including vocational training schemes.

Cultural issues need to be included at every stage of the educational curriculum, starting at the beginning (15). They can be included at the pre-clinical and clinical undergraduate stages; as part of the humanities topics covered in the medical curriculum (16); as part of internet-based (17) and postgraduate activities, as well as immersion experiences (18). It is important that cultural issues be seen as a transversal and progressive subject (19) – and it is better to focus initially on real people and their contexts and then to progressively develop the theory and techniques from these case discussions (2).

The health education curriculum must make efforts to change its approach to treating the question of cultural competence as a moral virtue of professionals, something almost altruistic, to rather thinking of it as a standard attribute of good practice and an indispensable skill of all health staff, since cultural sensitivity is embedded in every health care contact (20).

Promoting intercultural competence

Four steps are suggested to improve cultural competence:

1. Sensibility
2. Information
3. Techniques
4. Practical experiencing

Sensibility

The idea of 'culture'

Sensibility includes the perception of one's own culture and of medical science as cultural, despite its tendency to see itself as a 'culture of no culture' (21). It is important to discuss the false idea of culture as something that exclusively competes with or disturbs the ongoing preconception of a non-cultural science. The consequent posture of these preconceptions is that the scientific project must 'purify' all cultural and social interferences through biological processes, to better treat people.

The idea of culture as something static or crystallised must also be questioned as when cultural identities are judged by past behaviours or material elements what often results is a reduction of the notion of 'culture' to the exotic, reinforcing the idea of the otherness of culture. (For a review of the spectrum of cultural concepts, see Stocking Jr (22), Kuper (23) and Eriksen and Nielsen (24).)

Culturally appropriate care

It is important to start from an understanding that the processes of life-illness-searching for help-death is complex and a culturally lived experience. As seen earlier, a failure to provide culturally appropriate care can lead to dissatisfaction of all involved, as well as poor adherence and adverse health outcomes. The triad of empathy, curiosity and respect must be encouraged (2).

Information

The information step should initially focus on the characteristics of each context and on specific minorities and how these aspects relate to epidemiologic and demographic data, as well as cultural information.

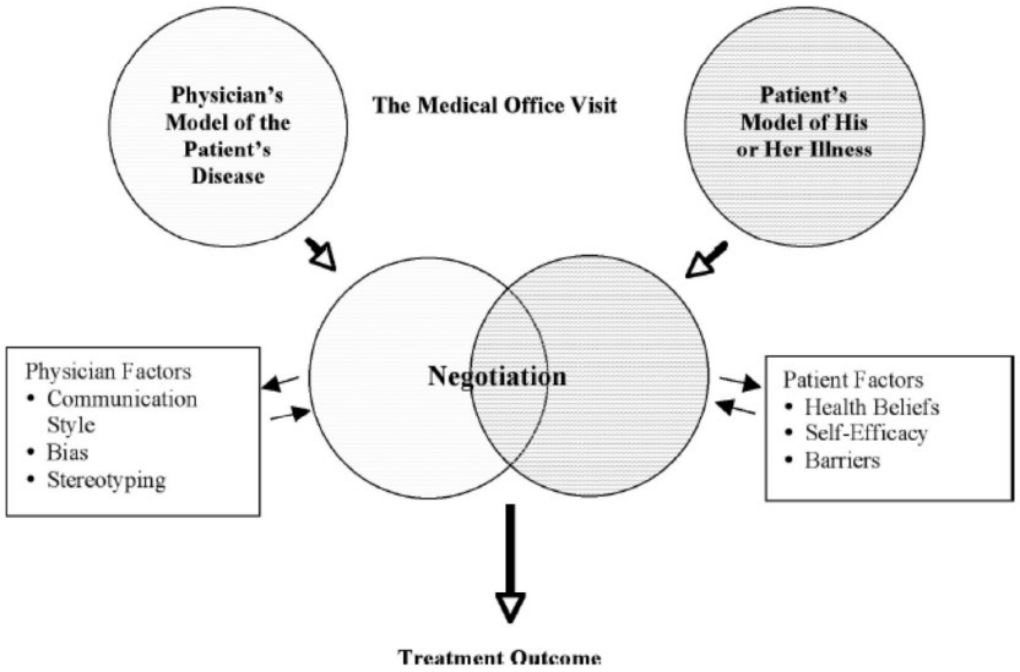
Rather than attempting to learn an encyclopedia of culture-specific issues, however, a more practical approach is to explore the various types of problems that are likely to occur in cross-cultural medical encounters and to learn to identify and deal with these as they arise (2). This kind of 'cultural information' must be continuously updated, as should epidemiologic and demographic data. The different cultural concepts that impact health care (25) can probably be better learned during clinical years where there is already practical experience of individual care and clearer results of its applicability.

Techniques

While many techniques have been developed to help health professionals improve their levels of intercultural abilities, these cannot be successfully applied alone nor without undertaking the previous steps of sensibility and information. These questions and attitudes must not be simply added in an anamnesis routine, however, without deep and individualised reflection.

One common starting point is the Explanatory Models of Illness and Disease (26) – in Figure 1 below. In this theory, the process of illness is seen by health professionals and patients in two different ways. The term 'disease' is used to define the physician or biomedical model of explaining symptoms, etiology, prognosis and better actions to take - while 'illness' is about the way in which the patient, his/her family and cultural group 'see things'. In this way, the role of intercultural competence remains in a middle space of exchange and negotiation - all with a view to establishing a good therapeutic outcome.

Figure 1:
Explanatory models of illness and disease



For this negotiation the LEARN rule can provide a useful guide (27). This mnemonic consists of:

Listen: Listen with empathy and try to understand the other's perception.
Explain: Explain in accessible words the medical view of the problem and diagnostic or therapeutic options.
Acknowledge: Acknowledge and discuss the differences and similarities.
Recommend: Recommend actions and/or treatment.
Negotiate: Negotiate agreement.

There are other mnemonic rules and explanatory models and frameworks which are also useful (28, 29) - including the introduction of mapping therapeutic itineraries, making visible the relation between health systems (official or not).

The point that these new discussions can offer is that the negotiations between parts should not be restricted to values and ideas but also to which actors and concrete things in the worlds involved in health process must be mobilized to reach the agreed objectives. So the issue for cultural competence extends to all the abilities and knowledge used by primary health care teams in the care of patients, families and communities. It cannot be reduced to an exoteric discussion about beliefs, which many physicians may find difficult, and makes the work much harder. So, for example, constructing a narrative of an illness can be done by asking the following questions (30):

1. How do you describe this problem?
2. What do you believe is the cause of this problem?
3. What course do you expect it to take? How serious is it?
4. What do you think this problem does inside your body?
5. How does it affect your body and your mind?
6. What do you most fear about this condition?
7. What do you most fear about the treatment?

One way of taking forward this intercultural perception and communication is through something like a 'mini-ethnography' (alluding to the core methodology of anthropology) (22). This could entail the professional and health team doing the following six things:

1. Identify ethnic identities, without stereotyping. Sometimes, the best way to start it to simply ask the patient about ethnicity and its salience.
2. Define what is at stake in this specific episode of illness, in an individual and broader perspective.
3. Reconstruct the illness narrative (see questions 1-7 above);
4. Consider psycho-social stresses that may be associated – and construct a list of possible interventions together.
5. Perceive the influence of culture on clinical relationships. Critical self-reflection can produce the unsettling but enlightening experience of being between social worlds (for example, the world of the researcher/doctor and the world of the patient/participant of ethnographic research).
6. Take into account the question of efficacy and the problems of a cultural competency approach. Be aware of the potential side-effects of this (see Table 1 below).

Table 1:
Potential mistakes in, and side-effects of,
the cultural competence approaches

Intrusion	Sometimes people, families or communities have a cultural interest in a therapeutic process, seeing it as inadequate or intrusive. This can happen especially when cultural problems are hyper-valued or when a difficult symmetrical dialogue takes place between science and other knowledge systems.
Evolutionism	Transforming distances in time (31), where science and occidental lifestyle are the parameters of judgement of all other forms of lived and known reality. Medicine becomes the moderniser or saviour of others and of their delay.
Homogenising identities	Stereotyping produces a tendency to overlook internal differences that can be important – and has the potential to impoverish practice and negatively discriminate. It is useful to be careful in some situations.
Reduction of culture to exotic aspects	Forget that our own culture and science, as health professionals, are parts of a cultural system – producing a tendency to be ethnocentric.
Crystallization of culture	Condemn people to immobility, barring them from living as they want to. Discrimination because of 'culture lost' can occur.
Hyper-valorisation of culture and culture competence	The illusion that when cultural aspects are identified the problems will automatically be resolved. It can also delay the discovery of other relevant aspects.
Neglect cultural aspects as 'social interference'	Seeing cultural aspects as 'social interference' sacrifices the possibility of understanding and help. This narrowing of the net involved in such health processes diminishes the potential of therapeutic encounters.

Practical experiencing

All practical training and practice must be directed at establishing an empathic climate which includes various worlds and points of view. This is important not only in individual consultations but in all contacts between the health professional and their community - especially in rural and remote areas and small cities where relationships are often closer.

Cultural aspects can be more effectively addressed when they are included in all students' and residents' activities – such that non-contextualised discussions are avoided wherever possible. There needs to be a deep understanding of the possible problems inherent in the cultural competence approaches (see Table 1 above) and be included in learning activities.

Community health workers can provide an important intercultural bridge. They can help with many tasks of the health team such as picking up various heterogeneities in a community, identifying sub-groups at special risk, learning local expressions and local values, and identifying regional non-official resources in health that are references for population like traditional healers, prayers, midwives, people who knows herbs and natural medicines. Respectful relations must be established with these other systems and co-operation must be attempted whenever possible.

Anthropology's contribution

This approach to cultural competence can sometimes erroneously be seen as too 'mental' or semiotic, since it is derived from an interpretative approach in social anthropology, led by Clifford Geertz (32). The idea that intercultural health encounters provide the challenge to create bridges exclusively between points of view of an external reality, presents health professionals with serious difficulties. In some situations there is a feeling that it is not enough - or conversely that the situation is brimming with ethical questions in which physicians feel caught between yielding too much to non-scientific theories/ being seen as negligent and being too yielding / being ethnocentric.

Recent advances in anthropological theories (33, 34, 35, 36) can help to further develop this co-operation between social and health sciences to provide better health care in relation to the needs of various people (20). Perhaps the main question is about the possibility of a really symmetric dialogue between points of view which are as differently empowered as medical science (disease) and others

(illness) – given that one of these poles always thinks that it has privileged access to something that the other does not, namely 'reality'. It is not a matter of whether or not scientific method is valued as better than other ways/methodologies of dealing with natural challenges that humanity faces. It is also not a matter of knowing if the results obtained in many areas through science are real or not, but rather what the exact reasons are for this; and, especially, what everyone can learn from each other, with these diverse of forms of knowledge.

Ten key questions for organisations striving for cultural competence (4)

1. Is cultural competence embedded in the philosophy, mission statement, policies and key objectives of the organisation?
2. Are culturally and linguistically diverse staff employed throughout the hierarchy of your organisation?
3. Have you ensured that all staff receive comprehensive training for cultural competence on commencing employment?
4. Are resources on cultural competence and ethno-specific information readily available to employees in the workplace?
5. Has a cultural self-assessment of your organisation been conducted, and if so, have strategies been implemented in the areas identified as needing further improvement?
6. Do you have a strong understanding of the cultural profile of your local community?
7. Are employees encouraged to be flexible in their approach and seek information on specific cultural behaviors or understandings so that interactions with staff, clients and partner organisations are sensitive to cultural differences?
8. Does higher management actively promote the benefits of cultural competence?
9. If you are delivering essential services do you have an adequate translating and interpreting policy?
10. Is there a system of incentives or rewards for initiatives in the workplace which are culturally competent?

Looking forward

It is not possible to reproduce here all the possibilities for future research on cultural competence but it is important that a reflection on the limitations of current theories and techniques be made and complements or alternatives looked for. It is especially important when researchers (37) conclude that some academic family medicine practices are frustrated and are challenged to integrate cultural and linguistic competence into patient care.

Finally, periodic evaluations of intercultural abilities and users' perceptions of cultural adequacy need to be undertaken, as well as feedback remodeling actions. These evaluations must address all levels of learning and practice - like sensibility, information, techniques and lived experiences as well as all organisational, educational and practical levels. The involvement of community members and the stimulation of collegiate councils are strongly recommended.

Practice pearls

What to do

Health policies, educational institutions and training positions

- Reinforce primary care characteristics such as continuity, comprehensiveness, coordination, decentralised access.
- Embed cultural competence in the philosophy, mission statement and policies of health educational institutions and all health policies.
- Ensure cultural diversity (including racial, gender, minority identities) in all involved in educational process according to local context.
- Democratise access to health undergraduate and postgraduate education and decentralise institutions and their training positions.
- Train all professionals involved in educational process in cultural competence.
- Facilitate access to demographic data, epidemiologic patterns and anthropologic researches.
- Facilitate access to adequate information for users and cultural accessibility.
- Have professionals skilled in translation and intercultural intermediation available when health professionals are not proficient.

- Periodically evaluate health professionals' intercultural abilities. This must address sensibility levels, information, abilities (techniques) knowledge and practical experiences/ performance.
- Evaluate users' perceptions of the cultural adequacy of health services.

  Implement incentive, dissemination and rewards systems.
- Involve community members, stimulate collegiate councils.
- Secure faculty time, teaching time, and funding for cultural competence curriculum.

Teaching process and care practice:

- Include cultural competence as a continual process throughout all training - passing through stages of sensibility, information, techniques and practical experience - rather than treating it as an ability to be acquired in a single moment.
- Integrate components of cultural competence into different aspects of the educational curriculum so it is not viewed as an added burden.
- Integrate the issue into scheduled activities by discussing cultural aspects in all activities with students and residents, especially in clinical years - in clinical cases, seminars, rounds, etc. - to ensure it is not addressed only in theoretical non-contextualised discussions.
- The educative process must achieve:
  - ❖ recognition that life and death and the process of becoming ill are complex and culturally lived;
  - ❖ acknowledgement of cultural competence as a Primary Care and general good medical practice;
  - ❖ recognition that a failure to provide culturally appropriate care can lead to patient dissatisfaction, poor adherence, and adverse health outcomes;
  - ❖ recognition that all health professionals belongs to a culture; that there is no totally neutral science and that culture is not only a feature of someone else;
  - ❖ understanding that the same disease can be perceived and lived in different ways by each person, family, community (and health professional) – that there are different notions of 'disease' and 'illness';
  - ❖ understanding and use of the explanatory models, the LEARN rule, the mini-ethnography, mapping of therapeutic itineraries;
  - ❖ the importance of accessing information about more common local beliefs, behaviours, values;

- ❖ capacity of work with interpreters and health community health workers;
- ❖ ability to establish a respectful and, when it is possible, co-operative, relationship with traditional healers.

What not to do

- Do not insert punctually but transversally the training of cultural abilities and experiences in curriculum;
- Avoid working with notions of:
  - ❖ culture as something that competes with or disturbs the ongoing concept of a
    - o 'non-cultural' science;
  - ❖ culture as something static, crystallised;
  - ❖ reducing culture to exotic aspects;
  - ❖ identities as homogeneous blocks; and cultural competence as encyclopedic data about each culture which can simply be memorised.
  - ❖ stereotyping groups, while acknowledging the presence of common attributes:
  - ❖ cultural competence as a way of knowing the other, convincing them to 'do what is right';
  - ❖ cultural difference as temporal; do not use medicine to 'modernise the primitive';
  - ❖ cultural competence as a moral attribute rather than a medical skill.
- Do not hyper-estimate the value of cultural aspects in all cases.
- Avoid incorporating the techniques and questions about culture in an automatic way in an anamnesis routine.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.3.2

GENDER AND CULTURE IN AGRICULTURAL COMMUNITIES

Susan Brumby[1]
Deakin University, Australia

Introduction

> *'More than 3 billion people – almost half of the world's population – live in rural areas and roughly 2,5 billion of these rural people derive their livelihoods from agriculture.'*[1]

Wherever health practitioners are working, it is vital that they are aware of the local cultures as well as have insights into their own perceptions about farming populations and how these may affect their work. As noted by Mahoney, Fox and Chheda2 there are growing societal expectations that health professionals are more knowledgeable about specific population-based issues and that they make prevention a higher priority. To do this successfully, they must be aware of, and work with, local cultures – while not being complicit in practices that continue to harm, injure or discriminate.

This chapter focuses particularly on agricultural communities and the role of culture and gender.

Evidence

Agriculture is the largest employer globally – and a greater proportion of employed women (38%) are directly involved with agricultural production compared with men, 33% of whom are involved in this sector.[1] The role of women in agriculture is particularly evident in developing countries – while in developed western countries like the USA, Australia, Canada and various countries in Europe, the majority of farmers and agricultural workers are men.[3-5] A large proportion of the working poor are also found in agricultural and rural communities.

[1] Prof Susan Brumby is the Director of the National Centre for Farmer Health, School of Medicine, Deakin University, Waurn Ponds, Australia. She is also an executive member of the regional Western District Health Service, Hamilton, Australia.

In both developed and developing countries. farming remains one of the most dangerous occupations[6] – though it is usually men who are more likely to be maimed or killed while working on farms[7-10] as they are more likely to be operating machinery, to be working longer hours outside of the home, and to take risks; also they tend to not use personal protective equipment.[11-13] Whilst other industries have managed to significantly reduce workplace fatality rates, agriculture death rates have remained relatively unchanged over the last decade.

Gender and equality

Even though many women have assumed leading positions in many societies, statistical data show that property ownership continues to be registered in men's names, particularly in rural areas.[14] This is due to the strong history and continuing culture of patrilineal inheritance and, in some areas, customary laws which ensure that the ownership of land is generally passed on to a man.[15] Patriarchy is defined as the system whereby men have greater power and economic privilege relative to women, for no other reason than their maleness.[16] The registration of farmlands in the names of husbands, business partners, brothers or sons, often financially disadvantages women as wives, daughters and sisters by excluding them from land ownership of the farm.

Finding women to marry the sons of farmers has become a succession issue in some contexts and is a concern in these farming communities. The reality TV programme "Farmer wants a Wife" which commenced in 2001 has been successfully run in over 30 countries.[17] Women marrying into farming families find themselves in similar situations to those born into these families; they are expected to live within social mores which require them to be compliant, to be 'as good as gold' and not upset the status quo. Research has suggested that the very survival of family farms relies on this compliance.

If marital difficulties or separations occur, women who pursue their economic entitlements are seen to threaten the sanctity of the family farm – as illustrated in *From 'As Good as Gold' to 'Gold Diggers'* by Price and Evans.[18] As the farm is seen to 'belong to the male side of the family', the women and children usually have to vacate the family home and leave the farm, relocating children. Whilst laws in developed countries may recognise equal contributions, the social mores that characterise women unfairly as 'gold diggers' means that they may leave the family farms with significant economic disadvantage.

The culture of work, families and farm labour

In both developed and developing countries many farms are family businesses; the practice of children and members of the extended family working on farms is part of the tradition and culture, and is often also an economic reality. Not surprisingly, the agricultural sector accounts for the largest share of child labour (129 million boys and girls) working on subsistence, commercial and family farms.[1]

As part of working in the family enterprise, most children are not in an employment relationship. In many developed countries children are exempt from Child Employment Acts if they are employed in a family business, such as farms. According to the International Labour Organisation (ILO), more than half of these children engage in hazardous work[20] making agriculture a common setting for fatal and disabling non-fatal injuries in children[21] – in both developed and developing countries. The challenge is keeping children safe and checking that chores and farm work are physically and cognitively suitable for them. Child labour on farms varies from offensive slavery to simple tasks such as bringing in firewood or feeding chickens. Where the situation is not necessarily exploitative and does not interfere with their education, most children are compliant and might enjoy being involved in agricultural work, illustrating the positive attributes of this reality.[19]

Partners (usually wives) actively assist on the farm and/or work off the farm to provide additional income. While this work has been described as 'invisible', some projects have recently started creating new histories of rural life and are documenting the contribution of women to agriculture.[22]

In addition, elderly parents and grandparents often continue to assist and work on the farm until they die. Their loss of physical functionality and increasing frailty often means they are at increased risk of accident and injury.[8]

In summary, in many situations on farms, children, women and older people can be vulnerable parties in need of special consideration when seeking medical advice.

Migrant and refugee labour

Agriculture also provides jobs and wages for workers and in many countries, the workforce demand for international migrants to undertake farm work is rising. As such, immigrant and refugee communities have played a central role in the development of the agricultural sector in filling labour gaps, while bringing new agricultural foods and practices, innovation and knowledge transfer.[23] Numerous countries now have seasonal worker programmes and longer-term backpacker visas to allow people to enter the country provided they spend a proportion of their time undertaking farm work or working in rural areas.[24]

Migrant workers are recognised as being among the most vulnerable members of society, as they often engage in dirty, dangerous, and demanding tasks.[25] In addition, transient workers can be subject to exploitation including poor working environments (dust, heat, cold), inadequate living conditions and the risk of sexual assault. As such, these populations experience high rates of occupational exposure and injuries and have specific and unique health needs. Not only is this due to the physically hard and dangerous nature of the work but also, in part, to language or cultural barriers and reduced access (geographically, economically) to health care and information.

As reported in various countries, migrant women are especially vulnerable. They are disadvantaged by multiple simultaneous sources of oppression: by their 'race', class, gender and other identity markers like religion, cultural practices, language and sexual orientation – as well as by a number of structural factors in the agricultural industry. Being female in a male-dominated industry, living in poverty, and being an immigrant often without work authorisation or visas[26] compounds the challenges for women working in the agricultural sector.

Rural health practice realities

Being a rural health practitioner entails providing care for children, men and women and older people who work on farms, as well as transient workers. It entails working within extended family dynamics, unequal ownership and people inhabiting a workplace that is also a home.

A response to the challenges: The Sustainable Farm Families™ Programme

The vision for the Sustainable Farm Families™ programme – initiated in Australia in 2003 – was to improve the health, wellbeing and safety of farm families. This is a major issue facing agricultural businesses in Australia and developed countries as farmers are getting older, working harder and longer, are experiencing poor health outcomes, have high rates of injury, workplace death and suicide.[27] Most farms rely on all family members for extra labour.

The SFF™ programme fits into the primary health and community health portfolio as it

- integrates health promotion with improved outcomes for the farming community;
- creates supportive environments for health as a result of personal skills development and strengthened community action;
- expands service options and access to information to support self-management;
- works across diverse sectors – health and agriculture; and
- values and encourages the participation of farm families (men and women).

Recognising the family farm as a partnership, the SFF™ programme has engaged with both men and women and with the extended family; of those participating, 54% have been men and 46% women. Over 2,500 farmers across every state and mainland territory in Australia have participated. In 2014 the SFF™ programme was successfully piloted in Alberta, Canada where similar health and safety issues were found among farmers; it continues there to this day.[28]



Source: https://www.farmerhealth.org.au/sustainable-farm-families/sff-programs

The programme has been showcased as an innovative approach to long-standing rural health issues and, over the decades, has been recognised with numerous awards. The SFF participants showed statistical improvement in most health indicators for cardiovascular disease, diabetes, obesity, mental health and improved safety behaviours.[27]

Through cross-sector collaboration, the SFF™ programme has built capacity through training and research in both the health and agricultural workforces, as well as in local communities and individuals. The research data and information collected have provided critical insights into the relationships between the farmer, their health, their farm, the family and farming sustainability.

The health and agricultural professionals who deliver the SFF™ programme are intentional in avoiding perpetuating the myth of farmers as being fit, physically able and mentally robust; rather they recognise the complexity involved in farming and the families involved.

For more information see https://www.farmerhealth.org.au/sustainable-farm-families/sff-programs

Broader applicability: The agrarian myth and the culture of seeking help

The agrarian myth of an idealistic life on the land pervades images and perceptions of farming and agricultural communities and is often promulgated in marketing and advertising campaigns. These typically portray fit, independent, handsome and strong men with supportive wives and families. This self-sufficient and utopian image may prevent health practitioners from seeing, understanding and engaging with important facts, as well as from really hearing what people in rural communities are seeing or doing to themselves and each other.

This myth can also act as a barrier to people seeking medical help when they need it, as evidenced in the poorer health outcomes and shorter life expectancies of rural populations compared with those living in cities.[29] This reluctance to seek assistance includes acute emergencies. For example, contrary to logic, among people who are experiencing chest pain, the further away they are from medical assistance, the longer they wait at home, risking further harm.[30]

Globally, high suicide rates among farmers and agricultural workers are also reported; a recent systematic review noted an excess of suicide risk among agricultural, forestry, and fishery workers.[31] Numerous studies report that rather than seek assistance, people in rural communities will conceal their distress and pain or have limited capacity and social competence to express or identify their stressors.[32] To gain relief from stress or normalised body pain they may self-medicate with alcohol, and only access mental health and health services after a crisis occurs.

Apart from an increased risk of preventable lifestyle diseases and workplace injuries, studies show there is also increased levels of alcohol consumption in some farming and rural communities.[32, 34] Given the strong cultural element of alcohol consumption in the history of some countries' settlement, this is not surprising. A particularly strong reliance on alcohol as part of any rural social interaction has been nurtured by the tradition of bootlegging, making local brews, and the payment for farm work with 'dop' (wine) in South Africa and rum in Australia.[34-36]

Educational suggestions for approaching these issues with students

1. To raise awareness of **stereotypes and assumptions**, here is a simple exercise.

- Ask students to jot down five words to describe a farmer.
- Collate the responses on a white board, or with a web-based Wordcloud such as (https://www.wordclouds.com/)
- Use these for the basis for discussion on who 'a farmer' is generally thought to be; allow the group to reflect on their assumptions.
  (In the experience of the author, the words to describe a farmer tend to be overwhelmingly male, white, physically strong, weathered, independent and so on. If a farm family is imagined, it is a heterosexual nuclear family.)

2. Get students thinking about some of the cognitive skills and physical abilities young people need to undertake farm work in relation to the normal development milestones of children and young people. Ask them the following:
   - From what age might children drive heavy machinery, or handle livestock?
   - Are children being kept home from school to assist with farm tasks?
   - If children present from a farm incident, how you would ascertain what activities they were doing on the farm?

3. To highlight that many accidents occur to older farmers, particularly slips, trips and falls, ask students what questions they should be asking when older patients present with farm injuries?

4. Students should be encouraged to undertake home visits, as these provide the opportunity to develop a deeper understanding of the many issue that impact on health in agricultural communities. It would be a valuable learning experience to

write case reports, and reflect more deeply on any underlying socio-cultural and family issues.

Conclusion

Health among farming communities is affected by a range of factors: the division of labour; family and societal traditions including land ownership; the employment of family and migrant labour; high risks of injury and disease; and access to services.

History and established traditions are a strong predictor of attitudes, habits and behaviours that continue in contemporary farming and rural communities, despite their approach seeming anachronistic.[27] The effects of these habits and cultures are reflected in the current health, wellbeing and safety of all those who work and live in agricultural communities today and who will seek the advice and services of rural health practitioners.

Practice pearls

- Beware of stereotypes as they can obscure opportunities to understand people who are different from ourselves. While stereotypes supposedly give us a general overview of whole groups of people so we know what to expect and how to act, we need to be aware that they can, in fact, blind us to reality and what is obvious.
- If possible, follow up on injuries by undertaking a home visit to a farmer or a farm family, as these provide the opportunity to develop an understanding of the nature of farming in family businesses.
- Ask children about the chores and farm tasks they undertake and consider the suitability of these tasks.
- If anyone is injured or hurt, discuss how they may prevent these incident/accidents or injuries happening in the future.

What to do

- When men or women who work on farms come for health care visits, take time to undertake a general health assessment and find out what is happening on the farm.
- Develop an interest in agricultural issues as a means of building rapport with patients and families from agricultural communities.

- Understand the culture and perpetuation of stereotypes and myths around the rural farming community in which you are working.
- Make everyone responsible for farm health, wellbeing and safety.
- Remember that farmers are often the first to offer help, but the last to seek it.
- Intentionally value and affirm men, women and children who work on farms as core contributors to society; the world relies on farmers.

What not to do

- Do not assume farmers are fit, physically able, heterosexual and mentally robust.
- Do not presume that all children are happy and safe working on farms.
- Do not presume that women can easily leave a relationship when they are working and living in a farming and rural community.

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12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 1.3.3

DEVELOPING GENDER AND CULTURAL AWARENESS FOR RURAL PRACTICE

Susan P Phillips
Queen's University, Canada
(with input from Barbara Zelek, *Northern Ontario School of Medicine, Canada)*

This chapter addresses the following questions with a view to developing a gender and culturally inclusive awareness for rural practice in medical education:

Is medicine different across place, culture, and gender?
Does sensitivity to gender or cultural difference shape who we are as doctors and patients?
How can we best train medical students to live and work in settings where norms, values and expectations are at variance with their own?

Introduction

There I was, the non-native, young physician[1] providing primary care to eight isolated native communities in Canada. In the local language I was the 'nurse doctor' as the word for doctor was 'medicine man'. Even more confusing was the role of the male nurse with whom I often worked and who presumably was referred to as 'doctor nurse'.

I suppose I am part of a global feminisation of medicine attributable to both an influx of women and a 'walking away' from the profession by men. The gender shift has been particularly evident in general/family practice. In Canada female medical students outnumber males, although the ratio of male to female family physicians is about 3:1, reflecting past gender imbalances. This ratio is the same in urban and rural settings, despite a belief that women shun rural and remote practice (1).

1 A 'physician' here (and in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

Gender stereotypes: The 'rugged male'

The typical picture of the family physician (2) and, the rural doctor in particular is, nevertheless, the rugged male. Although hardly scientific, a Google search of why doctors choose rural practice unearthed many images of male physicians hiking across fields and forests (often wearing stethoscopes), riding horses, or roasting pigs on a spit. On those rare occasions when women are pictured, they are at work, smiling at children, and wearing those white lab coats most of us abandoned years ago. A recurrent picture is what might be labelled 'The Big Fish', not because the doctor gets to be 'a big fish in a small pond' (a role some might seek) but because the man pictured (the rural doctor) is holding his catch of the day – a big fish!

Such images deter young female doctors from rural practice. If learners do not see themselves in their preceptors[2] or work mentors, they will avoid such practice settings. Yet while the icon of the rural physician is stereotypically male and not inviting for women, Canadian women are drawn to remote practice with the same frequency as men. Perhaps the survey identifying the attraction of the rural setting as 'a place to make a difference' has greater explanatory value than does 'the big fish' for why women physicians might choose to leave the big city (3).

Being female or male is genetic, permanent (I will not discuss transgender here), and not dependent on geography. Combining sex and place of practice does, however, give rise to malleable gendered effects. The realities of rural practice and life will be different for men and women. For example, male doctors will often be seen (and may see themselves) as physicians first, while for females the ambiguity of doctor versus parent may be the more common reality. Communities may view the single male physician as 'a catch' and the single female doctor as a social oddity. Can education remove such differences or even them out? Not really, because they arise from social circumstances rather than aspects of training. However, we can acknowledge the existence of stereotypes and equip all trainees to both adapt to,
and work toward eliminating, inequities and biases.

2 A preceptor - or clinical instructor/adjunct faculty – is a clinician (person with core clinical skills) who offers clinical teaching at a distant (rural) site.

Gender roles and expectations

Traditional gender roles and expectations remain, particularly in more rural and isolated geographic areas and especially in less developed countries. Their effect on women physicians is universal and subtle, but real. Women continue to bear disproportionate responsibility for home, family, and balancing these with employment. As medical education is distributed outside the academic centre, rural practices face increased pressure to absorb more learners. The extra time commitment required for this may present a particular strain for practitioners (usually female) already juggling home and work. At the same time, awareness that one way to recruit doctors to underserved areas is to welcome them during their training by being the previously absent icons and role models, creates guilt among those women physicians who just don't have time for mentoring.

Advancement in academic careers is also jeopardised, as it is often men who can find added hours to invest in teaching, and are therefore recognised and hailed as leaders and scholars, while their (often physician) wives are devoting those hours to nurturing them and their children. The very nature of rural practice - that is, the necessity to provide enhanced care and maintain extra skills in a setting where these are rarely used - means that if women do work fewer hours or take leave to have children they will have less exposure to the sickest patients and may lose confidence in their abilities.

Gender and the patient-centred approach

I expect that most medical schools strive to combine knowledge and skills training with a patient-centred approach to prepare graduates for practice in any location. Part of patient-centredness is the ability to form relationships, that is, to be interested in and engage with people in their care over the long term.

The ability of a doctor to connect is particularly advantageous and yet challenging in rural settings where the overlap between patient and neighbour is inevitable. Female physicians appear to be more likely to connect with patients (4). However, one of the associated stresses for all, but particularly female doctors, and especially in smaller communities is 'over-connection' - a sense of never having privacy and often being under surveillance. The fact that one has to always be a physician can be overlooked for a year or two, but may become unbearable after many years. Being the keeper of many secrets can be frustrating and isolating over time. Similarly, deepening connections within the community may lead to more and more phone

calls at home and a loss of privacy for the doctor. Education to build awareness of the need for, and ways to find a balance between, maintaining boundaries while being an engaged community participant might ameliorate this problem. Developing self-awareness during medical training will be a recurrent theme throughout this chapter.

The rural calling

Although often from large cities, and with limited experience of living or training outside of an urban centre, the women physicians I consulted in preparing this chapter were drawn to Canada's rural north. Rather than their place of birth or rural exposure during medical education it was an awareness of personal values, sense of service and altruism, and a spirit of adventure that called these women.

Literature from a search of rural medical education is disappointing, full of stereotypes, unsupported conclusions, and articles on why physicians don't choose rural practice, rather than why they do or how education might encourage such a choice. Suggestions proposed include advanced skills training (despite absence of documentation that young physicians lack necessary skills) and financial recruitment incentives (despite failure of such incentives to 'solve' the underserviced problem in, for example, Canada). Much mention is made of non- medical impediments such as being female, finding employment for spouses, quality of education for children, or lack of familiarity with rural settings prior to graduation, all anecdotal and lacking evidence of validity.

There is no clear documentation that those who grow up in smaller communities return or remain in such communities as physicians. Most Canadian doctors working in the periphery are from the big city and have chosen rural practice (assuming that government contractual constraints have not forced them into isolated communities) because of some combination of: 'it's an adventure', there's an aspect of altruism and 'missionary' work that's appealing, they can 'hide' or escape, there's a perception of greater control, autonomy and independence as well as the chance to extend one's scope of practice. For some whose commitment is often only short-term, the attraction may be financial incentives.

Does this play out differently for men and women? Can medical education foster the values and characteristics that make remote practice appealing?

Self and cultural awareness

There is a whole literature on the importance of self and cultural awareness in promoting excellence in medical practice and flexibility in caring for patients across cultural, ethnic, or religious diversity, that is, caring for anyone whose background or values is at variance with one's own (5). Betancourt describes how socio-cultural dimensions and an understanding of these shape symptom recognition, communications, patient compliance, trust and satisfaction, and clinical decision-making (6), while Taylor writes that 'in the medical context . . . this extends to an understanding that physician's medical knowledge is no less cultural for being real, just as patients' lived experiences and perspectives are no less real for being cultural' (7).

To become excellent practitioners of evidence-based medicine, students require training that extends beyond knowledge acquisition and incorporates elements of self- and cultural-awareness. Comfort with working across difference, while required in rural settings, is of benefit everywhere. Training in cultural awareness will open students to difference and to being inclusive and sensitive to the person, rather than just knowing the disease.

With physician self/cultural awareness may come a fear of how rural folks, who are conceptualised as being more traditional and conservative, will deal with heterogeneity. And so doctors may hesitate to move away from their cultural community to a town where they perceive themselves to be outsiders. In most countries physicians anywhere will, at times, feel marginalised and the objects of excess scrutiny or even overt discrimination because of real or presumed differences between themselves and patients.

An education that acknowledges this and prepares students to know themselves, and, at the same time, to be inclusive and open to others will help physicians understand and minimise difference while recognising how these same social characteristics shape patients' health. Trainees may also discover that those who live in remote settings often manage to combine traditional values with an acceptance of diversity, welcoming doctors who are different rather than being wary of them.

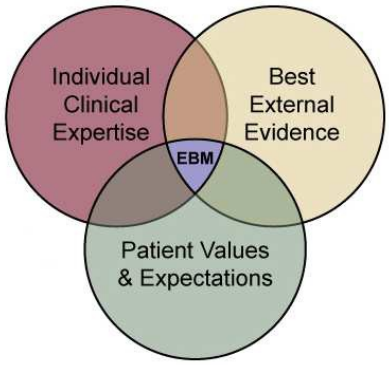
Sensitivity to gender and culture in practice

Among women in those eight remote indigenous communities where I first practiced, there appeared to be an epidemic of abdominal pain, relieved only by rest. Even with limited access to investigations, I could rule out many diagnoses. However, my Canadian medical education seemed to be failing me. How could non-infectious abdominal pain be contagious? With thought, discussion and time I came to understand that women's work in communities with no electricity or plumbing included hauling wood for fires and collecting water for drinking and washing. My patients felt unable to ask their husbands to help, but could use my advice 'to rest' as a way of redistributing an unequal workload. These patients taught me the difference between knowing the evidence and practicing evidence-based medicine (see Figure 1).

> 'Any external guideline must be integrated with individual clinical expertise in deciding whether and how it matches the patient's clinical state, predicament, and preferences, and thus whether it should be applied.' (8)

Figure 1

What is Evidence Based Medicine?



Source: Cochrane Collaboration

More than a technician – and the limits of evidence-based medicine

Both patient and physician are more than proteins, cells and organs. Each has a context, values, vulnerabilities, in other words, a humanity that caregivers must integrate with the pattern recognition of medical science. There is no doubt that even with increasing communication technology, doctors practicing in rural settings need expanded skills relative to their urban colleagues, and require a higher level of comfort with independence and self-reliance. However, it is only by being more than a good technician that a family physician will respond to the uniqueness of individuals in their settings:

> 'An important part of GPs' work consists of attending to the everyday and existential conditions of human being. In these life world aspects, biomedicine is often not the relevant theory to guide the GP ... [there exist two] perspectives of medicine: medicine as the science of biomedicine or medicine as a clinical practice of moral and relational origin, which uses biomedicine as a tool.' (9)

Inclusiveness and working across difference

Concepts of gender, inclusiveness, self-awareness and place are all part of who the patient is, what the doctor brings to care-giving, and patient-centred care.

Physicians are not immune to both the opportunities and constraints of individual culture and gender. In the heterogeneous urban centre, every physician can 'fit in' somewhere. Often this fit evaporates in rural areas where there may be only one acceptable set of behaviours linked to, for example, being female or male, and many ways to feel different. Such differences are often easily diffused but only if one has the insight to recognise them and the skills to talk across culture, race, or gender. These are skills we can and should provide to all medical trainees to build comfort in practising in all settings.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 1.3.4

WOMEN AND RURAL MEDICAL PRACTICE: THE IMPORTANCE OF DOING IT DIFFERENTLY IN THE 21ST CENTURY

Jo Wainer[1]
Monash University, Australia

Introduction

> *'If we were a group of women practising, we would get that practice right and would make lots of assumptions that we can't change the outside world - whereas I think men tend to make the assumption, which is true, that they have much more power in changing the very frame in which they work. And I think part of this is that one of the reasons why women are locally focused is that that's all they can change. They don't have the systemic links to how society's organized. And so part of the essential difference between men and women, which is talked about in even education for example, is that women are more practice-based or more focused on the local and the actual practice rather than the abstract. It's partly because women can't change the abstract in a way that they might if abstract was constructed as what they know and what they think is important.*
>
> *(Study participant 8)*

The structures and values of rural medical practice were developed at a time when rural doctors were men. Doctors were assumed to have wives to do all the family work and enable the rural doctor to serve his community with the support of his wife managing the home and children. This wife-work enabled the doctor to work extended hours and be constantly available on-call. Rural communities employed the doctor and gave scant attention to his family. Since that time, however, women have been graduating as doctors in almost equal numbers to men, and very few women have the wives or partners on which rural practice was predicated.

1 Thanks to Roger Strasser (Northern Ontario School of Medicine) and Lexia Bryant (former president of the Australian College of Rural and Remote Medicine) who supervised and advised the national rural doctor study.

The first attempts to draw women into rural medicine saw heroic efforts to restructure women to work like their male colleagues. After several decades it became apparent that was a fruitless strategy.

Standpoint theory (1), working from women's lives, raises as problematic many things that are constituted as 'natural' and, in their 'naturalness', underpin existing social and professional structures. One example is that women's work in childbearing and rearing and in the general care of bodies is invisible from the dominant perspective, even though it is this invisible work that makes it possible for others to dedicate themselves to socially recognised work. So, also, professional structures are built that depend on, and yet do not recognise, the body work that women do. Training programmes and practice environments in medicine are just such structures. The study reported here makes this work visible and suggests some evidence-based structural changes to address when developing sustainable rural practice for women.

What's the evidence?

The findings reported here are from a 2002 national survey of rural doctors in Australia. The survey was weighted to over-sample women, and was based on an extensive Delphi process (2) with 30 female rural doctors to determine the issues that affect sustainability of rural practice. General practitioners in rural towns with fewer than 25 000 people were the respondents. The response rate was high – with 63% of women (n=604) and 54% of men (n=508) returning usable questionnaires.

Women in the survey were younger while the male doctors more closely matched the age profile of the whole population of general practitioners. The mode for the age of female respondents was 40-44, and for non-respondents[2] it was 45-49. Data on full-time or part-time work for non-respondents were available only for women. Female respondents were less likely to work full-time than non-respondents (64% compared with 74%).

Women's activities were used as the norm and tested to see whether they applied to men as well.

2 The non-respondent data were from AMPCo (2003). AMA Publishing Company. Sydney, Australian Medical Association. 2004.

The work of rural doctors

One of the ways in which women are transforming medical practice is by making their families visible, and taking their family work into account in determining their approach to professional work. It is increasingly being recognised in rural practice that doctors have families, and that this matters. As part of the process of making the family visible, the survey sought to document how work in the family interacts with professional work.

Nearly all the doctors in the national survey were in a marriage-like relationship and had dependent children (see Table 1). An important minority did not fit this description – with 12%of women and 7% of the men living on their own (with or without children). The remainder were sharing their lives with partners, friends or other family.

Table 1:
Family status of rural general practitioners

Variable	Value	Female		Male		Missing	
		N	%	N	%	Female	Male
Relationship							
	Marriage or de-facto	506	84%	461	91%	8	5
	No partner	74	12%	37	7%		
	Friend	10	2%	6	1%		
	Other family	7	1%	0	0%		
	Other	7	1%	4	1%		
Have dependent children		377	62%	327	64%	4	1
Responsibility for care of children							
	All	52	14%	17	5%	230	181
	Most	166	44%	10	3%		
	Shared	154	40%	249	75%		
	Little	9	2%	54	16%		
	No	1	0%	2	1%		
Care of other family member		105	17%	58	12%	10	15
Mean hours of care for family members during six-day working week		4.7 day	28.2 week	2.5 day	15 week	29	33

Sixty two percent of women and 64% of men had dependent children living with them who required daily support. Fifty eight percent of these women had all or most of the responsibility for their care, compared with 8% of men.

Women were much more likely than men to carry most or all of the responsibility for caring for dependent children. Men are nearly twice as likely to say they share in the care of the children, indicating a substantial difference in world-view about who is doing the work. This is consistent with Quadrio's finding that doctors' wives, whether themselves doctors or not, carry most domestic responsibility (3).
The mean number of hours for those women caring for children or other family members was 4,7 hours on a normal working day, or 28,5 hours per 6 day working week. The mean number of hours for those men caring for children or other family members was 2,5 hours on a normal working day, or fifteen hours per six-day week. Thirty nine percent of men and 22% of women spent no time on family care.

Family work is a key difference between male and female doctors and permeates many of the challenges women face working within a system that ignores their family responsibilities or assumes there is someone at home providing family care. Work, especially work that women do, is much more complicated than the individual patient encounter, or even the booked session. In this study, work was broken down into face-to-face clinical work, other professional work, family work, and community work, reflecting the intellectual and leadership skills that doctors bring to rural communities.

As predicted, doctors work substantially longer hours in clinical practice than they are booked to work. The mean of scheduled working hours per week for women was 26, and the mean of actual hours worked was 33. Eighty one percent of women were scheduled to work the 35 hours or less per week that constitutes part-time in general practice, but only 54% actually did so, with the others working more than the contracted hours.

The male doctors also worked more hours than they were scheduled to work, and worked longer hours than women in clinical practice. The mean number of hours booked for men was 35, and the mean of hours worked was 47 hours.

When the hours of work are aggregated, including caring for family, clinical hours, other professional work and community-based work, men worked a mean of 62 hours and the women worked a mean of 58 hours (assuming a six-day working week for hours of family care, as the variable asked about 'hours on the last normal working day'). This does not include on-call. For those doctors who were caring for family members, the mean hours worked per week was 68 hours for the men, and 62 hours per week for women (see Table 2).

The accuracy of this figure is affected by the non-response bias among women. Women working full-time were under-represented among respondents.

Table 2:
Mean of hours of work per week

	Women			Men		
	Mean hours	Median hours	N	Mean hours	Median hours	N
Family work						
All doctors	22	18	583	9	6	480
Caring for dependents	28	24	452	15	12	295
Professional work not including on-call						
All doctors	37	37	480	54	52	439
Caring for dependents	35	35	351	53	52	251
Total hours of work not including on-call						
All doctors	59	55	462	63	60	421
Caring for dependents	63	60	351	68	65	251
Total hours of on-call						
All doctors	30	14	531	50	18	496
Caring for dependents	28	11	392	22	19	287
Total hours of work including family work and on-call						
All doctors	89	74	428	113	81	413
Care for dependents	91	75	324	90	86	247

Men who were not caring for family members had the highest workload of all rural doctors, working a mean of 113 hours per week. Women caring for dependent children had the second highest workload, working an average of 91 hours per week, including family work, professional work and on-call. Men with dependent children worked 90 hours per week.

The mean for hours worked, excluding family care, for those doctors who were caring for family members was 35 hours for women and 53 hours for men. For those doctors who were not caring for family members their mean number of professional hours worked per week was 44 for women and 54 for men. These work hours do not include on-call. Caring for family members leads to a reduction in clinical working hours of 20% for women, but makes no apparent difference for men.

On-call

Being on-call is an aspect of general practice that differentiates rural and urban practice. Like hours of work, on-call is complex to define – but the definition used in this study excludes time spent in face-to-face clinical work.

While most female rural doctors provide on-call cover for their communities, they provide less call than male doctors. Being on-call is highly problematic for women with dependents most of whom are on-call for their families. Women with dependents said they cannot provide after hours care unless childcare is provided.

Domains of practice

Women practice the core aspects of medicine like their male peers, and yet they have key differences in approach – which are partly a response to patient presentations, and partly a reflection of what constitutes professional satisfaction for women. The differences that have been identified are that women take more time in their consultations, address multiple problems in one consultation, and deal more with women's health and mental health issues than male doctors. And they listen.

In this study female rural general practitioners said they spent nearly two thirds of their time providing women's health, mental health, men's health and counselling services to their patients, and male doctors said they spent half of their time (see Table 3). These data provide quantitative and statistical underpinning to the story women have been telling for some time; that they provide time-consuming and complex interventions in response to the needs of their patients; that this is a form of-practice that has a low profile in rural medical politics, is poorly paid, and highly valued by patients.

Table 3:
Mean percentage of clinical time in different domains of practice

Domain of practice	Mean % of clinical time		Mean Difference
	Women	Men	
Mental health*	15.6%	12.6%	3.0%
Preventative health	14.3%	15.0%	-0.7%
Women's health*	29.9%	12.7%	17.2%
Counselling*	12.1%	9.6%	2.5%
Family violence	2.5%	2.3%	0.2%
Men's health*	5.0%	11.5%	-6.5%
Public health*	2.8%	4.4%	-1.6%
Other general practice*	18.0%	32.0%	-14.0%
Total	100%	100%	

*difference between women and men significant at $p<0.000$

The difference between the percentage of time spent by women and men in six out of eight domains of practice is statistically significant ($p<0.000$). Perhaps not surprisingly, women spend a much higher portion of their consulting time managing women's health consultations than do. The other differences are statistically significant, but unlikely to be clinically important.

Hospital practice

The hospital-based work of rural general practice is one of the distinguishing features of rural medicine. This study showed that two thirds (66%, n=383) of women and 85% (n=429) of men provide hospital-based care including emergency care, anaesthetics, obstetrics, geriatrics and psychiatry. Just under half - 45% of women and 41% of men - provided general practice services only, while 21% of women and 44% of the men provided general practice care plus specialist care. Women were least likely to provide anaesthetics, and surgery under general anaesthetic.

Most of the women who did not provide hospital-based services did not want to do so. Seventeen women and nine men said they were unable to gain access to the hospital because of barriers put in their way.

The pattern of involvement in hospital care for male and female doctors was similar to that of their engagement with emergency medicine. More men do more of this work than women. The reason is likely to be a combination of the preference of the doctor and the work practices and culture of the hospitals, combined with differing responsibility for family care.

Confidence in managing the emergency care that distinguishes rural practice

One of the defining features of rural practice, in addition to providing hospital-based care and on-call, is the management of medical emergencies and trauma. This section addresses the doctors' experiences with that aspect of medical care in which immediate treatment by a doctor improves the outcome for the patient.

The survey asked how much emergency care doctors provide to their communities, and how confident they are to carry out a sentinel emergency procedure (intubate an unconscious patient). Five separate types of emergency medical care were described, covering the range of emergencies that rural doctors are routinely required to manage.

These were:

1. responding to trauma;
2. dealing with an acute medical or psychiatric illness;
3. providing initial assessment in a life-threatening situation;
4. resuscitating a critically ill patient; and
5. stabilising a critically ill patient for transfer.

Emergency medical care

Eighty six percent of female doctors and 93% of male doctors provided at least some emergency care to their communities - with 38% of women and 69% of men sharing, or providing most or all of, this care. The difference between the sexes is statistically significant (p=.000) (2 tailed, Pearson coefficient 124.051, df 4). The number of times they had performed each of the five types of emergency care over the past year are reported in Table 4.

Table 4:
Episodes of emergency medical care over the past year

N Valid F 583 M 490 N Missing F 29 M 23	Times attend roadside or trauma in past year		Times attend acute medical or psychiatric in past year		Times assess life threatening situation in past year		Times resuscitated critically ill patient in past year		Times stabilised patient for transfer in past year	
	F	M	F	M	F	M	F	M	F	M
Mean including 0[3]	3.43	8.2	18.01	44.08	3.83	10.92	1.83	4.44	2.45	5.31
Mean excluding 0	11.69	14.83	19.55	47.26	6.08	13.08	4.49	6.27	5.19	7.01

3 Twenty nine women and 23 men have missing values for all five variables. For those cases with intermittent missing data, where there was data in at least one of the variables, missing values were assigned the value of 0 on the assumption that if doctors had provided this type of care they would both remember and report it, given that for most of them it would be an occasional and challenging experience. This is likely to result in an underestimate of the mean. The mean for those doctors who reported having provided episodes of emergency care are reported in addition to the mean for all women and all men.

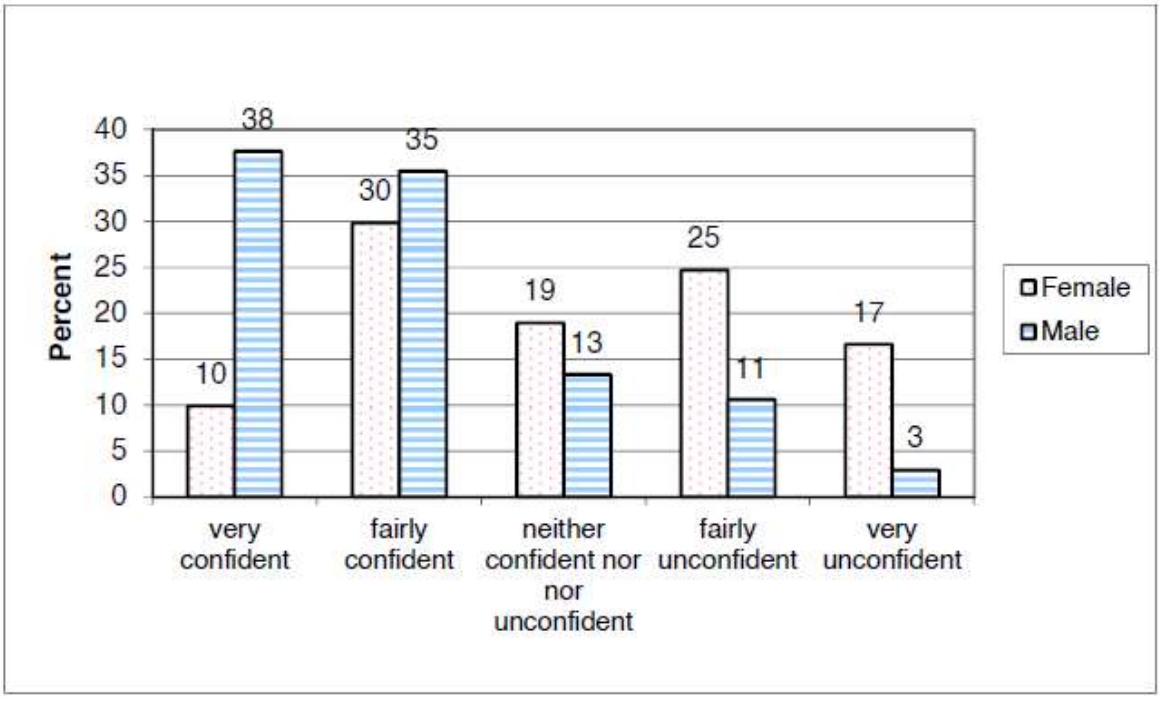
Men provide more episodes of emergency care than women, for each type of care, particularly attending to acute medical or psychiatric illness. Resuscitating a critically ill patient, and stabilising a patient for transfer were rare events for doctors of both sexes. The difference between women and men in provision of emergency services is statistically significant for each type of emergency care. There is likely to be more to this than a lower exposure to medical emergencies because of fewer hours of clinical practice, as we shall see.

Confidence to intubate unconscious patient

Men in this survey were more confident than women to intubate an unconscious patient. There is a statistically significant difference in confidence to intubate an unconscious patient for women and men (Mann Whitney U test z=-13.40, p=.000) (see Figure 1).

The women were divided equally regarding their confidence: 40% (n = 242) were very or fairly confident, 19% (n = 116) were neither confident nor unconfident, and 41% (n = 251) were either unconfident or very unconfident. Nearly three quarters of the men (73%, n = 373) were very or fairly confident to intubate an unconscious patient, 13% (n = 68) were neither confident nor unconfident, and 13% (n = 69) were either unconfident or very unconfident.

Figure 1:
Confidence in intubating an unconscious patient, by sex



Whether confidence equates with competence has not been explored in this study; however the sustained attempts to impose masculine culture on women doctors is likely to be a major factor in undermining the confidence of women doctors. Quadrio has identified that at similar levels of competence 'women consistently rate themselves lower than do their male peers' (Quadrio 2001 p218). If women do not feel confident to manage medical emergencies, then we can expect them to structure their practice to avoid responsibility for emergency medicine.

There is anecdotal evidence that some women were put off training in emergency medicine by the culture of the training environment. It was a particularly important finding that women who were less confident were more likely to prefer an educational programme run by women.

Discussion

An important cultural change that rural women doctors have implemented is that of putting limits to their practice, and establishing clear boundaries between their professional and personal lives. This is hard to do for a rural doctor. The men who preceded them and established the culture of rural practice have left a legacy of the rural doctor always at the service of his community, prepared to die with his boots on – and many of them did – with a wife providing all the invisible family services that support this type of engagement with profession and community.

Women found that this cultural practice does not take into account the complexity of their lives and they needed to do something about that. So first they made their families visible, then put limits to their practice. Women pay a price for this strategy, yet they seem determined to implement it against considerable pressure to work longer hours in clinical practice.

An illustrative anecdote/case studies

The following comments were made by women rural doctors who participated in this study.

> *"I have medical students in my practice - mostly women - for about six weeks a year. My students make me feel very special and value the example I set as a role model."*

"Women just have to do it the best they can. A lot of people do job share during the year they are having their baby. It's becoming more and more acceptable. We were the first to do it, back then - 1997 I think. It was very difficult for our training consultants to do it at the time, but it's becoming much more acceptable; well they are getting used to it I guess. … I mean we are talking about women who start their training programme at the age of 25 or 26. It is a six-year training programme so, as they get towards the end of it, you're talking 30+ – it's time for them to have their babies. So they job share or they do a research year."

"A lot of it is to do with having children, which is the most powerful life-changing forces that there are. And I spend quite a lot of time talking to my younger colleagues about giving themselves enough space to allow that to be available and not trying to compartmentalise having kids into a neat little corner; fit it into the weekend sort of thing. So that biological fact has got tremendous power and tremendous release and gives you tremendous capacity to understand more about yourself than almost anything else, I think."

Broader applicability and implementation

Flexible practice structures that allow female rural doctors to be women as well as doctors are being implemented by women. They have worked flexible hours, changed waiting rooms and patient information practices, structured communication with practice staff, established co-operative working arrangements with male colleagues, shared on-call and time off after being on-call, set limits, built in time for paperwork, accepted help from colleagues, worked in salaried positions, scheduled appointments to leave time for emergencies, set up practices where all doctors work part-time, and found supportive professional and life partners. These women are transforming rural practice.

Women seem to be more able than men to set limits to their practice. Women are perhaps harder to tame than men - less easily lured by promises of money and status to do the work of two when they are only one. The shortage of rural doctors gives them leverage to require that their complex lives be taken into account when structuring rural practice and they resist considerable pressure to overwork and to be constantly on-call.

Women are leading the way in implementing flexible practice models, and changing rural practice as they go; they are changing the very frame in which doctors work.

Practice pearls

More women will become rural doctors when the structure of practice reflects the way women live their lives and practice medicine.

What to do

Create flexible patterns of practice to encourage women to become rural doctors.
Recognise that female rural doctors are on-call for their families as well as their community and put in place systems to support this.
Create models of 'easy entry/graceful exit' [4]to rural practice to allow men and women doctors to work in rural areas when family structure permits, and leave and return when circumstances change.
Ensure there is a place in the community for the whole family.
Structure continuing medical education to make it accessible for all rural doctors.

Do not to do

Do not assume that women can be restructured to behave like men.
Avoid the assumption the rural doctors will work the hours of two people.
It is not sustainable to pay for one doctor when two or more are needed.
Recruiters to rural practice must avoid assuming the doctor has no family.

Conclusion

This study has demonstrated that women and men work as hard as each other, but that women distribute their work more evenly between professional tasks and family and community than do men.

4 I am indebted to the New South Wales Rural Doctors Network for this phrase (http://www.nswrdn.com.au).

The expectation that the rural doctor be available at all times no longer fits the incoming rural general practice workforce. Women are requiring that alternative ways to meet community need must be devised, for the wellbeing of both the community and the doctor and their family. They challenge the rhetoric that 'Super Doc' is the only way to be a rural doctor, and describe medical encounters where their female ways of practice have led to positive outcomes for the patient; they have changed the way rural medicine is practised so that they can be women as well as doctors, and have lives too.

The purpose of medical education and training is to produce confident, competent doctors. All areas of medical education could benefit from acting on the finding that models in which women are absent are clearly no longer best practice.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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(accessed [date]).

Chapter 1.3.5

INDIGENOUS CULTURES AND HEALTH IN CANADA: A PRIMER FOR RURAL PHYSICIANS AND HEALTH CARE PROFESSIONALS

Darlene Kitty
University of Ottawa, Canada

Introduction

Rural physicians are ideally positioned as clinicians and advocates in caring for Indigenous patients, families and communities, across Canada and globally. While significant challenges faced by Indigenous people are generally known, these are not always fully appreciated.

This chapter will briefly describe the cultures and the historical and social contexts of Indigenous peoples of Canada and the health and social issues that affect them. Various strategies that rural physicians[1] can integrate into their therapeutic interactions, clinical work and advocacy are outlined.

Profile of Indigenous peoples of Canada

There are three distinct groups of Indigenous peoples of Canada: First Nations, Inuit and Métis[2]. Comprising about 4,3% of the total population, they are the fastest-growing segment of the Canadian population, with high birth rates and a young

1 A 'physician' here (in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

2 Throughout this document, we refer to these groups as First Nations, Inuit and/or Métis individually or Indigenous peoples collectively. The term 'Aboriginal' is commonly used, 'Indigenous' is preferred. 'Aboriginal peoples' of Canada are defined in the *Constitution Act*, 1982, Section 35 (2) as including the Indian, Inuit and Métis peoples of Canada. (Retrieved 2013 09 01 from http://laws-lois.justice.gc.ca/eng/const/page-16.html). The term 'Indigenous' refers to those groups of people with unique traditions of social, cultural, economic and political characteristics that are distinct from those of the dominant societies in which they live, but historically inhabited this land prior to others'(of different culture or ethnicity) conquest, occupation or settlement of this land. (Retrieved 2013 09 01 from http://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf).

population. The First Nations make up about 61% of the Indigenous population, while Inuit and Métis comprise about 4% and 33% respectively[3].

First Nations peoples live in over 600 reserves or settlements across Canada, while the Inuit live mainly in the far north where their communities are generally small and remote. The Métis, who have mixed heritage of mainly Cree, Scottish and French descent, live in settlements, rural and urban communities. While many First Nations, Inuit and Métis communities are situated in rural and remote locales, many Indigenous people now live in urban centres to pursue educational, career and social opportunities, but sometimes still struggle in poverty.

Many Indigenous languages and dialects are spoken in Canada. There are over 50 First Nations languages which are categorised into 11 linguistic groups (1). The Inuit speak several dialects of Inuktituk, while the Métis speak Michif, a mixed language with predominant elements of French and Cree.

Historical, social and political impacts on Indigenous health

While the Indigenous peoples have lived in what is now Canada for thousands of years, European settlers arrived only around five hundred years ago, establishing the fur trade. Various churches and governments began their campaigns to assimilate the Indigenous peoples, and the non-Indigenous population became the dominant society. Colonisation, dependency and marginalisation have become major factors in the transformations of Indigenous cultures, traditions, health and lifestyles across Canada.

A major tragedy which still profoundly affects Indigenous peoples was **the residential school experience**, instituted by government policies and legislation. Residential schools were operated by the federal government and churches for over 160 years. First Nations, Inuit and Métis children were removed from their families, put into these schools and forbidden to speak their languages and practice their traditions. Many children suffered, or witnessed, physical, emotional and sexual abuse and these experiences still echo in subsequent and current generations. A tragic chapter in Canada's history, similar initiatives have taken place in Australia and in countries in Africa.

3 As not all First Nations communities participated or completed the 2011 census, these do not add up to 100%.

Virtually all Indigenous Canadian families and communities have been affected by residential school experiences and its sequelae remain profoundly and persistently evident. Consequently, depression, suicide, anxiety, substance abuse, violence and post-traumatic stress disorder, among other mental health issues, are common. Though many residential school survivors still struggle, there are success stories of resilience, coping and healing in some patients, families and communities.[4]

Social determinants of health

The social determinants of health have a significant and pervasive impact on Indigenous populations, influenced as they are by these historical, social and political factors. Poverty, crowded and substandard housing, lower incomes, gender and social issues such as widespread substance abuse, violence, and neglect - and even culture itself - have negatively affected Indigenous communities.

In addition there has been a dramatic decline in the intimate connection to the land and in access to and availability of traditional foods, such that Indigenous peoples have become more sedentary and consume more store-bought foods. Being of poorer quality and higher in carbohydrates, these foods affect their metabolisms, resulting in obesity, insulin resistance and diabetes in First Nations peoples. These are less evident in the Métis and are rarely an issue in Inuit populations, although this has recently been increasing.

Indigenous health status

Overall, the historical and political contexts and the social determinants of health have contributed to the current disparities seen in Indigenous health in Canada. Chronic conditions affecting First Nations adults include hypertension, arthritis, allergies, back pain and diabetes, while their children and youth are commonly afflicted by allergies, asthma, otitis media, dermatitis and learning disabilities (2). Inuit populations have high rates of certain conditions such as tuberculosis, injuries and cervical cancer, whereas Métis health issues may be less pronounced.

4 For more information, please go to the Aboriginal Healing Foundation website: http://www.ahf.ca/publications/research-series.

Physical, sexual and emotional abuse, suicide and substance abuse are also significantly higher in First Nations, Inuit and Métis children and youth (3) – and their prevalence is probably underestimated. These young peoples' social situations are often difficult, so that they end up in foster care. In fact, there are now approximately three times more First Nations children and youth in foster care than at the height of the residential schools era in the 1940s (4).

In 2001, Smylie et al reviewed the cultures and demographics of First Nations, Inuit and Métis peoples, their history, social contexts, health status and the concept of cultural competency (5). This was updated in 2013 in an article by Wilson et al in which they included more specific information on Aboriginal women's health issues, such as the higher prevalence of cervical cancer, sexually transmitted infections and gestational diabetes (6).

While Indigenous peoples, cultures and traditions are resilient in the face of these challenges, the impacts of historical events and the current social determinants of health present a long and difficult healing journey for many Indigenous patients, families and communities.

Providing culturally safe care

In order to provide culturally competent and safe care, it is important that rural practitioners learn the history, political and social backgrounds of Indigenous communities, as well as the demographics and epidemiology of health and social issues.

Practitioners need to consider the concepts of health, balance, harmony, Indigenous values, beliefs and worldview. Along with, or instead of, Western medical care, Indigenous peoples may use traditional healing methods, such as ceremonies and medicines. While all three groups follow a holistic approach to their health and wellbeing, the First Nations and Métis peoples may use the Medicine Wheel as a paradigm of health and healing - physically, mentally, emotionally and spiritually - whereas the Inuit do not.

Ideally, practitioners should be able to explain diagnoses and treatments in ways that are tailored to the patients' language and levels of education. This enhances patients' understanding, decision-making and compliance, bearing in mind that Indigenous patients and their families may communicate and interact with others quite differently from mainstream society. It is important to engage Indigenous patients as active participants in their care, using a holistic approach that includes their family (7).

Health care practitioners are also important advocates for First Nations, Inuit and Métis health and well-being, particularly of children. They also offer primary care and public health initiatives with a view to improving the health status of these communities through education and activities (8). Indigenous patients who are knowledgeable about and coping well with their medical conditions, mental health or social issues, are likely to be more motivated and compliant in their own care.

Health care resources are dependent on Indigenous governance structures such as tribal councils, as well as on health organisations, and agreements with provincial, territorial and federal governments, including First Nations historic and modern day treaties, which vary across Canada. Recent changes in Métis and Inuit health care are evolving as a result of government agreements and changes in status. Medical practitioners should familiarise themselves with the health benefits specific to the community or region where they are working.

Illustrative anecdote

This story is based on an actual case in my training:

A 53-year old First Nations man arrived by ambulance at the Emergency Department of a small city hospital in Northern Ontario, yelling loudly, being uncooperative and agitated, with his wrists restrained to the bed rails. I went to see him while nurses attempted to calm him down and do his triage. After introducing myself as the physician who would assess him, he told me that he was a residential school survivor. I touched his shoulder, looked at him directly and said to him "I understand". As soon as I asked him to calm down so that we could remove the restraints, he complied.

As I began to take the man's medical history and examine him, he reported complaints of chest pain, palpitations and shortness of breath for the past two hours. His vital signs were T 37.4C, P 155, R 32, sat 89% on room air and he was diaphoretic, Glasgow Coma Scale 14, glucometer 6.8[5] and no alcohol or fruity odour on his breath. Chest sounds were crackles at bases bilaterally, normal heart sounds. ECG showed rapid atrial fibrillation. Nurses quickly gave him oxygen and intravenous access. Since he was unstable, we sedated him and successfully conducted electrical cardioversion, restoring normal rhythm and pulse rate. His vital signs quickly improved and his symptoms resolved.

He was admitted for monitoring and to rule out acute coronary syndrome, while his medical history and current issues were considered in closer detail. His alcohol use and newly diagnosed atrial fibrillation required prompt interventions by the health care team. While cardiac investigations were otherwise negative and his medications were adjusted, he learned about his medical conditions and the social worker counselled him. On discharge, he was referred for follow-up to a multidisciplinary clinic that serves the nearby First Nations community where his family lives.

This patient had been known to the Emergency Department staff over recent years, having been seen previously for alcohol intoxication and related symptoms. He could have easily been perceived as being 'drunk again', the serious cardiac diagnosis could have been missed and the emergent care delayed. Therefore, health care professionals should not make assumptions or be judgemental when treating Indigenous patients.

The attending physician and nurses later learned that his behaviour, physical and mental health problems and non-compliance with treatment were a result of his residential school experience, alcohol abuse and probable post-traumatic stress disorder. Considering this, supportive adjuncts, such as an addiction treatment programme, traditional healing, counselling and consistent clinical follow-up, can be prescribed and potentially lead to a positive outcome.

5 For non-medical readers: his vital signs indicated signs of cardio-vascular and respiratory instability.

Practice pearls

What to do

Culture, traditions, norms and behaviours are intricately connected to the health of Indigenous patients, families and communities. Think about your own values, beliefs and attitudes compared to those of Indigenous peoples.
Learn about the specific cultural group or community, its history and traditions, the geography and connection to the land, and especially the residential schools experience. Its pervasive deleterious impact on health status and social contexts will be reflected in the relevant epidemiology.
Visit an Indigenous community, whether it is rural, remote or urban - explore and learn! Connect and interact with Elders and community members who will share their culture, traditions and resources, such as ceremonies, that your Indigenous patients may access.
Learn the Indigenous concept of health and use its holistic approach, specific to the culture and community where you are working. .
Reach out to Indigenous youth. Encourage positive self-esteem, peer support, appropriate coping skills and living a healthy lifestyle through engaging and empowering them.
Network with local and regional health care providers who are knowledgeable about the health and social problems, resources.
Educate your patients, families and communities on specific health issues in ways that are suitable; ask them what they think, what they can do to improve their own health.
Enhance the therapeutic relationship: be more patient, attentive and listen well, allow for silence. Your Indigenous patient(s) will feel more comfortable and talk about their problem(s) more openly. Be flexible with your time.

What not to do

Do not tolerate racist, prejudiced and judgmental attitudes. Indigenous peoples still face unacceptable views and remaining echoes of colonisation.
Do not assume that all Indigenous patients are the same. As with other cultures globally, there is a kaleidoscope of Canadian Indigenous people - some of whom struggle with everyday life, some who function well in their community or elsewhere, and some who are accomplished.

Do not work only with the patient. Involve their family as a source of information and support. Consider the community as an opportunity to teach, learn, educate and enjoy.

Conclusion

Rural physicians, medical students and residents, as well as other health care practitioners who work with Indigenous populations in Canada are encouraged to learn about the health and social issues through medical curricula clinical experiences and work opportunities. The historical, social and political contexts of Indigenous communities are important aspects that support the knowledge, skills and attitudes of health practitioners that are needed for this work. This must include Indigenous teachers, community engagement and collaboration as partners in education, research and health services.

As the health of Indigenous populations is poor and social problems are more prevalent, goals for improved health, services, resources and funding must be sought and established, through a culturally appropriate and holistic approach to care. The central tenet, culturally safe practice, is paramount in working towards reducing these disparities, and improving the health and quality of life of First Nations, Inuit and Métis peoples. (9)

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secretariat@wonca.net

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Chapter 1.3.6

THE INTERFACE BETWEEN ORTHODOX AND TRADITIONAL HEALTH PRACTICE

Chris Ellis
Family physician, South Africa

Introduction

Rural areas are mostly characterised by poor resources, inefficient transport systems and populations that still retain their individual cultures. Health-seeking behaviour is therefore affected by these conditions. When a rural patient becomes ill, the pathway that they take (called 'pattern of resort') usually follows the same route in most parts of the world - obviously depending on the availability of resources and clinics.

The patient usually consults the female members of the household with the grandmother or mother being the holder of the indigenous health knowledge of the family. If they are not available, a recognised female (or occasionally a male) elder in the village or community is consulted. Home remedies or local herbal remedies are then given to the patient. In some Asian and African countries up to 80% of the population relies on these traditional medicines for their primary health care needs. If further treatment is required, help is sought from a traditional healer or a local government clinic or pharmacy if available. Availability very much governs use.

One of the principles of traditional health practices is not only to treat the illness but also to restore the balance of health and perform suitable ceremonies and rituals to restore harmony with nature and the environment. These practices also address spiritual and cultural dimensions of health as well as sacrifices, purification or cleansing rituals for the appeasement of spirits or for the removal of pollutants, curses or spells.

In recent years, with the increasing introduction of the modern media into rural areas, many Western-orientated ideas, cultures and knowledge have been integrated with indigenous health knowledge.

Herbal medicine use

In rural areas local plants, shrubs and barks are used for medicinal purposes – and occasionally animal and human tissues are also used. The local herbalists often gather the herbs themselves and know how to use them. In urban areas the plants and herbs may be brought a long distance into the market and their use may not be well known or misused.

Herbs may have active therapeutic agents, may be inert and act as a placebos or may have toxic effects such a hepatoxicity or nephrotoxicity.

Emetics, purgatives, analgesics and ointments/salves are some of the commonest uses. Herbs are administered as mixtures, teas, infusions, pills and enemas.

Shamans may also use plants, such as mushrooms and cacti, for their hallucinogenic properties (mostly due to phenol alkaloids) in both healing and sacred ceremonies.

The collecting of herbs is now done on such a scale that some flora face extinction.

Traditional healers and shamans

Traditional healers or shamans are widespread throughout the world but are usually more prominent and have greater standing in rural areas. The term 'witchdoctor' was used generically in the past, often in a pejorative manner by the West, along with a condescending attitude to traditional beliefs, which were labeled as superstition.

There is a great variety of traditional healers who may be divided into herbalists or diviners/clairvoyants but there are also traditional birth attendants and bone setters as well a faith healers. Faith healers often combine the principles of the major world religions with animistic or traditional beliefs and form sub-cultures of religious and healing beliefs.

Some healers use scarifications, cautery or cutting over the effected parts on the basis of letting out evil spirits or poison. Needling and acupuncture are also widespread. The use of emetics and purgatives is also widespread and sanctioned on the belief of removal of poison, internal snakes or equivalent creatures or spirits, or the healing of 'internal sores'. Other traditional healers use ventriloquism, ecstatic trances, throw bones or use local divining traditions. A wide variety of protective devices and charms are also used.

Some of the theories behind their powers are as follows:

They are an hereditarily acquired gift or trait, often running in families.

Many traditional healers have a calling or vocation.

In the theory of depth psychology it is proposed that some persons have an aptitude or can acquire and develop a heightened perceptual awareness and are able to connect on a transcendental or extra-sensory level. This can also be enhanced by neurolinguistic programming. Persons who go into traditional healing schools to train to be healers may acquire these attributes from isolation and meditation.

There may be a higher incidence of schizophrenic type/dissociative disorders in this healer population.

There are also many charlatans;

Practical point

You can use two power questions to find out about a patient's health beliefs and culture:

"Have you seen the traditional healer?"

"What did he/she say was the matter or cause of your illness?"

As some patients are reluctant to tell you that they have seen a traditional healer, I often go straight to the second question and ask "what did the traditional healer say?" making the assumption for them. I also do this with children and ask the mother straight away "what did you put in the enema?" rather than ask "did you give the child an enema?" as they may be reluctant to admit this.

Cultural and mythical explanations of illnesses *(traditional indigenous illness aetiologies)*

Explanations of illness and causational models can take several forms.

1. Worldwide one of the most common explanations for illness is bewitchment which is a generic term with several diffuse concepts. Sorcery, on the other hand, appears to be a more conscious act and has more specific objectives in the form of curses, hexes or spells. The results of both, in a medical context, is that the patient believes, or has been informed, that someone has cast a spell or a curse on them or has poisoned their food or drink. Patients may believe that poison has been placed inside a woman or that the sorcerer or malevolent agent has used various other avenues to convey harm to the patient.

2. Familiars or familiar spirits are mythical creatures who are said to assist sorcerers in the practice of magic. They can be animals (cats, owls, snakes, panthers and other animals) or be in human or humanoid forms. Bewitchment can be carried by a third person who may not know that he or she is the carrier of the bewitchment. In the main, witches are thought to be female and sorcerers are male.

3. Tracts are of two main types. Firstly there may be tracts on the ground where poison or harmful medicines have been placed and the person steps over the tracts and contracts the illness. Secondly some indigenous people believe that when moving, both men and women leave something of themselves behind as a track. This tract may be visible or invisible and can be followed by spirits or sorcerers.

4. Spirit possession can be by chance, or by a foreign person, or a spirit, or a family relative who died away from the home and who has not had the appropriate burial rituals performed.

5. Ancestral displeasure can cause illness or misfortune when family rituals or sacrifices have not been performed or taboos have been crossed. Belief in illness being caused by the removal of protection by the ancestors or forefathers is common in many cultures. Normal rituals or ceremonies are carried out by families both for anniversaries, integration procedures as well as to appease ancestors if ancestral displeasure is thought to be the cause of the misfortune. 'Ancestor worship' is a misnomer. The process is that of connection and family integration.

6. Pollution can occur when taboos are crossed or contravened. Taboos can be involved with states such as bereavement, pregnancy, after childbirth or when a man has found that he has slept with a menstruating women.–Pollution can also occur after handling a corpse or committing rape or a murder.

These cultural or mythical phenomena can cause illnesses such as hysteria or dissociative states - as well as anxiety and depression.

It is important to note that almost any illness - such as diabetes, sterility, epilepsy to sicknesses in children - can be believed by the patients to be caused by these cultural phenomena. They can also be used as an excuse or attempted diversion from other causes such as alcohol and substance abuse or absenteeism from work.
Obviously trauma, infection and biomedical conditions are mostly recognised within the Western medical technological model but many of the expressions of distress in a community can be presented in ways that are specific to the area, culture or ethnic group. This can be a collective phenomenon especially in times of conflict, economic depression or political change.

There are also culture-bound or culture-specific syndromes that can be:
variants of disorders already known in Western medicine;
unique conditions to the specific culture, with no direct counterpart;
conditions where culture influences the expression of the disease or mental illness.

Often the most difficult to assess are the relatively rare but unique culture-bound conditions as they are usually spiritually and socially constructed and do not follow the normal categorisation patterns of Western medicine. On further enquiry many of these cases are found to be due to conflict in families, interpersonal conflicts or problems at work as well as disagreements over money, resources or possessions.

The interface between orthodox medicine and traditional medicine

Worldwide there are steps being taken for the regulation, registration and integration of traditional healers into the Western health systems.

Practical point

From our experience, traditional healers are more open to co-operation than the hospital and clinic doctors. When we meet with them, there are far more traditional healers than doctors. So make it as easy as possible for the doctors to attend and use your most persuasive voice.

In these meetings I emphasise:

- that we are not in competition and that our services are complementary, but that some serious illnesses may be delayed if they are not referred appropriately and timeously;
- that we would like them to encourage the patients to continue taking the medications that we have prescribed such as for diabetes, hypertension, epilepsy, ARVs and TB treatment;
- that we understand that patients may wish to leave hospital to perform traditional ceremonies or request management of a traditional nature and encourage traditional healers to communicate with us and share the care of such patients with us; and
- that we will advise them of any toxic effects of local herbs that we have treated.

In these meetings it is best to use an interpreter or counsellor who has credibility with the specific community.

It is reasonable to assume that the most genuine traditional healers attend these meetings and it has been suggested that each hospital or clinic establish a panel of reputable traditional healers to invite for consultations and referrals. This all takes time and is the beginning of building bridges and trust.

Practice pearls

Key Issues

It is helpful to know local customs, health beliefs and the healers that are important to the patient.
Also be aware of
- local history and traditions
- local medicinal herb use
- ways of communicating with traditional healers
- types of traditional healers in the area.

Have a knowledge of
- causational and cultural explanations of illnesses in the community
- Local culture-bound syndromes and conditions

Lessons learned

Failure to go beyond the presenting somatic symptom and find the real reasons for the encounter and their explanations
Patient may express themselves idiomatically or via local or historical knowledge and therefore the doctor may not be aware of, or understand, the full context or importance of the illness.
Some patients are reluctant to tell the doctor about their health beliefs.
Lack of communication with local traditional healers leads to misinterpretation of information and confusion and may be followed by poor adherence patterns. Any illness or accident, however trivial they may seem to the examining doctor, can be attributed by the patient to supernatural forces.
Beliefs can vary from valley to valley and the same named condition can have different interpretations and be given different explanations.
The personal beliefs and interpretations of the individual patient is the most important one, even if it differs from the doctor's or the group's beliefs.
Exploring patient's beliefs and negotiating medical agendas with these perceptions and beliefs is a lifelong art.

What to do

Keep an open mind.
Make sure your therapeutic agenda is in harmony with the patient's reason for encounter.
Ask your attendants and staff about local customs and beliefs.
Visit homes.
Meet regularly with traditional healers.

What not to do

Do not assume anything.
Do not forget to obtain collateral information about the patient's condition from relatives or staff.
Do not expect quick results. Some changes take generations but we can sow the seeds now (called priming medical education).

Conclusion

Traditional health practices come under the broad rubric of alternative or complementary medicine. They are based on home remedies, herbal medicine, local folklore and consulting with traditional healers. There is a body of indigenous health knowledge and beliefs in each rural community. Advice and treatment is usually given by elder females in the family in most cultures. Local herbs may be known and used for treating various illnesses. It is useful for the doctors in the local clinic and hospital to know the commonly used herbs and their possible toxic effects.

There are many traditional healers and shamans especially in rural areas and they have a variety of ways of managing patients. They may be herbalists but, in the main, the majority treats the mythical, cultural, and spiritual aspects of illness. They address the explanations and causes of illness within the cultural belief system of a community.

Traditional medical practices are mostly unregulated and vary widely from community to community. Regulating traditional health practices is therefore difficult due to the variations of traditional remedies and the categories of healers. We often have to balance our medical obligations with culturally diverse practices when beliefs, traditions or remedies may harm or endanger a patient.

Western health care which operates from rural clinics and hospitals is now formulating methods of working together with traditional healers as complementary practitioners as well as ways of communicating and integrating them into evolving health systems.

The management of minor health problems within the home situation by female elders in rural areas helps relieve the burden and numbers now experienced in primary health clinics. Programmes for further education in disease prevention and health education for home health workers and traditional healers will encourage safe health practices as well as acknowledge conventional indigenous health knowledge.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.1.1

FOUNDATIONS OF A RURAL MEDICAL SCHOOL: PEOPLE, PLACES AND PATIENTS

Tarun K Sen Gupta
James Cook University, Australia

Introduction

While there is a variety of models for operating a rural medical school, they all depend on the same key elements: people, places and patients.

Key *people* include: staff, both academic and administrative; preceptors[1] and other clinical teachers; and students. *Places* include teaching and placement sites, and infrastructure to support student teaching and accommodation. *Patients* are key. While simulation can augment the clinical experience, there has to be enough breadth and depth of clinical activity and patient exposure to support the planned number of students.

Structure and environment

In addition to these specific factors relating to people, places and patients, it is also important to consider the broader structure of the medical school, and the environment in which it operates. While the environment of the School will influence its structure and operations, the School itself, its staff, and its students can positively influence the environment in which it is located.

The structure and environment of the School are inextricably linked with its operation. Schools based in metropolitan areas may offer some or all students placements in rural areas for part or all of their clinical training. For example, in Australia, the Rural Clinical Schools offer an opportunity for 25% of each cohort to undertake 50% or more of their clinical time in rural areas. Other schools may be based in regional or rural areas with students undertaking placements in or near their home location.

1 A preceptor - or clinical instructor/adjunct faculty – is a clinician (person with core clinical skills) who offers clinical teaching at a distant (rural) site.

A common tension is balancing the need to centralise teaching resources and infrastructure in larger centres against the need to offer students placements in smaller rural and remote sites. Many schools are adopting distance education techniques (e.g. internet, webinars, Skype, videoconferencing etc), and distributed models, with locally staffed nodes, in order to meet this challenge. Models such as Continuous Longitudinal Integrated Clerkships[2] (CLIC) immerse small groups of students, supported by staff and other resources, in rural communities for extended periods, typically one academic year or longer. This approach has been shown to produce at least equivalent clinical experience and academic performance compared to conventional models.

In all these approaches a model has been chosen to fit the region, to maximise the use of available resources, and to match the School's structure. For this reason many rural schools deliberately choose a distributed model on the basis that the region cannot support the entire student cohort in the one location. The best rural medical schools reflect the milieu of the region in which they are located, are community- engaged and socially responsive and have a vision to positively influence the communities and region they serve.

The environment of the School should be considered early in the School's planning process. The geography and economy of the region are important as they will impact on the *people* – the staff and students, who will be attracted to live, study and work there. The health needs and special features of the region should be considered. For example, medical schools in areas with a large Indigenous population may develop a focus on Indigenous health, thereby providing a point of difference that may be attractive to potential applicants, and offering prospects of research and clinical service that may benefit the local health service.

The resources available to support clinical activity – teaching hospitals, nursing homes etc – will determine the *places* in which the students learn. And finally, the culture, the engagement of the community and the health system needs to be considered: a positive, supportive culture that embraces teaching, learning and research is essential for the operation of a rural medical school. Similarly, the school needs to develop a culture that celebrates and values the rural aspects of its programme. The school's leaders need to understand and manage these many relationships.

2 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

The structure of the School should reflect the local resources and how these can best be deployed to meet the learning objectives. In some settings there will be a choice of an undergraduate or postgraduate programme. The former may be attractive for some rural schools as many regional / rural areas will have many more school-leaver applicants than graduates. However, access to basic science teaching and associated facilities (e.g. anatomy labs) will need to be considered, which may be less problematic in graduate courses. The School needs to develop appropriate selection strategies, ideally based on evidence and reflecting the School's mission and desired target market.

The curriculum should have an adequate rural component, including placements, rural case studies and formal teaching about other aspects of rural health and rural communities. It is important to get the assessment right, including assessing important aspects of the rural context, the so-called 'context validity' (1).

Support for students and staff can be provided: some of this, e.g. library access can be provided remotely via use of information technology, but there are benefits from peer support and interaction, and some student support is better provided face-to-face.

Operation of a rural medical school therefore requires definition of the objectives - what the School is trying to achieve and the availability of resources. This will lead to some important decisions like what elements of the curriculum should be delivered where, and what resources need to be provided or developed. The next stage is to consider the specific details of the people, places and patients needed to put the plan into action.

People

Students

Selection of students, as described separately in this guidebook, should have appropriate processes matched to the school's mission and based on evidence where possible. A rural background is the strongest predictor of a career in rural medicine, with evidence that positive discrimination can be undertaken in ways that maintain entry standards and satisfactory academic and clinical performance.

Staff

Staff need to be carefully chosen: innovative programmes require staff with vision, who are positive, committed to the cause, and with skills to manage relationships with key stakeholders and the occasional detractors. The importance of key teaching staff who understand, or have experience of rural medicine and can act as role models for students, cannot be overstated. In addition, staffing should reflect the geographic footprint of the school and curricular needs. There may be a need to employ rural staff, both academic and administrative, in the central school/university structure to provide leadership, direction and some co-ordination function.

The essential staffing, though, are those people in rural centres who support students on placements. Academic staff may be drawn from local clinicians, from a variety of disciplines, who have a fractional appointment with the school.

Local administrative staff play a pivotal role - developing local relationships, managing student timetables, troubleshooting and being a local point of contact and co-ordination. Indeed, in many sites, skilled and committed administrative staff can continue to manage and run a rural programme without an on-site academic.

Finally, preceptors must be recruited, supported and trained: they are responsible for much of the teaching, and their goodwill must be nurtured and harnessed. They can be drawn from a variety of backgrounds – students often find the inter-professional perspectives of rural placements one of the unexpected bonuses – and may be a source of future academic staff.

Support for staff is vital – rural academics need career paths, and preceptor support should be practical and relevant, recognising their needs and their time constraints. Support for students also needs to be provided in rural areas.

Schools need to actively manage all of these people, relationships and lines of communication – a challenging task across distance and competing priorities, particularly as schools grow.

Places

The school needs to develop appropriate places to teach and consider how to best match available resources with curricular requirements and student location. This may mean that some things are taught centrally on the main campus/es and others taught in rural locations. Students can be moved, or ideas can be moved, by use of the IT solutions mentioned earlier.

Schools need to resource rural sites and develop accommodation and infrastructure to support local teaching. The school should try where possible to develop dedicated infrastructure rather than renting or borrowing space, say, for example, from the local hospital. 'Bricks and mortar' brings some assurance of permanency that rented space does not. External grants may be needed to develop such facilities, often in partnership with the local community or health provider. There may also be opportunities to integrate vertically or horizontally with other providers of health professional education.

Patients

The final aspect to consider is patients. How does the volume and breadth of clinical experiences offered by the patients in a particular area match curricular requirements?

While curricular experiences that are not met may need to be provided by other means, these are relatively rare. While simulation can be used to augment and enhance the students' learning experience, the focus of their experience should be the patient. Students may express concern about missing out on didactic teaching, but can be reassured by the international experience that their outcomes will be at least equal – it not better, given the breadth of their experience.

Most rural programmes find that students value the rich clinical environment, the exposure to undifferentiated problems, and integrated learning from being immersed in the health care team – although in general, students benefit more from close contact with patients rather than professors. Immersion in real aspects of health care is motivating and stimulating for the student. They also learn about the health care system and their community and form valuable professional relationships with staff (2).

Finally, community and patient attitudes to teaching and research should be considered. While most rural communities warmly welcome students, some may be unfamiliar with the teaching and learning environment, and any concerns such as confidentiality and consent should be addressed.

Case study: James Cook University School of Medicine

The James Cook University (JCU) School of Medicine in North Queensland, Australia was established in 1999 with the mission to

> ' … pursue excellence and provide leadership in medical education and research. In particular, programmes will be responsive to the health needs of the communities of northern Australia and JCU will be a leader in the focus areas of rural and remote health, Indigenous health and tropical medicine for Australia and for the wider Asia-pacific region.' (2)

This mission reflects the School's environment as Australia's first tropical medical school, with several regional centres serving a large Indigenous population and many rural and remote areas. The new JCU medical school was built on a platform of medical education and a network of community-based practices and clinical teachers established some years earlier through The University of Queensland's North Queensland Clinical School.

Structure and environment

The School's structures, such as the curriculum, reflect the region's environment. All students study a subject in their second year called Rural, Remote, Indigenous and Tropical Health, which sets the foundation for these important strands of the course. Many cases are taught in these contexts, supported by appropriate teaching material and assessments. All students undertake a minimum of 20 weeks of rural placements in the programme across years 2, 4 and 6, with many completing additional placements.

The School supports a multi-disciplinary rural health club and has developed close connections with key rural organisations (2).

People

The School considered how to recruit the right people. A student selection process was developed, weighted in favour of rural and remote applicants, with a separate, parallel process for Indigenous applicants (3). Many staff with significant backgrounds in rural, Indigenous and/or tropical health were recruited. The network of community teaching practices was further developed and strengthened, with additional preceptors recruited, support mechanisms established, and fractional appointments, both academic and administrative, made in a number of key rural sites.

Students appreciated the range of rich clinical experiences and immersion in the health care team, and developed significant networks and connections. As anticipated, they had little difficulty in meeting curricular requirements, with teaching in a small range of specialised topics (e.g. neurotrauma, transplant medicine) being delivered by videoconference.

The School is tracking outcomes of the nine cohorts of graduates since 2005. Early indications are that many of the School's aims are being met. Interest in general practice, rural medicine and other generalist specialties remains high (4). Over 50% of graduates undertake internships in the region, with another 25% in other regional settings. Early trends suggest different patterns of practice to the other established Australian medical schools, with a minority of JCU graduates working in capital cities (5).

Places

The School also developed appropriate places for its teaching and research programme. Clinical Schools were established in the regional centres of Cairns, Townsville and Mackay, with rural nodes developed in many sites such as the Atherton Tablelands, Mt Isa district and Whitsunday region.

Significant infrastructure was developed for student accommodation and to support teaching, often in partnership with local organisations.

Growth of the School has been accompanied by growth in rural placements and sites used, with significant resources devoted to supporting and co-ordinating placements.

Patients

Patients were overwhelmingly supportive of the concept of 'their' medical school. Communities welcomed students and staff, partnerships were developed and opportunities for collaboration identified.

Broader applicability

Rural medical schools, whether they are designed *de novo* or are part of a larger established existing structure, must address these principles in a number of stages: definition and design; development; delivery; and distribution and dissemination.

Defining and designing a rural medical school requires constructive alignment of its mission with its structure and the environment in which it operates.

Developing the school requires close connections and partnerships, with local health services and the community, education providers, colleges and medico- political organisations, rural industry groups and other key stakeholders. A number of other 'p's emerge as important and must be considered in the development phase: partners, local personalities and preceptors.

As the School starts to deliver its programme and its first graduates, further impacts will be felt on the workforce. The increased activity due to the presence of growing numbers of students and staff can impact on the health system, developing a teaching and research culture, with positive impacts on recruitment and retention. Successful local models need to be replicated and enhanced; succession planning should start early and include career paths for the School's graduates to become the future teachers and researchers.

Other important aspects of development are investment in appropriate infrastructure and staffing. As the School develops, its influence will grow and it will start to see some sites transforming into a teaching health service. Schools may develop a mutually reinforcing symbiotic relationship with the communities they serve, with students and staff contributing to, and enhancing, their communities and health systems. These positive impacts of schools on their environment may be especially evident in Schools with a well-developed rural pipeline and a strong mandate for socially accountable medical education.

Finally, the School needs to collect data on graduate outcomes and on successful models and ensure that as graduates are distributed in areas of workforce need these findings are disseminated and the model promulgated.

Practice pearls

What to do

People, places and patients are important elements to consider when operating a rural medical school - the 'three-legged stool' of rural placements.
Consider the milieu of the School, its environment and structure.
Schools should develop a socially accountable mandate and aim to positively influence the communities they serve – symbiotic medical education.

What not to do

Don't neglect any of these elements – they are an integrated whole, all interlinked and interdependent.
Don't forget to evaluate outcomes and disseminate them.

Conclusion

People, places and patients define the 'three-legged stool' of rural programmes and rural placements. Each of these three legs is essential: without any one of them, the stool will fall over. The three legs of the stool exist in a milieu – the structure and the environment - which needs to be understood by the School, and which can be thought of as part of a larger system, the rural pipeline into rural practice.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.1.2

OPERATING A MULTI-SITE RURAL-BASED MEDICAL SCHOOL

Roger Strasser
Northern Ontario School of Medicine, Canada

Introduction

Rural-based medical education may occur through various models: in rural settings as outposts of metropolitan-based schools; in rural settings where the school's territory is essentially rural beyond the school's city base; or where the school has been established specifically as rural-based, with a mandate to produce rural practitioners. While in most cases rural experiences are likely to be multi-site - at least in the sense of students undertaking clinical learning in a range of different community and health service settings – the core of a multi-site school is distributed learning whereby the school operates in more than one site throughout the year, not just for rural placements.

This chapter explores the issues associated with a multi-site rural-based medical school whose mandate is to produce doctors with the skills and desire to practice in remote and rural areas.

What to do

The essential key to success in developing and operating a multi-site rural-based medical school is to maintain focus on the mandate and on the maintenance of quality in both processes and outcomes. Generally, a mandate to produce rural practitioners is one element of a wider obligation to be responsive to the priority health needs of the region or nation which the school serves.

A multi-site school is likely to be most successful where there is a strong commitment to being a single school which is a multi-node network without inherent hierarchy as reflected in terms like 'mothership and satellite' or 'hub and spoke'. It is important to embrace geographic, social and cultural diversity as the strengths and opportunities, rather than realities that have to be managed.

Electronic communications are essential to success in a multi-site school. These range from audio and video conferencing in real time to web-based communications which may be asynchronous. In addition, a digital library service is an essential requirement so that students and teachers have the same access to information and educational resources as if they were in the metropolitan teaching hospital, even in the most remote locations.

Planning and implementation of a multi-site school is most likely to succeed if the key participants know each other and work closely together. When they are located in multiple sites, this requires regular retreats so that group members get to know each other. In other words, it is useful to 'advance by retreating'.

In addition to maintaining focus on the mandate, it is helpful to develop a series of key academic principles which provides the framework for development, delivery and evaluation of academic programmes. For a multi-site rural-based medical school, it is important that these academic principles are rural-specific. Potential principles include generalism; diversity; community engagement; distributed learning; and interprofessionalism.

What not to do

Do not accept conventional wisdom, whether this is about models of medical education or assumptions about rural being second-class. It is important to listen respectfully to the naysayers and to acknowledge their concerns while maintaining steadfast commitment to achieving the mandate and delivering high-quality education.

Distance should never be accepted as a barrier to collaborative development across the multi-node network. Also, it is important to avoid hierarchical models which assume the superiority of some over others.

When it comes to community engagement, never assume that you know. It is important always to ask and to listen so that you develop a true interdependent partnership between each community and the school. It is very important to engage with, and empower, communities. This is challenging because of the usual view of universities as 'ivory towers'.

Electronic distance education

Developments in communication information technology have made multi-site rural-based medical education or distributed learning possible. Electronic distance education provides greater flexibility in the teaching materials and assessment procedures in ways which encourage greater learner centred education.

In addition, electronic communications have enhanced distance education by facilitating more interactive teacher-student/student-teacher relationships towards a 'learning network' rather than a 'teaching hierarchy'. This is sometimes described as the 'democratisation' of the teaching-learning process.

Northern Ontario School of Medicine

Although part of Ontario, the most populous province in Canada, Northern Ontario is geographically vast, comprising different economic and social characteristics from the southern part of the province. Forty percent of the population of 800 000 lives in rural and remote areas with a diversity of communities and cultures, most notably Aboriginal and Francophone peoples.

Recognising that medical graduates who have grown up in a rural area are more likely to practice in rural settings, the Government of Ontario decided in 2001 to establish a new medical school in the region with a social accountability mandate to contribute to improving the health of the people and communities of Northern Ontario. The Northern Ontario School of Medicine (NOSM) is a joint initiative of the universities of Laurentian in Sudbury and Lakehead in Thunder Bay - which are over a thousand kilometres apart. In addition to the two university campuses, NOSM has over 70 teaching and research sites distributed across Northern Ontario. As such, NOSM is a rural distributed community-engaged medical school which actively seeks to recruit students into its MD[1] programme who come from Northern Ontario or from similar northern, rural, remote, Aboriginal, Francophone backgrounds.

1 MD = medical doctor

The holistic, cohesive curriculum for the MD programme relies heavily on electronic communications to support distributed community-engaged learning. In the classroom and in clinical settings, students explore cases from the perspective of physicians in Northern Ontario. Clinical education takes place in a wide range of community and health service settings, so that the students experience the diversity of communities and cultures in Northern Ontario. NOSM graduates are skilled physicians ready and able to undertake postgraduate training anywhere, but with a special affinity for, and comfort with, pursuing postgraduate training and clinical practice in Northern Ontario.

Community engagement

Through community engagement, communities are actively involved in hosting students and contributing to their educative experience.

Community engagement for NOSM is consistent with the School's social accountability mandate and has a particular focus on collaborative relationships with Aboriginal communities and organisations, Francophone communities and organisations, and rural and remote communities, as well as the larger urban centres of Northern Ontario. For NOSM, community engagement involves the development of interdependent partnerships whereby the communities, through Local NOSM Groups (LNGs), are as much a part of the School as the university campuses in Thunder Bay and Sudbury. These relationships are fostered through the Aboriginal Reference Group, the Francophone Reference Group, Local NOSM Groups, and a vast network of formal collaboration agreements and memoranda of understanding.

Student profile

Consistent with its social accountability mandate, NOSM seeks to reflect the population distribution of Northern Ontario in each medical school class. The selection and admissions process accepts applicants with diverse academic backgrounds in both the sciences and humanities, and favours applicants who meet the academic standards and come from northern, rural, remote, Aboriginal or Francophone backgrounds.

Each year since the first medical student intake in 2005, there have been around 2000 applicants for 64 (previously 56) places. The vast majority of each class - over 90% - is from Northern Ontario, with 40-50% coming from rural and remote areas. There is substantial inclusion of Aboriginal (8%) and Francophone (20%) students. The class mean grade point average (GPA) each year has been approximately 3,7 on a 4-point scale, which indicates that the academic standard of the students is comparable with that of other Canadian medical schools.

The inaugural class

The inaugural class of 56 medical students began their studies in 2005 and graduated in 2009. This inaugural class was the only Canadian medical school class for over ten years in which all students matched to residency programmes in the first round of the national residency match – a recognition of their academic merit. In addition the class was placed in the top 30% in the national Medical Council of Canada examinations. These results demonstrate that NOSM students compare favourably to students from other schools in Canada.

Sixty-two percent of NOSM graduates are training in predominantly rural family medicine and the others are training in various other specialties and sub-specialties. Follow-up studies of family medicine residency graduates who trained in Northern Ontario show that 70% of the graduates are practising in Northern Ontario or similar rural areas.

Socio-economic impact

A study of the socio-economic impact undertaken in 2009 found that NOSM makes a substantial contribution to the economy of Northern Ontario. With a budget in fiscal year 2007-2008 (FY07/08) of $37 million (all values in Canadian dollars), NOSM's activities were estimated to contribute $67 to $82 million per year of new economic activity in Northern Ontario. The bulk of the economic contribution occurs in Sudbury and Thunder Bay, with other communities in Northern Ontario experiencing an estimated contribution of up to $1.4 million per year, depending on the extent of their involvement in NOSM activities.

In FY07/08, NOSM funded 233 full-time equivalent (FTE) positions, located mostly in Sudbury and Thunder Bay. It was estimated that NOSM supported a total of 420 to 510 FTE positions in Northern Ontario through various economic effects. NOSM also paid stipends or honoraria to committee members, Aboriginal Elders and to more than 670 clinical preceptors in over 70 communities. These are likely to be conservative estimates because the following components were not yet in place at the time of the socio-economic impact study: undergraduate year 4; postgraduate years 2-5; and capital or operating funds paid directly to hospitals in support of their teaching duties. Even so, these findings show that when considering the cost of medical education, it is important to look at the whole picture and not just the level of government expenditure per learner. For Northern Ontario, the high level of Ontario government contribution to NOSM is justified by the substantial return on investment for participating communities.

Social impact

In terms of social impact, interviewees reported that NOSM is a source of civic pride and an affirmation of the North's potential as the region enlarges its knowledge-based economy. According to interviewees, NOSM has enriched the reputation of both universities and affiliated healthcare institutions, thereby enhancing the ability to recruit new doctors, researchers and scientists to the North. Interviewees anticipated that NOSM graduates will ultimately relieve the chronic doctor shortage in Northern Ontario. Interviewees also remarked that Francophone and Aboriginal students enrolled at NOSM and the School's commitment to cultural competency training should help alleviate the shortage of doctors serving these population groups.

The most impressive social impact finding was a sense of community empowerment summed up in the phrase "if we can do a successful medical school in Northern Ontario, we can do anything". The establishment of NOSM and its distributed programmes offered opportunities for change and challenges to the status quo. Following the success of NOSM, Laurentian University has established an Architecture School and Lakehead University has opened a Law School.

Conclusion

Essentially, NOSM recruits students from the local underserved rural area, provides them with medical education in the Northern Ontario context and then supports local medical graduates through continuing education and faculty development for their teaching role.

The shortage of faculty[2] willing to take a position in medical schools in underserved regions remains a challenge. This has led to the development of new models of clinical education that turn the constraints of the existing health system into teaching opportunities. NOSM has extended the culture of teaching beyond the traditional teaching hospitals and campus into family practice and other community clinical settings. Community-based health practitioners are recruited as faculty members and NOSM provides training and support for them.

Embedding students in family practice settings ensures that they are exposed to the full spectrum of medical conditions which occur in the community.

Advantages of multi-site rural-based medical education

Initially, the development of rural-based medical education was driven by the workforce imperative. The expectation was that experience in rural settings would encourage a future interest in rural practice. Subsequently research evidence demonstrated that this expectation was justified.

Since the mid-1980s, however, research evidence has been accumulating that there is a specific range of knowledge and skills required by rural practitioners. When compared to their metropolitan counterparts, rural practitioners provide a wider range of services and carry a higher level of clinical responsibility in relative professional isolation. This has led to the inclusion of specific curriculum content on rural health and rural practice in undergraduate medical programmes and in rural-based family medicine residency programmes.

2 'Faculty' is another term for members of academic staff.

In addition, evaluation of rural clinical attachments has demonstrated that the rural setting provides a high-quality clinical learning environment that is of potential value to all medical students. Specifically, rural clinical education provides more hands-on experience for students, with the result that they are exposed to a wide range of common health problems and develop greater procedural competence. This is particularly true for students who undertake prolonged clinical attachments in rural community settings. These students generally outperform their urban counterparts in examinations and in securing the postgraduate training programme of their choice.

Conclusion

Rural-based medical schools produce more generalist practitioners than urban-based schools. These doctors tend to be more responsive to the social and cultural diversity in remote and rural community settings, and also tend to be active contributors to the health team. This has an overall impact of enhancing healthcare in rural communities.

In addition, rural-based medical schools contribute to an improved retention and recruitment of rural practitioners, as well as stimulating rural health research which in turn contributes to improved health care.

Rural-based medical schools also have social and economic impacts beyond the health of rural communities. These include broader rural-based academic developments, including research and graduate studies; economic developments through spin-off employment related to medical education and healthcare; and a collective community confidence that other previously ‘impossible’ initiatives may succeed in the rural setting.

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Rural WONCA (Working Party on Rural Practice)
World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.1.3

DEVELOPING A NEW RURAL MEDICAL SCHOOL IN NORTH AMERICA

Roger Strasser
Northern Ontario School of Medicine, Canada

Introduction

The establishment in 1889 of a model teaching hospital, John's Hopkins Hospital in Baltimore, Maryland (USA), and publication of the Flexner report on Medical Education in the United States and Canada in 1910 set the trend for medical education in the 20th century (1,2). Flexner recommended that medical schools should be university-based and that their education programmes should be grounded in scientific knowledge. This led to the model of medical education whereby the first half of the undergraduate programme is classroom based with a focus on the basic sciences and the second half involves clinical learning in teaching hospitals where the physicians use the scientific method in their clinical practice and research.

By the latter half of the 20th century, there was growing concern that doctors were too focussed on the 'body machine' scientific model and teaching hospital sub-speciality medicine, disconnected from people with everyday health issues in the wider community. These concerns about the limitations of the 'Flexner model' led to non-compartmentalised and organ systems-based medical education[1], problem-based learning, community-oriented medical education and subsequently community-based medical education (1).

[1] Organ systems-based medical education refers to a curriculum design which is organised around organ systems thereby integrating the basic science and clinical science disciplines. For example, students study the anatomy, physiology, biochemistry, pathology and clinical aspects of the respiratory system in an integrated fashion.

Initially, rural-based medical education developed in response to the workforce imperative. The expectation was that experience in rural settings would encourage a future interest in rural practice. Subsequently research evidence demonstrated that this expectation was justified (3,4,5). In North America, rural-based medical education began in the 1970s as 'rural tracks' in the United States (USA) and rural elective clinical placements in Canada (6,7,8).

What to do

A key to the successful development of rural-based medical schools anywhere is to maintain a focus on the mandate – which usually takes the form of producing rural practitioners with the skills and desire to provide health care in remote and rural areas. As there will be many naysayers and forces working against success, it is important to 'keep your eyes on the prize'.

Often the mandate is consistent with the notion of social accountability. The World Health Organisation (WHO) defines the social accountability of medical schools as 'the obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region and the nation that they have a mandate to serve' (9).

For curriculum development, a focus on learning objectives and learning outcomes is critical to success. This approach opens the way to acceptance that the specific clinical experiences and teaching activities do not need to be identical, when comparing one rural location to another.

As students are placed in rural communities, it is helpful to develop collaborative relationships whereby the communities are actively involved in hosting the students and enhancing their learning experiences. This involves community engagement so that the School develops interdependent partnerships with a network of communities across the rural region.

In the North American context, a strong focus on accreditation is essential. The Liaison Committee for Medical Education (LCME) assesses undergraduate medical education programmes against multiple standards. A key to accreditation success is to recognise that there are many different ways of addressing each specific standard as there is a tendency for accreditors to assume that the Flexner model is the only way of fulfilling standards.

Developing a rural-based medical school in North America requires collaborations with a range of hospitals and health services, as well as various levels of government, particularly local government. These partnerships are more likely to be successful when they are supported by formal affiliation agreements or some other form of memorandum of agreement. It is very important to document clearly each side's expectations, including the distribution of responsibilities and obligations for academic activities.

What not to do

There will be many doubters and detractors as you develop a rural-based medical school. In most cases, their views will be based on assumptions and convictions which are not supported by evidence. Nevertheless, it is important to listen to and respect the views of all critics without allowing them to distract you from your ultimate goals.

There is a pervasive view in large urban teaching hospitals that the main reason for rural medical education is to increase capacity. In other words, rural clinical rotations are seen as a 'necessary evil' to relieve the pressure in overcrowded city teaching hospitals. Frequently, the unspoken emphasis is on the word 'evil'. This line of thinking becomes part of the hidden curriculum such that students develop a negative prejudice towards rural health services and rural practice. It is very important to counter this prejudice at every opportunity.

In North America, the trend towards specialism began in the late 19th century such that it is generally accepted that narrow focused specialists and sub-specialists are superior to, and of greater value than, broadly skilled generalists. It is important to challenge this conventional wisdom and become a champion for generalism, highlighting evidence which demonstrates the quality and effectiveness of generalist services, particularly in remote and rural settings.

Similarly, it is important to challenge the assumption that specialists and sub-specialist services can and should only be delivered in urban settings. In small communities, the local doctors and other health professionals provide first contact and continuing care for all health problems. The role of specialist services is to support the local generalist providers as true consultants.

It is important also not to accept the assumption that the 'urban drift' of population and health services is inevitable. Changes in transportation, communication and lifestyle preferences in society contribute to a reversal of population urban drift in some areas.

Northern Ontario School of Medicine

Like many rural regions around the world, Northern Ontario has a chronic shortage of health care providers and relatively poor health status. Recognising that medical graduates who have grown up in a rural area are more likely to practice in the rural setting, the Government of Ontario, Canada decided in 2001 to establish a new medical school in the region with a social accountability mandate to contribute to improving the health of the people and communities of Northern Ontario.

The Northern Ontario School of Medicine (NOSM) is a joint initiative of Laurentian University, Sudbury and Lakehead University, Thunder Bay which are located over a thousand kilometres apart. NOSM is a rural distributed community-based medical school which actively seeks to recruit into its MD programme students who come from Northern Ontario or from similar northern, rural, remote, Aboriginal, Francophone backgrounds (10).

The holistic, cohesive curriculum for the MD programme relies heavily on electronic communications to support Distributed Community Engaged Learning. In the classroom and in clinical settings, students explore cases from the perspective of doctors in Northern Ontario. Clinical education takes place in a wide range of community and health service settings, so that the students experience the diversity of communities and cultures in Northern Ontario (11,12).

Structure and approach

Clinical learning begins at the start of the first year of the programme with two half-day sessions each week - one with standardised patients in the clinical skills lab, and the other in community inter-professional learning sessions at a range of health and welfare settings in Sudbury and Thunder Bay. In addition, all students, working in pairs, engage in integrated community experiences (ICE), during which they continue their small-group learning connected electronically in the virtual learning

environment. These comprise a four-week ICE in Aboriginal communities at the end of first year and, during their second year, two four-week ICE placements in rural and remote communities with populations under 5 000. Approximately one third of the Aboriginal communities are reserves with no road access.

The third year of the NOSM curriculum is an immersive experience known as the Comprehensive Community Clerkship (CCC). This mandatory longitudinal integrated clerkship[2] involves students living and learning in 14 large rural or small urban communities outside Sudbury and Thunder Bay for the full academic year (eight months). During the CCC, students are based in family practice where they meet patients and follow them, including into specialist and/or hospital care. Supervised clinical experience is complemented by direct teaching from local and visiting specialists and family physicians, as well as distance education. In fourth year, students are based in the regional hospitals of Thunder Bay and Sudbury and undertake clinical rotations in specialty disciplines.

Community engagement

Community engagement is a hallmark of NOSM (13) – and is consistent with the School's social accountability mandate. The School's focus is particularly on collaborative relationships with Aboriginal communities and organisations, Francophone communities and organisations, and rural and remote communities, as well as the larger urban centres of Northern Ontario. The development of the MD programme curriculum, which began in January 2003, exemplified this commitment by starting with a three-day curriculum workshop, attended by over 300 participants drawn from across a range of sectors in all parts of Northern Ontario.

Ongoing community engagement occurs through interdependent partnerships between the NOSM and the communities. Through Local NOSM Groups (LNGs), communities are as much a part of the School of Medicine as are the university campuses in Thunder Bay and Sudbury. These relationships are also fostered through the Aboriginal Reference Group, the Francophone Reference Group, and a vast network of formal affiliation agreements and memoranda of understanding. In addition, specific workshops involving Aboriginal people were held in 2003, 2006, 2008 and 2011, and a symposium on 'Francophones and the Northern Ontario School of Medicine' was held in 2005, followed by subsequent Francophone Symposia in 2007, 2010 and 2012.

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2 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

Community members are also involved with NOSM through the selection and admissions process for the MD programme, as standardised patients, and in hosting students during their CCC and ICE placements, thus also contributing to the students' educational experience.

A study of the socio-economic impact of the NOSM has shown new economic activity across Northern Ontario which is more than double the School's budget; and optimism about the future amongst community participants, which they attribute to NOSM (14).

Graduates

Graduates of NOSM programmes have achieved above-average scores in the national examinations, including top ranking scores in the clinical decision-making and patient interaction sections of the Medical Council of Canada (MCC) examinations. In 2008 and 2010, NOSM residents' total scores in the MCC part two (clinical) examination placed NOSM number one out of 17 medical schools. These results clearly contradict the common perception of lower academic standards in rural- or community-based schools (15).

Between 2009 and 2013, there were 276 MD graduates from NOSM of whom 171 (62%) chose family medicine (predominantly rural) training. This is almost double the Canadian average. Almost all the other MD graduates (33%) are training in general specialties such as general internal medicine, general surgery and paediatrics, with a small number (5%) are training in sub-specialties like dermatology, plastic surgery and radiation oncology. A growing number of NOSM MD graduates are now practising family physicians in Northern Ontario and some of them have become NOSM faculty[3] members.

3 'Faculty' is another term for members of academic staff.

The life cycle of a rural practitioner

Studies in many countries have shown that the three factors most strongly associated with entering rural practice are:

1. a rural upbringing;
2. positive clinical and educational experiences in rural settings as part of undergraduate medical education;
3. targeted training for rural practice at the postgraduate level.

Consequently, it is important when developing a rural-based medical school to establish a 'pipeline' or pathway whereby rural primary and secondary school students are encouraged to see themselves as future doctors and are supported to meet the academic requirements to enter medical school. This is of particular importance in North America where the majority of people live in urban settings and standards of primary and secondary education vary, particularly in remote and rural areas.

This 'life-cycle' approach continues beyond undergraduate medical education through postgraduate training to provide continuing education and professional development for rural practitioners. Ultimately, the aim is to encourage the school's graduates to undertake postgraduate studies and join the academic staff of the school while remaining in rural practice.

Conclusion

In the 21st century, there are many recommendations that medical education should develop further beyond the Flexner model - to more community-based distributed learning and longitudinal integrated curricula which emphasise learning in context and patient-centred/community-oriented clinical role models (16,17,18). Rural-based medical schools are particularly well placed to lead these developments in medical education.

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Rural WONCA (Working Party on Rural Practice)
World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.1.4

DEVELOPING RURAL MEDICAL SCHOOLS: THE HISTORY OF TROMSØ AND NORTHERN NORWAY

Ivar J Aaraas
Peder A Halvorsen

University of Tromsø, The Arctic University of Norway

Introduction

In 1968, when the Norwegian Parliament decided to establish a new university in Tromsø, a principal objective was to improve the overall access to academic education for young people in Northern Norway. The need for a northern medical school was both a tipping argument for the political decision and a major driving force in the early developing years of this university. The joint establishment of a university and a medical school offered unique possibilities for improving the standards of education and health for the rural and underprivileged population of Northern Norway. These opportunities were grasped enthusiastically by the founding director, Professor Peter F Hjort, and his team. An innovative medical curriculum was created, which included rural practice as a distinctive new component (1).

In this chapter we present and discuss the objectives and achievements of the medical school in Tromsø, focusing on the curriculum, the programme as a whole, the rural placement, health research and population health.

Background and principal objectives

In the years following World War II, the shortage of physicians and health indicators for Northern Norway were distinctly worse than for the southern part of the country. Nevertheless, the idea of a new university in the north was strongly opposed by leading academics in the two existing Norwegian medical schools in Oslo and Bergen. They raised concerns about poor quality of education, and voiced their doubts about the possibility of recruiting doctors and improving health for people living in the north. It was only after a hard struggle and lobbying and advocacy by key professionals, that the decision to build a university and medical

school in Tromsø was made by the Parliament in 1968. The principal objectives of the new medical school were to secure education, recruitment and the retention of physicians in Northern Norway to raise the standards of medical care and health for local people to equitable national standards.

The evidence

In 1968, experience with new models of medical education which also included rural components was practically non-existent. In 1963, however, a leading spokesman for medical education in Tromsø, Torstein Bertelsen, published a study indicating that education of doctors in the rural region where they were born and raised might be essential for recruiting them to work in that area (2). This original study provided a breakthrough in convincing many skeptics in Norway – but since the study was only published in Norwegian, it took time before the results were acknowledged internationally. Later Bertelsen's core findings have been recognised as the 'salmon effect': that students (salmons) return to the region (river) where they are born and bred.

The Tromsø programme was also inspired by other international experiences. Particularly influential were the innovations of the new Canadian medical school at McMaster University, established in 1965, a few years ahead of Tromsø. The McMaster programme included the Northwestern Ontario Medical Programme which was particularly oriented towards the needs of rural and remote regions in the province of Ontario. This successful programme both prioritised applications from students from rural Ontario and secured placement and formal training for the students in northern rural communities (3).

Curriculum

Developed under the leadership of Peter F Hjort, Tromsø had an innovative curriculum which was clearly different from the traditional educational programmes of contemporary medical schools. Like McMaster, the Tromsø curriculum included distinctive new elements such as early contact with patients, organ-based integrated teaching,[1] and co-operation with the health sector in Northern Norway.

1 Biological, psychological and social aspects of organ diseases (e.g. myocardial infarction) are taught using an integrated approach, ideally with teachers from different specialist disciplines involved in the same learning session.

At the time of the first class held in 1973, Tromsø was the lead among medical schools in Europe with respect to including rural practice as an essential part of the education.

Rural placement

A radical step was the introduction of a tutorial period of almost one year, which involved placements in local hospitals and rural general practices all over the region – and which was compulsory for all students.

Prior to the first time implementation of placements in rural practice, the plan was thoroughly discussed and adjusted together with local physicians and allied health personnel. In addition, seminars with GP tutors and allied health personnel involved in the programme have been held regularly.

The rural practice placement period is eight weeks in the fifth year of a six-year programme. Single students are usually placed in practices, with only very occasionally there being a second in the same practice. During the adjoining 16 weeks in local district hospitals, they are placed together in groups.

Reviewing the programme

The programme has been evaluated annually through questionnaire surveys. Responses have been collected from students and their GP-tutors.

A study summing up the first eight years of training periods in rural practice showed that teachers and students were essentially positive (4). Those who graduated in the latter section of the eight years played a more active and independent role than their predecessors. This may partly explain why young doctors graduating from Tromsø felt more confident in their practical skills than their colleagues educated at a southern university (5).

In 2006, an external expert panel considered rural- and community-based learning to be a particularly successful element of the Tromsø study. The panel advised that this kind of education should be consolidated and reinforced in a future revision of the curriculum.

An overall impression is that the students' learning process is facilitated by giving them trust and responsibility as junior colleagues under supervision. After a short introduction period, the presence of theoretically advanced fifth year students seems not to be an impediment for the running of practice, but rather helpful, as is also indicated in a later study from Australia (6).

Rural placement: The "flagship" of Tromsø

The following comments from Tromsø students in rural practice during 2012 fairly represent evaluations from previous classes since 1979 – and illustrate why the rural placement is often called the "flagship" of medical education in Tromsø:

"My tutor was fantastic. It is great to relate to one person who gradually comes to know you, how good you are."

"Got to see many patients with different illnesses. Have removed lumps, and have been called upon when other doctors had something exciting."

"Very rich learning to be the first to assess and conclude, and then getting guidance."

"Part of the time was on call duties, which I found incredibly instructive. The placement in general practice has been the most educational period of the study."

Recruitment and retention

In accordance with the results from Bertelsen's study, it was decided that a proportion of the students should come from the local area and, in addition, a minor proportion should have a Sami (indigenous) background.[2] During the first six years the proportion from the north was a modest 25%. In 1979 it had doubled, and since 1998 it has been 60%.

The results of three evaluative studies described below confirm Bertelsen's original hypothesis that students coming from, and educated in, an underserved region tend to be recruited and retained to medical work in the same region to a much higher degree than students from elsewhere.

2 The Sami people with their own language and culture were originally living as northern nomads with their reindeer herds. Although the majority of Sami people today have jobs and homes like other Norwegians, still some families are maintaining the traditional nomadic way of life.

Tracking the recruitment and retention of doctors

The impact of medical education in Tromsø on the recruitment and retention of doctors to Northern Norway has been evaluated in three consecutive studies in which several cohorts of students who graduated from Tromsø between 1979 and 2001 were tracked (see Table 1). Using similar retrospective designs, matching data were obtained by collecting information from the doctors themselves, combined with registers kept in the Norwegian universities and in The Norwegian Medical Association (7, 8, 9).

In the first study, key information was collected through direct personal contact with the doctors, which resulted in a response rate of 100%. In the two subsequent studies, using postal questionnaires to the doctors' present addresses, the response rates varied between 84% and 92%. In the third study, similar questionnaires were sent to doctors educated both in Tromsø and in Oslo, the capital of Norway. The figures in Table 1 confirm the original hypothesis of Torstein Bertelsen of a 'salmon effect' in favour of Northern Norway.

Table 1:
Tromsø medical school 1979 -2001:
Northern physician workforce achievements

Study	Main outcomes
1988: *Based on five years of graduates (1979-1983)*(7)	- 72% of Tromsø graduated doctors from the north worked in Northern Norway - 39% of Tromsø graduated doctors worked as GPs - 36% of Tromsø graduated doctors from the south worked in Northern Norway
1993: *Based on eleven years of graduates (1979-1988)* (8)	A- 82% of Tromsø graduated doctors from the north worked in Northern Norway - 38% of Tromsø graduated doctors worked as GPs - 37% of Tromsø graduated doctors from the south worked in Northern Norway
2004: *Based on five years of graduates (1996-2001)*(9)	- 75% of Tromsø graduated doctors from the north worked in Northern Norway - 35% of Tromsø graduated doctors worked as GPs - 19% of Tromsø graduated doctors from the south worked in Northern Norway - 7% of Oslo graduated doctors worked in Northern Norway

We have recently obtained updated lists from the Research Institute of the Norwegian Medical Association for the ten classes of Tromsø doctors who graduated from 2002 to 2011. Although not adjusted for the doctors' place of origin, the figures show that of the 696 doctors who graduated in that period from Tromsø, 405 (58,2 %) were currently working in Northern Norway, and 30,4 % of the 405 were in rural and general practices. This confirms previous findings (7-9), that the majority of doctors graduating in Tromsø are retained in Northern Norway, although this was regardless of the place they grew up.

Health research

Associated with the establishment of the medical school, population-based health studies were planned to provide research material for the new academy. These were designed as repeated cross-sectional questionnaire surveys, including prospective follow-up studies of selected population cohorts.

The first *Tromsø study* in 1974 mainly focused on cardiovascular diseases, the major cause of life-threatening illness and death at the time. Following on from this initial study, the population of Tromsø city and selected populations of Finnmark and Nordland counties have been monitored in several studies. Later studies gradually included new health aspects (nutrition, medication, alcohol, cancer, osteoporosis etc.). Over the years, data from these studies have led to a series of scientific papers, PhD degrees and reports (10).

This scientific activity has impacted on recruitment and retention of health personnel in the area in two ways: by attracting competent personnel to fill academic positions at the university and by fostering a favourable milieu for education and guidance of young doctors and health professionals to future clinical as well as scientific work in Northern Norway.

Over the years more health professional education programmes have been added, among them psychology, physiotherapy, occupational therapy, nursing, bio-engineering, radiography, and odontology. In addition a range of other initiatives have also been established in Tromsø - namely a nationwide epidemiological programme for female cancer research, and a number of national research and network centres, among them one for rural medicine (11).

Health improvement

At the outset, an important objective for the medical school in Tromsø was to improve health for people in Northern Norway. Since 1974, the recurring population health studies have been popular. Positive media attention and community engagement have led to a sustained high degree of participation.

The sixth and most recent *Tromsø study* was conducted in 2008. The positive connections between the university and people may have contributed positively to a healthier lifestyle and the gradual improvement of public health indicators observed for Northern Norway. Based on historical data from the National Bureau of Statistics we have been able to provide an overall comparison of mortality rates for Northern Norway and the whole country, and to identify how these have changed from 1973 to 2007 (Table 2). While the clear finding is that the general health of the population of Northern Norway has improved in this period and that the gap is narrowing, the figures remain systematically below those for the whole country. This indicates the need for continuous concerted efforts to promote health and health care for all people in the north.

Table 2:
Age standardised mortality rates for all causes and a focus on cardiac ischemic diseases for Northern Norway compared with the whole country: 1973 - 2007 (12)
(deaths per 100 000 inhabitants)

	Total mortality rates			**Cardiac ischemic mortality rates**		
	1973-1977	1988-1992	2003-2007	1973-1977	1988-1992	2003-2007
Northern Norway	1188	1089	769	374	333	140
Norway	1115	1004	720	328	274	118

Applicability

The success with rural placement in Tromsø has been recognised and adopted by the southern and more urban Norwegian universities. While their placement periods are shorter than Tromsø's, they are popular and sustainable. This was recently demonstrated in one university, where vociferous students protests effectively stopped an attempt by the faculty leaders to discontinue the practice placement.

The historical experiences of Tromsø have also inspired universities and medical schools all over the world to develop new and more radical programmes for rural medical education. Today, the successes with these programmes are returning as an inspiration for us in Tromsø, where our curriculum is in a process of revision and renewal.

Practice pearls

The history of the medical school in Tromsø demonstrates that rural medical education contributes substantially to improve health care for people in an underserved area.

Tromsø students, their GP tutors and external experts commonly agree that the rural placement period is particularly useful, and should be consolidated and reinforced in the future.

We recommend a combination of rural medical education and health studies involving inhabitants of the region. This has emerged as a formula for success in Tromsø.

We warn against listening to voices with hidden agendas and disapproving arguments to play down rural medical education. (In the 1960s voices inside the academic establishment disapproved of the idea of a new medical school in Tromsø.) Today, there is ample evidence from Tromsø and from around the world in support of the usefulness of rural-oriented and community- engaged medical education.

Conclusion

Since its establishment in 1968, the university and medical school in Tromsø has fulfilled its principal objectives:

It has contributed substantially to the recruitment and retention of doctors, and has provided better access to medical care for rural and previously disadvantaged northern populations of Norway.

The health of people in Northern Norway has improved. Better access to education and raised standard of living may be seen as important explanatory factors for this. However, in this larger picture, it is reasonable to suggest that education of academic personnel, not least doctors, at the University of Tromsø has played a positive role, and will continue to do so in the future.

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Rural WONCA (Working Party on Rural Practice)
World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.1.5

RURAL MEDICAL EDUCATION IN SABAH, MALAYSIA

Osman Ali
Muhammad Tauffik Mohd Noor
University of Malaysia Sabah, Malaysia

Introduction

Sabah is the third poorest state in Malaysia, with 16% of Sabah households having incomes below the poverty line. While rural health services in Sabah are provided through 11 health offices, 80 health clinics, 19 maternal and child health clinics and 190 rural clinics, the 687 doctors represent a doctor:population ratio of 1:4362. This is unfavourably high compared to 1:1200 in most other states in Peninsular Malaysia. The nurse:population ratio is 1:1458 which is also considered very high compared to 1:200 in many other states.

Sabah is blessed with a dedicated workforce that is willing to serve the community wherever they are, no matter how difficult it might be.

Health care delivery challenges in Sabah

The pattern of disease differs between urban and rural areas (1). In rural areas there are more injuries, hypertension, psychiatric morbidity and acute respiratory infections. In addition, maternal death is still quite common in Sabah, especially among foreigners. Most deaths are related to postpartum haemorrhage (25.9%) and antenatal care (44.6%)

Poor access to health services is an issue in remote rural populations in Sabah and around 23,7% of the population live more than 5km from health facilities. As remote health centres do not offer all services, however, inequities exist between rural and remote rural centres. By-passing primary health care to access specialist services in major hospitals and private facilities is quite common in many areas for reasons related to distance, waiting time, the lack of availability of specialised doctors and appropriateness of treatment.

University Malaysia Sabah (UMS) School of Medicine: Role model for rural medical education

Vision

The vision of the School of Medicine at the University Malaysia Sabah is to aspire to becoming a centre of excellence in learning and research in the field of medicine, both locally and internationally. The School strives to produce medical graduates of high quality, who possess ethical and moral values, as well as embrace a liberal, independent and global outlook. They must portray a readiness to offer professional service towards enhancing the quality of life anywhere (2).

Mission

The mission of the School of Medicine is to impart and inculcate medical education of high quality with an emphasis on universal values such as ethics, morality, care and concern as well as teamwork, at both undergraduate and postgraduate levels. These values will enable UMS medical graduates to act prudently in providing appropriate leadership to promote the health of the communities, thus empowering them to control their own health and well-being (2).

Doctors trained in UMS should know their rights and responsibilities, which are:

- to provide appropriate care for the patient;
- to practice medicine according to conscience and conviction; and
- to have access to good working conditions to provide the best care.

Medical training at UMS will follow the educational domain adopted by the Ministry of Higher Education (MOHE) which comprises the hard and soft skills required by medical students to become safe and competent medical doctors. In addition, however, the UMS School of Medicine has adopted an innovative expanded model, which is:

- student-oriented
- problem-based
- integrated
- community-oriented
- electives
- spiral and systematic
- modular / block
- organ-based
- volunteerism
- evidence-based
- relevant context

Providing health care in rural and remote areas

Rural and remote medicine is the body of scientific knowledge underpinning clinical practice and medical service delivery in rural and remote contexts (3). Its aim is to achieve the best possible outcomes in health care in rural areas. The skills set for rural and remote medicine includes the competencies required in both general practice and community health.

Rural medical practitioners need to be able to treat common communicable and non-communicable diseases in the community and have skills to prevent these diseases from occurring. They provide whole patient, focused, continuing care that is responsive to the community's needs and circumstances – and offer this wide range of services with limited remote access to specialist or allied health services and resources. As such, rural medical practitioners are often characterised as needing to be independent, self-reliant, multi-skilled, providing strong leadership and facilitating team building qualities (4, 5, 6).

Key features of the rural medical education

Ambulatory care: Training should be provided in ambulatory care sites, which delivers high quality, comprehensive care that is effective, efficient, safe, timely, patient–centred and equitable.
Promoting high quality care: The presence of medical programmes should never compromise the delivery of high-quality care. A single standard of a care must be provided for all patients regardless of their socio-economic status
Promoting quality of training and patient care: The practice environment should be improved to attract and retain physicians. They should be reimbursed based on the time they commit to providing primary care services.
Physician[1] supply: Physicians should be encouraged through providing them with better incentives and fringe benefits to practice in underserved rural communities and so that they can be involved in teaching and training medical students.

1 A 'physician' here (as in North America) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

Research: Investments in the rural medical research infrastructure to support biomedical and clinical research should be made so that it will attract researchers, collaborators and the biomedical industry
Community involvement: Communities should support the programme and participate actively in the delivery of care either in the ambulatory centre or in the community itself.

Rural medical education should be conducted where it is most needed - such as in in Sabah and Sarawak, in Borneo.

Inter–Professional Education (IPE)

Rural health services have been affected by inadequacies in service delivery, inadequate resources, demand for more user-centered health care and changes in management practices. While one way to address these issues is to have a more unified health force at this level, doctors are the most difficult personnel to have working in teams. Inter–Professional Education (IPE) can be a way of developing a more congenial group of health care staff in the rural areas. Several medical schools in Australia have piloted this programme with significant results and success (7,8).

IPE is defined as 'members of more than one health and/or social care profession learning interactively together, for the explicit purpose of improving inter-professional collaboration and/or the health/well-being of patients/clients' (9).

Interactive learning requires active learner participation, and active exchange between learners from different professions such as doctors, nurses, dietician, social workers and pharmacist. The characteristics of effective IPE include shared objectives, mutual support, effective participation and an understanding of professional roles. The characteristic can be learned at every level of health professional education. Well working together inter-professional health care teams have shown to improve the quality of health care cost efficiencies.

The PUPUK Programme: A case study

As a leading institution in rural health in the region, the UMS has been adopting the holistic model of health and strongly supports the wellness paradigm in maintaining and protecting health for rural population in Sabah. Since its inception in 2003, the UMS School of Medicine has been adopting a curriculum that emphasised community development and empowerment of health.

One of the programmes that the School has introduced is called PUPUK (Program Perkongsian Universiti Keluarga), the UMS-Community Partnership in Wellness Programme (UCPWP). The acronym is significant since 'PUPUK' in Malay means 'fertilise' or 'nurture' which is reflective of the nature and outcome of the programme. PUPUK is a five-year community-based programme based on a smart partnership (win-win) between the university and the community. As the family is the most powerful influence on an individual's social development, PUPUK focuses on the health of the families of the indigenous population in Sabah, so that the programme can benefit the whole family and community (as opposed to individuals only). The programme has been accepted locally and internationally (10-14).

The objectives of this programme

At the end of the rural placement in the PUPUK programme, the students will be able to:

1. describe the structure of the family as the unit;
2. appreciate the family dynamics in facing life's events;
3. appreciate individuals' and families' perceptions and attitudes towards illness and wellness;
4. appreciate the interplay of bio-psycho-social and spiritual factors that influence health; and
5. strategise and formulate comprehensive intervention plans to meet the needs of the family.

Family fostering

Students are assigned to a 'foster family' for the period of the PUPUK medical study programme. The selection of the families is made by the village head with consent of the medical school and this is done on the following basis:

1. accessibility of the family's house;
2. safety of the students;
3. socio-economic background of the family;
4. assistance from outside agencies;
5. chronic medical or psychosocial problems.

(To be selected, a family must meet the first two criteria, plus at least one of the criteria in 3, 4, and 5.)

Evidence of impact

The programme produces reports as part of the medical students' training and assessment at the end of each year (annual report) and at the end of fifth year (programme report).

The effectiveness of the programme has not been evaluated yet, nor has the impact it may have had on the community been assessed. That being said, assessment and continuous feedback from students has shown that the programme is able to increase the knowledge and change the practices of some of the families in relation to health care and other aspects of life. In addition, the students felt that the programme was able to inculcate caring behaviours towards the families and the community. They also learned much about the influence of culture, religion, respect and sensitivity of the communities. So both the students and communities benefit from the partnership where students learn about community education and development, while the community members improve their health status and well-being.

RMEC: Centre of Excellence in Rural Health Promotion

The School of Medicine was given a permanent building, the Rural Medicine Education Centre (RMEC) in Sikuati, Kudat, to host and monitor the community health programme. Completed at the end 2008, it has been used to run health promotion activities in the area and is equipped with a family medicine specialist clinic. Priority is given to the families in the PUPUK programmes.

In Malaysia, there are still very few centres of excellence in health promotion, especially in rural areas. Through developing the Centre for Rural Health Promotion, the UMS aims to train medical practitioners in rural health in order to meet the health care needs in rural areas, especially in Sabah and Sarawak. The objectives of setting up this centre are to become:

a centre of excellence in rural health research;
a hub of organising seminars, workshops and conference on rural health research;
a centre for teaching, educating and research for both undergraduate and postgraduate programmes;
a platform to strengthen networking and research collaboration with other centres of excellence locally and international;
a centre for referral in rural medicine in this region.

RMEC is currently being monitored through two main indicators:

Competitive impact - the ability of research results to put institutions in a forefront in the competition.

Competitive strength - the ability of the experts / researchers, their commitment, research projects available and ability to lead the projects.

RMEC meets the criteria for being a centre of excellence since it has the human resources with extensive knowledge and experience in various disciplines; is directly involved in generating, disseminating and using expertise to preserve the well-being of the population; has a strong leadership that supports team spirit and research environment or culture such as frequent communication on research, informal discussion on research issues, journal club, and writing workshops.

Efforts have been made to collaborate with universities in the Asia Pacific region through APACPH (Asia Pacific Consortium of Public Health) in the study of rural and island health (12). In 2009, following the post-APACPH conference on rural medicine in Kota Kinabalu, the APACPH selected the RMEC as a collaborative centre in island and rural health.

Conclusion

Medical schools should take responsibility to educate appropriately skilled doctors to meet the needs of population in their geographic region. The University Malaysia Sabah School of Medicine has taken a proactive step in producing doctors who are culturally sensitive to local population needs and has the skills to function effectively in any community-based education. The PUPUK programme implemented in the medical curriculum is one of the initiatives to attract more medical graduates and other health care professionals to practice in rural areas, especially in Sabah, while also providing the opportunity to develop and empower the community.

The future of rural health will depend on the commitment of stakeholders, especially the government and policy makers to understand the root of the problems and to support the reformation of medical education and community development.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.1.6

SETTING UP DELTA STATE UNIVERSITY MEDICAL SCHOOL, NIGERIA

Victor Inem
Delta State University, Nigeria[1]

Introduction

The move for a medical education that will train doctors in Africa who are aware of the socio-cultural attitudes of their patients and impacts of their environment started after the World Conference on Medical Education held in Edinburgh in 1988. This event was immediately followed by the implementation of a National Health Policy in Nigeria that saw primary health care become the cornerstone of the country's health system.

In August of 1989 the African Ministers for Health and Education met in Abuja, Nigeria, to fashion an agenda for change in medical education. At that meeting the then-Minister for Health for Nigeria, the late Prof Olikoye Ransome Kuti, mentioned inter alia that 'we cannot continue to train doctors to solve the health problems of other countries other than our own … We cannot continue to seek international recognition for our medical graduates which only permits them to emigrate at the earliest opportunity'. And the then-Minister of Education in Nigeria, Prof Jubril Aminu, noted that 'medical education has more strings attached to it than a dancing marionette ... Because of the large number of entrenched interest groups that contribute to or influence it' (1).

These guiding principles were to become the benchmark for setting up medical schools and the direction of medical education in Africa.

1 Formerly Professor of Family Medicine/ Rural, Remote and Riverine Medicine College of Health Sciences.

A medical school in Abraka

It is within this context that the Delta State University, Abraka and its anticipated medical school was established three years later on 28 April 1992. This arose out of the metamorphosis of the Abraka campus of the defunct Bendel State University Ekpoma into a full-fledged university, following the splitting of the then-Bendel State into Edo and Delta States.

From the outset the university was designed to operate a completely rural multi-campus system. The infrastructure and equipment on all campuses were neither originally intended nor designed for university education, however, having been converted from a non-degree awarding college of education. This partly explains the level and dimensions of inadequacies in this rurally-based university – and the need to evolve a master plan that would guide the growth and development of a proper university became obvious.

The first curriculum development meetings took place from September to December 2004 – with the task of reviewing and developing an appropriate curriculum for the medical school that had started in the summer of 2002. Students were earlier admitted without having fulfilled accreditation requirements of both the Medical and Dental council and the National University Commission. There was a great and urgent need to correct this anomalous situation.

Fifty academics from traditional medical schools of Lagos, Ibadan, Benin, and two from Ilorin and Ife (where community-based experience and services (COBES) was already being implemented) worked under the leadership of Prof Austin Efe Ohwovoriole from the University of Lagos' College of Medicine, who was also chairman of the powerful Nigerian Medical and Dental Council committee on accreditation and medical education. It was agreed that the programme would compromise a traditional/ conventional medical school - with all the new concepts and innovations in medical education incorporated as relevant, at the different levels and in the different component programmes as possible; namely problem- based, student-centered, integrated, community-based, community-oriented, small group, self-directed learning programme.

The programmes were to run as pre-clinical and clinical blocks, with clinical introduced as early as possible even within the pre-clinical school. Most of the students were to be recruited from local communities without compromising the standards of Joint Admission Matriculation Board[2] . Levels would be as for the rest of the university with the medical programme running from the 200 level to the 600 level

Community-based medical education

The Delta State University College of Health Sciences Abraka resolved to produce doctors that are sensitive to the community health needs of the majority of the populace. The College established the community-based experience and services (COBES) programme as an innovative medical education, partly to assuage the feelings of those who felt strongly that the College should depart from the conventional model and forge a new integrated community-based path.

As part of this innovation, a professor of family medicine was appointed to drive this reform. To complement the COBES programme he developed a unit of rural, remote and riverine medicine which comprised integrated clinical experiential training with the intention to produce doctors who will live in these areas to manage the health problems occurring there.

In line with the commitment to innovation mentioned above, the curriculum is student-centred, community-based and problem-solving. During COBES, medical students are expected to be posted in the communities for experiential immersion at the 200, 300, 500 and 600 levels with specific learning objectives.

Challenges

Given the volatile nature of the local politics of the Niger Delta (that have had international implications) there have been some reversals in the establishing of these programmes. Students and faculty[3] are reluctant to stay in the remote communities for more than two weeks.

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2 This required five credit scores in English and mathematics and in the sciences of chemistry, biology, physics at the O levels and high scores at the matriculation exams, or three A-levels, or a Bachelors degree in Sciences.

3 'Faculty' is another term for members of academic staff.

Following Professor Jubril's caution in 1989 that 'medical education reforms are initiated by medical educators …The most militant advocates are among them ... so are also the most obstinate opponents', some influential and enlightened community members continue to insist that the medical school be run along traditional lines to meet international standards.

Accreditation of the clinical components of the programme from the National University Commission and the Medical Dental Council has also posed further challenge for implementing the programme.

Practice pearls

What to do

Generally:
- Purposely choose a rural location
- Ensure that there is support from state government
- get faculty from local medical school to help

Particularly in Nigeria:
- address NUC issues
- involve the Medical and Dental Council of Nigeria (MDCN)
- set up a curriculum development summit

What not to do

- Allow stakeholders unfounded excitement for Rural Medical Education to be the dominant driver of the initiative
- Agree to over-specialisation of care
- Compromise on research

In summary

Starting a new medical school in a rural location does not guarantee a change in medical education from the conventional and traditional curricula. At best, a mixture of curriculum can be envisaged.

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Belgium

secretariat@wonca.net

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Chapter 2.1.7

DEVELOPING A RURAL MEDICAL SCHOOL IN AUSTRALIA

Richard Hays
Bond University and James Cook University, Australia

Summary

The James Cook University School of Medicine was established in 1999, building on political and community support for rural communities and the success of the North Queensland Clinical School and regional general practice training collaboration in North Queensland. The School was able to learn from a substantial international research evidence base, and was innovative in the way that it applied that evidence to all facets of the School's activities.

The mission is closely linked to serving the workforce and health care needs of dispersed communities in northern Australia. The flagship themes of the programme – rural and remote, indigenous and tropical health – are essential to this regional mission. There is strong community engagement in student selection, teaching, assessment and evaluation. Selection processes target regional and rural background students and Aboriginal and Torres Strait Islander students.

An innovative curriculum design reinforces interest in, and relevance to, regional health needs. Curriculum delivery and assessment practices ensure that learning outcomes can be achieved throughout the dispersed clinical training network. Faculty recruitment and development focuses on exposing students to strong rural role models. Postgraduate specialty training opportunities are being expanded to ensure that the 'pipeline' of local graduates is able to make longer-term contributions to the regional medical workforce.

The innovative approach has attracted widespread international interest. Although it is too early to tell if the longer-term school objectives have been achieved, early indications suggest that graduates are choosing to work in rural and regional Australia.

Introduction

The 1990s was an interesting decade from the perspective of Australian rural medical education. The rural health movement had gained momentum, through the establishment of the National Rural Health Alliance, the Rural Doctors Association of Australia and the Council for Remote Area Nurses of Australia. Research evidence began to emerge to support the view that rural and remote communities were less healthy than urban communities. Far from the idyllic view that rural meant less pressure and more active, fulfilling lives, certain diseases were more prevalent and serious accidents were more common (1). Many rural industries were struggling, resulting in poorer communities that were less able to provide the range of community and health service infrastructure.

As health professions evolved into higher technology and narrower specialties, fewer professionals felt able to provide the range of generalist services required to address community needs. Those that entered rural practice tended not to stay long, because of broader societal changes in the way that partners and children were employed and educated (2). It was clear that the situation was worsening rapidly, with projections suggesting that many rural communities would struggle to survive, in part because health services were unsustainable.

The major achievement of the new rural groups was that, for the first time in Australia's history, rural health and workforce became a dominant political issue. Despite increasing coastal urbanisation, Australia had a substantial proportion of elected representatives from regional and rural areas. Governments could, and did, lose elections because of regional voter swings. All political parties adopted policies that supported increased investment in rural community development, rural health services and rural health workforce development. The latter included a range of policies supporting undergraduate education, postgraduate training, continuing professional development and vacation relief. Although initially targeted at medical practitioners, this support was slowly extended to other health professions over the next 15 years.

Turning to medical education specifically, the ten existing Australian medical schools were asked to consider addressing the need to target rural medical careers as a desirable outcome for their graduates (3), based on Australian and North American research (4,5,6). This concept was unpopular, not because rural careers were not considered a potential option, but because Australian medical education had no formal link to workforce needs; that was regarded as a free choice for

graduates. All medical schools produced graduates who entered rural practice as either general practitioners (GPs) or 'generalist' specialists, but times were changing. Generalist training was more difficult to achieve, and the largely urban- background medical students had little exposure to rural practice or professional role models. In addition, medical education occurs, for most, at a time when long- term relationships are formed with partners who often have careers of their own. It should not be a surprise, then, that most medical students firmly attached to urban Australia would be more attracted to higher profile, urban careers that were well supported and well paid.

The initial attempts to extend medical education to rural Australia were, in retrospect, rather half-hearted. The University of Sydney established a clinical school in Canberra which, although not rural, did open up opportunities in regional and rural southern New South Wales. Monash University developed a small rural campus in Gippsland, which is only two hours from Melbourne, but certainly is rural. The University of Queensland established the North Queensland Clinical School which, while not initially really rural, did open up opportunities in a large rural and remote region (7). In all cases student selection, curriculum and assessment followed the metropolitan patterns of the host institutions. Other medical schools established smaller-scale rural programmes, some of which were excellent and successful. However, for most programmes, the locus of control was metropolitan and metropolitan models were largely imposed on regional, rather than necessarily rural or remote, areas.

Nevertheless, these early developments had some success, demonstrating that it was possible to provide high quality undergraduate medical education away from tertiary centres. They thus became the catalysts for subsequent innovations. While change was difficult to measure and appeared slow (8), the early success resulted in more adventurous thinking. The focus of this chapter is on how rural medical education evolved in one of these regions, North Queensland.

North Queensland

North Queensland is a geographically large region that includes regional cities, rural towns and remote communities, in locations varying from a pleasant coastline to an arid inland. It comprises about 60% of the area of the State of Queensland and in the late 1990s had a rather dispersed population of about 600 000 people. The region is resource rich and growing fast, and has long felt distinct from the rest of the State, based on distance and traditional transport connections to Sydney. The largest and

most 'central' city, Townsville, then had a population of about 140 000 people. A medical school was first mooted there in the late 1960s and recommended in 1973 (9), but narrowly missed establishment on political grounds.

North Queensland Clinical School

Townsville was chosen by the University of Queensland as the main base for the North Queensland Clinical School because it was the largest population centre and had existing academic infrastructure. It was the home of Australia's first Tropical Health Research Institute, now the Anton Breinl Centre – and James Cook University (JCU), established in 1961, already possessed much of the infrastructure needed for health sciences education, including tropical medicine, public health, biomedical sciences and social sciences.

The initial plan, with JCU as a minor partner, involved a small clinical school, with initially 20, growing to 40, students per year in only the final two years of the six-year course (7). The university switched to a four-year, graduate entry course but still sent volunteer students north for only their final two years. There was no local student selection and, despite successful health science infrastructure at the local James Cook University, the dominant view was that pre-clinical science could not be provided away from the metropolitan base. The initial academic appointments were from outside of the region, because of the metropolitan-centric view that local resources were insufficient or inappropriate.

Although the course was successfully delivered in North Queensland, local opinion turned against what was regarded as a 'colonial' model. The relationship between the two universities suffered and JCU made a case for the establishment of a new medical school, with local student selection and increased numbers, based on the need to address regional workforce and regional community development needs. The model that developed was evidence-based, considering and applying all that was known about student selection, faculty[1] recruitment and curriculum and assessment design. The mission was broader than rural primary care, because rural health care is dependent on contributions from several medical specialties that also must thrive in regional communities that are not necessarily rural (10).

1 'Faculty' is another term for members of academic staff.

Course design

The curriculum design is an innovative approach that is highly integrated, more community-based and oriented to small group learning processes. The high level of integration is both across basic sciences and between basic and clinical sciences throughout the six-year programme.

For about 70% of the first three years, students are allocated to 'home groups' comprising about ten students and a tutor, for weekly, rurally-themed case-based discussions (11) – which is within the case-based to problem-based learning spectrum (12). Students have early contact with patients and health professionals in clinical settings in a highly dispersed model over five major sites up to 2,000 km from the main base. The total clinical exposure of students is higher than all other Australian medical schools; the aim was to produce 'workplace ready' graduates. This is part of what is now called a *socially responsible* approach to medical education (13), in that learning is oriented towards meeting identified regional health care needs. Academic staff were recruited in part on the basis of prior rural experience - or at least an understanding of rural and Indigenous health issues.

The rural orientation of the School's curriculum and assessment policies and of its staff is supported by a selection process that has increased access to medical school for students with a rural background, particularly from Northern Australia. Entry cohorts comprise about 50% from Northern Australia and about 40% have a rural background (14); JCU students have high success rates in applications for the available rurally-oriented medical student scholarships, such as John Flynn Vacation Scholarships, Rural Australian Medical Undergraduate Scholarships (RAMUS) and Medical Rural Bonded Scholarships and Queensland Health cadetships.

The guiding principles of this evidence-based model have been described elsewhere (15); a summary is provided in Table 1. The model has attracted strong interest outside of Australia (16) – and a similar model has been established in Northern Ontario, Canada (17), and some elements have been applied in the United Kingdom (18).

Table 1:
Ten guiding principles for successful innovation in rural medical education (15)

1. Ensure strong community, professional and political support to develop a relevant and achievable mission.
2. Develop the most appropriate structure to deliver the mission.
3. Design a curriculum with the appropriate content and process, including assessment processes that reinforce learning relevant to the mission.
4. Recruit faculty who are positive role models for regional/rural practice.
5. Select students who have the best potential to achieve the mission.
6. Ensure high quality learning in both campus-based and clinical teaching facilities, with the latter ideally dispersed across the region of need in a range of communities.
7. Ensure that graduates have opportunities for relevant and desirable postgraduate training.
8. Facilitate research development in areas of relevance to the mission.
9. Build in sustainability through succession planning, maintenance of the mission, and managing expectation.
10. Evaluate the development and disseminate the results.

Early indicators of success

The success of the School can be measured in several ways. The application of the evidence has taken place as planned (19). Assessment results have been shown to be unaffected by the highly dispersed model of teaching and learning (20).

There are currently only eight graduated student cohorts, but these graduates have established a strong reputation for being 'workplace-ready' in teaching hospitals. Some have excelled in early stages of specialty training in a wide range of specialties, but a majority are still working in northern and regional Australia, with a substantial proportion not only intending, but now proven, to work in rural/regional primary care (21,22). A formal longitudinal cohort study is in progress. Nevertheless, much is still to be done if the longer term workforce objectives, based on the success of the new school, are to be achieved (23).

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.1.8

THE ACRRM: ADVANCING THE DISCIPLINE OF RURAL AND REMOTE MEDICINE IN AUSTRALIA

Thomas Doolan
Australian College of Rural and Remote Medicine, Australia
David Prideaux
Flinders University, Australia

The Australian College of Rural and Remote Medicine (ACRRM) was formally established in 1997, following a national plebiscite of rural doctors in 1995 which overwhelmingly voted for recognition of rural and remote medicine as a separate discipline.

Rural and remote medicine as a discipline

While various medical schools around the world promote rural and remote education in a range of ways (as seen in other chapters in this guidebook), the ACRRM is the world's first and, currently, only college dedicated to the representation and advancement of the *discipline* of rural and remote medicine – the distinct characteristics of which include:

1. a rural / remote context – often entailing extreme professional and geographical isolation;
2. a comprehensive generalist scope of clinical practice – primary, secondary and often tertiary care (including advanced procedural, i.e. surgery, obstetrics and gynaecology, emergency medicine, anaesthetics);
3. a unique body of learning and research – which includes national vertically-integrated rural training programmes; dedicated scientific journals;
4. peer acknowledgement – from other specialist colleges;
5. national and international recognition – both academic and from government.

ACRRM's mandate and relationships

The ACCRM gets its brief from the rural medical profession and the scope of clinical practice needed to service rural and remote communities in Australia. The College is accountable to those doctors and communities through its constitution and by virtue of its accreditation by the Australian Medical Council (AMC) for its educational programmes and its close linkages with related organisations.

The College is represented on an extensive range of organisations and committees regionally and nationally - including the Committee of Presidents of Medical Colleges, Australian General Practice Training Programme, Remote Vocational Training Scheme (RVTS), Regional Training Providers, university rural clinical schools, university departments of rural health, the National Rural Health Alliance, National Aboriginal Community Controlled Health Organisation and a plethora of national committees relevant to the discipline.

At the international level, the College has developed relationships with rural educational bodies in Canada, South Africa, New Zealand and Ireland with a view to mutual standard-setting and mutual recognition of those standards.

A national office of ACRRM was established in Brisbane and provides extensive facilities and support for the College membership.

ACRRM's roles and achievements

The **roles** of the College are as follows:

1. To define the body of knowledge of the discipline of rural and remote medicine.
2. To establish and maintain standards for rural and remote medicine in Australia.
3. To provide and support educational programmes for students, doctors undertaking vocational preparation, and College fellows undergoing professional development (PDP).
4. To assess candidates and award certification for attainment of the Fellowship and ongoing PDP (with oversight by the AMC).
5. To represent the interests of education/training and of standards of rural and remote medical practice amongst the profession, to government and other stakeholders, both nationally and internationally.

6. To represent and support rural and remote communities in their endeavours to acquire a suitably trained medical workforce and the health infrastructure necessary to meet their clinical service needs.

The **achievements** of ACRRM are numerous. Since May 1996 when the first author of this chapter, Tom Doolan, delivered the original paper on the establishment of the College at the First International Conference on Rural Medicine in Shanghai, China, ACRRM has come a long way. Some of its significant achievements are as follows:

Membership: The ACRRM now has 3 350 fellows and members and is experiencing steady growth.

Undergraduate training: This highly successful federally-funded initiative – managed by John Flynn and Rural Bonded Student programmes and administered by ACRRM - enables large numbers of medical students to undertake high quality rural and remote immersions at early stages of their careers.

Early postgraduate training – the Pre-vocational General Practice Placement Programme introduces doctors in their first and second postgraduate years to rural and remote medicine and general practice via 10 to12-week rotations in rural or urban practice. This highly successful programme was originally developed as a collaboration between Flinders University in South Australia, ACRRM and the federal government but has now widened to include other stakeholders.

Vocational preparation – the Fellowship of ACRRM has been recognised by the federal government and the Australian Medical Council as an accredited pathway for general practice training leading to vocational recognition – which enables these practitioners' patients to access full Medicare benefits (national health insurance).

Professional Development Programme (PDP) - ACRRM has also developed a comprehensive triennial process which ensures that its Fellows have access to a high quality, relevant and accessible PDP – again recognised by the federal government for Medicare purposes.

ACRRM Fellowship

Attainment of the Fellowship of ACRRM (FACRRM) involves undertaking a four-year vocational preparation programme which requires training in and satisfactory assessment of knowledge and skills outlined in

1. the ACRRM Primary Curriculum (see below); and
2. one of ten Advanced Curricula (see below).

Fellowship can be achieved via one of three pathways:

1. The Australian General Practice Training Programme (AGPT) – funded by the federal government and delivered in accredited training positions by a number of Regional Training Providers in collaboration with ACRRM.
2. The ACRRM Independent Pathway – a self-funded programme wherein the education is provided by ACRRM directly and the candidates also undertake training in ACRRM accredited posts.
3. The Remote Vocational Training Scheme (RVTS) – a federally-funded programme which enables doctors to train in ACRRM-accredited posts under remote supervision in isolated communities with a remotely-delivered educational programme.

The Rural Generalist Programme

The Rural Generalist Programme is a dedicated training programme for rural medical staff with specialist recognition. All candidates train to the FACRRM or equivalent and have an individually tailored training pathway with preference for high quality posts, particularly procedural. All candidates are required to be registrars in the AGPT during training.

The programme was established through an exciting collaboration with the Queensland government – and upon successful completion, candidates are recognised (industrially) as specialists by Queensland Department of Health. The programme has been very successful in attracting applicants and will have an entry cohort of approximately 80 in 2015. It is serving as a model for national consideration with commitment to similar programmes from other states, including the Northern Territory and Victoria.

In 2014 the Australian Government commissioned the ACRRM to undertake a scoping study for the potential establishment of a national Rural Generalist Programme.

Curricula

The ACRRM has developed a series of curricula as the educational blueprints for its four-year vocational preparation programmes. Being outcomes based, these also serve as useful tools in the assessment of candidates for recognition of prior learning purposes.

Primary curriculum: This describes the essential knowledge and skills required by doctors across all clinical areas for the safe and comprehensive practice of the discipline of rural and remote medicine. Candidates are assessed on their acquisition of this scope of practice during completion of the first three years of the ACRRM four-year vocational preparation programme. The primary curriculum has gone through a number of iterations and process changes without significant variation to content and is now available in searchable format online.

Advanced curricula: These are available in ten disciplines from which a candidate can chose for their Advanced Specialised Training year. The disciplines include adult internal medicine, surgery, anaesthetics, obstetrics, emergency medicine, mental health, indigenous health, remote health and population health. Paediatrics is currently under development. Candidates undertake their advanced training in ACRRM-accredited posts and are assessed according to advanced curricula requirements. In certain areas this is in collaboration with other specialist colleges.

Rural and Remote Medical Education Online (RRMEO) – ACRRM's online learning website – provides a distance education facility for all levels of learning.

Assessment

ACRRM recognised the important of designing an assessment system that would align with the commitments and directions of the curriculum as well as provide the important function of certifying competence for the Fellowship. To this end the College commissioned a consultancy comprising a team of assessment experts from Australia and New Zealand to design the assessment. They recommended a 'programmatic' (1) approach, such that the strengths of a programme of assessment

tools could be combined to enable decision-making about the competence of potential Fellows.

The ACRRM had some clear priorities for its assessment programme - which included:

a strong contribution from practicing rural doctors in the design and construction of assessment tools;
the inclusion of workplace-based approaches which would involve assessment by rural doctors of the actual performance of rural registrars in their day-to-day work;
a commitment to implementing as much of the assessment as possible in situ so that candidates do not have to travel long distances to be assessed. (This was judged to be important not just to reduce travel by candidates but also to avoid depriving rural communities of key workforce personnel at examination time.)

The resulting ACRRM assessment programme has four major elements:

1. multiple choice question (MCQ) examination;
2. structured assessment using multiple patient scenarios (StAMPS);
3. mini-clinical examination (Mini-CEX); and
4. multi-source feedback (MSF).

1. **Multiple choice question (MCQ) examination**
   The items have been developed by rural doctors and are anchored in contemporary rural practice. Regular writing workshops were conducted and a high level of expertise in item-writing has been developed. Psychometric analyses of tests were undertaken and items reviewed. High levels of reliability have been achieved in tests, with non-performing items having been removed. An item bank has been constructed. The test is taken in the candidate's home town via the internet.

2. **Structured assessment using multiple patient scenarios (StAMPS)** This is an innovative variant of the traditional objective structured clinical examination (OSCE) and has been described in the literature (2). It is undertaken by videoconference so that candidates do not have to leave their own communities. StAMPS has been designed to test higher order functions in a contextually organised framework where candidates have the opportunity to explain what they do and demonstrate clinical reasoning in specifically designed rural practice cases.

3. **Mini-clinical examination (Mini-CEX)**
   This approach was first developed in the United States and has gained wide international acceptance (3). Its focus is the assessment of history-taking, physical examination and patient management in situ. In the ACRRM approach, structured assessment of the candidate's performance is undertaken in the training post by supervisors and visiting external clinical teachers.

4. **Multi-source feedback (MSF)**
   In this mode of assessment registrars receive ratings from peers, other staff in the practice and from patients. It represents ACRRM's commitment to ensuring that key rural stakeholders are involved in the assessment of future independent rural practitioners. ACRRM has been able to engage the services of the international best practice CFEP (Client Focused Evaluation Programme) system to initially provide norms for the MSF and subsequently to develop a system adopted for the realities of Australian rural medical practice.

Together these elements provide a robust assessment programme to promote learning of the curriculum and to certify competence for unsupervised practice. They have been refined and developed further according to psychometric analyses and examiner and candidate feedback and will continue as the underpinning backbone of the educational programme for rural practice.

Conclusion

The creation of ACRRM arose out of the recognition by doctors in Australia of the distinct discipline of rural and remote medicine, as defined above. It was also a response to the dearth of recognition of the discipline more broadly, however, and a consequent absence of structured education programmes at vocational and professional levels which addressed the full scope of rural and remote generalist clinical practice.

Acknowledgements

The Rural Doctors Association of Australia (RDAA) deserves full credit for its vision and initiative in commissioning the Taskforce for the Establishment of ACRRM in 1996 which led to the birth of the College in 1997. RDAA's ongoing support for ACRRM's principles and its close relationship with the College have been most facilitatory.

ACRRM's staff, and in particular the College's CEO since inception, Marita Cowie, have made an enormous contribution to the College's development through their unwavering energy, creativity and commitment.

Finally, the voluntary contribution of the fellows and members to this first in the world College of Rural and Remote Medicine has been outstanding. Without their intellect in terms of curriculum and educational programme development, delivery and assessment; and without their generous donations of time to innumerable governance meetings; and without their resolve against considerable odds during the establishment phase, there wouldn't be an ACRRM.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.2.1

RURAL AREAS: VALUABLE LEARNING CONTEXTS FOR MEDICAL STUDENTS

Wendy Graham
Memorial University of Newfoundland, Canada

Introduction

Rural practice is ideally suited to learning, as students are able to observe skilled clinicians model and encourage continuity of care as well as close doctor–patient relationships, while they are also effective resources to their community. Rural sites frame learning and are able to eloquently demonstrate the CanMEDS roles which describe an ideal physician – and these can, in turn, be adapted into rural learning objectives (1).

Rural sites are also ideal locations for students to confront the array of social and economic forces underlying ill health and to learn the broader determinants of health (2). In addition these settings naturally combine social and academic experiences, with different communities having different things to offer.

Research in Canada (3, 4), in Australia (5, 6) as well as a large review including American data (7), has confirmed that experiences and competency are higher for learners in rural settings than for their urban colleagues. Despite this, the orthodoxy of tertiary hospital education has only recently been challenged.

The traditional model for learning medicine is 'apprenticeship' – often taking the form of clerkships[1] and other non-lecture hands-on types of learning. Albert Einstein was reflecting on this model when he said that "I never teach my pupils. I only attempt to provide the conditions in which they learn". Traditionally rural sites have been ideal settings for this kind of experiential learning as medical learners can be mentored by master clinicians, often with a ratio of 1:1. The viability of this model of apprenticeship is being challenged, however, even in the rural setting, by increasing numbers of learners, combined with a static supply of teachers and

[1] A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

patients. To continue to provide a rich rural learning experience, we must address this challenge at the policy, organisational, student and teaching levels (8).

Preceptors, learners and the environment

Learning occurs within the context of a successful and close working relationship between preceptor[2] and learner. To integrate teaching into clinical rural practice there must be contracting, direct teaching/mentoring, monitoring, ongoing feedback and evaluation between the preceptor and learner.

Effective learning can depend on the quality of the case mix, the number/quality of the preceptor-learner interactions, the opportunity for hands-on clinical experiences, and the continuity with patients and preceptors (9). While adults tend to learn from problems that are important to them, rather than from teacher-defined problems (10), there must be enough flexibility to adapt to individual needs, however (11). The preceptor's task is to address not only the technical aspects of care, but the learner's affect, values, and reflections on what they encounter and experience. (9).

Rourke and Rourke (12) capture the concept of preceptor-learner interactions beautifully in stating that, by its very nature, rural family medicine teaching and learning tends to be direct, personal and meaningful to both learner and preceptor. As much as we accept that students learn from active participation with graded increases in clinical responsibility, preceptors are being closely observed by learners. Role modeling may be our most powerful teaching tool (11). Its value extends far beyond clinical medicine into professionalism and ethical behaviour. Clinical teachers must have skills to help learners develop an understanding and awareness of relationship and boundary issues for instance (13).
In rural settings, this close one-on-one relationship is both unique as well as important (14).

"Students are clearly watching their preceptors carefully,
perhaps more so than the preceptors realize!" (9)

2 A preceptor - or clinical instructor/adjunct faculty – is a clinician (person with core clinical skills) who offers clinical teaching at a distant (rural) site.

Mutual value

A study by Couper et al (15) in Australia and Canada showed that rural longitudinal integrated clerkships (LICs) have positive impacts both on students and clinicians. The educational value has been in terms of continuity of care, longitudinal exposure, development of relationships, mentoring, team work and participatory learning.

Although a separate chapter in this guidebook is devoted to this important topic, the authors point out that it is in mentoring that the 'rurality' of the programmes probably have the greatest effect. This relationship is of mutual benefit as preceptors have described having their practices rejuvenated. A critical review by Barrett et al (7) sums it up nicely in their primary finding that rural placements are positive learning experiences that both students and preceptors value. Interviewed preceptors have reported learning from the students to be one of the greatest benefits of teaching (16).

Community stakeholders also benefit from students in rural LICs being positively influenced towards primary care and rural career choices (17). Certainly there is a special feeling that is evoked in a rural hospital when the enthusiasm of learners is in the air!

Learning opportunities

There is a range of contexts in which learning can happen in a rural site, in addition to which it offers numerous advantages - like more one-on-one supervision; less competition; more ownership of the patient; greater diversity of patient problems; greater diversity of encounters (clinic, ER[3], OR[4], house calls, remote satellite clinics, interdisciplinary contexts); more meaningful interactions with patients; more collegial interactions between family physicians, specialists, and other health professionals; and the ability to provide both longitudinal and horizontal training.

Immersion learning in particular helps students develop greater cultural competency, sensitivity and flexibility. In addition student research and clinical learning can successfully co-exist in the rural setting (18). While the setup of rural learning is nurturing, it nonetheless nudges learners outside their comfort zone thus increasing clinical competence (19).

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3 Emergency room
4 Operating room

For those undergraduate learners who will go on to become specialists rather than family physicians, being trained in rural centres will have the same advantages. They will be more patient-centered, have a more generalist approach to problems, a greater appreciation for family physicians, and better working relationships with them. The rural setting provides exposure to an environment that is different from the tertiary care teaching hospital, and similar to the settings in which we ultimately require these physicians to practice (4).

Opportunities for self-directed learning are increased in rural areas and satisfaction with the educational experience is higher (20). By exposing medical students to the option of a career in rural medicine at an early stage in their education, they acquire the knowledge, skills and *desire* to practice in these more remote areas once they have graduated (21, 22). Curran & Rourke (22) outline how medical education can play an important role in supporting recruitment and retention efforts in rural areas.

An illustrative anecdote

The art of medicine is best learned using many canvases. Rural rotations offer the unique opportunity to have shared experiences with other disciplines which are frequently too complex, or too time consuming, to be orchestrated at an urban site. A real case of one student 'Amy' and one patient 'Kelly' illustrates the value of experiences with other disciplines - in the situation of diabetes management.

Amy is a third year clinical clerk on a family medicine rotation in a community of 5 000 people. The health centre serves 10 000 people from a larger geographic area. Amy has previously visited this same community for a two-week community medicine rotation in first year and two weeks of family medicine in second year. On all occasions she has been active in the local Curling Club. This social activity, along with the close working relationships with her local preceptors, draws her back to this remote community. She enjoys the wellness clinics in the community, especially those at the local arena where, along with volunteers from other health disciplines and other local participants, she checks blood pressures, glucometers and provides nutritional advice.

Amy met Kelly while attending a regular scheduled clinic with her preceptor. Kelly is a 44-year old type two diabetic who presents for a routine visit and medication refills. Kelly is unemployed, does not own a car and has little support. She presents with uncontrolled diabetes and a new skin ulcer.

Apart from nutritional counselling and medication adjustment in the clinic, other arrangements are made. Amy attends diabetes education with Kelly, her dietitian and her diabetic nurse. To minimise travel for the patient, Amy attends a satellite clinic with Kelly held in her own community of 1 000 people with the nurse practitioner. Amy has a clinical encounter with Kelly at the outpatient department where she, along with the family physician, addresses the skin ulcer. Amy attends to Kelly in clinic during a return visit, providing a full physical exam, more counselling and a referral to public health for wound care, and to ophthalmology for Kelly's retinopathy. Finally Amy does a home visit with the local public health nurse.

It is unlikely that this timely co-ordinated care would happen at the urban centre. Would all disciplines have been so accommodating? All professionals involved had known Kelly over many years. Did they feel a sense obligation to her? Did they feel a sense of responsibility to the family physician with whom they work closely and knew personally?

Amy will remember Kelly. She has not merely been the recipient of this experience, but an active and vital part of the health care team. She has a very good grasp on patient-centered diabetic care in the community. This is quite different to her lecture on micro-vascular and macro-vascular complications of diabetes. It is powerful – and it is meaningful. There has been an emotional connection between learner, preceptor and patient. Learning has been enhanced.

Practice pearls

What to do

Use CanMEDS as the foundation for teaching (Roles: medical expert, communicator, collaborator, manager, health advocate, scholar and professional).
Seize the unique setting to learn continuity of care within a specific context.
Utilise all of the rural 'classrooms' – hospitals, clinics, a patient's home. This rich milieu aids in understanding the whole person from birth to death, when well, with chronic disease and when critically ill.
Prepare for the learner's arrival.
Showcase your community (use community champions/partnerships), your family and your personal life.

Highlight how the physician is a resource to the community. The rural doctor can and does make a difference to patients, families and to the community as a whole. “Leadership and learning are indispensable to each other” (John F. Kennedy).
Be familiar with the learning objectives and expectations of the programme, as well as the process for evaluation and where to turn for programme support.
Always contract – personal objectives, learning style, anticipated leave, expectations of work hours and on call.
Direct and frame learning: assign specific tasks around common diseases with planned follow up.
Provide ongoing feedback. Mid-term evaluation is essential. Formative and summative assessments require specific time to be set aside. Be mindful of unique challenges in evaluation at the rural setting.
Have learners self-evaluate.
Seize every teachable moment, especially regarding site specific issues.
Utilise the resource in your colleagues – different local preceptors have diverse skills and competencies (not necessarily medical practitioners).
Be respectful (of students, other professionals, other specialties, and above all our patients).
Facilitate learning how healthcare teams work and provide opportunities for team building.
Advocate for good accommodation for learners, making the experience more attractive/rewarding.
Provide interdisciplinary learning experiences, especially as they relate to patients with whom the learner is familiar.
Include direct observation. It must occur at all stages of learning.
Encourage learners to return at different stages of learning (first year, clerkship and residency).
Give learners graded responsibilities.
Assist them to develop higher skill sets and clinical courage.
Encourage development of trainees as teachers. Facilitate layering of teaching.
Remember how much preceptors learn from students!
Have fun!

What not to do

Do not use the student as a sounding board for preceptor issues/preceptor personal problems.
Do not use alternate preceptors you feel are not up to the challenge.
Do not present high volumes of new and difficult materials without opportunities for reflection and application.
Do not ask learners to guess "What am I thinking?" in ways that learners cannot follow.
Do not protect them from the 'scrapes and bruises' as they work through medical and contextual issues. This journey helps them learn their own gaps in knowledge and process.
Do not overburden the student academically such that the experience is negative, and allows no time to experience your community. Instead promote and allow time to experience local community activities (sports clubs, arts, cultural experiences).
Do not neglect to teach learners how to care for marginalised members of the community.
Do not assume performance issues are always knowledge or motivation based; learners also develop personal, relationship and health issues, including mental health issues.
Do not forget the 'off label' = non-curricula opportunities:

- Showcase the community's uniqueness and recognise that the 'non-clinical' agenda is paramount.
- Promote learning *from* the community (elders, community leaders). This promotes cultural competence.
- Demonstrate that personal/professional balance can be achieved. Learning about boundary-setting with friends, family and neighbours is not to be ignored.
- Provide opportunities to learn how to be a good health care manager.
- Demonstrate opportunities for participatory/community based research.

Do not be scared to pose questions that you as preceptor do not know the answer to.
Do not compromise on good ethical and moral principles (especially confidentiality).
Do not be judgmental.

"Nobody cares how much you know
until they know how much you care."
(Theodore Roosevelt)

Broader applicability – and conclusion

When we think of rural medicine, we think of a specialty of its own. The idea of 'enhanced skills' is not new to global rural physicians. What is newer, and becoming more widely applicable, is 'enhanced learning'. Rural practice not only offers an ideal setting to learn continuity of care but it allows learners to develop clinical courage – to manage patients who are in urgent need of care when there are limited or no local expertise. Thinking through complex cases in these instances leads to innovation.

There is now no debating that rural learning is as effective as, or superior to, traditional urban medical education. Adults learn when there is an emotional connection to the subject matter or the experience. Adults need context. The doctor-patient relationship enhances the clinical encounter. Patients need trust. There is much written on both of these subjects. Although there is less written on the preceptor-learner relationship, this enhances the learning experience. A supportive interpersonal relationship with learners is paramount.

Although programmes may look different in various medical schools and on different continents, regardless of programme type at all levels we must work to achieve this necessary foundation. Rural communities are significant learner-centered environments.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.2.2

MAKING MEDICAL EDUCATION PRACTICAL IN RURAL SETTINGS

Dawn DeWitt
University of British Columbia, Canada

The advantages of rural and regional medical education

Rural and regional medical education may, at this point in time, actually represent the very best in educational models for several reasons.

First, recent curriculum renewal efforts at several universities, including Harvard, Melbourne and the University of British Columbia, parallel other new medical schools such as James Cook and Northern Ontario School of Medicine in emphasising the relationships of learners and patients as central to the process of becoming a physician[1] (1,2,3).

Secondly, once rural health care providers are 'on board', the simple fact that they know their patients and the learners well, allows them to be more specific in targeting areas of strength and areas of need. Of course, this requires faculty[2] development specifically aimed at how to assist learners to develop increasing skills, and at how to identify and help learners in difficulty (4). Importantly, Walters et al. propose that teacher flexibility to address learner needs is key to excellent clinical education in patient-care settings (5).

Finally, if made central and explicit to the learning agenda in rural, remote and regional settings, the 'competence' movement, most well-known via the CanMEDs Competencies (6), can frame learning activities and free teachers to work on learner-driven issues rather than on generating lectures and didactic learning materials.

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1 A 'physician' here (in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

2 'Faculty' is another term for members of academic staff.

Workforce challenges

Rural workforce shortages have been the major driver for rural medical education and training in many countries. Predicting shortages in physicians and other healthcare providers, they have expanded existing and initiated new rural programmes.

However, the movement of residents[3] and specialists into rural settings has generally lagged behind the movement of primary care (general practice, family medicine) into rural medical education and postgraduate training. While rural clinical settings provide a rich breadth of clinical experience for learners, the inadequate numbers of teachers and supervisors remains a problem, as does supervisors' lack of teaching experience and lack of funding for teaching which can be significant barriers to recruitment.

Academic (classroom) learning in rural settings

The wide geographical distribution of learners in regional hubs or spread across truly distant rural sites, singly or in pairs, complicates and drives delivery methods. Many medical schools have struggled with how to best deliver lectures and tutorials to an increasing number of these learners via a spectrum of media - including in person, via videoconference, on-line, or pre-recorded. Despite this variety of models of delivery and variance in teacher experience, studies have shown that rurally-based students perform as well as students based in academic teaching hospitals (7).

The most common concern for clinical supervisors relates to their assumption that they must provide expert medical knowledge (e.g. by 'lecturing' students). Conversely, research shows that self-directed active learning results in higher retention rates; 50% compared with a retention rate of 20-30% for lectures (8).

3 A resident – or registrar – is a qualified doctor who is usually part of a structured specialist training programme, be it vocational or postgraduate.

Clinical learning in rural settings

Research has also shown that learners retain information that is meaningfully related to particular patients more readily than information presented in isolation (9).

Learning should be 'organised' to cover a breadth of material and patient experiences should be facilitated so that students focus on core clinical skills, such as gathering patient data and interpreting that information (10,11). Clinical learning is opportunistic, however, as it depends on the patients' diagnoses - but patient logs, internet resources and directed study can be used to ensure that learners 'see' an appropriate breadth and depth of material. Expert educators argue that continuity with fewer patients allows breadth of clinical learning in a patient-centered, contextual learning environment (1).

Supporting clinical experience with evidence is a relatively new opportunity but challenges both learners and teachers as new and specific skills are needed in order to select and utilise the 'best' evidence from an overwhelming number of potential sources. Perhaps the most important task for rural programmes, then, is to engage clinicians whose task is to interpret and 'unpack' information with learners, preferably in conjunction with questions about students' own patients, during 'academic' time.

Supplementing and formalising clinical learning

A weekly academic half-day (three hours - either in person or video-conferenced) might comprise the following; a debriefing discussion regarding core 'didactic' material through, for example, videotaped lectures or readings to help students consolidate material. This might be followed by a discussion on a particular topic (e.g. chest pain) with the students (or postgraduate learners) bringing their own cases with ECGs, x-rays, etc. While this means less work for supervisors, 'teachers' must be open to joint learning and discovery rather than being an expert on the topic. Ideally learners take turns presenting their own cases related to the week's topic, thus applying and consolidating new information relating to their own cases.

Depending on the stage of the learner, tutors (residents, generalists or specialists) may focus on the form and content of case presentations (commenting on which information goes where and why; what to include); diagnostics and clinical reasoning; and management. Postgraduate learners then progress to focus on management skills.
In this modern learning environment, learners need guidance in assessing, filtering, managing and applying knowledge. During case discussions group questions can drive 'just-in-time' learning, using evidence-based bedside clinical tools (e.g. UpToDate; the Cochrane database; drug databases; national guidelines; hospital guidelines). This helps students develop self-directed, time-efficient problem-solving skills that are used daily in practice.

On-line teaching and learning

In addition to active learning, the internet has fundamentally changed the way we learn. Previously, summarised information was time-consuming to find and was often provided only in lectures, making it highly valuable. In contrast, information on a particular topic is now only seconds or minutes away, accessible through the internet.

Lectures and small group discussions that include active multi-site participation and multimedia across several or many medical school sites are becoming increasingly common. In rural areas, the major barrier to wider use of these options is internet delivery (bandwidth) and the expense of developing supporting infrastructure as well as the substantial cost of developing multimedia material for internet delivery. That being said, many medical schools have developed on-line interactive curricula that engage learners and allow for flexibility. For example dermatology and radiology are relatively easy to deliver as 'videos' of many clinical examinations exist; and in the case of psychiatry programmes, case-videoconferencing is used. Fortunately, open source or shared curricula are becoming much more common. Groups at Canadian medical schools - such as University of British Columbia (child psychiatry) (12) and the University of Alberta (surgery)[4] and others - have developed open sites. The Kahn Academy is developing free medical education content[5] and Massive Open Online Courses (MOOCS), offer courses such as Duke University's neuroscience[6] e.g. via Coursera. Online offerings are accessible but fee-based (currently about US$50) if taken
'for credit'.

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4 See https://itunes.apple.com/ca/podcast/surgery-101/id293184847?mt=2
5 See https://www.khanacademy.org/science/healthcare-and-medicine.
6 See https://www.coursera.org/course/medicalneuro.

A developmental learner-centred approach

There are a variety of time-efficient ways to incorporate learners into patient care, even when extra space for learners is lacking (13).

When participating in busy settings, learners should only 'sit in' and observe for one session as adult learning is most effective when learners have an opportunity to understand a task (e.g. a patient visit) and then immediately try to do the task (14). The concept of 'entrustable professional activities' (2) suggests that supervisors should give learners a task that they can do themselves after it has been modelled by the supervisor.

In moving to enabling students to see 'their own' patients, the key to success in busy clinics is explicitly 'priming' the learner and 'framing' the goals of the student-patient encounter: "Mr. X is a patient with Type 2 diabetes here for an insulin review. Please assess his glucose control". (Be explicit with instructions at the first visit, but tell the learner that you will expect them to do this without priming next time this issue presents.) 'Priming' and 'framing' allow the brain to incorporate information efficiently (15). Even then, explicitly framing simple tasks engages learners, e.g. looking up patient medications during the consultation or taking the blood pressure.

At some point, the learner then becomes 'entrusted' with taking on tasks with less supervision and more independence, freeing the supervisor up for other patient care tasks. For example, "Watch how I counsel this patient about smoking cessation. I will watch you do it next time the opportunity arises, and then you can do it on your own".

Progressive learning and 'entrustment' are along a continuum and might look like this in practice:

Session 1:

The student observes three to six encounters with the supervisor actively engaging them by having them make problem lists or medication lists, write prescriptions, fill out requisitions, perform limited parts of the exam with the supervisor in the room (who may be doing other tasks related to that patient), etc. concurrently, the supervisor explicitly explains the process of seeing patients, e.g. "We always do a medication review"; "We don't usually do this"…etc.

The supervisor debriefs with the student, providing feedback and expectations for the next session: "You did well with X. Next time I want you to be ready to see the patients"… e.g. "by yourself before you call me to see the patient with you."

Session 2:

The supervisor gives very explicit directions regarding tasks: "This patient is here for follow up of removal of a skin lesion. Please do the consent (or the local anaesthetic, or the sterile prep, etc.)…."
Or "This patient is here for [same]. What should we do now?|"

Session 3: Increasing 'entrustment'.

The supervisor very briefly primes and frames the visit by reviewing consult notes or prior practice/specialist notes with the learner, or asks the learner to review the previous patient note or consult and summarise the priorities for the day.
The 'frame' for the visit might be: "Please do as much as you can with this patient in 20 minutes focussed on (one of) their hypertension, heart disease, diabetes, etc."

After several sessions, the student and supervisor may be comfortable with the student addressing multiple problems, counseling the patient, or calling a patient for follow-up. At this point, the learner should be familiar enough with the specifics of patient charting that their notes could be used as the basis for the supervisor's notes or dictations, with the "How close is it to mine?" serving as one valid measure for assessing the learner's progress (16).

The challenge for medical schools and clinical supervisors is to balance the breadth of student experiences across sites and specialties (i.e. in the traditional metropolitan rotational model; or with a one-off specialty experience) with continuity that engenders continuous student growth with deliberate coaching and entrustment - while ensuring that student see a variety of medical issues across knowledge and competency domains (i.e. objective/competency-driven log books and portfolios). Continuity is an important principle in establishing 'entrustment'. In my experience, three to four sessions with a student over a period of weeks is the very minimum amount of time that allows me to help students progress with their skills.

Finally, facilitating student introductions to patients as partners in care and options for patient-student follow-up, - e.g. via telephone calls to relay lab results or reinforce counselling regarding life-style changes - can be enormously beneficial and meaningful to both students and patients.

Balancing teaching and patient care

Regional and rural campuses have grown with the mission of increasing learners' familiarity with, and thus their comfort and competence in, rural settings where practice requires a greater breadth of skills (17). The issue of perceived, and real, increased breadth of practice in rural medicine can be intimidating for learners. Significant rural experiences help learners understand how rural doctors deal with the expanded scope of practice, and thus plays a part in increasing the likelihood that they will choose a career in rural medicine (18).

While many rural providers have had some experience with teaching, the rapid expansion of rural programmes has meant that providers need strategies to facilitate learning while balancing patient care needs Educators should aim to help potential and current clinical supervisors develop skills to develop efficiency while facilitating learning in the clinical setting. (Note, as above, that this differs from 'teaching' per se. Alguire et al, have summarised the literature and developed practical tips for supervisors in ambulatory settings (19).)

Furthermore, the distribution of postgraduate training into rural areas is both facilitating and complicating medical school distribution into rural settings (20). There are significant efforts towards vertically integrating ambulatory learning in the same way that traditional in-patient learning has relied on a vertical teaching and learning structure in which postgraduate trainees do a substantial amount of teaching and supervision.

Practical problem: Postgraduate trainees traditionally play a significant role in teaching medical students. As postgraduate training programmes are expanding into rural settings more slowly than medical schools - again due to shortages of training supervisors, especially in hospital/specialty-based programmes - there are far fewer residents/registrars in regional and rural hospitals than in traditional metropolitan teaching hospitals. In addition, many house officers and postgraduate trainees have been trained in other countries and are still learning the Australian healthcare system themselves. As we place more learners in rural settings, the question arises as to how to manage the teaching loads that are traditionally done by residents (and registrars)?

As rural settings expand to include both undergraduate and postgraduate learners, and postgraduates have a mandate to learn how to teach, various models on how to manage the patient and teaching loads are outlined in Appendix A.

Anecdote: Balancing teaching of undergrads and postgrads with patient care in a busy ambulatory setting

Most clinical supervisors in specialty metropolitan ambulatory clinics work with only one or two students, and up to four senior postgraduate trainees at a time. My favourite teaching experience in ambulatory settings involved having two students (1st Clinical year) and one senior resident/registrar with a five-room 'pod' in Shepparton, Australia. I typically scheduled 12 to 16 patients in a half-day (1 pm-5 pm) busy, 'complex' general medicine clinic, with about half the patients coming for diabetes care. One nurse, shared between two specialty clinics, was available to take vital signs. After a pre-clinic orientation huddle that including priming and framing, the students saw the patients first, presented the patient in the room, and the patient, student and I would finalise the next steps. Students wrote initial notes, including a problem list and medication list at every visit.

The resident would see about half the patients, sometimes primarily supervising a student's patient, and I would see all the patients, even if very briefly. The resident and I would split the patient dictation letters, emphasising the reason for the visit and recommendations for the patients' primary care doctors. We explicitly listed reasons and steps for any follow-up with us, so that future students and residents could quickly and easily identify what to focus on at the next visit.

One day my resident was ill and, that morning, I recruited two additional students, who had already done three sessions with me, to help see the 16 patients booked for the afternoon. At our pre-clinic huddle (10-15 minutes) I was very specific about what needed to be done for each patient, and referred students to the notes as above for returning patients and briefly discussed new consult requests to focus the students' approach. As patients came in to the waiting area, I apologised to them for any wait and explained the situation. No patients expressed concerns about timing or about working with the students. The four students and I finished the clinic at 5pm sharp, with only a few notes left to dictate. The key during the afternoon was delegation and a focus on priming and framing. The students were thrilled to be truly needed and really rose to the challenge. The patients were glad not to be rescheduled and also really tried to help the students. While such an effort might be exhausting if done every day, it was a real learning experience for me, even as a very experienced clinical teacher, about pushing the limits regarding how much students could contribute under time pressure when given the opportunity.

Enhancing 'fly-in, fly-out' specialist experiences

When specialists visit rural sites they often seek to maximise the number of patients they see, for obvious reasons. This means there is limited space and time for learners, with rural clinicians literally having to choose between patient care in a provider-shortage environment and teaching learners.

One way to establish learners' baseline knowledge and set up an 'approach' for their participation in rural specialty clinics is to ask specialists to have a 'didactic' session or workshop evening for a larger group of learners at the beginning of an academic year. Perhaps not surprisingly, even this minimal contact whets students' appetites for clinical experiences with that specialist and appears to give students confidence to participate in clinical encounters. While webinars and vod-casts are options, one-time face-to-face contact where logistically feasible is highly valued by both learners and teachers, creating connections that tend to enhance further clinical or distance experiences.

Setting up specific pre-experience learning tasks that refresh learners' memories just before one-on-one clinical specialty opportunities - e.g. reviewing stroke diagnosis and treatment basics before a neurology day - gives learners confidence going into what can be an intimidating experience, and allows them to interact at a higher level in their limited clinical time with supervisors.

Since students can't possibly see every sub-specialty in a meaningful way, focussing on generic skills and competencies should be stressed to specialists who often want to impart detailed specialist level knowledge, even to junior learners. Wherever possible the multi-room model - e.g. one for the specialist and one for the learner - applies here. The common model, 'parallel consulting' utilises two rooms for a supervisor-learner pair.

Longitudinal Integrated Clerkships (LICs) as an educational model

On the education side, the interest in Longitudinal Integrated Clerkships (LICs) (21) has promoted continuity for students and teachers without compromising learning outcomes. Using a coaching model, if not an apprenticeship, LICs counter the metropolitan teaching hospital rotational model that emphasises specialist-driven clerkships in which students must re-orient themselves to a new environment every four to eight weeks. However, such models outside of long-established major teaching hospitals, cause clinical teachers to struggle to meet both education and service needs - unless the teaching model is planned to promote efficiency of care and inclusion of learners in 'service-learning' (22) without falling into the service trap that has led to work-hour reform and formal educational limits for learners. Learners do struggle with integrated learning, as they attempt to focus on multiple issues (easier in specialty determined 'blocks'). However, most learners hit a critical tipping point after several month (23,24).

From an educational viewpoint, both approaches, whether students see more patients with focussed learning experiences or fewer patients with more in-depth involvement can provide valid and learning. Since any student or resident sees only a fraction of all medical problems, the most important teaching and learning points involve clinical diagnosis, and patient and practice-centred problem-solving. In fact, students may learn better in generalist settings, with residents more focussed on specialist practice.

Suggestions re how to address some practical barriers to rural programmes

***Issue**:* If I don't have a specialist to teach the students, how can I make sure they get enough of X specialty?

What to do

Group patients in afternoon 'specialty' areas such as neurology and dermatology. Many generalists are already capable of teaching 'specialist' issues at a medical student level (or are interested in upskilling themselves). Rural patients are often willing to help, since they are well aware of the doctor shortage. Recruit volunteers from public service groups as well as patients from local practices.

Educate specialists about 'parallel' consulting models in ambulatory settings with either extra rooms or physician 'delegation' of tasks while they attend to other patient issues (dictations, phone calls). Develop faculty so that they can frame 'snapshot' experiences for students and balance these specifically framed brief and focussed learning experiences with more 'complete' history and physical challenges with patients when space and time permit.

If billing and consultation rules permit, use specialist-generalist participatory consults (e.g. specialist-general practitioner (GP) case conferencing) to facilitate specialist 'education' for both GPs, aka family doctors, and students.

What not to do

Have learners 'sit in' and watch dozens of patient visits with a specialist (or generalist) in the hope that they will gain significant (specialty) knowledge.

***Issue**:* How do we teach in the hospital when we don't have residents and everyone is overworked?

What to do

Limit and group classroom activities so that students can attend clinical activities.

Give students meaningful supervised 'responsibility' in hospital, even if only for one or two patients at a time.

Develop a clinical education facilitator (CEF) model: nurses teach students and observe their basic clinical skills on wards; the CEFs give feedback on history and physical examination, presentations and procedural skills.

What not to do

Have students simply watch and answer questions on rounds.

Keep students in lectures to keep them 'out of the way'.

Issue

How do we get consistency of student presentations, when consultant's preferences are fairly different?

What to do

Develop student and faculty tools such as a standardised pocket template for notes and presentations.

Brand your template as your medical school presentation/note/handover method. Communicate this to your clinical teachers just as you do with medical knowledge objectives.

Issue

How can we best use our new simulation lab for medical students?

What to do

In addition to standard procedural or emergency scenarios, develop simulations in common medical student skills including: how to admit a patient, teamwork, and handover. Incorporate basic clinical skills such as counselling families, obtaining information from other doctors' offices, etc.

How to complete paperwork (orders, charts, prescriptions, laboratory and radiology requisitions) can be included as a learning task during a simulation.

Practice pearls

Capitalize on continuity: Rural settings are ideal for continuity due to the high likelihood that students will see patients in multiple settings (e.g. hospital and practice).

Recruiting patients is often easier in rural settings, but some people remain concerned about being 'guinea pigs'. Work with both doctors and staff to highlight learner involvement as a positive thing for patients and the clinical environment. Emphasise the extra time and attention they will get (though this must be balanced for people in a hurry) when learners are involved in their care. Engage patients as 'teachers' who can help learners hone their skills (25, 26).

Whenever possible, have learners present in the room 'at the bedside' (27). Patients get more time and attention that way and supervisors can use any discussion to educate both the learner and the patient. This model can be efficient, neutralising supervisor time commitment (5, 28, 29).

Orientation to staff and the physical environment is a requirement in most clinical environments. However, orientation to expectations and task responsibilities is probably the most important educational action and helps with visit efficiency.

Longer rural 'rotations' or longitudinal rural placements increase interest in rural careers. They also facilitate increasing 'entrustment' and to enable learners to contribute to patient care while learning, thus off-setting costs.

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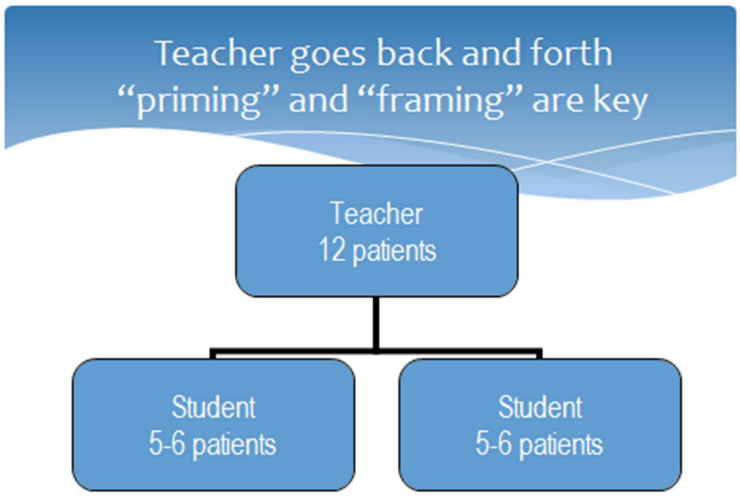
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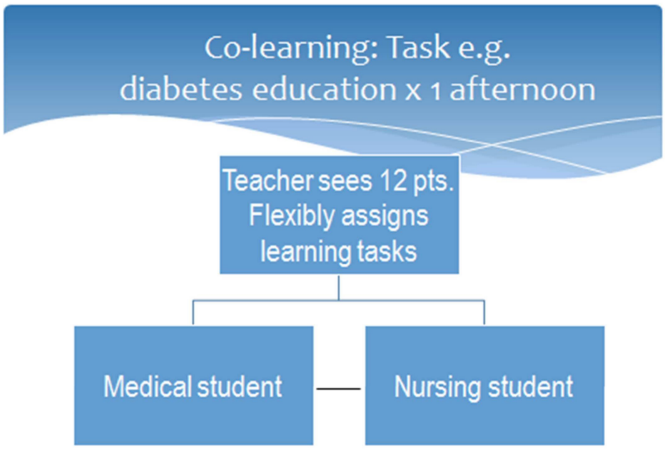
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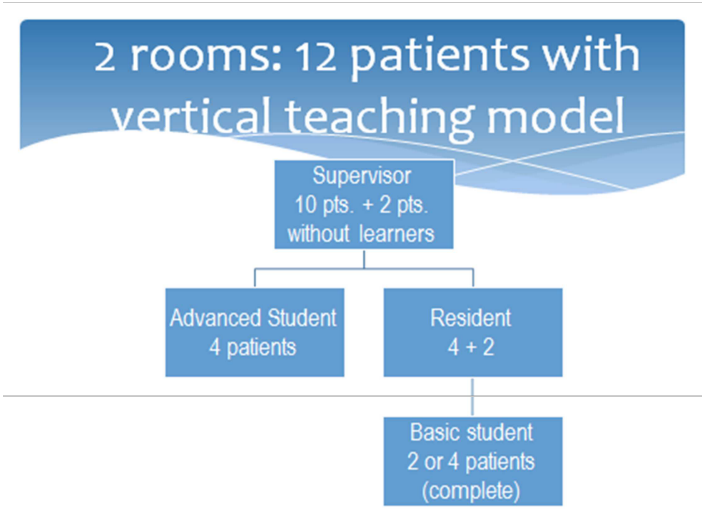
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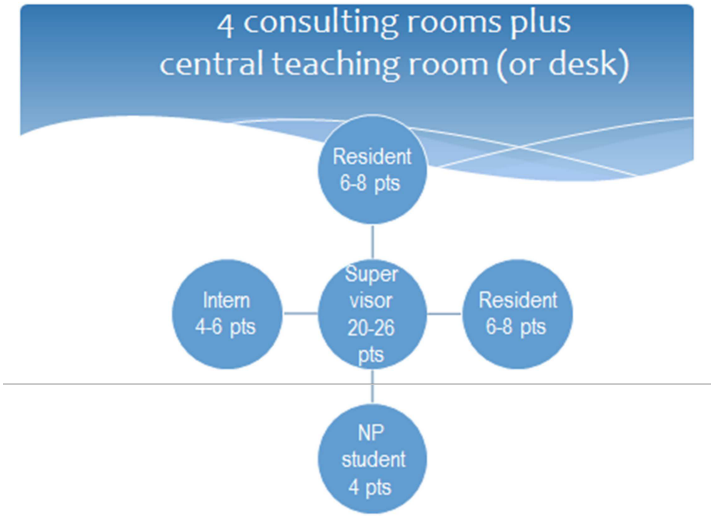
Models for teaching and supervision in ambulatory settings

The basic 'wave' model assumes that the supervisor assigns every third or fourth patient to the student and carries on seeing other patients with every third or fourth patient care slot used to see the students' patient (parallel consulting). Variations on this model include the options represented below.






2 rooms: 12 patients with vertical teaching model
Supervisor
10 pts. + 2 pts. without learners
Advanced Student
4 patients
Resident
4 + 2
Basic student
2 or 4 patients
(complete)


4 consulting rooms plus central teaching room (or desk)
Resident
6-8 pts
Intern
4-6 pts
Super visor
20-26 pts
Resident
6-8 pts
NP student
4 pts

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.2.3

ACADEMIC SERVICE LEARNING AND RURAL MEDICAL EDUCATION

Jannie Hugo
University of Pretoria, South Africa

Introduction

Academic service learning (ASL) is an approach which entails students engaging in meaningful service as an integral part of academic learning; they learn while they work and they work while they learn. As such, it is invaluable in rural medical education as it ensures that students learn from the range of experiences that rural contexts uniquely offer, while adding some personpower to the medical team.

The promotion of authentic learning is intrinsic to the practice of ASL. This is about how learning takes place and how the individual constructs new knowledge from real-life challenges which can then be used creatively in new and complex situations (1). The aim of authentic learning is to focus continuously on achieving the highest possible quality of service and quality of learning. As such it provides the methods and tools for students to be sensitive to their contexts and the people with whom they work while they deepen their own learning through action and reflection.

The particular strength of learning in a rural setting is that all the elements needed for both ASL and authentic learning are abundantly present. While rural health care and medical education therefore offers unique opportunities for ASL, these need to be explored and developed to make the best use of these opportunities.

ASL comprises five elements (2):
1. appropriate service to the community;
2. appropriate accelerated academic learning;
3. structured reflection;
4. social / civic learning; and
5. collaboration and partnerships.

While ASL can be seen as a further pedagogic development from problem-based learning (PBL) and community-based education (CBE), relevant service delivery, structured reflection and civic learning are more explicit in ASL than in CBE.

Service to the community

Being involved in actual service delivered to a community is a crucial element of ASL and is often the most important part of rural learning (3). Reciprocity is an important part of ASL, whereby the student makes an effort to serve and learn while the patient, health team and community make an effort to accommodate and support the student in their learning and in their service.

Small teams and often chronic staff shortages in rural areas mean that health workers are frequently overextended and they may experience students as an additional burden. This means that students need to be part of the service delivery team and to make a significant contribution – and staff need to be supported in finding ways of involving students as part of service delivery and quality improvement. Where students are given more responsibility in patient care, quality improvement projects (such as staff development or community outreach) provide them with a range of real life challenges. Although students should not take the final responsibility for patient care, in rural services the students' contributions are often a major contribution to care. Where sub-optimal care occurs as a result of a lack of resources in rural services, students need to be guided and supported to recognise this and to develop ways to improve the situation.

Spending a longer time in rural rotations can provide students with experiences of continuity of care and of relationships which enables them to experience the realities of patient care and service delivery in all its complexity. Follow-up of patients and projects gives the student the opportunity to experience the actual impact of interventions with the patients, families and health teams; an ideal opportunity to learn from real life. This can be maximised by linking students to specific practitioners, health care teams, patients, families and communities. These experiences, often difficult to access, or absent, in urban specialist practices, are important for authentic learning.

Academic learning

ASL is concerned with the development of authentic learning and an authentic curriculum. The exposure of students to rural health services is an important opportunity for curricula to be challenged and adapted by the realities of health and health care. With the inequities in health care often visible in rural areas, students experience health problems as they manifest in communities, where the social determinants of health are more obvious.

ASL activities in rural learning contribute to specific curricular learning. Students should have access to the learning material through resource centres and the internet so that they can integrate the standard learning material and information sources with experience and information from local sources. In addition, facilitated web-based discussions have the potential to become a major resource as access to cyberspace expands to rural areas. Distance learning methods and technology are important components of ASL and authentic learning.

As authentic learning entails a student being able to use what they have learned to solve new problems (1), it includes taking notice of the complexity which is evident in rural life and health. While special investigations in the large urban hospital allow students to learn to solve problems by an ever-increasing complexity and number of investigations - and this may even be regarded as 'high standard of care' - in rural areas students are challenged to participate in providing high quality care with limited resources and facilities. These complexities require thought and understanding – and the creation of new knowledge to solve new and complex problems.

For authentic learning to take place, the student needs self-confidence, motivation, personal effort and perseverance. Students from urban areas may lack self-confidence when they are in rural areas and may need initial encouragement and emotional support ('supported participation' as described by Dornan et al (4)). Support can lead to confidence, while a close relationship with a patient in need creates the motivation to provide high quality care. Out of this authentic experience comes the motivation to try and persevere.

Collaborative learning is part of ASL at its best (5). In rural settings, students are separated from their familiar sources of support and work and live in small groups where new relationships are created as they tackle the challenges of the 'unfamiliar other'. For many, a new camaraderie grows while for others, the challenge may be overwhelming and frightening. Students need to be prepared for this challenge and be able to ask for advice when necessary.

While collaborative learning may increase the quality of individual learning (5), this needs to be based on initial individual effort without which group work becomes secondhand rather than authentic. An astute facilitator will ensure that every student has experienced a real life issue, reflected on it and confronted its challenges before the group work begins. Only then can the learning begin by integrating the new concept into the familiar frame of reference. Once this has happened, the group gets together to share their individual experiences and their new ideas. This provides a new challenge and may assist each one to reach an even higher level of learning.

As facilitating authentic collaborative learning requires skill and courage, rural facilitators are to be supported in this practice so that they resist the temptation of providing 'secondhand' answers.

In the midst of the richness of rural learning, the rural doctor may neglect his or her own authentic development. Ideally if they follow the same process of authentic learning, these doctors will become authentic role models.

Reflection

Reflection is a crucial element of practice and learning – and ASL requires rigorous reflection. Following exposure to real life challenges, reflection is the process of re-examining one's past frame of reference. When the 'new' does not fit with the old, one of two things happens: the new is adapted and integrated into a changed framework, or it is rejected.

Rural practice provides an ideal situation for students to engage in authentic reflection and to experience its impact on understanding and on professional practice. In rural learning where the student is often more isolated and away from the main campus and lecturers, the need for reflection is more apparent.

Reflection is not only for students, however. Ideally the health service also reflects as part of their improvement and the rural education programme reflects to improve the learning of students.

Student reflection (6)

A rural rotation provides unique circumstances that promote reflection: everything is new and challenging; students travel together to and from the rural facility and they live together, work together and at the end of the day, reflect on what has happened as they prepare meals together. They are able to discuss their experiences in detail with friends who understand the challenges. This is part of authentic learning as new concepts are shared and refined. In addition web-based social networks, such as Facebook and twitter, are part of students' lives and provide an opportunity for 'uncensored' reflection and interaction. Although these are not formal activities, the learning that occurs needs to be acknowledged and encouraged.

In terms of structured forms of reflection, these can include learning journals, reviews of patient records, reflective history templates (7), activity reports, significant change stories (8) and digital story telling (9).

Digital story telling is a reflection method that works well for rural rotations (10). At the end of the block, individual students present a photo story comprising five to seven pictures taken during the block. The process of going through a series of pictures and selecting which to use and why, takes the student through a powerful process of reflection. It provides the opportunity to deal with some of the negative experiences and to have a more comprehensive view of the rural block. Students experience this as a useful way to end the rotation and take experiences with them into the rest of their studies and practice.

Rural learning programme reflection

Rural learning programmes need to reflect and adapt continuously. As rural learning is not main stream, many of the programmes are frequently assessed and reviewed – using feedback from students, patients and staff, reflections from mentors and lecturers and evaluation of student performance and learning. It is important to make this reflection explicit and visible to students and staff.

Service reflection

Health care has to be measured by not only the scope and number of services provided but also by the outcome of this care by the judicious use of indicators. In rural areas with smaller, well-circumscribed communities, this may be easier than in larger urban areas. Seeing actual change provides a special opportunity for student learning.

Quality Improvement (QI) is the process of service reflection. As rural health teams are often small and have limited resources, QI is often neglected. Students can assist rural teams through data collection and analysis, as well as implementation and review of the new approaches.

Social and civic learning

Social and civic learning are about understanding the social and health care systems in which we live and work, including social justice, inequity, agency and advocacy. The student is challenged not only to have a view, but also to make choices regarding the type of society he or she wants to be part of and what type of citizen he or she wants to be. In ASL these issues are addressed throughout, with students constantly being asked: What is going on? How do you understand it? What can be changed? What can you do about it? How does this change your understanding? And how will it change your choices and actions in future?

As inequities and poverty are often more explicit and evident in rural areas than in urban areas, rural learning provides the student with the opportunity to take action. Additional avenues for students to become active contributing members of society are provided by rural student societies and organisations.

Collaboration and partnerships

Collaboration is a crucial process within health care. In ASL the process of collaboration and partnerships with people, communities, service delivery agents and community-based organisations form the basis for involvement with communities.

The process of collaboration includes

individual effort and commitment;
joint knowledge creation by participants;
respect;
building networks with practitioners, services, patients and families; and
information (and not power) as the currency of collaboration.

In rural learning, team work and collaboration (or its absence) is often more visible to students. Experiencing collaboration and reflecting on it will enable students to develop these skills not only in health care practice, but also as students work and live together.

Inter-professional learning, which is often more talked about than done, can be practiced through ASL. From first year to final year, students are more easily integrated in rural areas where students from a range of disciplines have the added opportunity of learning and living together. In Uganda, first year medical, nursing, dentistry and medical radiography are involved in community projects (11), while in South Africa, medical, occupational therapy and physiotherapy final year students are involved in hospital patient care. These opportunities in rural learning need to be exploited.

Conclusion

By exploring the pedagogy and practice of ASL, rural education provides possibilities of not only rich learning for students and the development of staff and services, but also an area of development of ASL.

To implement ASL, the elements need to be understood by the university staff, rural teachers and rural health workers and managers - and all the elements of ASL need to be planned and implemented in a structured manner.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.2.4

BUILDING CAPACITY FOR INTEGRATED CLINICAL LEARNING IN RURAL SETTINGS

Sue Berry, Marion Briggs, David C Marsh[1]
Northern Ontario School of Medicine, Canada

What is community-engaged integrated clinical learning (CEICL) – and why now?

Shifting away from one-on-one precepting[2] and uni-professional clinical teaching is prominent in efforts to transform health professional education around the world. The increasing complexity of disease, co-morbidities and health systems, require new methods of teaching, new ways of working together, and new ways of learning about not only the diseases but how we teach our learners to manage patient care and manoeuvre within our complex health care systems. These challenges are even more complex in rural settings where health professional resources and services may be scarce.

CEICL brings learners and teachers in health and social services together to learn about, from and with each other through an exchange of knowledge, skills, values, ideas and experiences. Learning can occur in multiple directions across disciplines and levels of learners. It occurs through a process where health care learners and providers, patients, and their families learn from each other to the benefit of all, and develop individual and team-based competencies to improve the quality of care provided to patients and communities.

1 The authors wish to express a special acknowledgement to Dr Roger Strasser, Dean and CEO of the Northern Ontario School of Medicine, who provided a critical read of the paper and in the process, improved it. .

2 A preceptor - or clinical instructor/adjunct faculty – is a clinician (person with core clinical skills) who offers clinical teaching at a distant (rural) site.

Through focused discussions with a variety of clinical faculty[3] at the Northern Ontario School of Medicine (NOSM) in 2009, Berry and Pavelich (1) described integrated clinical learning (ICL) as a model of clinical education that:

is non-hierarchical in teaching and learning;
includes formal and informal learning opportunities;
benefits patients, families and providers;
shares competencies (knowledge, values, skills and behaviour) across disciplines;
provides meaningful team experiences maximising inter-professional synergies embracing all levels of learners;
capitalises on the strength of the learner, the environment, the community, intraprofessional and interprofessional collaboration for student-centred learning; and
provides flexible, adaptable, culturally sensitive learning, maximising community-based learning settings (1).

The concept of integrated teaching and learning is supported by the earlier work of Boyer who, in 1990, advocated for 'scholarship of integration' (2,3) which he described as 'making connections across disciplines and, through this synthesis, advancing what we know'. In subsequent work, he identified and argued that the scholarship of engagement requires collaboration with communities and that 'engaged scholarship stresses that the public can itself contribute to academic knowledge' (4).

Boyer's work was furthered by others such as Calleson (2005) and Bender (2008) who also advocate for the recognition of community-engaged scholarship (5, 6). The dimensions of scholarship, which includes principles related to integration and community-engagement, support the premise that faculty are doing scholarly work when they creatively integrate patients as informed decision-makers for health care *and* as teachers into the education forum. CEICL is thus the intentional and experience-based learning that occurs beyond institutional walls, notwithstanding that it is structured within universities, hospitals, and community formal learning forums.

3 'Faculty' is another term for members of academic staff.

Worley (2000) and Strasser (2010) convey that through community engagement, community members become actively involved in hosting students and contributing to their educative experience, particularly regarding the relevance and specifics of the social determinants of health in rural, remote and Aboriginal communities in Canada and Australia (7,8). Strasser suggests that 'successful community engagement depends on empowering the community to be a genuine contributor to all aspects of a medical school' (7).

In interviews with rural physician teachers in Northern Ontario in 2009, Berry and Pavelich described integrated clinical learning as comprising more than *what* the learner learns, but also including *who* the teachers are and *how* learning is focused. CEICL involves the physician in numerous roles: a teaching role inclusive of teaching about community practice, the patients and their families; a role as scholar with the learners; a role as a clinical expert sharing knowledge with other colleagues; and a role as a collaborator with community health professionals and learners. As eloquently conveyed by a rural family physician, integrated clinical learning is about 'transforming learners and transitioning learners into leadership roles, including scholarly, academic and teaching roles' (1). These principles hold true also for other disciplines involved with medical learners and learners from other disciplines.

What to do when practicing the CEICL approach? Why do rural health professionals and practices exemplify the high qualities of CEICL?

CEICL in practice can look different depending on the setting and resources available. It can include the traditional model of one learner to one preceptor, but also includes models with multiple learners and/or preceptors. Learners may be from the same profession or from different professions. They may be at different levels in their training. They may be on placement together, overlap at certain times, or come together around specific projects or care issues. Learning opportunities may be formal or informal, planned or arise in the situation, and can include learning together as a team.

Ladyshewski argues that by creating situations where paired learners observe each other, talk together and experience conflict between their own ideas and the ideas of others, their skills in understanding and resolving conflicting thoughts and ideas, and restructuring knowledge will increase (9). He also claims that when theory, demonstration, practice and non-evaluative feedback are combined with coaching, statistically significant gains in performance are achieved.

Notwithstanding these differences, community-engaged integrated clinical learning opportunities have the following common features:

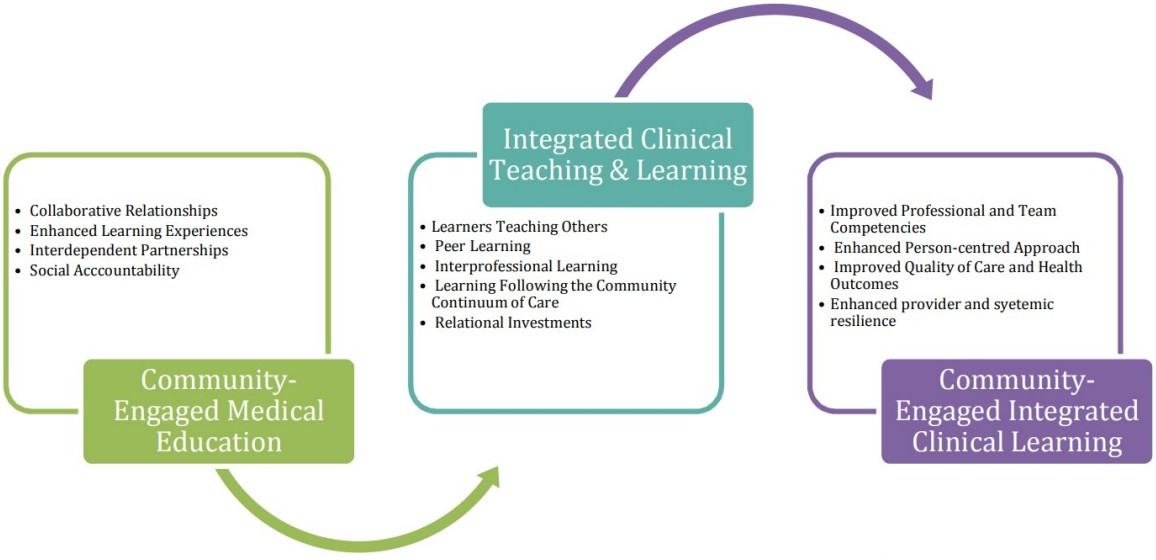
CEICL exemplifies shared principles of professionalism through inter- and intra-professional, collaboration and reciprocal learning. Learners learn not only from their teachers, but also from each other, their peers and colleagues, team members, and patients and families.

Through community engagement, teachers encourage the inquiry and responsibility of the learner through practice environments that are supportive, respectful, collegial, and collaborative.

Community-engaged teaching/learning capitalises on the unique strengths and attributes of learners, teachers, and practice environments, in order to provide effective learning experiences.

Using a community engagement approach in and with rural communities, CEICL becomes the mechanism through which a community works together in providing a thorough and comprehensive approach to health professional learning in the rural context.

Figure 1
Conceptual Model of CEICL (1)[4]



4 Figure modified by Berry and Briggs (2013) for this chapter.

How does resistance to integrated clinical learning emerge?

While we believe CEICL is supportive of individuals and communities, we acknowledge that CEICL can be challenging both conceptually and logistically in the development phase. Resilience is a key characteristic required of individuals and communities that choose to commit to this model of teaching and learning and to practitioner wellness in rural/remote settings. Resilience is a dynamic, evolving process whereby individuals (in the context of their own personal coping and in their interdependent relationships with others) maintain positive attitudes about and effective strategies to respond to life stressors (10, 11, 12).

Building resilience

In the next section we offer suggestions for how to build resilience - but first, we consider common issues that challenge family physicians in rural and remote practice and that can lead to burnout, loss of resilience, and resistance to change, including the adoption of new teaching models such as CEICL. We consider these challenges in three categories - personal circumstances, conventional approaches, systemic issues - and provide representative examples under each.

Personal circumstances

Low tolerance of clinical uncertainty, combined with high workload and inherent uncertainty associated with primary care; low compassion satisfaction, inability to set personal limits (10).

Loss of a sense of importance of medicine; lack of leadership training (13).

Limited adaptability to change (12).

Concerns about continuing professional development (14).

Inadequate personal support, lack of exercise, spiritual void, lack of self-awareness (11).

Conventional approaches

Tradition of one-on-one preceptor/learner pairing.

Generational differences in teaching/learning preferences.

Resistance to the power imbalance between academic and clinical contributions to the education of physicians; the impact of hidden curriculum and practices (13,15).

Systemic issues

Disconnect between university and clinical education sites and academic and clinical faculty (13,16).
Lack of role models (17).
Inadequate practice and administrative management structures (11).
Social isolation from peers (11,14,16).
Lack of mentors/role models (17).
Intellectual, social isolation (14, 17).

Following Bourdieu's concept of 'habitus' (the tendency to act in particular ways), we suggest that practitioners who encounter personal, historical and systemic challenges to resilience will tend to act in ways that resist change and demonstrate a lack of resilience (18). These behavioural patterns arise from the very complex ongoing relationships with others in multiple contexts, hence the emphasis on the dynamic and evolving nature of resilience (10,11,12,19).

We do not intend to imply that the practitioner is somehow deficient if s/he displays a lack of resilience or resistance to change. Instead, we have tried to show a much greater degree of complexity than would be explained by a purely individualistic approach. Effective approaches to developing resilience must therefore take into account and address individual *and* systemic challenges, including strategies that strengthen and deepen the sense of community.

Lessons learned: Turning resistance into fostering resilience

Multiple strategies are advocated for turning resistance into resilience. We offer a wide range of representative, evidence-informed strategies that have been shown to support the emergence of resilience in both individual practitioners and the interpersonal and interprofessional networks (personal, practice, administrative, research and educational) in which they function. Our intent is to emphasise both individual *and* community aspects of resilience. The need to invoke multiple strategies together would support a natural evolution to CEICL.

The points below specify strategies reported in the literature as positively influencing the development of resilience in rural primary care practices, with an emphasis on academic practices – that is, those with a specific commitment to teaching and/or scholarly work in addition to providing primary care for a defined patient population. These strategies are grounded in community engagement and social accountability, and support the emergence of CEICL grounded in relevant pedagogical, scholarly, and leadership commitments.

Honour the role, value and challenges of rural generalist practice in academic medicine:

Legitimise and promote generalism (11,13).
Create realistic opportunities for academic advancement (13).
Ensure rural academic leaders can contribute to university committees, including curriculum planning (13).

Connections: Bridge the clinical and academic through interprofessional clinical, teaching and research networks

Establish practice-based research networks (PBRNs) or health improvement networks (13, 16, 20, 21, 22, 23).
Establish mechanisms to ensure promotion based on community-engaged, integrated scholarship (4,24,25,26).
Offer training in interprofessional education and collaborative practice (27).
Engage other disciplines and community partners as teachers (1).

Practitioner, academic units and community health services share commitment to, and accountability for, practical, relevant and integrated continuing professional development

Provide training and mentorship on: self-awareness; identifying and accepting personal limits; setting limits; attitudes and perspectives; valuing physician role; honouring self through recreation and exercise, vocation and avocation, spirituality; importance of nurturing supportive relationships including professional support, peer support, consultant support, interprofessional teams, and personal support, including partner, family, friends; having own family physician (10,11,12).
Provide training in academic skills such as curriculum development and assessment, leadership, and student support (13, 16).
Support academic clinical leadership development with specific continuing education regarding understanding and meeting the needs of learners (13).
Train all types and levels of health disciplines in clinical leadership roles; train and assess in interdisciplinary teams (13).

Address informal and hidden curriculum (13).
Provide mentorship and seek/highlight/connect role models (17).
Support expanded general practitioner (GP) scope of practice (e.g. surgery, anesthesia, geriatrics) through formal curriculum (as opposed to leaving the curriculum in the hands of the practitioner) (17).

Develop supportive systems

Attend to practice management style and culture (10).
Develop social networking infrastructure and processes (16).
Office management personnel, computer systems, community/regional connections (11).

Improving the diversity and breadth of CEICL experiences

Generating community-relevant clinical curriculum, teaching, and practice experiences are key to preparing today's medical students for rural practice globally. In moving from traditional education of one-on-one teaching to a much broader situational and experiential learning that fosters transformational education (28), the following are teaching tips for improving the diversity and breadth of a CEICL experiences.

Ten CEICL practice points

1. Engage community resources to assist with a learner's rural experience and facilitate aspects of curriculum content or skills acquisition. Build on relationships and expertise within the community.
2. Build social learning opportunities for students – e.g. house learners together; group social events.
3. Expect peer interaction, teaching, and/or coaching between pairs of learners.
4. Ensure health professional and medical learners practice and learn together.
5. Foster opportunities for co-facilitation of teaching between teacher and learner or encourage senior learners to teach junior learners.
6. Expect learners to actively participate in cultural and community social activities and to contribute to the community through projects or service learning.
7. Co-locate different levels of learners and/or the type of learners.

8. Engage patients as teachers (29, 30).
9. Engage in reflective discussion after any educational experience or critical incident (31). (Refer to Zeus and Skiffington's sample questions below).
10. Coach the learner in making sense of their experiences through dedicated short bursts of **protected** time during each day to connect, discuss and reflect on CEICL.

Zeus and Skiffington's sample reflective questions for coaching learners *(31)*

How questions:

How did you react to that?

What questions:

What might you do differently next time?

What did you learn from that?

When questions:

When did you realise / decide to …?

Where questions:

Where did it all go wrong?

Why questions *(wisely and cautiously used to avoid defensive reactions from the learner)**:***

Why do you think that happened?

How to sustain a CEICL model

Share learners between communities for a greater breadth and depth of medical and community experiences and perspectives.

Share teaching roles and responsibilities with other disciplines and resources within your community.

Share teaching stories of the diversity of learning experiences with other clinical teachers and learners – what worked and what didn't and why.

Develop a teaching resource database / directory specific for your community.

Profile and market your rural community as a vibrant community-engaged integrated teaching and learning site.

Reflective concluding thoughts

Community-engaged integrated clinical learning can become a pathway for rural medical teachers interested in pursuing and being recognised for their scholarship of integration or engagement. While academic institutions are increasingly engaging rural communities in health professional education and training, it is imperative that the rural medical teachers be recognised and promoted for such scholarship in changing and refining models of clinical training.

Creativity and innovation in CEICL experiences can garner profound transformative learning experiences for learners through involving the broader community (interprofessional and lay) in the education of health professions, engaging patients in a teaching role, better preparing learners for learning in rural and small community context and, enhancing learner-teacher relationships. Importantly, CEICL can act as a catalyst and strategy for learners in becoming and preparing them for roles as future faculty members and clinical teachers who are resilient and embrace the concept and practice of community-engaged scholarship.

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Belgium

secretariat@wonca.net

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Chapter 2.2.5

ASSESSMENT IN RURAL MEDICAL EDUCATION

Tim Wilkinson
University of Otago, New Zealand

Principles of good assessment

Good assessment is good assessment regardless of whether it happens in rural settings or elsewhere. Most of this chapter therefore covers principles that apply in any setting. However, there are some situations that require special consideration in rural settings and these are discussed as they arise, and near the end of this chapter.

The best plans for the best learning course can all be easily undone if the associated assessment is not well planned. It is well known that assessment drives learning and sometimes this is seen as a negative phenomenon, as though it were somehow the fault of learners. But assessment guides learning and helps learners get to the next stage of their course – so naturally they will guide their learning to the assessments. If assessment is guiding learning in the wrong direction, it is the fault of the assessment, not the learners.

One of the most common pitfalls in designing an assessment system is to think about it too late. Sometimes we see a lot of thought being put into the learning programme and then at the last hour, someone asks the question, what assessment will we have? There can then be a tendency to think of familiar assessment tools, and decide to use them: "We'll have an MCQ test and that should sort it". Instead, assessment should be integral to any thinking about learning and particularly integral to thinking about the goals of the learning programme.

Decide the purpose

Before we think about an assessment programme, one of the most important questions to answer is why are you assessing? Determining the purpose of assessment may seem a simple question and one that need not be worried about too much, but all too often it is given insufficient thought and many problems can ensue from this.

One of the most common reasons for assessing is to guide learning. It is to help learners understand where their strengths and weaknesses lie and hopefully therefore to guide them to those gaps that they need to attend to. However other purposes of assessment can be to inform decisions on progression – particularly whether a learner is ready to proceed to the next stage of the course or to graduate from the course. Assessment can also be used as a form of course evaluation – the faculty can learn how well the course is working by looking at those areas of the course that learners seem to have learnt well and those areas that they seem to struggle with.

Another common purpose of assessment is to rank learners. Ranking is not an end in itself but can be needed if there is competition for limited places in the next stage of a programme – e.g. to select people for places in medical school or for a job where these are scarce and applicants are plentiful. Another purpose could be to motivate learners. Some mistakenly think that ranking is also useful to motivate learners yet there is good evidence that ranking does not achieve this goal (1). However, having clear expectations and clear feedback about how learners are achieving against these expectations can be highly motivating.

It is clear that some of these purposes may conflict with one another. For example if the assessment is designed to rank, then there is the risk it may demotivate. If the assessment is to inform decisions about progression, there may be less information available to guide learning. It is hard to design an assessment system to meet all these purposes. Choices need to be made about those purposes that are most important for the learning programme. Once those choices have been made, and an assessment system designed, we should not be disappointed if other purposes are not being met.

It cannot be overstressed how important it is to have a written statement about the purpose of the assessments. While they may differ according to the stage of the course, having them stated clearly goes a long way to informing subsequent actions in the design of an assessment system.

Educational impact: Decide what learning you value

The observation that assessment drives learning has sometimes been seen as a negative phenomenon, such as when learners must make a choice between preparation for assessment rather than to provide good care for patients. This negative effect only occurs when assessments are not aligned to what we value. If our assessments drive learners away from activities that we think are important, then it is our problem to solve, not the learners'. If we only assess the things that we value, then the learning behaviours should move in the desired direction (2). The effect of assessments on learning is referred to as its educational impact and, arguably, is the most important attribute of an assessment programme.

Generally we value assessments that reflect an ability to do the job well. This is performance ('does do') and contrasts with competence ('can do') (3). Although performance is the 'final common pathway' that encompasses competence, there are times when competence first needs to be shown before a person can be permitted to perform (4). This value on performance over competence has driven moves to place more assessment within the workplace.

Reliability and validity

We cannot consider assessment without clarifying reliability and validity. Good assessments are reliable and valid. However, it is also worth noting that very few assessment tools are both reliable and valid – at least not if they're trying to measure something important. To explain this further, we need to understand what these concepts are.

Reliability refers to the reproducibility of an assessment. If we were to do the assessment again, would a learner get a similar result; if the assessment were to be assessed by a different examiner, would the learner get a similar result? Ideally the answer should be yes in both cases. ***Validity*** refers to the extent to which an assessment is measuring what it's intended to measure.

Reliability can be reported numerically – often between 0 and 1. As such it can sometimes be likened to a correlation coefficient where '1' indicates complete agreement or reproducibility and '0' indicates no reproducibility or that the result is

random. In contrast, validity is expressed in words and relates to purpose. There can be various forms of validity – but common ones are how much the assessment matches real-life tasks; how much the assessment is able to detect those learners who are below the expected standard from those who are above it; how much the assessment fails the right learners and passes the right learners.

The challenge in assessment, and a common observation within medical programmes, is that it can be hard to get assessment tools that are both reliable and valid. A supervisor's observation of a learner in action in the workplace often has high validity in terms of measuring how well that learner might undertake future work in the workplace, but the reliability may not be that high; another supervisor may give a different rating, for different reasons. In marked contrast, shoe size can often be measured very reliably – the result may well be the same if it is measured again the next day or by another person. But it has very low validity in informing how someone may work as a doctor. Although shoe size is an extreme example, and would never be used in practice for such purposes, there is the risk that we spend so much time justifying assessment tools purely on the grounds of reliability that we overlook validity. It is almost as if the test designer is thinking that if it's reliable it must be good. Of course, there is a good argument to be made that no test can be valid unless it is reliable – you may be measuring the right thing but if the result is not reproducible then it may be of little use.

These tensions have characterised assessments for many years and have led to some unfortunate decisions. It can lead to excessive attention being paid to individual assessment tools. Multiple choice question (MCQ) banks and Objective Structured Clinical Examinations (OSCEs) are good examples of this (see Appendix A). In order to achieve acceptable reliability, there is the risk that the task being asked of the learners becomes so circumscribed and defined that it becomes meaningless.

This has been supported by the observation that checklists not only do not improve reliability but may worsen validity. For example, scoring on checklists can lead to experts getting lower scores than novices (5). This reflects the efficiency by which experts undertake tasks. Experts do not need to undertake all the steps (as might be captured by a checklist) in order to achieve an accurate and efficient outcome (5,6,7).

Multiple sampling

If specification of the task and checklists don't improve reliability, then what does? In short, the best way to improve reliability is multiple sampling. Assessment is like statistical sampling – a sample is an approximation of what we want to know. The bigger the sample, or the more times we sample, the closer we get to an accurate understanding of an individual. It is difficult for one method of assessment to provide complete information; similarly it is difficult for samples at one point in time to provide complete information. This means that a variety of assessments over a variety of times, which are matched against the areas we are interested in, is much more likely to provide reliable and, as we shall learn later, valid information (8,9,10).

The value of multiple sampling has been backed up by empirical observation (10,11) and by generalisability analysis (12,13). For example, in a clinical assessment, generalisability analysis can compartmentalise how much variation in a learner's marks are due to their true ability, how much is due to the patients (case specificity), how much is due to the examiners (assessor specificity) and how much to unmeasured factors (error).

Single observations often mean a learner's true ability may form an insufficient proportion of the mark. The best way to increase the proportion of the mark that is due to a learner's true ability and decrease the proportion due to other factors, is to increase the number of observations (13,14). If there is considerable variation due to the patient, then these observations should include more patients. If it is due to the examiner, then these observations should include more examiners. This 'concentrates' the marks due to learners and 'dilutes' the marks due to the idiosyncrasies of examiners or patients. In contrast, if the variation due to examiners is low yet the variation due to patients is high, as in long cases (6,14), then examiner training will have limited influence. Instead, multiple cases with different patients are needed. It is these analyses that have guided our thinking on how best to combine assessment results and how best to use less reliable assessment tools.

This also explains why OSCEs have high reliability. Although they were designed on the basis that reliability came from its standardisation and the use of prescribed tasks with defined checklists, in reality the reliability arises from the use of multiple observations (stations).

This has led to the renaissance of global judgements (5,15-19). In the past, unreliable results were erroneously attributed to insufficient structure in an assessment tool rather than to other sources of unreliability such as insufficient number of observations, insufficient range of instruments or insufficient number of assessors. Under this influence, checklists proliferated, a good example being supervisor report forms. It was thought that having a number of checklist items would improve reliability. In fact, it often made it worse (5,7,19). Global judgements are often just as, or more, reliable – provided these judgements are aggregated with those of others.

Programmatic assessment

We know that medical practice is complex, requires multiple skills and is multidimensional. It therefore should be no surprise to learn that there is no single assessment tool that can measure good medical practice. Instead the various elements of practice need to be assessed in different ways – which means we need multiple assessment tools. As described earlier, we also need multiple samples. Putting this together means we need judicious use of a selected group of assessment tools, carefully staged over the course of a programme of learning that in their entirety give a picture of a learner's abilities. This concept is referred to as programmatic assessment.

An analogy with programmatic assessment is a family photograph album. In this analogy, the album may contain photos of some family members that are well constructed but poorly focused, there may be others that are finely focused but only of half the family. Others might not have everyone smiling. However, taken in its entirety, the album gives a reasonable portrayal of the family. Likewise, a programme of assessment might include some tools that are highly valid but only moderately reliable, other tools might be very reliable but restricted in the range of attributes they can assess. But taken together, we can gain a reasonable picture of a learner. Multiple snapshots, even if some are not totally in focus, give a better picture than one poorly aimed photograph.

This means we should not discard tools on the basis of unreliability if they have high face validity and a positive educational impact (8,9) – but we should also not place over-reliance on them on their own. Instead we should build in more observations and other assessments before making decisions.

Programmatic assessment therefore creates an unusual win-win situation: multiple assessments by multiple observers over multiple time periods improve reliability. In addition, multiple tools over times by multiple observers also contribute to validity. The key to getting programmatic assessment right is in the selection of the right mix of assessment tools. This is where 'blueprinting' is important.

Blueprinting

Because it is not feasible to assess everything of value, we have to take a sampling approach. We often need just enough of some assessment tools, not too many of another and careful attention to a few selected ones.

Mapping our assessments to our curriculum to determine the content validity is called blueprinting, of which there are two types.

The first type is a macro-level blueprint that aims to look at each of the components of the curriculum and to decide which assessment tool or tools would be ideally suited to sample that area of interest. In Table 1, the components of the curriculum that need to be assessed are given in the columns and the possible assessment tools in the rows. The tools are then mapped to the components to demonstrate which tools could assess which components. The goal is to choose the fewest number of assessment tools that ensure all the areas of interest are assessable.

Table 1:

Developing a macro-level blueprint

	What is being assessed		
Method	**Content area 1 (Knowledge)**	**Content area 2 (Knowledge and clinical skills)**	**Content area 3 (Clinical skills)**
MCQ	✓	✓	
Clinical		✓	✓

After completing this for the whole curriculum, we usually find that no single tool, or indeed, even two or three tools, can assess everything. For example, knowledge might best be assessed by a written test and multiple-choice exam, clinical examination skills by observing a learner–patient interaction over 10–15 min (e.g. by mini-CEX (20,21,13)), integrative skills by long case (14,22) or case-based discussion (23-25), teamwork by multisource feedback (26,27,28) (see Table 2). As clinical expertise is a multifaceted entity, the need for more than one tool should come as no surprise.

The second type of blueprinting is a micro-level blueprint and is used to decide how to sample appropriately for any particular tool. For example, in creating a multiple-choice exam, once again it is not possible to assess everything. But sampling in a balanced and measured way across the knowledge areas of interest ensures that all aspects are assessable, if not actually assessed, within a particular exam.

Table 2:
Developing a micro-level blueprint

	What is being assessed		
MCQ	Content area 1	Content area 2	Total
Acute patient care	20	3	23
Chronic patient care	20	4	24
Emergency care	40	13	53
Total	**80**	**20**	**100**

The outcome of good blueprinting is a parsimonious choice of assessments that reflects the balance of elements within the training programme and a good 'sampling' across all domains of interest.

Assessment in the exam room or in the workplace

Sometimes it is asked whether assessment should be in the workplace or in the exam room. By now it should be apparent that the answer to this question is likely to be that we should have both central and workplace-based assessments. No assessment method, on its own, can assess everything of interest. However, there are strengths and weaknesses for each location of assessment.

Assessments that are centralised, such as multiple-choice tests or traditional clinical assessments, have the advantage of economies of scale – one exam can be delivered to many learners. They are, therefore, better than workplace-based assessments at assessing some things, such as a core foundation of knowledge. They have symbolism in being seen as a standardised major event, or even as a rite of passage, but they have emerged from a model that says reliability can only come from rigid standardisation and control (29).

A disadvantage of centralised assessments is that the range of problems that can be assessed is limited. Clinical examinations, for example, are mostly restricted to patients with stable signs or symptoms. Furthermore, despite efforts to reduce unreliability due to examiners, overall reliability will not be improved if a limited number of patients is used (14).

A final disadvantage of centralised assessments is that, one-off events, in artificial situations, with a limited range of problems, with a limited number of examiners and with some unreliability, all contribute to learner stress. This is because learners (and examiners) see that competency alone is no guarantee of success (29).

Workplace-based assessments are not the panacea we are looking for either, but have some important advantages (30). They often have high validity because they look at performance rather than competence, and therefore can capture information on actually doing the job, such as caring for acutely ill patients or teamwork. They can be made reliable by having enough of them and by considering the results in their entirety (20). They contribute to aligning assessments to things that we value, thereby being more likely to have a positive educational impact.

However, there are two challenges: one relates to feasibility and the other relates to the effect on the assessor–trainee relationship. Asking supervisors to assess trainees more often in the workplace is to ask them to observe the trainee doing the job. For some, this may be an increase in work. For others, this may be part of normal practice (31). For the trainee, it is likely to be highly valued as it is a rich source of information from which to provide feedback. For the patient, it is likely to be valued as a tangible marker of quality improvement (29).

The effect of workplace-based assessments on the supervisor–trainee relationship is challenging, particularly in rural settings where there may be only one supervisor and one learner. On the one hand, we want this relationship to be one of support and trust where trainees can display their weaknesses so that they can improve. When it comes to summative assessments, however, there is a tension, as now we want trainees to display their strengths. If we are not clear which relationship applies at a particular time then confusion can arise. This highlights the importance of differentiating between formative and summative assessment.

Formative and summative assessment

Differentiating between formative and summative assessment has particular relevance to rural settings where a supervisor may be asked to undertake both forms of assessment. Confusing these concepts can lead to unfortunate consequences.

While deciding on the purpose of assessment is the most crucial decision to make, the purpose of an assessment programme in general is to gather high-quality evidence to make well-informed decisions. The decisions that need to be made can usually be divided into two main categories: (i) decisions on what to learn and on areas to improve; and (ii) decisions on progress. The first decision is usually made *with* the learner and is the basis of formative assessment. Formative assessments are used to guide learning. The second is usually made *for* the learner and is the basis of summative assessment (29). Summative assessments contribute to making high-stakes decisions.

The crucial distinction here is that formative assessments aim to help find weaknesses and guide learning. In such assessments, a learner will be forthcoming in acknowledging areas that need improvement. In contrast, summative assessments expect learners to display their strengths. If a learner believes an assessment is summative to inform high-stakes decisions, they will wish to conceal weaknesses. Problems can therefore arise if the purpose is not clearly stated at the outset. Learners may conceal weaknesses in formative assessments if they believe they could be used for summative purposes.

The relevance of this is that we can easily send confusing messages to our learners if we are not clear which assessments we are undertaking. In our teaching, we are keen to help learners identify their weaknesses so we can guide them in ways that might fill those learning gaps. We probe their abilities, seek clarification of their concepts and check their understanding. In turn, we encourage learners to identify their weaknesses through self-assessment and reflection. All these activities are highly useful in effective learning and are to be encouraged.

We may also use formative assessments to help find these weaknesses. If learners believe their supervisors are continually undertaking summative assessments of their abilities, then there will be the temptation for them to conceal their weaknesses. They may find teaching sessions stressful, like they are an exam. They may wish to be taught only on things that they know they are good at and may be reluctant to make explicit to their supervisors, the results of their self-assessments of areas of weakness.

Being clear about whether an assessment is formative or summative can send a mixed message that can undermine good learning. This can be a particular risk if learners are in settings where there is only one supervisor and that supervisor is responsible for both the teaching and the summative assessments – such as may occur in rural settings.

Some argue that within programmatic assessment, such formative and summative distinctions are less critical as each assessment episode is such a small part of the greater whole. All assessment therefore can be both summative and formative. This can apply particularly to some professional behaviours – some behaviours are unacceptable, regardless of whether the learner thinks they're being assessed or not. Provided learners are aware which of the assessments contribute to summative decisions and which are used purely to guide learning, then most of these pitfalls can be avoided. There are other solutions to this, which we shall come to later.

In summary, there are many aspects, and principles, of assessment that are identical, regardless of whether the programme is based in a rural setting or not. These are being clear of the purpose; the usefulness of multiple assessment tools, over multiple time periods; using multiple raters to contribute to both reliability and validity; the importance of a blueprint; and being clear about the formative or summative nature of assessments.

However there are some situations that require special consideration.

Special situations

The following are some specific issues that deserve some discussion. None is unique to rural and remote settings but can be more problematic in those contexts.

Multi-site medical schools

Most medical schools are making increasing use of a variety of sites. This is an appropriate response to the observation that health care is also delivered in a variety of sites. Some of these sites can be quite distant from the main medical school, while some medical schools are completely dispersed to the extent that there is no 'main' medical school.

Increasingly learners may spend a large part, or all, of their time at more distant sites. Furthermore, many medical schools are offering programmes in different sites that also differ in curricular structure. For example, longitudinal placements and immersion programmes. For learners in distant sites, it is appropriate that their assessments also occur in these sites. Assessment is sometimes the 'glue' that binds these different curricula together because all learners are aiming for the same destination, despite taking different paths. The important consideration for assessment in multi-site medical schools is for the assessments to be equivalent in all sites. Some, but not all, could also be identical or simultaneous.

The two key considerations in relation to equivalence are fairness and standard setting.

Fairness

Fairness refers to treating learners equally. An assessment is unfair if some learners are given more information about that assessment than others. This can occur, for example, if some learners are told the content of an assessment while others are not. This is a particular risk for assessments that are not simultaneous as learners who have undertaken the assessment first may inform other learners who are yet to take that assessment.

In relation to assessment, fairness does not refer to whether different groups of learners have had equivalent opportunities to learn the required attributes. If that is an issue, then fairness needs to be addressed at the curriculum level, not compensated for at the assessment level.

There are four ways to ensure fairness across distant sites. The first is to offer the same exam at the same time to all learners. This is feasible if the time zone difference between sites is not large and if the nature of the assessment is appropriate. A written test, for example, can easily occur identically and simultaneously.

The second is to quarantine those learners who have undertaken the assessment, from those who are yet to be assessed, so that they are unable to communicate with those other learners. This is feasible if the time for such isolation from the other learners is a few minutes or hours. This often occurs in an OSCE where different groups of learners sequentially rotate through the same set of stations (32).

The third solution is to have different sets of the assessment that are known to be equivalent. In this case, there could be several blueprinted sets of each assessment where it is known that each set covers the same range of areas of interest but each contains different questions. Calibrating standards between these sets of assessments needs careful consideration and is discussed shortly. Examples of this are seen in multiple choice examinations where the same number of questions is allocated to each subject area, but the questions within each subject area may be different for different groups of learners.

The fourth solution is to have assessments that are so generic that knowing the actual content offers no advantage. For example if the attribute to be assessed is history taking, then provided there is a sufficient number and range of patients, observing history taking with one set of patients may well be comparable to observing history taking in another set. The key prerequisite to this is knowing that there is a sufficient number and range of patients. As discussed earlier, generalisability theory (12,13) can help here to determine the number of patients to be seen before the score that a learner obtains is known to reflect the learner's true ability. This is the basis of the mini-CEX (see Appendix A) where it has been shown that sufficient reliability can be obtained after 8-12 observations and sufficient validity can be obtained if those observations are on a blueprinted range of patient problems (20,21,33). Each mini-CEX encounter however is unique to each learner. These same principles apply to many other workplace-based assessments.

Whatever methods are used, learner perception of fairness also needs to be considered. High-stakes exams are powerful mills for creating anxiety and this is only worsened if learners believe that they are at a disadvantage compared with other learners. Sharing information about the processes the institution has in place to ensure fairness and providing some data to confirm the effectiveness of these processes are often key components in an assessment programme.

Standard setting

It is beyond the scope of this chapter to discuss the various methods of calibrating standards for the various assessment tools. However some general comments may be helpful.

Setting standards requires a process by which different groups of examiners develop a shared understanding of what is expected of learners. This can be achieved face-to-face, by calibration exercises, or mathematically. As has already been emphasised, this should always be prefaced by all parties being clear about the purpose of the assessment. Face-to-face discussions among examiners, whereby examples of the range of learner performances are discussed and agreement reached, can work well provided there is good facilitation and strong personalities are not allowed to dominate. Calibration exercises are often helped by providing exemplars of various standards, for example of written work of past learners or videotaped recordings of learner performances. The discussions that ensue from observing these exemplars can be very useful.

The collective view of examiners can also be collated mathematically by aggregating their opinions. This occurs for example in the various Angoff procedures for some written assessments (34) or the borderline group (35) or borderline regression (36) procedures for some clinical assessments.

More sophisticated standard setting can occur using Item Response Theory whereby question difficulty can be calculated separately from learner ability (37). Aggregating questions to create tests of equivalent difficulty can be used for different groups of learners, while the aggregated questions based on a learner's ability can be used to decide pass-fail decisions.

Off-site placements with few staff and learners

Teachers or supervisors often wear different 'hats'. Sometimes they are a mentor, sometimes they provide pastoral care and at other times they must be an examiner. These roles can become confused at the best of times, but this is a particular risk when there is a small number of staff and learners. The tensions that can arise when the formative and summative functions of assessment are insufficiently distinct have been outlined earlier. It can also be easy to think a poor learner did not do so well on an assessment because the teaching wasn't up to scratch. Or conversely place the blame for a poor outcome on the capable learner rather than the poor teaching. Remote settings also risks blurring the boundaries between teacher as 'friend' or even teacher as 'accommodation host' and teacher as 'judge'. This can be particularly problematic if the small number of staff and learners occurs within a longitudinal placement as the personal relationships that form can become stronger. Such relationships are often beneficial for learning but can exacerbate the boundary issues when it comes to assessment.

There are two possible solutions: the first is to ensure the supervisor is only one of many persons who assess the trainee. This is the ideal solution as having a variety of assessors not only preserves the supervisor–trainee relationship of support, but also improves reliability and validity of the assessments (8,10). The second is for trainee and supervisor to be absolutely clear when assessments are being used formatively (to find weaknesses and to guide learning) and when they are being used summatively (to find strengths and to contribute to decisions on progress) (29). This would require the supervisor to explicitly state when a defined period of observation forms part of the summative assessment and then to state when that period of observation finishes. This is also where many of the workplace based assessment tools can be useful as recording the observation on a specific form can be a tangible indicator that a summative assessment is taking place. The important point to remember here however is that aggregation of a number of these observations (preferably by a number of examiners) will be needed before sufficient reliability and validity is achieved to make summative decisions (13).

Assessment in interprofessional learning

Like all assessment, there needs to be clarity of purpose. In interprofessional learning, what is the assessment for and what is it aiming to assess? In many cases the answer may well include wanting to assess abilities to collaborate, understand the roles of others, work within teams, negotiate care with other health professionals and resolve contrasting views. Herein lies the main paradox of the assessment of interprofessional learning. Assessment is traditionally at the level of the individual whereas interprofessional learning is at the level of the group. Resolution of this paradox will require development of assessment tools that are aimed at a group, not just an individual.

Self-assessment

Insight can be defined as when a person's self-assessment matches external assessments. Accuracy of self-assessment is therefore an important skill. However, it can only help insight if it is then compared against an external measure, appropriately debriefed and subsequently acted upon. Self-assessment is therefore often better regarded as a learning tool than an assessment tool. However, some judgements are possible, such as the accuracy of the self-assessment or the appropriateness of the actions that arise from it.

Peer assessment

As for all assessment, defining the purpose of peer assessment is the first step. Is it formative or summative? Is it aimed at identifying outlying behaviour (the 'bad apples') or is it aimed at providing feedback to all learners so all can improve (moving the bell shaped curve)? Peer assessment can fill important gaps as peers are often in a unique situation to observe some behaviours that are not easily observed by others. However when learners are asked to be assessors, they also need some assessor training. Specifically they need to know what they are rating, why they are rating it, what happens to the results, and what gap it is trying to fill. Unless these questions are answered, there is a risk that peer assessment can cause harm.

Peer assessments commonly take one of two forms: one-off reporting of aberrant behaviours (either desirable or undesirable) or collated ratings by several peers on pre-specified attributes. Because there is likely to be variability among assessors, any aggregation of ratings from many peers will be needed to form a reliable assessment. How such an aggregation is then communicated to individual learners also needs to be carefully managed, so that the ratings are interpreted constructively. One-off reporting of aberrant behaviours also requires careful management. The ground rules of whether such reports are anonymous or confidential should be established. Ideally they should not be anonymous but could be confidential. In either event, their interpretation requires careful consideration as individuals displaying similar behaviours do not always have similar underlying causes, contexts or implications.

Patient satisfaction surveys

The principles outlined above for peer assessment apply equally to patient satisfaction surveys. While it is hard to argue that the opinions of patients shouldn't be one of the ultimate indicators of clinical practice, there are also many confounding factors that will influence a patient's view of an encounter – and many of these factors are either unrelated or not within the control of the person being rated. Being very clear therefore about which aspects we are asking patients to rate and why, is the first premise. There is even more variability between rates in patient satisfaction surveys than there is from peer assessments. For these reasons, the aggregation of a large number (typically 30-50 ratings) is needed before reliable and valid results can be obtained. This is often infeasible. Fewer ratings re needed if these are done within controlled settings, such as within an OSCE (17, 38, 39, 40).

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Appendix A

Glossary of selected assessment tools

Mini-CEX
The mini-CEX is a 15-30 minute observed snapshot of a doctor/patient interaction. It is conducted within actual patient care settings, using real patients, but has a structured marking sheet that covers pre-defined generic areas. Validity derives from using authentic interactions and reliability is achieved by ensuring a sufficient number of encounters are aggregated (20,21,33).

Case-based discussion
This is also known as 'chart stimulated recall' (24,25). The trainee selects two case records from patients they have recently seen and in whose notes they have made an entry. The assessor will select one of these for the case-based discussion.

Written Multiple Choice Question examination
The MCQ examination is a set of questions that have been chosen to assess a representative range of topics from a defined curriculum by asking candidates to choose the best answer to a question from some offered options (40,42,43).

Multisource feedback
This is the systematic collection and feedback of data on an individual's performance, acquired from a number of stakeholders. In the past, this has sometimes been referred to as the 360-degree assessment. The areas assessed are often related to professional skills and behaviours (26,27,28).

Patient satisfaction survey
This is a collation of questionnaire-based opinions of patients about the nominated person's abilities in specified areas (17,38,39,40).

Objective Structured Clinical Examination (OSCE)
A set of assessment stations designed to cover a relevant range of areas of interest (44). The number of stations varies but can be as few as six, or as many as 30. Each station lasts 5-20 minutes.

Long case
A candidate takes a history and performs a physical examination on a patient, synthesises the findings, creates a management plan and discusses these with the examiners (6,14,22,43).

Short case
This is an observed interaction between candidate and patient. It usually observes clinical examination skills within a 10-15 minute encounter (14,43).

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.2.6

Assessment in rural medicine: How to measure and motivate achievement of abilities

Richard Murray
Tarun K Sen Gupta[1]
James Cook University, Australia

'If at first, the idea is not absurd, then there is no hope for it.'
Albert Einstein

Introduction

The unique nature of rural and remote medicine is now well documented. As a result of its context, rural medicine is characterised by an expanded scope of clinical practice in the community and hospital setting, authentic multi-professional care, the necessity of a population health approach and an obligation to ration scarce resources. These are also global challenges: in high-income countries, governments are grappling with the health care demands of ageing populations and complex care; and in low-income countries, infectious and chronic disease increasingly co-exist in a predominantly rural context.

A key driver in the emergence of rural medicine as a distinct discipline has been a divergence between metropolitan and rural general practice. Expansion of medical specialist numbers and increasing sub-specialisation in cities has led to more referral-oriented practice and 'shared-care' for GPs, less GP access to hospitals and a reduced involvement in procedural and emergency medicine. In contrast, in many rural and remote areas in Australia and around the world, rural contexts continue to require comprehensively-skilled doctors who can work across the primary and secondary care settings, including emergency and hospital in-patient services as well as in population health and community

1 Both authors are also affiliated to the Australian College of Rural and Remote Medicine (ACRRM).

primary care. While there is obviously variability, the scope of abilities typically required of rural GPs contrasts both with metropolitan office-based primary care and the newer 'GP-with-special-interest' phenomenon (for instance, GPs practicing exclusively in skin cancer clinics, sports medicine, travel and cosmetic medicine). Importantly, 'GPs' in rural Australia fill many generalist clinical roles: private office-based primary care, hospital Career Medical Officers, District Medical Officers, in aeromedical retrieval and remote flying clinics, as GP anaesthetists, obstetricians and so on.

Assessment in rural medical education

Over the 15 years since the establishment of university departments of rural health, rural clinical schools and rurally-based medical schools, the maturation of rurally-based undergraduate education in Australia has seen rural placement become much more than just a bit of rural clinical experience and a 'taste of rural life'. The curricula, educational programmes, training pathways and standards that have been developed for rural medicine have been accompanied by innovations in assessment.

This chapter will examine the development of assessment relevant to the rural medical context. The development of the assessment programme in the Australian College of Rural and Remote Medicine (ACRRM) will be used as an illustration of the principles.

The Australian College of Rural and Remote Medicine (ACRRM) was established in 1997 amidst a growing recognition of rural and remote medicine as an independent medical discipline and dissatisfaction with existing mechanisms for rural training. In 2007 the Australian Medical Council (AMC) accredited ACRRM as a standards and training provider, the first such formal recognition of a peak professional organisation with a focus on rural and remote medical education as a generalist medical discipline. This accreditation was based on the ability of ACRRM to meet the AMC's guidelines for its training and assessment programme for 'general practice' – defined by the College in expansive terms to reflect the full scope and rural and remote context (see Box 1). The Fellowship of ACRRM (FACRRM) was therefore effectively the world's first postgraduate qualification in rural and remote medicine.

Box 1:
ACRRM Definition of General Practice

The general practitioner is the doctor with core responsibility for providing comprehensive and continuing medical care to individuals, families and the broader community. Competent to provide the greater part of medical care, the general practitioner can deliver services in the ambulatory care setting, the home, hospital, long-term residential care facilities or by electronic means - wherever and however services are needed by the patient.

The general practitioner applies broad knowledge and skills in:

- managing undifferentiated health problems across the lifespan in an un-referred patient population;
- providing continuing care for individuals with chronic conditions;
- undertaking preventive activities such as screening, immunisation and health education;
- responding to emergencies;
- providing in-hospital care;
- delivering maternal and child health services; and
- applying a population health approach at the practice and community level.

General practitioners work across a dynamic and changing primary and secondary care interface, typically developing extended competencies in one or more discrete fields of medicine, thereby ensuring community access to the range of needed services in a supportive network of colleagues and health care providers.

As the medical expert with the broadest understanding of a patient's health in their cultural, social and family context, the general practitioner has a key role in co-ordinating the care pathway in partnership with the patient, including making decisions on the involvement of other health personnel. He or she practices reflectively, accessing and judiciously applying best evidence to ensure that the patient obtains benefit while minimising risk, intrusion and expense. The general practitioner contributes clinical leadership within a health care team and is skilled in providing clinical supervision, teaching and mentorship.

The purposes of assessment in the rural context

Much is now known about how to produce a fit-for-purpose rural medical workforce. The importance of rural medical student selection, rurally-oriented curricula and rural clinical experience, regional medical schools and regionally-based further training opportunities is well established. But at the end-point of medical training - the postgraduate or 'vocational' training phase - it is important to consider how training and assessment might be best structured to deliver outcomes of most value to rural doctors and communities, and certification of ability to practice unsupervised across the broad scope of rural and remote medicine.

Assuring standards in medical training is generally achieved in three ways:

- identifying a suitable clinical apprenticeship (through accreditation of training posts and supervision);
- specifying the required learning objectives (curriculum and taught syllabus); and
- by measuring the achievement of abilities (formative and summative assessment).

Although the latter is the focus of this chapter, the strategies are interlinked.

Measuring the achievement of abilities - assessment - is both a driver of learning and a measure of outcomes of education and training. As it motives, shapes and adjudicates the achievement of abilities by the learner, it is a critical tool.

The rural context

The context of assessment in rural medicine, then, is typically an expanded scope of clinical practice, geographic isolation and workforce shortages. Of particular importance is the need for training in rural medicine to be flexible – to reflect the diversity across rural and remote community contexts and to accommodate the career interests and circumstances of graduates who are tracking to a rural medical career.

In terms of outcomes of assessment, studies demonstrate that medical students perform as well or better academically in regional, rural and remote sites compared to the cities.

Developing assessments

Various factors need to be taken into account when developing assessments in rural medicine.

Firstly, learning objectives need to be defined to enable them to be reinforced, and for learning to be driven in a desired direction. Secondly, the methods of assessment need to be ascertained - one example being an approach that focuses on documenting the learning experience (e.g. through diaries and reports) which allows learners to reflect and share experiences with their colleagues, supervisors and educators. Other approaches could include certification of competence in specified skills signed off by approved supervisors via a logbook, or formal inclusion of rural context and content in summative examinations as described below.

As geography, workforce and access to information and communication technology (ICT) can be important considerations, assessment solutions should make use of available facilities, bandwidth and so on and avoid the problems associated with requiring candidates to travel (time, cost, depopulating rural areas of doctors). Other than the inconvenience, 'traditional' national examinations held in capital cities may also not measure nor motivate achievement of key abilities relevant to the practice of rural medicine.

Context specificity is important in rural assessments. Some assessments may foreground the rural context, requiring learners to understand how general clinical problems may be managed *in the rural setting* – while content that is *specific to the rural context* may also be assessed. These might include issues relating to rural populations and demographics; or a referral task which requires the learner to manage the hand-over of a rural patient to a tertiary facility through a telephone discussion and a letter.

And finally population health projects may also be used for rural assessments, allowing learners to develop and be assessed on a broader range of skills. This might include the possibility of 'service learning' through undertaking useful and meaningful projects.

What should be assessed?

Assessment should relate directly to the desired outcomes of the education or training programme, namely the enhanced abilities of the graduate in relation to the knowledge, skills, contexts etc that have been offered through a formalised curricula. To this end, the development of curricula that reflect the full scope and context of rural generalist practice has been essential.

The fourth edition of the ACRRM core curriculum - developed *by* rural doctors *for* rural doctors across Australia - is structured as 18 curriculum statements across seven domains, these being: provision of medical care in the ambulatory and community setting; care in the hospital setting; responding to emergencies; a population health approach; needs of culturally diverse and disadvantaged groups; an ethical, intellectual and professional framework; and a rural and remote context of practice.

Assessment for Fellowship of ACRRM

In designing its assessment programme, ACRRM considered a number of principles:

The assessment had to reflect the content and context of rural medicine in Australia.

The diversity of rural practice had to be accommodated whilst ensuring coverage of core abilities to assure quality and public safety.

Flexible delivery was also key. The exam had to be available in formats that were accessible to rural doctors, ideally in ways that minimised the need for them to travel from their areas.

The assessment programme had to satisfy the AMC's requirements of assessment.

The team that led the development of the ACRRM assessment recommended a 'programmatic' approach, applying a suite of complementary assessment methodologies that, when taken as a whole, provided valid, reliable, feasible, acceptable assessment with a positive impact on learning. The strategy used six main steps, consistent with approaches described in the literature:

1. Developing the assessment blueprint and classification system.
2. Identifying the assessment model.
3. Choosing the assessment methods.
4. Writing the assessment items.
5. Investigating the feasibility of purchasing assessment items and feasibility of the proposed assessment tools.
6. Piloting the chosen assessment methods.

1. *Developing the assessment blueprint and classification system*

The assessment blueprint was drawn from existing curricular material including the ACRRM Primary Curriculum, a number of electronic resources and ACRRM's domains of rural and remote medical practice, which describe the unique aspects of the horizontal discipline of rural and remote medical practice.

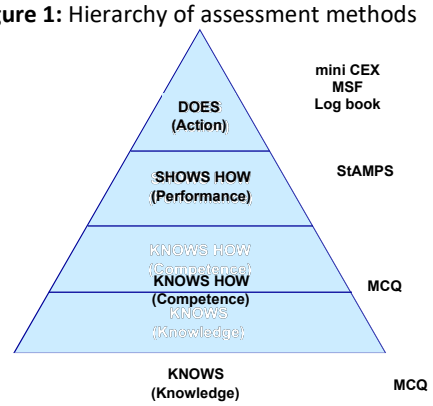
2. *Identifying the assessment model*

A literature review identified the evidence on which to base ACRRM's assessment programme. A 'programmatic' model was chosen, seeing assessment as a 'programme' across the entire training spectrum, rather than an end-point measure. This comprised a balance between formative and summative assessment and the enabling of the collection of a portfolio of evidence about candidates over their entire training period. In this way multiple assessment methods could be used in order to address the criteria mentioned and develop an assessment programme acceptable to the profession and to external organisations.

3. *Choosing the assessment methods*

High stakes assessment processes must be of high quality and defensible. Given that no single assessment method has all the required qualities, a combination of methods over a range of times was developed, based on Miller's Pyramid (Figure 1). Assessment methods were chosen based on the four levels or hierarchies - 'knows', 'knows how', 'shows how' and, 'does'.

Figure 1: Hierarchy of assessment methods



Source: The Australian College of Rural and Remote Medicine (ACRRM). *Fellowship Assessment Handbook*.

Six summative assessment methods were chosen, the last four of which are also used formatively:

1. Written examination: a three-hour multiple choice questionnaire (MCQ) examination - delivered on-line and undertaken during the second half of training, with a locally identified and contracted invigilator.
2. StAMPS examination: Structured Assessment using Multiple Patient Scenarios – an innovative new assessment method, developed specifically for ACRRM, consisting of a two-hour, eight-station assessment of clinical reasoning undertaken via videoconference.
3. Clinical skills log book: an existing electronic logbook revised to link with the assessment blueprint.
4. Multi-source feedback (360 degree feedback): a practice-based assessment used to assess interpersonal and professional attributes.
5. Mini-CEX (Mini-clinical evaluation exercises): a series of brief encounters across multiple patients, problems, and clinical settings to assess clinical skills.
6. Portfolio: learning plans, results of other formative and summative assessment items, accredited courses, completed modules and other activities, recorded electronically

5. Writing the assessment items

An assessment writing workshop was held during which assessment items, relevant criteria and guidelines and a draft regulatory framework were developed, following the principle that ACRRM's assessment was *for* rural doctors *by* rural doctors (or rural medical educators).

Editing, item banking, standard setting and blueprinting procedures were established and expertise was utilised to provide professional development for case writers and staff.

6. Investigating the feasibility of purchasing assessment items and feasibility of the proposed assessment tools

ACRRM investigated the feasibility of purchasing assessment items from other medical colleges and boards in the interests of time and cost. It identified the American Board of Family Medicine (ABFM) in-training examination as the most suitable. Apart from similar contexts, the examination enabled international benchmarking for candidates and ACRRM and allowed candidates experience in undertaking an internet-based examination.

6. Piloting the chosen assessment methods.

Pilots were undertaken to evaluate three of the chosen assessment methods: the StAMPS examination; the MCQ examination; and the American Board of Family Medicine web-based in-training assessment.

Detailed evaluations were conducted on the feasibility, reliability and acceptability of each of these tools. The StAMPS exam was evaluated in some detail and the findings published as it represented a new form of assessment. It was designed specifically for a postgraduate examination in the rural and remote context and the format was developed to meet two purposes.

Firstly, the StAMPS exam provided an interactive assessment tool that candidates could undertake in their own practice, using distance technology to minimise the time, cost and inconvenience of travelling away from their rural and remote community. Second, ACRRM sought to develop an adaptive assessment method allowing an examiner to explore a variety of options in a clinical scenario with a candidate, including how they respond to changing circumstances such as variations in a patient's condition or resource availability.

Technical advice was sought for the exam design and appropriate use of information technology. An objective structured clinical examination (OSCE)-style format was developed using multiple examiners who saw all candidates via videoconference. Examiners were based centrally at the main videoconferencing venue, with candidates in/near their home towns. Considerable effort was invested in case design, examiner training and technical support, with the pilot demonstrating good feasibility and high reliability (generalisability coefficient of 0.76).

The exam was suited to the rural and remote context, with candidates able to undertake each assessment component within or close to their local community. This approach used a variety of carefully selected and credible assessment methods with progressive assessment across all four years of training catering to a variety of learning styles and needs with a system of ongoing feedback.

This suite of formats - combining assessment items specifically written for the Australian rural context with work-based assessments and portfolios - enabled ACRRM to meet its goals of a valid and reliable assessment programme that comprehensively reflected the curriculum and the educational outcomes of the training programme.

After the successful pilots in 2006 and subsequent ratification by the AMC, the ACRRM examination process formally commenced in 2008. An assessment committee was established with appropriate expertise in assessment and rural medical education, and staff appointed to support the examination processes. From 2008 to 2011, Fellowship candidates undertook a total of 465 examination segments, with pass rates in the various segments ranging from 66% (StAMPS) to 84% (mini-CEX).

Practice pearls

Assessment should consider both the content and the context of rural and remote medicine.
Robust assessment processes can ensure confidence in standards despite variations in training pathways and experiences.

What not to do

Don't miss opportunities to develop innovative assessment approaches for the rural and remote context.

Summary

A transparent and robust assessment programme is essential to ensure the legitimacy and acceptance of rural medicine as a medical discipline, signaling the content, expected standards, and performance required to meet these standards to candidates, the profession and external accreditation agencies. Properly designed rural assessment can be used to drive training programmes and learning in the desired directions at undergraduate and postgraduate levels. Existing examination formats can be modified for use in rural assessments, or innovative approaches may need to be developed to meet specific requirements e.g. StAMPs. An essential principle is for the profession to own and manage the process, so that the assessment is for rural doctors by rural doctors.

Assessment is a key factor in allowing greater flexibility for doctors in training to meet their own and community needs. Confidence in the measurement of abilities gives greater scope for flexibility in the sequence, nature and location of education and training experiences and allows for greater variability in supervision and instruction / teaching.

As the discipline of rural and remote medicine becomes established in medical curricula around the world, additional assessment approaches will need to be developed in order to monitor, confirm and drive student learning.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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effects. But social, economic and political problems are inevitably complex and resistant to linear solutions by health professionals, especially if they act in isolation.

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[1] Prof Steve Reid is Head of the Primary Health Care Directorate in the Faculty of Health Sciences at the University of Cape Town. He is a founder member of the Rural Doctors Association of Southern Africa and an advocate for rural health. WONCA Rural Medical Education

Chapter 2.3.1

TEACHING THE RURAL DETERMINANTS OF HEALTH

Steve Reid[1]
University of Cape Town, South Africa

Introduction

Rural sites of teaching and learning afford excellent opportunities for students to understand, experience and learn about the broader issues in health and health care – why and how people get ill; the influence of families, communities and society on health and help-seeking behaviours; as well as how global issues such as climate change and globalisation of trade impact on health. Collectively termed the 'social determinants of health' by the World Health Organisation (WHO), these issues were the subject of a high-level commission in 2008, led by Sir Michael Marmot.[1] As the factors contributing to health and illness in rural areas have a particular profile, the 'rural determinants of health' have been delineated as being more specific to the rural context.[2]

There is a hierarchy of knowledge about health from molecular to societal levels, with a disproportionate focus in medical education on issues at a level 'below' that of the individual, who is identified as a patient. Students spend most time studying the anatomy, physiology, pathology, microbiology and pharmacology of disease at the level of atoms, molecules, cells, body structures and organ systems. Relatively little attention is paid to the issues of illness and disease beyond the individual level – in families, communities and societies as well as in the world as a whole. However, it is becoming increasingly obvious that medical practitioners cannot avoid engaging with the bigger issues.

Manchanda uses the idea of 'upstream doctors'[3] who attempt to address the social determinants, invoking the metaphor of a river to indicate the need to tackle problems closer to their source before they inevitably cascade 'downstream'. The linear logic of this metaphor assumes that health problems can be solved by doctors working on the social determinants of health, by blocking or diverting or changing the 'river' of disease in some way, and that these changes will then result in less harmful downstream effects. But social, economic and political problems are inevitably complex and resistant to linear solutions by health professionals, especially if they act in isolation.

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1 Prof Steve Reid is Head of the Primary Health Care Directorate in the Faculty of Health Sciences at the University of Cape Town. He is a founder member of the Rural Doctors Association of Southern Africa and an advocate for rural health.

In a rural situation, there are fewer role players and the context is less complex than in urban settings. It may be possible to see a whole community geographically from a high point, or socially at a community gathering. Relationships are often more personal and there is more interdependence and reliance between people than in urban areas. Even though distances are greater between homesteads, farms and settlements, there is often a greater level of social cohesion that allows visiting students to rapidly gain an understanding of the situation with respect to the health of a community. The impact of the broader determinants of health are also visible through critical events in rural areas – such as drought or flooding or the effects of unemployment and isolation. These may manifest in clinical presentations such as malnutrition, tuberculosis, drug and alcohol abuse, or anxiety and depression.

This chapter addresses teaching and learning that makes the links between the invisible mechanisms that produce the all too tangible clinical problems that are inevitably expressed in rural practice: how to think about them, where to start, how to teach and assess them, and what we hope students will learn and take away with them.

Inequalities, inequities and iniquity in health

A conceptual framework is useful as a starting point, to ground the learning discussion in a way of thinking that includes multiple perspectives.

Understanding inequalities in health is one frame for the discussion of rural medical education. A default assumption in rural health is that this revolves around the measurable differences between rural and urban areas in terms of access to services, health behaviours and health outcomes. But the rural-urban dichotomy is only one axis of inequality: there is also the public-private divide, as well as enormous inequalities in class, gender, race, ability and age.

Inequity is the major global challenge of our era, and the source of much violence, crime, migration, illness and disease. Inequality is not the same as inequity, however. While inequality merely means that there is a difference or a disparity between two groups or situations, 'inequity' implies that there is something unfair about a particular difference and that this needs to be addressed. A definition of health inequity is "differences in health that are avoidable and unjust".[4] By contrast, 'iniquity' refers to the deliberate perpetration of injustice.

There are three fundamentally different kinds of inequity, all of which are destructive of human lives and of human societies: vital inequity, material inequity, and existential inequity.[5]

- **Vital inequity** refers to health and longevity. This is familiar to those who have studied the patterns of public health, which show clearly that morbidity is greater and life expectancy is shorter for those from lower social classes, across the board. In most countries, but particularly in low- and middle-income countries, health status is significantly poorer in rural than in urban areas.
- **Material inequity** is clearly about access to resources. Most commonly (though not necessarily most accurately) this is measured by countries' Gini co-efficient which compares incomes of the richest and the poorest groups in a country. There are enormous inequities between rural and urban areas with respect to income, wealth and resources for health, including human resources.
- **Existential inequity** refers to the lived experience of inequity. It
  "means denial of (equal) recognition and respect, and is a potent generator of humiliations, for black people, (Amer−)Indians, women in patriarchal societies, poor immigrants, low castes and stigmatized ethnic groups. It is important to note here that existential inequality does not only take the form of blatant discrimination; it also operates effectively through more subtle status hierarchies."[5]
  This form of inequity also applies to rural citizens, who are too often 'othered' and regarded as backward or less educated than city people, or simply not viewed as important enough to be worthy of consideration.

Why should medical students, or their teachers, be concerned with issues of equity and inequality? The common biomedical perspective regarding these issues is that "it's not my problem", and many clinicians would rather focus on fixing something tangible and feasible, most often the next patient's presenting problem, than "waste time" on worrying about political, economic or social issues that they feel they can do nothing about. But those issues are precisely the original causes or contributing factors to the patient's illness, and ignoring them often means fixing the immediate problem and sending the patient back to the situation that caused the illness in the first place.[6]

Further, medical students are often drawn from well-educated and privileged backgrounds, and are often more interested in complying with society's expectations, including the exalted status that doctors are offered. This runs counter to doing community-oriented work that is less socially powerful. This should be explicitly challenged by medical educators. Henri Giroux,[7] a proponent of critical pedagogy, writes about the secondary education system in the USA. In this quote, the word 'doctors' has been substituted for 'teachers':

"We must get away from training [doctors] to be simply efficient technicians and practitioners. We need a new vision of what constitutes [medical] leadership so that we can educate [doctors] to think critically, locate themselves in their own histories, and exercise moral and public

> *responsibility in their role as engaged critics and transformative intellectuals."*

The rural determinants of health

The use of critical realism[8] as a theoretical lens gives us a framework for keeping these big picture, and somewhat intangible, issues in perspective. At a population level the complex interplay of the many factors that influence health is difficult to comprehend. Nevertheless, helping medical students to see the structural inequalities as expressed through an individual patient's illness is quite feasible in any context – but is particularly possible in a rural context where there are fewer actors and relationships are more immediate.

The 'social determinants of health'[9] is now a familiar phrase employed to broaden the approach to clinical problems to include patients' contexts and predisposing factors. While 'social' could imply that the determinants of health are simply to do with the way human beings interact with one another, it could also signal a broader set of factors that play a role in health, including historical, political, economic and environmental forces. The 2008 report of the landmark WHO Commission on the Social Determinants of Health clearly states that

> *"avoidable health inequalities arise because of the circumstances in which people grow, live, work, and age, and the systems put in place to deal with illness. The conditions in which people live and die are, in turn, shaped by political, social, and economic forces."*[1]

With respect to access to health services, Tudor-Hart's 'Inverse Care Law' asserts that

> *"[t]he availability of good medical care tends to vary inversely with the need for it in the population served. This inverse care law operates more completely where medical care is most exposed to market forces, and less so where such exposure is reduced. The market distribution of medical care is a primitive and historically outdated social form, and any return to it would further exaggerate the maldistribution of medical resources."*[10]

This observation applies as much to urban-rural comparisons as to the private-public dichotomy in systems of care to which he ascribed the inequities.

In rural and remote areas it is obvious that the geographical situation and dynamics play a major role in health behaviours and access to services as well as in health outcomes. Hence the phrase 'rural determinants of health' seeks to differentiate these aspects from the more general 'social' perspective. The 'real' rural determinants of health have been described diagrammatically across a range of immutable factors such as geography and history, through economic and political factors which change over time, to social and health system factors which are amenable to change through activism and governance.

Teaching the rural determinants of health means deliberately and intentionally bringing these rural "conditions in which people live and die" into the teaching and learning process, together with the political, social and economic forces that shape them.

Social accountability in rural medical education

The responsibility for orientating medical education towards the priority needs of the communities that it serves lies with each medical school as a whole, and not only with the planners and implementers of curricula. The concept of social accountability[11] has been championed globally by those medical schools that serve predominantly rural communities, and they have developed the field for others in urban contexts to follow.[12]

The identification of so-called 'reference populations' is a key concept in the social accountability approach and relates to the contexts from which students are selected, where they are trained, and where they end up practicing after graduation.[13] Rural communities are more easily delineated, and there is often little if any duplication of services – in contrast to cities which may contain a number of medical schools serving overlapping populations. In Australia the rural lobby is succeeding in championing a socially accountable agenda through strong leadership, government seed funding, rigorous research and consultation, and a political campaign to support rural training.[14]

A conceptual framework[15] has been developed for socially accountable medical education from an analysis of the internal and external factors influencing four rural medical schools in Australia and the Philippines. These faculty, university and regional-level frameworks assist significantly in orienting and stimulating medical schools to address the wider determinants of health within their local contexts, as well as providing tools for quality assurance and best practice in socially accountable rural medical education.
(Social accountability is also addressed in Chapter 1.1.3 of the Guidebook: "From the village to the globe: The social accountability of rural health practitioners".)

Teaching and assessing the rural determinants of health

A variety of educational practices have been used to teach the social determinants of health (SDH).

An American study[16] using the Delphi technique amongst educators, researchers, students and community advocates, managed to develop an SDH curricular consensus guide for teaching the SDH to medical students. The study concluded

that SDH should comprise 29% of the total curricula and be taught continuously throughout the curriculum, with the highest ranked items regarding knowledge, skills and attitudes being *"appreciation that the SDH are some of the root causes of health outcomes and health inequities"* and "*how to work effectively with community health workers*".

Helpful precedents for planning curricula can be found in specific courses teaching concepts such as 'critical health literacy'[17], 'structural competence'[19], 'social medicine'[20], or using the SDH as a framework.[18]

Structural competence is defined by Metzl as

> *"the trained ability to discern how a host of issues defined clinically as symptoms, attitudes, or diseases ….. also represent the downstream implications of a number of upstream decisions about such matters as health care and food delivery systems, zoning laws, urban and rural infrastructures, medicalization, or even about the very definitions of illness and health."* [19]

The idea of 'social medicine' refers to the idea that health and disease emerge through complex interactions between biology and the social environment. However, such circumscribed courses run the risk of being dismissed or seen as irrelevant if they are too theoretical, out of context and isolated from clinical medical education. Integration is key to this challenge, and rural sites for medical education, where the significance of context is foregrounded, are ideal for this process of learning. Successful outcomes have been described in child health[21,22] and women's health[23] programmes for medical students and residents.

Case studies

The most powerful and relevant teaching involves case studies of clinical presentations – unpacking the broader issues that have brought a particular patient into a hospital bed, or an emergency presentation.[24]

Understanding where the person is from, how the illness started, what steps they took as the illness escalated, how they got to the hospital, how it feels to be in their shoes, and what they are hoping for, could be regarded as nothing more than good clinical practice with a listening ear. Explicitly linking elements of the patient's condition to the broader determinants of health is a further level of understanding that requires specific pedagogical steps – getting students to identify the upstream issues and explain the mechanisms that led to the presentation.

A further step is identifying the points in the development of the illness or disease when it may have been prevented or mitigated through earlier screening or a specific intervention, such as smoking cessation. Ward rounds using this approach can generate a portfolio of case studies that can be graded according to a rubric.

Case study: A tutorial in internal medicine

On a ward round in a tertiary level hospital in Cape Town, South Africa, three medical students in their 4th year (of 6 years) of training encountered a 35 year-old man in the medical wards with advanced chronic renal failure, needing regular dialysis. Stimulated to find out where he was from and the reasons behind his condition, they discovered that he had left his family in a rural province and come to the city specifically to seek medical care, since he felt that he was getting steadily worse at home, and access to specialist care at the local hospital was difficult. He stayed with some relatives in an informal settlement on the outskirts of the city and gained access to the health system through a local clinic, from which he was referred for specialist care to the tertiary teaching hospital.

As he did not have a fixed address in the city, however, he was deemed unsuitable for the renal transplant programme, the criteria for which included feasible follow-up by the renal physicians. The patient himself was nevertheless hopeful, and grateful for the care he had received up to that point, but the logistics of chronic dialysis twice a week were challenging, and would require a major change to his living arrangements.

The students empathised with the patient, and felt upset by the unfairness of the system.
In the discussion following the presentation, the students were encouraged to discuss the likely causes of chronic renal failure in rural areas, the ethical aspects of the transplant programme criteria, the influence of the patient's precarious social situation in the city on his prognosis, and the feasibility of successful long-term dialysis. They discussed the historical, geographical, economic and social determinants of his health, with much debate around the advantages and disadvantages of finding a place in the city versus returning to his rural home for ongoing care.

The tutorial concluded around the principle of fairness and equity in health care, and the students committed to following up the patient in a discussion with the renal physicians.

Home visits

Home visits are often the most striking experiences through which medical students may understand the importance of context.

Setting up a home visit with a willing patient who has a chronic condition – or even getting the student to follow a patient home from a regular consultation or after being discharged from a hospital admission – highlights the different roles that the student should be encouraged to play outside of the medical context. If the student is well prepared with questions about the patient's environment, and if they have a dose of curiosity, these encounters can be transformative learning experiences for students, as they take place on the patients' terms. A facilitated feedback session is essential to make sense of their experience, which can be further enhanced by a written assignment that reflects on significant learnings.

A useful framework for structuring a home visit and the write-up is the simple three-step process of 'what', 'so what' and 'what next':

- **What?** (descriptive) i.e. what happened? What did you notice? What was unexpected? What was the most significant learning? What did you feel?
- **So what?** (analytical) How do you understand the issues that were presented? Why are things as they are? Why did things happen the way they did? What do they mean? Which of the social determinants of health played a role, and how? How could it have been different?
- **What next?** (action-oriented) What follow-up actions are needed? What are the implications of this learning for other patients, or future situations?

Referrals

Another very useful learning exercise from a rural site is for a student to accompany a patient who is being referred to a regional or urban centre for further management at a secondary or tertiary level of care. Negotiating the journey, helping to manage communication, the practical skills required for ambulance transfers, as well as the implications of appropriate specialist care, inculcate an understanding of the health system that no classroom lecture can approximate.

Making sense of the experience through a structured reflective essay that requires the student to articulate the connections that they make about the organisation and accessibility of the health system, is a useful way of deepening their learning.

Other approaches

A range of other innovative educational projects can bring learning alive. Photovoice projects for example, have been used to draw links between poverty and health care.[25] Asking students to identify a role model and describe why they chose that person, helps them to articulate some of the characteristics and attitudes that they may need to develop themselves.

While none of these exercises is exclusive to rural medical education, the setting of a rural health service links and infuses students' experiences with a context that may, in fact, teach them more than the actual content of the assignments.

Practice pearls

- While specific modules, projects and courses dedicated to addressing the social determinants of health are helpful, a key strategy is integrating 'big picture' thinking into routine clinical teaching and learning in various clinical disciplines.
- Including the social determinants of health in a discussion of appropriate patient presentations allows for an appreciation of contextual factors in *every* clinical situation.
- The rural context provides an advantage in terms of demonstrating contextual relevance, because the geographic, social, economic and historical determinants of health are more obvious.
- Home visits can be transformative learning experiences for students if they are well structured, as they take place on the patients' terms and instil an understanding of the importance of context.

- A range of other teaching methods centred around patients' real circumstances, can bring alive the learning of the rural determinants of health.

What to do

- Integrate the teaching and learning of 'structural competence' into clinical care of specific patients.
- Include the following questions in the discussion of appropriate patient presentations:
    - Where is this patient from? What is it like to live there? What are the conditions in that environment that may have contributed to their medical condition? What challenges are they likely to face on returning home [after discharge from hospital]?
    - Who is this person? What is it like to be in their shoes? What are they feeling, or hoping for, or fearing?
    - Who else is like this patient? What group of people does this patient represent, who may be at risk of a similar illness or presentation?
    - How could we think about intervening in that group to prevent or ameliorate similar [potentially end-stage] presentations in other people in the future?
    - What agencies exist at a community or local level that could assist in such interventions?
- Look for opportunities for students to undertake home visits to appreciate the role of context on illness.

What not to do

- Don't avoid the wider context of a patient's illness when considering a clinical problem.
- Don't minimise the role of 'social factors' in patient presentations, or even dismiss them as irrelevant to management.
- Don't just deal with the individual patient, but broaden the discussion to the population at risk.

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12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 2.3.2

TEACHING AND LEARNING IN AGRICULTURAL HEALTH

Scott Kitchener[1]
Griffith University and Queensland Rural Generalist Pathway, Australia

Introduction

This chapter focuses on teaching and learning in agricultural health as a distinct expertise of rural physicians.

While this may seem a self-evident skill set for rural doctors, there are few formal programmes focusing on preparing health professionals in agricultural health and medicine.[1] This essential element of rural practice is generally developed in practice through trial and error, ideally informed by other learnings such as the socio-economic determinants of health in rural communities, the cultural aspects of community rural practice, environmental health, occupational health, the impact of disease in (the agricultural) industry, trauma, zoonotic diseases, respiratory disease, and so on.

This chapter describes programmes that bring these disparate aspects of rural health education together with a particular focus on agricultural health teaching and learning for local cultural competence.

The evidence for teaching agricultural health

Agriculture as the socio-economic base for rural communities

In many nations rural-urban health disparities relate to socio-economic disadvantage, ethnicity, higher levels of environmental risk, occupational and transportation conditions – all of which can be exacerbated by limited access to health care.[2] In most rural areas, food and fibre production, forestry and fishing industries - and the value chains supporting these - are central to the economy, the community and rural life. Understanding the nature of this agricultural base and the intimate association with social life is a foundation to understanding the socio-economic determinants of rural health.

Health in agricultural industries

The International Labour Organisation (ILO) presents staggering figures regarding agricultural industries globally. They employ a third of the world's workforce, are the

[1] Prof Scott Kitchener is the Professor of Rural Medicine at Griffith University and a Director of the Queensland Rural Generalist Pathway.

largest employers of women, have the highest prevalence of child labour, have a high involvement of migrant workers, are mostly in developing nations – and is one of the most hazardous sectors in which to work.[3,4] Certainly it is among the most dangerous industries in Australia.[5,6]

Australian farms are predominantly small family-owned and operated businesses. Half of all declared workers are self-employed, with many informal workers including children contributing to productivity; they have large itinerant workforces.[7,8] Although not too different to the global workforce, these aspects of the workforce and community are major determinants of health, and warrant inclusion in the professional, legal and ethical components of any medical curricula.

Agriculture and families

While whole families are often engaged in informal farm work, there is also the ill health of families living in proximity to agricultural workplaces.[9] Regardless of whether or not they are workers, children living near farms have an inordinate risk of childhood injuries[10] - although their ill health is not limited to acute injuries but include factors like longer term environmental exposures to respirable antigens and contaminants. In addition, families can suffer from mental health issues arising from the uncertain economic environment, vagaries of climate change and weather-dependent primary industries.

As these issues are aggravated by less access to health care for rural families, agricultural health transcends being a subset of occupational health in a medical course; rather it is becoming a core requirement for a bio-psycho-social understanding of health in an agricultural community, as distinct from metropolitan communities. In nations with a significant proportion of the population living and working in agricultural communities, this must be included in a distinct and cohesive manner in medical curricula.

Illustrative applicability: The teaching and learning framework for agricultural medicine

As with any medical teaching and learning, the nature of the achievable learning objectives and the contexts in which they occur are important, particularly so with agricultural health. A number of different approaches are illustrated here.

Multi-disciplinary approach

Deakin University conducts postgraduate education for health professionals and others involved in agriculture, adapted from a long-standing course in Iowa, USA which is also replicated in other agricultural states of the USA. [1,11,12] These take a multi-disciplinary approach within the sociological and public health contexts of the rural areas in which they operate.

There is a need for teaching and learning in the application of agricultural health and medicine in rural medical practice. This would include the roles of other health disciplines grounded in occupational health and safety, as well as community health issues presenting and managed in rural practice. Such an applied agricultural *medicine* programme also requires deeper applied clinical knowledge of specific pathophysiology, as well as medical management of diseases and mental health issues associated with agriculture, imbedded in the model of care in rural practice.

Agricultural medical model

Rural medical teaching programmes in Queensland, Australia, have evolved over the past two decades. The feedback of medical students and graduates studying in these rural clinical schools was that all students need to be familiar with the determinants of health in agricultural communities, as well as having detailed knowledge of specific health issues, which could be developed through structured teaching and practical experiences.[13] They agreed that specific, even short, agricultural medicine teaching was valuable preparation for rural practice as a student or doctor-in-training.

Experiential learning opportunities are more effective in developing deeper awareness of agricultural medicine. Real clinical experiences with patients from agricultural communities, supported by supervision and teaching, are the most valuable way of learning communication, professionalism and of reinforcing applied clinical knowledge. Speaking to farmers places clinical knowledge in the local environmental context.

Finally, living immersed in an agricultural community for an extended placement is invaluable to creating cultural competence in a way that is not able to be taught in classes or tutorials.

Several approaches are evident in the Queensland medical schools and rural vocational training programmes.

- The **University of Queensland** (UQ) Rural and Remote Medicine Discipline, supported by the Rural Clinical School, provides comprehensive teaching in zoonotic diseases and agricultural safety in a lecture block opening the Rural and Remote Medicine (RRM) term, in which all students are immersed in rural practice for six weeks. This is followed by on-line modules during the term.
- **James Cook University School of Medicine**, which conducts extensive rural placements in agricultural communities throughout the six-year programme, delivers a block of teaching on Rural, Remote, Indigenous and Tropical Health in second year. This includes agricultural health topics embedded in clinical examples used for teaching, illustrating the socio-economic and mental health issues in farming along with rural and remote health outcomes of agricultural injuries and zoonotic diseases.
- **Griffith School of Medicine** students have a series of rural and agricultural health seminars in each of their first three years (of four). First year students learn about
  - the nature of rural and agricultural populations, particularly in Queensland;
  - local socio-economic issues;
  - the nature of health care provision available; and
  - the population health issues arising.

  In second year, the seminar extends contemporary clinical learning to the experience of people in rural agricultural communities with the nine conditions of the Australian National Health Priority Areas.

  In the third year seminar, specific agricultural medicine topics are covered in detail, including
  - mental health issues of farming families;
  - occupational health and safety on farms; and
  - environmental health of agricultural respiratory illness, pesticide exposures, skin cancer, and zoonotic diseases.

  Those Griffith students choosing a rural path of scholarship for third and/or fourth year are placed for immersive clinical experiences in agricultural communities.[14] The curriculum is covered in the context of rural agricultural community practice supported by local workshops which, conducted at working farms, are inevitably the most popular experiences and learning.[15]

- In vocational training, the **Remote Vocational Training Scheme (RVTS)** delivers specific teaching and workshops as well as a blog site on agricultural health. Previously, a similar programme was conducted in Queensland for Rural General Practice registrars and students. An evaluation of this programme and the curriculum are available.[15]

Accommodating diversity of learners

Medical schools teaching agricultural medicine find that teaching and learning must accommodate different backgrounds and experiences among learners, some of whom have never lived in rural areas. A foundational cultural understanding can be established by outlining rural and agricultural political, socio-economic and population health concepts through directed background reading and viewing, in lectures and in classroom discussions. Often misconceptions about agricultural communities need to be overcome.

The nature of learning objectives should be designed around developing clinical experience among learners. When clinical experience is available, clinical discussions and small group learning works well to shape thinking around agricultural medicine - both in general and in agricultural communities. Even those learners with metropolitan clinical experience can appreciate clinical conditions in the context of an agricultural community when provided with some of the social and environmental backgrounds.

Resources

Providing resources for learners after teaching must take into account their access to sources. If they have reasonable access to internet-based resources, learning guides and seminar material can be provided on-line with hyperlinks to *appropriate* resources. These include sites that provide

- up-to-date agricultural and veterinary chemical information;
- local biosecurity;
- current information on occupational health; and
- basic toolkits in agricultural medicine practice (see reference 16).

Learners can also be guided to popular literature sources regarding social issues in rural and agricultural communities and to relevant health journals and associations.[17,18,19]

Engagement in clinical research in agricultural medicine

Having students engaged in clinical research not only addresses the paucity of evidence in agricultural health, but also provides a focal point for teaching and learning, potentially augmenting delivery of the curriculum. Learners on longitudinal placements in agricultural communities (e.g. Griffith Longlook) can readily engage in clinical research projects with local relevance to agricultural medicine, while students on short-term placements (e.g. UQ MIS) also become involved in more discrete projects with local relevance. All are important for learning and for the community. Projects lead to discussions on research methods and design as well as generating case discussions for clinical teaching sessions.

Relevant topics from each of these models in this region have addressed agricultural injuries, health and lifestyle of farmers, cardiovascular risk, respiratory disease and skin cancer among farmers, zoonotic diseases, suicide presentations and management, and opiate use.

Assessment of agricultural health and medicine

These programmes are embedded in larger, assessed, medical programmes. Providing input in the form of agricultural medicine questions, scenarios and objective structured clinical examinations needs to recognise that not all students will be offered the opportunity of a full programme in agricultural health and medicine. It is equitable to limit agricultural medicine assessment to core understandings for all students. So while some students will learn more of agricultural medicine in practice, assessment must be limited to **core** seminars and case-based learning in agricultural medicine.

In programmes in which scope exists for clinical assessment within the workplace, agricultural medicine can be assessed in the requirement to demonstrate contextual understanding of clinical cases and care.

Practice pearls

- 'Farm Days' are very well received by students of all levels. They are enhanced by having real farmers provide the instruction. A 'farmers unplugged' question and answer session over a cup of tea and some fruitcake (an Australian farming thing) is valuable in developing cultural competence among learners.
- Home visits to farms for care and following up injuries and illnesses are valuable to develop an understanding of environmental determinants of health.

What to do

- Develop cultural competence as soon as possible — and keep talking about it.

- Stimulate an interest in agricultural issues as a means of developing rapport with patients from agricultural communities.
- Use experiential and context-relevant learning as much as possible.

What not to do

- Don't attempt to teach something in class that can be learned in practice.
- Don't ignore the value of real farmers, fishers, foresters and their families as teachers in the community and when they present as patients.
- Don't forget to include research to support the curriculum, develop specific interests among students and to generate local evidence.

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12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 2.3.3

TEACHING MENTAL HEALTH CARE IN RURAL COMMUNITIES IN CANADA

Michael Jong
Memorial University, Newfoundland & Labrador, Canada[1]

Introduction

Mental illness affects many people worldwide, contributing to a burden of suffering and disability that in 2011 accounted for 25.3% and 33.5% of all years lived with a disability in low- and middle-income countries, respectively.[1] Globally, mental health services are not meeting the needs of those who require them. The 66th World Health Assembly held in 2013 declared that there is 'no health without mental health' and stated that health systems have not responded adequately to the burden of mental illness.[2]

Although the prevalence of mental disorders appears to be the same in both rural and urban areas in North America,[3-5] rural populations have poorer health outcomes.[4] These are accentuated in rural Indigenous communities with higher suicide rates, particularly in adult males and children.[5-7]

One of the solutions is to include appropriate mental health education in the training of rural health care providers, including family physicians and general practitioners (GPs). This would enable them to integrate mental health care into comprehensive primary health care, which is both more effective for the population and less costly than secondary and tertiary care.

Resourcing mental health services

The global scarcity of mental health resources,[8] associated with increasing needs, is exacerbated by the inequity between rural and urban areas.[9] Not only are there geographical and cultural challenges to service delivery in rural regions, but urban policy and decision makers tend to apply a single solution to all rural regions without recognising local challenges and realities.[9] Service providers trained in urban models struggle to provide care, without appreciating rural cultures and circumstances.[9]

In rural communities, the most effective way of providing mental health care is to integrate holistic mental health services within the primary health care team. This allows mental disorders to be detected and treated early, reducing the harm and burden

1 Retired Professor of Family Medicine.

of late treatment. Providing mental health care at the primary care level also offers more opportunities for prevention and health promotion in the community.[10]

The WHO and the Pan American Health Organization identified training of primary care staff in mental health as crucial to addressing the current limited capacity to provide treatment and care.[11] There are reports from many countries, especially those that are less developed, of insufficient training in mental health during undergraduate medical school and postgraduate Family Medicine/GP training.[11-13] The 2013 World Health Assembly called for the introduction of mental health training at both undergraduate and postgraduate levels, and for the training to be done in the field in non-specialised settings.[2]

Telehealth is available in most rural communities in developed countries and could be used to address the core problems rural populations face in accessing mental health services.[19] It is not widely used by practitioners, however, given their resistance to changes in the traditional modes of practice. This resistance can be resolved through incorporating telehealth training at both the undergraduate and postgraduate levels.[20]

Training in and with communities

As training the medical workforce is best done in the setting that most closely approximates their future practice,[14] teaching future rural doctors about mental health is best done in rural communities.[15] Here they can learn how to work with interdisciplinary health teams and community agencies to address issues for individual patients (such as housing and support) while collaboratively developing mental wellness programmes. In this way, they can learn to deliver care in real life rural environments and cultural contexts.

As noted, high levels of mental health problems in many rural Indigenous communities in Canada have led to disproportionately higher rates of suicide than the rest of the nation.[16] This has been attributed to relocation, colonisation and residential schooling which have led to the loss of language, culture and self-identity, to abuse of alcohol and drugs, and to inter-generational trauma.[17] Despite these challenges, some Indigenous peoples have remained resilient - this is more likely to be in settings where adults and elders have maintained their traditional knowledge, values and culture and have been able to nurture younger generations.

As the land is sacred for most Indigenous cultures, being on the land provides the Inuit with a safe space, familiarity and empowerment that allows people to be connected and healthy. An NGO Movember-funded community-led land-based programme for the Inuit demonstrated that such activities promoted mental health for men, boys, families, and communities.[18]

Immersing health care trainees in providing care in Indigenous communities offers a valuable learning experience in providing holistic and 'culturally-safe' care, while engaging communities in the promotion of wellness. 'Cultural safety' is when a patient's experience of a service provider of a different culture is one in which they feel safe in terms of being respected and assisted in having their cultural location, values, and preferences taken into account.

Competencies

Wonca has defined six domains of core competencies in primary mental health care[21] and the skills required for providing this care.[22] The domains are:

- values;
- communication skills;
- assessment;
- management;
- collaboration and referral; and
- reflective practice.

The recommended skills are:

- active listening and clinical interpersonal skills;
- effective assessment of psycho-social status;
- psycho-education;
- relaxation and stress management techniques;
- behavioural management;
- internet-based psychological treatments; and
- empowerment of patients to be problem solvers.

Competencies in mental health care of the Royal College of General Practitioners include organisational management and leadership, awareness of the impact of socio-cultural issues, and the ability to work and partner with public health and other external agencies in delivering mental health services.[28]

As additional competencies for providing mental health care are desirable in rural and remote communities, the curriculum of the Australian College of Rural and Remote Medicine (ACRRM) fellowship programme includes specific competency requirements for working in these settings.[23] These include:

- being able to manage mental illness in the rural and remote context without ready access to specialist, diagnostic and allied health services;
- being self-reliant and resourceful; and
- being able to use communication technology to provide medical care and to access specialised care for patients.

ACRRM also offers an additional 12 months of advanced skills training (AST) in mental health, in domains like addressing social and environmental determinants of mental health. and providing culturally safe care.[24]

'Cultural safety' is considered an important component of the College of Family Physicians of Canada (CFPC) CanMEDS-Family Medicine framework.[25] Amongst other forms of psychotherapy, CFPC certificants must learn cognitive behavioural therapy (CBT) which can be learned on-line, almost halving the face-to-face training time.[26]

Telehealth can also be used for mental health training. In addition they simultaneously promote interdisciplinary collaboration during the shared telehealth sessions in the rural setting.[27]

Illustrative example

Northern Labrador, about the geographical size of the UK, is on the north-eastern seaboard of Canada. Over half of the population of approximately 15,000 are Indigenous – Inuit and Innu. As in most of the circumpolar world (a location within a polar region), there is a large burden of mental illness, with suicide rates more than ten times the national average.

NorFam is Memorial University's northern family medicine programme in northern Labrador, providing rural family medicine training at both undergraduate and postgraduate levels. To meet the needs of this northern rural population, NorFam enhanced the competencies required by the College of Family Physicians of Canada and the curriculum required by the main campus in the city, offering longitudinal integrated mental health (behavioral medicine) training throughout the two years of family residency training. Besides mental health workshops and reviews of videotaped interviews, trainees accessed experiential learning through the supervised provision of care via telehealth, or in person in the clinics, emergency rooms, inpatients and homes.

Immersion

During their family medicine training, residents (trainees) are immersed in remote Indigenous communities where they are responsible for comprehensive care under the supervision of faculty members. They learn to manage mental illness in conjunction with health promotion and illness prevention, and to address social, family and community issues in collaboration with community agencies and other health professionals. They provide shared care with the health team – which may include psychiatrists, psychologists, nurses, and Indigenous counsellors/healers and social workers – based on individual needs and with informed consent from patients.

Family medicine residents are required to show that they practice cultural safety. To assist them in doing so, they get opportunities to network with elders and elected community leaders to seek advice on community issues.

Part of the learning experience includes land-based activities. This entails trainees, along with a preceptor, living in tents with community members and learning about their cultures and traditional healing practices, while providing health services for them in the 'bush/country', instead of providing care in the hospital and clinics. Land-based activities have allowed the Indigenous peoples in northern Labrador to heal in a safe environment, reconnect with their roots and cultures, and strengthen extended family connections. Community-led land-based programmes have been adopted by Indigenous communities and have contributed to a reduction in suicides.

Conclusion

Training family doctors in northern Labrador has provided the region with appropriately trained family physicians who can provide holistic and comprehensive primary care, critical for addressing mental health issues in the rural and remote communities.

Broader applicability

There is no single best model for teaching how to provide mental health care in rural communities. Each country and region can incorporate the broad principles in the development of the training model to design their own model that best meets the needs of the local population and that works within local realities of resources, geography, values and culture.

Key issues

Patients are the greatest resource for training. If medical schools wish to be socially accountable, they should train doctors to provide services for the most vulnerable populations. This includes people living in rural and remote regions, remote Indigenous communities and refugees whose first points of entry are often in rural locations.

Rural family physicians need to be generalists with broad skills sets which include health promotion, preventive medicine, acute care, long-term care, emergency, in-patient and home care – and also expertise in mental health. This includes not only managing mental health disorders but associated co-morbid chronic diseases and addictions.[2]

Training in rural communities offers residents and medical students opportunities to learn how to address local mental health issues through research and community engagement.

Practice pearls

- Incorporate mental health training in undergraduate medical school and postgraduate training for primary care and family medicine.
- Integrate mental health training to create a longitudinal integrated holistic training experience.
- Incorporate telehealth, research and community engagement in the curriculum.
- For Indigenous communities and those with refugee populations, embed training in the communities and ensure the practice of cultural safety.
- Incorporate training on how to engage families, other social-health disciplines and community agencies in holistic care for the patient.

What to do

- Train in rural sites - including, where possible, immersion in Indigenous communities and refugee camps.
- Adopt a curriculum that addresses the needs of the local rural communities and a programme that fits with the local culture, value system and realities.
- Provide longitudinal integrated training at both undergraduate and postgraduate levels that includes ambulatory, emergency, in-patient and community services. As mental and physical health are intertwined, they are best addressed simultaneously.

- Teach community engagement and collaboration to address underlying issues that impact mental health.
- Include research, health promotion and illness prevention in the training.
- Teach how to use communication technology (telehealth) effectively to provide care closer to patients' homes.

What not to do

- Do not adopt a training programme in mental health without taking into account rural realities and the culture of rural/Indigenous communities.

Conclusion

Mental health is a crucial component of wellbeing. The burden of suffering and mortality from mental illnesses remain disproportionately higher in rural communities than urban centres.

The integration of mental health services into comprehensive primary care is the best way to improve access to mental health services. While the WHO has identified training in mental health as a critical path to addressing this issue in rural communities, there is a need to improve training in mental health care in medical schools globally. Patients in rural communities are a valuable resource for training programmes and learning how to provide mental health care for rural and remote communities is best acquired in settings that most approximates future practice.

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Wonca Working Party on Rural Practice
World Organisation of Family Doctors (Wonca)
12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 2.4.1

BOUNDARIES AND BALANCE: MANAGING RELATIONSHIPS IN RURAL PRACTICE

Leslie Rourke
James Rourke
Memorial University of Newfoundland, Canada

Introduction

> *It is Saturday morning and you and your family are on your way out of town for a much-anticipated family weekend together. You leave your spouse and children in the car as you run into the local corner store to buy some snacks for your two-hour drive. The store owner, whose family are your patients, asks if you will take a quick look at their four-year old son, a child with cystic fibrosis. When you step through the back door of the store into their home, it is apparent that the child is quite ill and will require aggressive treatment. (1)*

In the same way that training prepares learners for the illnesses that they will diagnose and treat, it should also prepare them for other aspects of life as a physician[1]. In the past, personal and professional boundary issues were rarely taught formally in medical curricula, yet they are often at the core of physicians' and their families' satisfaction or dissatisfaction with practice in a rural community.

Personal and professional boundaries and work-life balance are similar to other clinical issues, in that situations can arise suddenly and can need immediate decision making. In contrast to many clinical management issues which get easier over time with more experience ('practice makes easy'), the issue of personal and professional boundaries can become increasingly difficult as more and deeper personal and professional relationships are formed over time.

1 A rural physician is a generalist doctor who works in rural areas with no proximate specialist support. The words 'physician' and 'doctor' are used interchangeably in this chapter.

This chapter is based on our experience with learners, as well as patients who are colleagues and friends. It is adapted from our chapter entitled 'Relationships and Boundaries' in 'Community-based medical education: A teacher's handbook' (2).

The learning objectives include reflecting on approaches to personal-professional boundary issues, to finding and keeping balance and to the elements of physician resilience.

Practice pearls

Practices where physicians know many of their patients in other roles (such as neighbours, colleagues, staff members, close friends, etc), are ideal for demonstrating the issues of personal-professional boundaries.

These multi-faceted doctor-patient relationships can include complexities such as confidentiality breaches, omissions, assumptions, identification, loss of objectivity and blurred boundaries.

Physicians and their families, by definition, have complex multi-dimensional doctor-patient relationships when they themselves become patients.

Awareness and discussion of alternatives for medical treatment in multi-faceted relationships make expectations and obligations of the relationship more explicit.

Learners should understand the change in role from their familiar social role to a new professional role, and be aware of the power differential in the doctor-patient relationship as well as the concepts of boundary, boundary crossing and boundary violation.

The need for balance in the life of the physician is crucial and needs to be explicitly discussed.

What to do

Share with the learner the richness of rural practice where the physician is well connected within the community and is often very aware of the patient's life context in the community. Share the joys and challenges.

Discuss various boundary alternatives to patient care and make this process conscious for the learner.

Discuss professionalism and the inherent power differential in the doctor-patient relationship.

Model professionalism during patient encounters (see Table 1: Professionalism in patient encounters).

Make learners aware of high risk situations, high risk patients, and high risk physicians, and red flags for boundary violations (see Table 2: Red Flags for Boundary violations).

Urge learners to pay attention to their 'gut feeling' (inner sense), and to seek advice whenever they are unsure.

Demonstrate to the learner strategies for finding and keeping balance and maintaining resilience compatible with their physician roles (3).

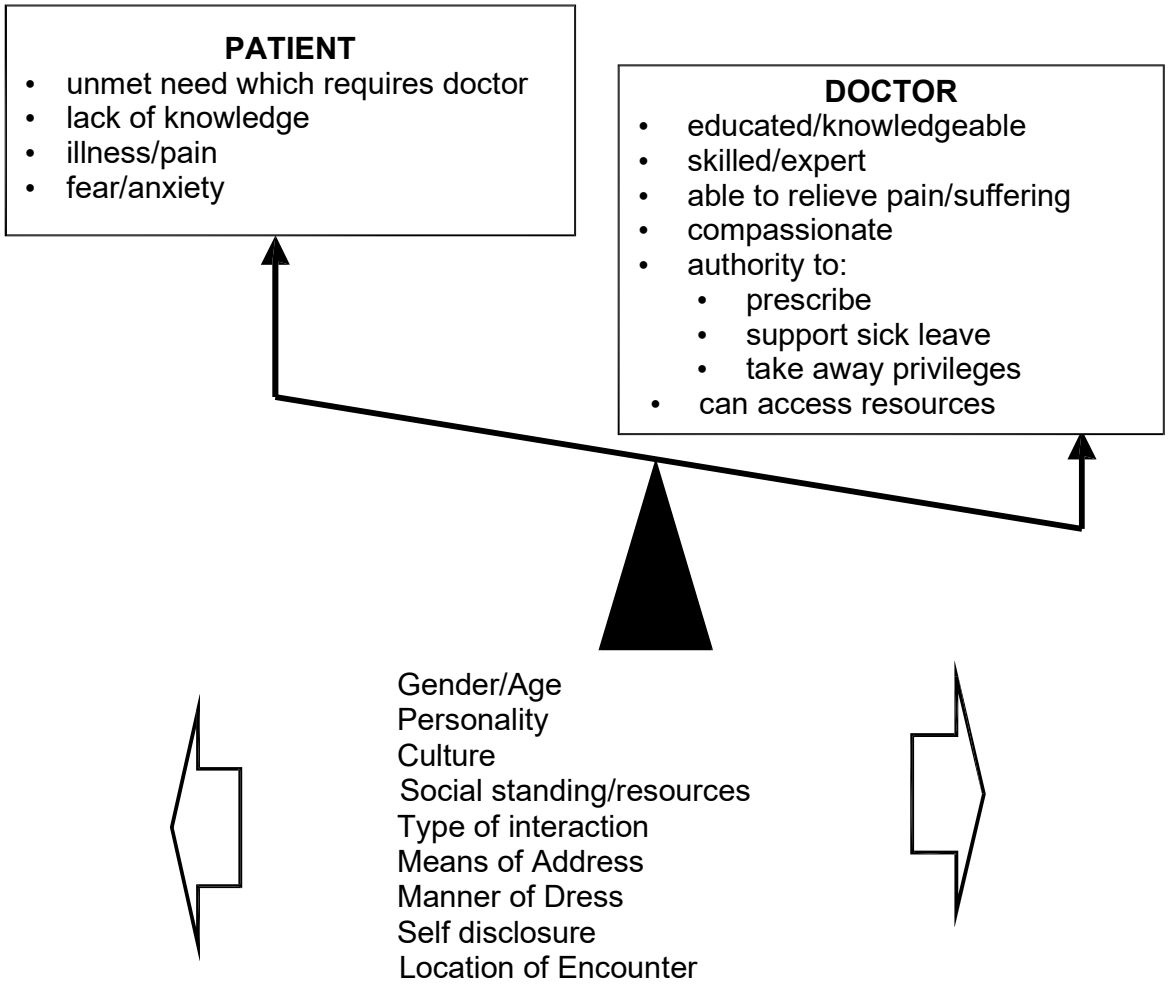
The concept of boundary, boundary crossing, and boundary violation

Boundaries can be defined as the accepted social, physical and psychological spaces between people. They are explicitly and/or implicitly defined by culture, jurisprudence and ethics, and are influenced by individual, personal and environmental factors. Examples of boundaries include clothing, form of address, gifts, touch, access (such as time, place, social media, etc), physician self-disclosure, personal opinions and values, and post-therapeutic contact. Boundaries are often a continuum.

A boundary crossing occurs when there is a blurring of personal and professional roles, and/or role reversal occurs where the physician's needs take precedence over the patient's needs, and/or the behavioural rules expected of people in a given role are broken ('behaviour outside the box'). A boundary crossing becomes a boundary violation when the result is harm to the patient (3). Boundary violations are more likely to occur with high-risk patients, high-risk situations, and high-risk physicians (4).

The ***highest risk patients*** are victims of abuse or those with borderline personality disorder, who already have experienced problems with boundaries. Those of intermediate risk are patients with chronic neediness, dependence, or prior relationship problems. However even low-risk patients are at risk in times of stress. Due to the inherent power differential in the doctor-patient relationship, in all cases it is the doctor's responsibility to avoid boundary violations. (see Figure 1: Balance of power).

Figure 1:
Balance of Power in the Doctor-Patient Relationship
(Adapted from Dunn)



High risk situations include the sexual history, the physical examination (especially the breast, pelvic, rectal and genitourinary examination), psychotherapy, and care in unusual settings (time and place). Professionalism during patient encounters minimises boundary problems and can be discussed with, modeled for, and expected of learners. (See Table 1: Professionalism during patient encounters.)

Table 1:
Professionalism during patient encounters
[Adapted from Dunn] (4)

1. Know yourself, your values, your biases, and your use of language with your patients.
2. Be aware of and develop your own approach to boundary issues.
3. Know your patients, and recognize and respect their boundary issues.
4. Strive to be technically good at what you do.
5. Know your limits and consult when appropriate.
6. Respect the patient's privacy with undressing and draping.
7. Give the patient some control during examinations and procedures. Explain and ask permission before and during examinations or procedures.
8. For breast, pelvic, rectal or genitourinary examinations or procedures, consider, offer or obtain third party presence.
9. Do not do a sexual history during breast, pelvic, rectal or genitourinary examinations or procedures.
10. If the examination or procedure causes pain, stop, fix the situation, and do not continue without the patient's permission.

Physicians at risk for boundary violations are more likely to be paternalistic, grandiose, authoritarian, or entitled; or have an impulse control problem; or be naïve with a blind-spot; or have unmet physical, emotional, sexual needs (4). Physicians have vulnerabilities, as do all people. Being a medical expert does not exempt doctors from their own physical, mental, emotional or social problems. Thus self-awareness for self-care in handling stress and in maintaining physical, mental, emotional and social health is important for physicians. Self-assessment tools, such as by the College of Physicians and Surgeons of Ontario, promote awareness of risk for both preceptor and learner (5). Increasingly, medical organisations are developing resources for physician health and well-being (6,7,8,9).

Ensure that learners can recognise red flags for boundary violations (see Table 2: Red Flags for Boundary violations.)

Table 2:
Red Flags for Boundary Violations
[Adapted from Dunn] (4)

Making exceptions: “I don’t usually do this.”
Any activity with the patient you wouldn’t want your colleagues to know about.
Having a desire to impress the patient with your accomplishments or “specialness”.
Wanting to “rescue” the patient.
Being energized by a sense of power when a patient’s actions are controlled through your advice or treatment.
Accepting inappropriate gifts, business tips, or special services from the patient.
Responding to patient pressure to share personal information about yourself.
Divulging your own problems to the patient.
Intrusive thoughts, especially sexual, about the patient.
Looking for contact with patients socially or doing therapy during social situations.
Arranging after-hours appointments, especially if usual staff and colleagues are not present.
Driving the patient home.

What not to do

See the red flags (Table 2 above) regarding situations to avoid.

"Hi, how are you?" Physicians often greet patients in community settings with this automatic phrase, and then struggle when they respond with a literal answer re their health issues? "Hi, nice to see you" is a more appropriate greeting.

Don't make assumptions that your patients who are also friends and colleagues will have the same doctor-patient relationship issues as you do. From their perspective, they may see the multi-faceted relationship as more, or less, challenging than do you.

Don’t assume that your learners have a similar outlook on work-life balance, and that your challenges and solutions are suitable for them. Some learners may need to learn how to limit their work to allow personal time, and others may need to learn that medicine is not a ‘9 to 5’ job. Discuss these issues explicitly.

What's the evidence?

The importance of addressing these issues is illustrated in a study by Fairburst and May showing that general practitioner satisfaction with individual patient consultations was more related to the relationship with the patient than with the technical aspects of diagnosis and treatment (10). Thus challenges to doctor-patient relationships that occur with personal-professional boundary issues can significantly affect a physician's ultimate contentment with practice.

Equally important is the evidence that physicians leaving rural practice often cite their and/or their family's discontent with work hours/personal-professional balance issues (11, 12, 13. 14).

Discussion

Patterns of professional behaviour are set early, therefore during training there needs to be explicit discussion about changes in role from familiar social roles to new professional roles that includes the inherent doctor-patient power differential, and the concepts of boundaries, boundary crossing, and boundary violation.

The challenge of multi-facetted doctor-patient relationships

Multi-faceted doctor-patient relationships – in which the physician and patient might know each other in other roles such as neighbours, colleagues, staff members, close friends, learners, etc - can include challenges such as confidentiality breaches, omissions, assumptions, identification, loss of objectivity, and blurred boundaries (2, 15, 16, 17). Doctors and their families also have complex doctor-patient relationships when they become patients.

> Complex relationships can result in ethical dilemmas for doctors when weighing patients' expectations of *confidentiality* against other moral dilemmas, including the need to disclose sensitive information when required. Confidentiality breaches occur easily in group social settings, sometimes inadvertently triggered by questions from or comments by the friend or colleague who is also your patient.
>
> *Omission of relevant information* can occur by either patient or doctor. Patients may omit history that they think the doctor is already familiar with outside the professional relationship, or history that is painful, private or troubling. Doctors may find it harder to inquire about relevant sexual or psychological problems.

Assumptions can result from familiarity with the patient in other non-patient roles. The doctor may assume a patient's desire for investigation or treatment based on their knowledge of the patient's approach to other aspects of their life. The patient may assume communication about medical issues happens in the same way as with other non-medical facets of their relationship.

Friendship may lead doctors to *identify* more closely with the patient and could result in counter-transference, where previous repressed emotions are revived with the patient as the object.

Loss of objectivity can occur, especially in critical situations or serious illnesses. 'Caring practice is the need to walk a tightrope, being neither heartless nor paralysed by emotion' (18). Heightened emotional involvement can cloud judgement. Alternately doctors sometimes counter this by learned emotional distancing. When repeated emotional distancing spills into other aspects of life, the emotional depth of personal relationships can be affected.

Finally these multi-dimensional relationships, with patient's increased access to the doctor, can result in *blurred boundaries* and difficulty between personal and professional limits.

Other than for romantic relationships with patients, which in most contexts are forbidden, there are four alternatives for medical treatment with the patient who is also a personal friend:

1. do not treat friends;
2. treat friends in a more limited way than usual patients;
3. treat friends in a more available way than usual patients; and finally
4. attempt to treat all patients equitably (2, 16).

More than one alternative can be used at different times, even with the same patient.

1. ***The physician does not treat friends:*** In many rural areas, due to the lack of other health provider options, this may not be feasible. Does the physician opt for very few patients or very few friends? (19,20). With time, more personal relationships develop, and even in a larger community, on-call coverage for colleagues results in more professional-patient relationships, so rigid adherence to this is untenable.

However, professional care can be compromised in certain circumstances, as described well by LaPuma and Priest when discussing physicians treating their own families (21). For friends, these include: if the physician is too close to probe the intimate history and physical being; if the physician cannot cope with bearing bad news if needed; if the physician cannot be objective enough to not give too much, too little or inappropriate care; or if the friend does not comply with medical care as they might with a non-friend physician.

2. The physician or patient may opt for more ***limited care with stricter boundaries***, such as for sensitive examinations (pap, breast exams) or counselling for mental health issues.
3. Frequently, due to friends' special access to the physician, the physician ends up treating friends in a ***more available way than usual patients***. This can result in less comprehensive care (such as when the friend phones the doctor at home, or the colleague stops the doctor in the hallway); overly comprehensive care (such as over investigating as one is less comfortable with uncertainty); or inappropriate care with boundary crossings and violations.
4. The physician can strive to treat ***all patients equitably***. Although this should be the goal for most patient encounters, depending on the patient's expectations, this approach might affect the friendship.

Reflections on finding and keeping balance

It is important for the rural physician teacher to discuss the challenges of finding and keeping balance as a component of physician resilience. 'All work and no play' with no life outside medicine is unsustainable; but equally important, medicine is a calling, not a 'nine to five' job. Don't assume that your learners have a similar outlook on work-life balance, and that your challenges are theirs and your solutions are what they strive for. Observe the learner and watch for signs of rigidity or lack of boundaries, then promote self-awareness.

Jensen has identified four main aspects of physician resilience:

1. attitudes and core values including altruism and self-awareness for self-care;
2. balance and prioritisation;
3. practice management style, and
4. good communication with positive personal relationships and effective professional relationships (22).

Here are some reflections on finding and keeping balance (23).

> Finding and keeping balance doesn't just happen. It takes awareness, communication and conscious planning, often with the help of colleagues, staff and family.
>
> On the other hand, don't plan everything. Seize the moment. Occasionally opportunities appear unexpectedly that require energy and courage to deviate from the anticipated path; but in the end can be worth it.
>
> Try to keep things in perspective. Don't sweat the small stuff. Delegate non-essential duties. Do stop to smell the roses.
>
> Life is a continuum, but is also constantly changing. The right balance at one stage of life isn't necessarily right at another. Unexpected personal or family illness can result in short- or long-term changes in balance. As the saying goes: 'Life happens'.
>
> There are many occasions to reflect on and adjust one's balance in life. It's never too late - the opportunities will keep arising.
>
> In this age of social media and handheld devices, where the speed of expected replies to messages keeps increasing, make opportunities to unplug and have protected time.
>
> Moderation and flexibility is a useful motto. The three types of parenting that Barbara Coloroso describes in her book 'Kids are Worth It' (24), also apply to developing work- life balance The 'brick wall' approach is black and white with no exceptions, but may result in dissatisfied doctors and patients. The 'jellyfish' approach lacks structure with the danger, in the demanding medical profession, of burnout. The 'backbone' approach has structure, with room to bend when appropriate. As physicians we must recognise that there are times when the help we offer our patients will inconvenience ourselves.
>
> Sharing work and on-call responsibilities with colleagues can be the key to finding balance. Freely help your colleagues and they, in turn, will help you.
>
> And as in most aspects in life, a healthy sense of humour helps!

Case studies to discuss with learners

#1 Ready and waiting

It is Sunday morning and you, your spouse and children are all packed and about to leave for a day at the beach. Everyone has been looking forward to this all week. You are not on call. The telephone rings. It is a good friend who is also your patient. She says that she has severe abdominal pain, and asks if you can come to see her.

#2 Will you 'friend' me?

1. One of your patients sends you a 'friend request' on Facebook.
2. One of your friends asks you for medical advice on Facebook.

#3a How can I help?

Your dear friend and patient is dying of cancer at home, and is under your care. Increasing doses of morphine are needed for pain control. Because of your feelings of grief, you have difficulty coping with your patient's needs for care and comfort.

#3b Your spouse: Can't you do something?

Your very dear friend is dying of cancer. Your spouse is your friend's doctor. You cannot bear to see your friend in pain, and wonder why your spouse (patient's physician) cannot totally control your friend's pain.

#4 Your family: family planning

You are the 16-year old daughter of a physician. You and your 18-year old boyfriend are having unprotected sex. You are afraid to go to your doctor for contraceptives in case your parents find out because your doctor and your parent are colleagues and close friends.

#5 Conflicting loyalties

You notice that your physician colleague seems stressed and is making some mistakes in medical practice. You are unsure if he considers you to be his personal physician, but you are not aware of him having another physician, and you have written him prescriptions for pain medication for his intermittent chronic back pain.

#6 The slippery slope

You are a resident who would like to date a nurse who works at the hospital. You are doing internal medicine clinics and see his/her name on a list of patients that you and your preceptor will be seeing that day.

#7 Friend or foe?

You are a medical student. You see that one of your classmates has posted on Facebook information about a recent case they have seen.

i) The posting includes identifiable patient information. OR

ii) The posting contains unprofessional language about a nurse who was also involved in the case.

Summary of key points

As in many aspects of life, the 'backbone' approach of structure with flexibility works better in developing personal and professional boundaries than do either the 'brick wall' or the 'jellyfish' approaches (24).

It is important for the doctor to have an explicit discussion with the patient at the beginning of any multi-faceted doctor-patient relationship or when circumstances in either the professional or the personal relationship change.

In rural practice there are many opportunities to show learners examples of personal and professional boundary and balance issues, as rural physicians 'live' these issues daily.

Some of the learners least interested in this topic may be the ones that need it the most - e.g. regarding attitude, boundary violations, etc.

Broader applicability and implementation

Although personal-professional boundary issues are obvious in rural areas, multi-faceted doctor-patient relationships can occur in any community and in all branches of medicine. Socially interconnected communities exist regardless of population size: for example through neighbourhood friendships, shared leisure or family activities, or faith groups. Sub-specialists who treat all the cases from the region will inevitably have patients who are friends and colleagues. Teachers can help learners gain awareness, understanding and insights into boundary and balance issues by initiating discussion, modelling reflection, and mentoring learners.

Conclusion

Personal-professional relationship and boundary issues occur for all physicians, are an enriching aspect of medicine, but can have pitfalls and result in stress.

Awareness, reflection, and a proactive approach can help establish appropriate flexible functional boundaries and balance.

Listen to your 'gut' (inner sense); watch out for that 'oh-oh' feeling.

Be aware of your own health and get advice when in doubt.

Help your learners gain confidence and competence in boundary and balance issues in order to promote their resilience as physicians.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.4.2

THE ART OF MENTORING LEARNERS IN RURAL HEALTH SETTINGS

Barbara J Doty
University of Washington Family Medicine Network,
United States of America
David Schmitz
Family Medicine Residency of Idaho,
United States of America

Introduction

The purpose of this article on mentoring in family physician[1] training is to
discuss the value of mentoring;
discuss the characteristics and qualities of an effective mentor;
identify the purpose and benefits of having a mentorship programme;
identify different types of mentorship relationships and programmes;
identify and distinguish the roles of a mentor and an academic advisor
review a plan for evaluation of a mentorship experience;.

Mentorships are felt to be helpful regardless of an individual's stage of development in a profession. Mentoring can be effective in solving questions of work-life balance and has been proven to be particularly effective in role modelling for women who are addressing issues of family and career integration.

In the rural medical education context, those being mentored may be students interested in a medical profession, medical students, medical residents completing specialty training, junior faculty[2], and physicians new to rural practice. Mentors are often medical school faculty, clinical preceptors, experienced rural physicians, senior faculty members. Mentors may or may not also be formal educators in the mentee's programme.

1 A 'physician' here (in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.
2 'Faculty' is another terms for members of academic staff.

Mentors and mentorship

A mentor is a wise or trusted counsellor, guide, or teacher; an influential senior sponsor.

Mentorship is a process whereby the mentor - an experienced, highly regarded, empathetic person - guides another (usually younger) individual (the mentee or protégée) in the development and re-examination of their own ideas, learning, and personal and professional development. The mentor, who often (but not necessarily) works in the same organisation or field as the mentee, achieves this by listening or talking in confidence to the mentee. It is a dynamic, *reciprocal* relationship in a work environment between an advanced career incumbent and a beginner aimed at promoting the development of both.

Successful mentors tend to be available, knowledgeable, empathic, personable, encouraging, supportive and passionate and educated in diversity issues. An effective mentor should have the competencies and time to

be respectful, including respect for confidentiality;
do consistent preparation and follow-through;
value timeliness and is available regularly and on an ongoing basis;
adopt an approach that empowers and encourages the mentee;
employ fair judgement, focused on positive development of the mentee;
give useful feedback, including appropriate discouragement of the mentee when indicated;
be committed to the mentee's professional and personal development;
provide guidance toward building an appropriate professional network; and
provide an appropriate role model though their own by action; and
supply referrals to additional resources when necessary.

Mentoring can also provide a feedback loop for the mentor themselves, who can use the experience to update and hone their skills as educators.

Mentoring

Mentoring is a process in which the relationship between the mentor and the person being mentored evolves and matures over time for the benefit of the mentee, with the desired outcome of facilitating their optimal professional maturation.

Mentors help to normalise learners' fears, answer questions and provide milestones in development while providing correction and encouragement in areas needing improvement and growth. Mentoring benefits the learner/mentee by helping to clarify professional roles, consolidate pathways to career evolution, promote career success, and provide reassurance of normalcy in the evolution of their entrance into their specific profession. Sharing failures and mapping recovery to success can play a crucial formative role in preventing resignation or failure.

The mentoring process has three elements:

1. Guiding the trainee/mentee to 'fall in love with' the topic, idea or discipline.
2. Instructing the trainee/mentee in the knowledge, skills, and values of the discipline.
3. Assisting the trainee/mentee to apply his or her passion and technical mastery in the creation of a unique and individualized professional style (1).

There are two main forms of mentoring relationships.

Traditional mentoring, referred to as a 'duo relationship', involves a seasoned professional who serves as role model or mentor for a new trainee. The mentor serves in a complex role as teacher, supportive advisor and coach.

Peer mentoring, undertaken by a more advanced learner, usually comprises a sustained (long-term), often formalised (i.e. programme-based), developmental relationship. These relationships are more structured than a spontaneous friendship, with the goal being for the more advanced learner to promote one or more aspects of the less advanced learner's development.

The compatibility of the mentor and mentee is a factor that should be taken into account when identifying pairs. Mentors and mentees may benefit from having similar backgrounds, interests and life experiences. Age, gender, ethnicity, language preferences and education may all be considered when pairing mentors with mentees.

Mentoring can be offered through face-to-face communication as well as through a virtual electronic format – the latter having the advantage of overcoming timing and scheduling constraints, providing immediate and ready access and the possibility of quick response times as well as the ease of addressing specific topics. Virtual or electronic-based mentoring may not be effective if no initial face-to-face relationship between mentor and mentee has been established, however, but where there is a solid bond of trust the use of communication other than face-to-face can be quite successful.

Mentorship programmes

The purpose of a mentorship programme is to provide optimal opportunities for talent development in student trainees. The advantages of a programme include:

improved productiveness in a shorter amount of time;
access to valued advice from a colleague with more training/experience;
opportunities for idea exchange, brainstorming, vetting of ideas;
access to seasoned experience in research methods skills;
increased confidence and sharing of identifiable successes;
development of personal adaptation skills;
access to research and publishing opportunities;
protective influence from the emotional distress triggered by career pressures;
broadened social/professional network – facilitating connections that mentees could not make on their own and which produce enhanced professional visibility;
career advancement guidance; and
promotion of career success.

Mentoring has been positively associated with successful career outcomes.

Medical school programmes

Some medical school programmes offer mentoring through a 'college' system within the medical school. Here students are assigned a paid faculty mentor who has been charged with overseeing the professional growth and development of a specific cohort of incoming students. College systems are a structured longitudinal approach to addressing questions of career development, academic performance oversight, shared decision making and exploratory inquiry.

Family physician training

The following six areas - for which documentation of competency is required by American family physician training - can be enhanced by a mentorship programme:

- patient care;
  medical knowledge;
  practice-based learning and improvement;
  interpersonal and communication skills;
  professionalism; and
  systems-based practice.

Family residency training programmes

Within family residency training programmes, there is often a distinction between the roles of a mentor (usually a faculty member or possibly a senior resident[3]) and that of a faculty advisor. When these roles are defined separately, they may be distinguished in the following ways:

> **Advisor:** A senior sponsor who is assigned the task and responsibility of guiding the learner to successful competency and completion of levels of attainment (for example, graduation). They are typically assigned by the school or sponsoring institution of the programme.
> **Mentor:** A senior sponsor who is typically chosen by the learner for guidance, support and functioning as a role model. While the mentor is usually also associated with the sponsoring institution, the responsibilities of the mentor are to nurture and guide the trainee in their professional development, offer encouragement and redirection when appropriate, and serve as a confidant for questions and concerns related to the professional developmental journey of the mentee.

Thus learners may have an assigned advisor in their training programme, but may also have several mentors within a programme, perhaps including their advisor.

Defining and clarifying these roles allows for increased separation between academic programme achievement and interpersonal support, and can help avoid conflicts for programme review when learners are in difficulty.

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3 A qualified doctor who is part of a structured training programme.

Establishing a mentoring programme/relationship

Steps for establishing a meaningful mentoring programme/relationship are as follows:

Identifying and training mentors

1. Identify qualifying criteria for mentors. These might include characteristics such as professional reputation; continuity-based practice; experience in a broad scope of practice; experience as a preceptor[4]; reliability; communication skills; passion for teaching; commitment to the mentoring process; physical availability, willingness to commit appropriate time needed for mentoring, and enthusiastic attitude. Prior student evaluations may help guide mentor selection. (See Appendix A for an example of an evaluation tool.)
2. Develop a diverse portfolio of available mentors who meet the qualifying criteria and who express a desire to participate in a mentorship relationship.
3. Provide support, guidance and training for prospective mentors, including training and support for intellectual challenge techniques, performance evaluation, prestige and participation recognition, financial remuneration when appropriate, and flexibility for timing and frequency of participation.

Setting up the relationship

4. Provide a structured but flexible means to initiate and establish the mentorship relationship mutually agreed upon by both parties. This should include exchange of individual mentor and mentee/protégé profiles; input from both parties regarding mentor and mentee selection; setting of goals for ways of working together including communication and expected outcomes, regular feedback /communication/assessment of the mentorship relationship with opportunity for timely implementation of suggested improvements.
5. Encourage a match with someone with the mentee's/protégé's particular practice interests, gender preference, ethnic preference, language familiarity, work experience, practice style and location preference if possible.

4 Also referred to as a clinical instructor or adjunct faculty, a preceptor is a clinician (person who has core clinical skills) who does clinical teaching at a rural (distant) site. They may work full-time or part-time for the medical school / training institution in a paid or honorary capacity.

6. If considering separating the roles of advisor and mentor, advisors should be assigned with great care by the programme, changed only if needed, and sustained. Mentor relationships can be much more fluid, with mentors chosen by the learner and with programmes offering encouragement and support for mentor-learner relationships.

Optimising the experience

7. Provide guidance to all mentees outlining how best to maximise their mentoring experience - including how best to initiate and maintain dialogue with their mentor, identifying characteristics they would value in a mentorship relationship.
8. Provide an opportunity to adjust/change the mentorship relationship over time including re-assignment of mentors/mentees or re-defining the nature of the mentorship relationship.
9. Provide constructive, objective and timely feedback when a learner is identified as having difficulty. Mentors can often speak to the difficulties and deficits of a mentee in a way that is both constructive and compassionate, acting as advocate. Mentors have a dual role to play in both providing support and encouragement for the learner, but also, if needed, to provide a confidential report to a concerned advisor for the benefit of the mentee.
10. Provide an opportunity for formal evaluation of the programme, both periodic and ongoing. This feedback allows for assessment of the success of the mentoring program and 'just-in-time' implementation of changes to the programme for ongoing success.

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Further reading

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Appendix A

Mentor Competency Evaluation Form [5]

Revision Date: _____

Mentor: _____ Mentoring Period: _____ Date: _____

Protégé/Mentee: _____ Protégé Year of Training: MS1 MS2 MS3 MS4

R-1 R-2 R-3

Junior Faculty

Instructions: Please review the performance of your mentor. Remember that constructive feedback allows us to continuously improve our program. Note that a score of "3" is considered competent. **Please circle ONE numeric score for each question** based upon the range of behavior descriptions listed below:

TIMELINESS

Developing		Acceptable/Competent		Exemplary
1	2	3	4	5
Meets with me less than 2x/ yr Slow/No response to emails/calls- Meetings are too short/long		Meets with me formally 2x/yr Timely response to email, phone Appropriate meeting times/duration		Meets formally> 2x/year Initiates unsolicited communication Available/responsive/Engaged

5 This form is a modified from the article by Fleming et al (1).

QUALITY OF FEEDBACK

Developing		Acceptable/Competent		Exemplary
1	**2**	**3**	**4**	**5**
Language confusing Intimidating Does not set useful goals Does not address progress Does not address competencies		Explanations clear and concise Gives quality criticism that is non-threatening Assists me to set reachable goals Addresses progress made toward goals Provides feedback regarding expectations		Gives high quality productive criticism Assists me to set goals that effect a positive change in my behavior Celebrates success in achieving goals Gives complete feedback regarding expectations

CAREER DIRECTION

Developing		Acceptable/Competent		Exemplary
1	**2**	**3**	**4**	**5**
Does not inquire/dialogue about career plans Promotes me taking a passive role in my education		Prompts thoughts about future career plans Assists me to use career plans to direct my educational goal-setting Encourages my "ownership" of my education		Suggests experiences to help me explore career plans Connects me with people/ resources helpful for my career development

RESPECTFULNESS

Developing		Acceptable/Competent		Exemplary
1	**2**	**3**	**4**	**5**
Lacks Understanding of my concerns my Rude and Disrespectful Unengaged in process		Listens to and respects my concerns Respectful and Considerate in Interactions Engaged and Interactive		Actively elicits my input and concerns Respectful beyond expected

PREPAREDNESS/FOLLOW-THROUGH

Developing		Acceptable/Competent		Exemplary
1	**2**	**3**	**4**	**5**
Follow-through inadequate **Unprepared/Unprepped**	**Prepared and has reviewed data** **Follows through on tasks/ responsibilities**		**Seeks out additional data supporting progress** **Pursues additional sources of information** **Takes additional assignments upon her/himself** **Thoroughly reviews all performance data**	

Overall, in your opinion is this mentor competent? YES NO

Comments/recommendations for Individual/Programme Improvement:

This article is a chapter from the ***WONCA Rural Medical Education Guidebook***. It is available from www.globalfamilydoctor.com.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.4.3

MENTOR-MENTEE PROGRAMME: MENTORING IN AREAS WITHOUT ESTABLISHED RURAL TRAINING PATHWAYS

Karine Kersting Puls,[1] *Grupo Hospitalar Conceição, Brazil*
Veronika Rasic,[2] *Wessex Deanery, United Kingdom*
Amber Wheatley,[3] *Wales Deanery, United Kingdom*
Mayara Floss,[4] *Grupo Hospitalar Conceição, Brazil*

Mentoring in rural medicine

Mentoring is a dynamic and protected relationship between a mentor and a mentee in which learning occurs on both sides. It is a well-established practice within medicine and has been found to have an important influence on personal development, career guidance and career choice, as well as increasing research productivity.[1] Mentoring has proven to be beneficial at all stages of mentees' training.[2,3]

The mentee is the centre of the relationship, while the mentor's role is to stimulate reflection based on the mentee's interests and concerns. This needs to take into account other issues which affect the relationship, such as alignment of goals and expectations as well as cultural and personal factors.[4]

Table 1 below briefly describes the various professional roles in medical education, illustrating the specific role and contributions of mentoring.

1 GP trainee and Executive Member of WONCA Working Party on Rural Practice, Porto Alegre, Brazil.
2 Rural Seeds Ambassador and GP Trainee, Wessex Deanery, UK.
3 Rural Seeds Ambassador and Foundation Year 2 Doctor, Wales Deanery, UK.
4 Rural Seeds Ambassador and Executive Member of WONCA Working Party on Rural Practice, Brazil.

Table 1:
Roles of professionals in medical education
(adapted from Botti S and Rego S, 2018)[4]

Main roles	Main settings	Main requirements
Preceptor		
• Teach clinical knowledge by means of formal instruction with specific aims and targets • Integrate the concepts and values of curricula	• Clinical environment where knowledge and ability to perform clinical procedures can be assessed	• Pedagogical competence
Supervisor		
• Observe the exercise of a certain activity and ensure the individual is competent in the performance of that activity • Review the professional practice	• Clinical environment • Situations outside the work environment	• Competence in technical skill performance • Ability to provide reflection on daily practice
Tutor		
• Facilitate a learner-centred approach in the teaching • Review the professional practice	• Academic environments	• Clinical competence • Pedagogical competence • Understanding of professional practice
Mentor		
• Guide and advise on the achievement of personal goals • Guide and advise on educational and professional development	• Outside the immediate clinical environment	• Ability to serve as a guide for mentees and provide support when necessary • Ability to stimulate the development of critical reasoning • Ability to listen, question and stimulate self-reflection

The global shortage of medical professionals in rural areas negatively affects access to health care. While this situation would be improved by finding ways to attract professionals to rural areas, medical schools and residency programmes

in most countries do not have effective strategies to motivate students to pursue work in rural areas through structured training pathways. Given the difficulties of recruiting and retaining professionals in rural and remote areas, alternative strategies need to be developed.[5,6]

The Mentor-Mentee Programme is an initiative started by Rural Seeds - or 'World Rural Doctors in Training' – a network of students and young doctors with an interest in rural medicine who collaborate closely with experienced doctors and other health professionals. The aim of the Programme is to provide a possible solution to the problems of recruitment and retention of healthcare professionals in rural and remote areas.

Mentor-Mentee Programme: Learning to fly

The Mentor-Mentee Programme aims to connect rural medical professionals in training with more experienced colleagues to help them achieve their potential. It also aims to reduce isolation and create more equitable access to training opportunities around the world.

One of the main motivations for starting the Mentor-Mentee Programme was the frequent complaints about the lack of a defined training programme expressed by medical students and young doctors interested in rural medicine. While training in rural family medicine varies from country to country, some countries, such as Australia and Canada, lead the way with structured training programmes.[7,8] These provide medical students with opportunities to explore rural family medicine as a career and also provide a pathway as they transition to becoming young doctors.

The Mentor-Mentee Programme was inspired by discussions held during the 2017 Wonca World Rural Health Conference on ways to reduce professional isolation. It became apparent that for countries without structured training programmes, young doctors working in a rural setting were usually left to struggle alone in unfamiliar settings.

Figure 1: Mentor-mentee logo



The concept of the Mentor-Mentee Programme can be illustrated by birds learning to fly, shown in Figure 1. When a fledgling learns to fly, there is usually a more experienced bird setting an example and supporting the fledgling.

Mentoring aims to be a process that is person-centered, development-oriented and driven by the dynamics of the mentor-mentee relationship. It is a process of exchange between the experienced mentor and the novice mentee, resulting in both the mentor and mentee participating in learning.[9]

Experiences from participants

Two mentors and two mentees agreed to share their experiences of a mentoring programme. Their quotes below have been edited to protect their anonymity.

Box 1: Mentee perspectives

"I want to start by saying that the Mentor-Mentee Programme was beneficial to me. I initially found it difficult to contact my wonderful mentor ... but after several attempts we finally got talking through skype and WhatsApp. Recently, we have not really been in touch.

[My mentor] has always kept me informed on the latest happenings in family medicine around the globe. He has also been of immense help in my dissertation. It has been a wonderful experience and I look forward to meeting with my mentor some day."

- Mentee 1

"I joined the Mentor-Mentee Programme ... with the plans of joining a general practice training programme with opportunities in rural general practice. I was given a choice of three potential mentors from around the world and I chose [my mentor] as I felt he would be the most helpful with my career planning. .. I had an initial telephone conversation where we went over what I wanted to get out of the programme and what he could assist me with and we established the best form of communication for us both.

As time went on, I was able to ask ... questions about a career in rural general practice and about the benefits of a rural-focused training programme. The most useful thing I gained from the Mentor-Mentee Programme was being able to discuss difficult patient cases with someone who was not directly part of my training programme and who could also give me added perspective.

Although not a requirement of the Mentor-Mentee Programme, being in contact ... gave me the opportunity to visit ... During my visit I was able to observe what it would be like to live and work in a rural setting. I also got to discuss the rural general practice training programme ... with a current trainee and find out more about general practice as a career.

The Mentor-Mentee Programme was very useful in helping me make decisions for my future career, particularly as my career aspirations are focused on general practice ... Having someone to access for support and to help me gain perspective was invaluable. I found this useful even within [my] ...defined ...programme "

- Mentee 2

Box 2: Mentor perspectives

"My experience as a mentor has been very enriching. Although at the beginning the communications were difficult for technical reasons, we soon established a fluid correspondence with email and WhatsApp.

The person I've been mentoring has been a person who was finishing medical school. I have helped him especially in his final project, making contributions to the project and giving my opinions. Since research is one of my areas of expertise and I am used to bringing end-of study projects, I have been very comfortable accompanying my mentee. In addition, we have talked about his future projects and career plans. I am very happy because he finished his medical studies with very good grades. He invited me to his graduation, unfortunately due to the distance I could not go. It is an experience that I would like to repeat in the future."

- Mentor 1

"I learnt about the Mentor-Mentee Programme whilst attending a Wonca Rural Conference and volunteered... After several attempts, we established a skype connection and exchanged a lot of information. We agreed to set up a WhatsApp line. Over the time we exchanged numerous WhatsApp messages as well as telephone calls and video catch ups. We exchanged information about my work, my conference attendances etc. I learnt from him about his progress at the hospital.., his long shifts and some interesting cases. We did exchange a lot of information regarding his dissertation and we settled on the subject of back pain. I sent him some pathways that we use ... to manage back pain.

The biggest hurdle we faced is the time difference. We had many missed calls and messages because of this. In addition, I was travelling internationally a lot and that made the time difference even more complicated."

- Mentor 2

Structure and evaluation of the Mentor-Mentee Programme

The Mentor-Mentee pilot programme started in July 2017 and ran for just over a year until September 2018. An open call for mentors and mentees, which included a two-page leaflet explaining the programme, was sent via email using the Rural Seeds and Rural Wonca Google groups.

A programme co-ordinator matched mentors with mentees based on their areas of interest, spoken language and expectation from the programme. Mentees were given a selection of three potential mentors and potential matches were checked by both the mentor and mentee before a match was confirmed. Once a match was agreed, an email introducing the co-ordinator, mentor and mentee was sent. Mentors and mentees could then discuss their expectations of the programme, the best method of communication and how frequently they wanted to interact. On-line platforms – like video conferencing, WhatsApp, email to Google hangouts – were used to bridge the gap between mentors and their mentees.

In the period July to December 2017, 18 mentor-mentees pairs were matched from all over the world, as seen in Table 2.

Table 2:
Participants by country

Mentees' countries	Mentors' countries
India (1) Brazil (3) Ecuador (2) United Kingdom (1) Japan (1) United States of America (1) Canada (1) Australia (1) Burkina Faso (1) Rwanda (3) Nigeria (3) **Total 18**	India (1) Brazil (1) Uruguay (1) Wales (1) Scotland (1) Portugal (1) Spain (3) Japan (1) Nepal (1) Sri Lanka (1) United States of America (1) Canada (1) Australia (2) New Zealand (1) **Total: 17** (One mentor had two mentees.)

The progress of the Mentor-Mentee Programme was evaluated after three months and again after one year during which participants were asked to describe any positive or negative experiences with their mentor/mentee and to suggest improvements. They also rated the effectiveness of the process, the communication channels used, language barriers and how likely they were to recommend the Mentor-Mentee Programme to their peers. Their comments are given below.

Evaluation of the pilot programme

The pilot programme was completed in September 2018 with a final evaluation, the feedback from which will be used to develop a Mentor-Mentee 2.0 pilot.

Of the 18 matches, six pairs left the programme - possible reasons being cultural barriers, lack of engagement from both the mentor and mentee, time zone differences, problems with matching and selecting mentors and mentees, and difficulty understanding the role of the mentor. In some cases, the mentee or the mentor never responded to attempts made to contact them after the matching process. Mentors also noted that the lack of internet access in some areas made communication difficult.

Communication

Mentors and mentees used email, video conferencing, and WhatsApp to communicate, with the preferred method being email. Two pairs also met in person and reported a positive experience. The frequency of contact between mentors and mentees varied from four times to more frequent contacts, using WhatsApp and phone calls.

In traditional mentoring, contact between the mentor and mentee d becomes less frequent as the mentee becomes more confident overall. However, as the Mentor-Mentee Programme has demonstrated, pairs discussed a variety of topics and it is likely that the frequency of contact would remain constant as the goals of the mentees change.

Mentors and mentees discussed a wide range of topics, the most frequently discussed being clinical practice, research, career progression, career choice and public health. While career progression was a primary concern among the mentees, mentors focused more on clinical practice and career progression.

Evaluation: suggestions

During the evaluation, mentors and mentees were also asked for feedback on the programme and to suggest improvements - summarised in Table 3 below.

Overall findings

At the final evaluation, the mentors gave the programme an average grade of 7.42/10 (n = 7). The mentees gave it 8.7/10 (n = 11).

Of the eleven mentees who participated in the final evaluation, 10 were ‘extremely likely’ to recommend the programme to their peers and one was ‘very likely’. The responses of the seven mentors were more heterogeneous regarding how likely they were to recommend the Mentor-Mentee Programme: four were ‘extremely likely’ to do so, two ‘very likely’ and one ‘moderately likely’.

Mentees' suggestions

- *"A follow-up schedule so that the conversation remains frequent."*
- *"It should be important to let the participants know the action plan of the programme."*
- *"The programme is very interesting. I just have difficulty communicating with my mentor because he is very busy."*
- *"Longer time to allow further communication."*
- *"Consider time zone."*
- *"I chose my mentor because I knew he would understand my training programme. I would recommend this approach for young doctors because it helps your mentor give useful and practical advice."*
- *"I thought it ran in a way that was very suitable for me and my mentor."*
- *"It has to be available to everyone! This programme is just so important as to develop careers."*

"It's a laudable programme."

Mentors' suggestions

- *"Discuss and plan in a better way."*
- *"We have to clarify what actually the mentee expects and form a format like agendas for each interaction."*
- *"I suggest a meeting among all programme participants."*
- *"More frequent contact."*
- *"Contacting only by email makes all the process slower, but by now [its] the best option I can offer."*
- *"It seems to me to be an interesting and pertinent programme. Maybe look for a greater linguistic connection."*
- *"Mentor and mentee speak the same language."*
- *"We will probably need a responsibility waiver, although the risk is low."*
- *"Maybe some specific health project is planned."*
- *"I would not take on two in the future. Mentor training at conferences."*
- *"Please continue."*

Challenges along the way

The extensive communication was all done via email by the programme co-ordinator, who also carried out the matching of participants, email correspondence, and evaluations. This took significant time to co-ordinate and the need for a structured approach and additional personnel became apparent. To improve the Mentor-Mentee programme, a dedicated administration team and financial investment is vital, particularly as the programme expands. Among the improvements that have been suggested is a mentor-mentee website to allow better sharing of information between the programme co-ordinator and participants.

Feedback from mentors and mentees indicated that face-to-face meetings had the potential to facilitate further collaboration and learning. However, as an issue of potential liability arose during the pilot, particularly where mentees visited mentors, it was understood that meetings organised by participants were at their own discretion. The official stance of the Mentor-Mentee programme was that visits and face-to-face meetings were not a requirement of the programme.

Legal liability issues may arise in relation to perceived professional liability of mentors and mentees, as well as possible ethical and confidentiality concerns regarding information sharing. As the Mentor-Mentee programme does not provide legal cover, participants who may be concerned should refer to their own indemnity or professional guidance providers. As the programme is run online, it may be beneficial to include on the platform some guidelines for safe sharing of information with regards to confidentiality.

Developing a Mentor-Mentee Programme 2.0

To improve the programme, feedback from the participants and approaches proposed by other resources will be considered – including the eight steps proposed by the Scottish Social Services Council[3] and the 'mentoring lifecycle'.[11]

Suggestions for developing the Mentor-Mentee Programme 2.0

- Improve the selection of mentors and mentees by designing an online platform for the programme and by being more mindful of language barriers, time zone, cultural differences.
- Identify and try to address language barriers and cultural differences.
- Provide formal mentor training in local and international conferences.

- Develop a manual for mentors and mentees.
- Develop a mentor-mentee agreement.
- Recommend a defined start time for mentors and mentees to begin communicating after selection and matching.
- Recommend a minimal level of communication e.g. at least one virtual/ telephone meeting at least every two months over a 12-month period.
- Develop an action plan for the programme.
- Have a dedicated programme co-ordinator /administrator and online platform.

Broader applicability

Aligned with the 2018 Astana Declaration, the Mentor-Mentee programme aims to reduce the inequalities in rural medical training, and to improve the recruitment and retention of a primary health care workforce in rural areas.[13] With further development of the programme, it may be possible to use this model both at national and international levels to improve access to mentorship opportunities in rural areas.

It can be invaluable for mentees to have access to a mentor and colleague with rural medical experience to answer questions about challenging cases or situations, to provide guidance on useful learning tools and career development advice. In addition, however, mentors also have the opportunity to learn from their mentees; for those with an interest in improving equity in rural medicine globally, it can give valuable insights to the situation 'on the ground' in various regions of the world. Mentors can also encourage collaboration internationally and inter-professionally.

With the right support, young rural medicine professionals can lead the development of rural training programmes in their own countries. An example of this are the Rural Seeds members from Brazil who are currently working on developing a rural internship component in their family medicine residency programme, which is necessary for their region.[14] They started this as a result of having exposure to, and practical support from, more experienced health professionals who empowered them to move forward with this project.

We intend to further develop the Mentor-Mentee programme based on the feedback from this pilot programme and using resources from other mentoring programmes. With sufficient support and resources, we hope to have a new group of participants in the future and to continue supporting the development of rural health professionals.

What to do

- Match the right mentor and mentee; be aware of cultural barriers, time constraints and expectations of both the mentor and mentee.
- Provide a clear structure for the programme; how to initiate communication, how often, aims for the year.
- Use feedback to improve the experience.
- Be flexible with mentoring styles and possible learning opportunities.
- Develop a guidebook about mentoring and create short courses to improve mentoring skills.
- Foster collaboration on projects and research.
- Emphasise that open communication between the mentor, mentee and programme co-ordinator is key.

What not to do

- Don’t assume mentors or mentees know what is expected of them.
- Be aware of language differences / barriers.
- Ensure the recognition of mentoring as an official part of professional training.
- Legal implications.
- Understand the financial and administrative challenges to running a mentor-mentee programme.

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12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 2.4.4

ADDRESSING PERSONAL DIFFICULTIES DURING RURAL PLACEMENTS

Suzanne Allen
University of Washington, United States of America

There are many advantages to being a teacher and working with learners at different levels. Learners ask questions that challenge the teacher, requiring them to describe exactly what they do and what their thought processes are, in ways that can be easily comprehended. Teachers (or faculty[1]) are also exposed to what learners have been taught that may be new or different to what they had learned previously - and learners frequently remind practicing physicians of many of the joys of medicine that are forgotten or lost in day-to-day practice.

Unfortunately some learners develop challenges during their undergraduate and graduate medical education training and it is important that medical professionals address these issues appropriately as they arise.

This chapter will explore difficulties medical residents[2] may have during residency education. Challenges with undergraduate medical students will not be addressed here, many of the principles also apply to undergraduates doing rotations[3].

Rotations

During their training, residents often choose to go to a small or rural community for a rotation which are of varying lengths depending upon the programme. This may be a requirement of their training programme or it may be something in which they are interested. Some residents will return to their or their spouse's home

1 Faculty is another name for a member of academic staff.
2 A postgraduate resident – also called a registrar or vocational trainee – is a qualified doctor who is part of a structured training programme.
3 A rotation – also called a placement or clerkship – is a structured clinical learning opportunity / context.

community for this experience. For many residents and communities, this is a way for the resident to see if they would eventually like to return to work at that practice and in that community. There can be advantages to the resident knowing the community in advance and the community knowing the resident prior to the resident being offered a future job in the community.

Various types of challenging situations may need to be addressed during a resident's training. These can include knowledge gaps or clinical skills which must be corrected; stressful situations at home, whether it is the birth of child, a marriage or divorce, or a death; a medical condition of their own such as cancer, alcoholism, drug abuse, or mental illness; and interpersonal relationship challenges which make it difficult for them to interact with other health care providers, staff, patients and family members.

In all situations, the care and safety of patients must come first – after which the care and safety of the resident and the rest of the health care team must be considered.

Expectations

The resident's training programme should provide a document to the community faculty with the essential job functions necessary for the resident to be successful. While these will vary depending upon the specialty and the residency programme, they will typically include items such as the ability to

perform a history and physical;
develop appropriate assessments and plans for patient care;
communicate effectively with staff and patients in both verbal and written format;
maintain accurate and timely clinical records;
follow up on patient care items in a timely and appropriate fashion;
demonstrate the organizational skills needed to care for multiple patients at a time; and
demonstrate the ability to diagnose undifferentiated medical conditions in the clinic and hospital settings.

Identifying difficulties

Before accepting a resident to do a rotation, a faculty physician in a rural area or small community may ask the residency programme if they have a policy in place for residents in difficulty. It is helpful at the beginning of the rotation to have a clear understanding of the expectations of the resident and expectations of the faculty, as well as knowing what resources are available, should a difficulty arise.

Areas of difficulty that residents may experience fall into one of the following four areas - cognitive; behavioral/attitudinal; impairment; and/or legal.

The process of addressing a resident in difficulty should start as soon as a faculty physician has concerns regarding the resident's ability to perform the essential job functions. Once a potential problem has been identified, the resident's programme director should be contacted immediately for help.

As with the list of essential functions, residency programmes should also have a due process policy for handling residents with difficulties. These processes have common elements, as well as some that are specific to the particular concern. Below is an example of what a residency programme may have in place.

General procedures

The process begins by identifying the explicit nature of the difficulty/ies, so that specific actions can be taken to improve the resident's performance. As the safety of patients should always come first, a resident might need to be withdrawn immediately from providing patient care activities to ensure the patients' safety.

Cognitive functioning

If there is concern about the resident's cognitive functioning - such as a lack of knowledge, a lack of ability to process multiple pieces of information simultaneously or a lack of ability to develop an appropriate assessment and plan - then an observation process may be set up to allow the resident to continue learning while providing patient safety at the same time. This requires that a faculty member commits considerable time to observe all patient care, or to review the care of each patient before the patient leaves the clinic. This may not be feasible in a small rural clinic – and the resident may have to return to the main residency programme site for the observation process to occur.

Specific goals for the observation period should be written down and discussed with the resident and the resident's advisor, with the guidance of the residency programme director. This will ensure that there are clear expectations outlined and measurable outcomes for success or for ongoing remediation of the resident.

If the resident is unsuccessful in observation, they will proceed into a remediation programme. As with the observation period, specific expectations and measurable outcomes should be written down and reviewed with the resident and the resident's advisor with the guidance of the residency programme director. If the resident is unsuccessful during a remediation programme, they should return to the main programme for further remediation.

Residents who have difficulty with cognitive or medical knowledge areas can be placed on a reading programme to improve general knowledge or knowledge in a specific area. For example, if a faculty notices that the resident doesn't seem to be at the appropriate level of knowledge for paediatric patients, they may ask them to review a specific article or chapter in a book on well child examinations. While this is a simple thing to do, it is important that they inform the resident's advisor or programme director of the reading assignment as well as how the resident's knowledge improved after the assigned reading. The residency programme may have a specific documentation process to follow when reading has been recommended for deficiency in a specific medical knowledge area.

If the resident continues to have deficiencies in specific areas, the resident may be placed on observation or a remediation programme. Again this should be discussed with the resident's advisor and the programme director before further action is taken.

Behavioural or attitudinal challenges

Residents who exhibit behavioural or attitudinal challenges can be more difficult to handle. It is important to document the specific behaviour or exhibited attitude and to give clear examples. It is also important to share information very clearly with the resident. There may be a process at the rural hospital for breaches in professional behaviour that must be followed.

Family medicine residency programmes in the United States have a behaviouralist who can help with behaviour modification for the resident. This may require that the resident returns to the main programme before the scheduled end of the rotation at the rural location. Again, it is important for the rural physician to keep the resident's advisor and the programme director apprised of the issues and progress while the resident is at the rural location.

Impairment

Impairment may be result from alcohol or drug use, illness, or other things that make the resident unable to provide patient care.

Residents who are found to be impaired must be removed from patient care immediately, and the faculty at the rural site should contact the residency programme to discuss the safest way to have the resident return to the programme. The resident may need to be referred for medical care, alcohol or drug rehabilitation or other appropriate care before returning to patient care activities. This will be easier to do at their residency programme rather than at their rural rotation site.

Legal challenges

Residents who have legal challenges may or may not need to be removed from patient care.

Each medical licensing board has specific information regarding the ability of a physician to continue practice if they have been accused of a felony or had other legal challenges. It is important that the rural physician know the rules of the board in the location of their practice – and that they contact them if they are uncertain, to determine if the resident can continue to practice given their specific legal situation.

If the resident has a DUI (driving under the influence), they should be evaluated for substance abuse - and before returning to providing patient care, should be determined to *not* have substance abuse issues. It may be necessary to remove the resident from patient care until this can be accomplished. Upon discovering this information, the rural physician should contact the residency programme immediately to ensure that the resident is able to return safely to the main residency programme for their potential substance abuse to be evaluated.

Legal issues may also arise relating to family or domestic issues. The response to these should be individualised and a plan determined between the rural physician, the resident's advisor and the residency programme director.

Conclusion

Although most experiences with residents will be positive for the practicing physician in a rural or small community, they should maintain a close working relationship with the main residency programme. While the possibility of a resident having challenges does exist, it will be the exception rather than the rule. Residency programmes should provide help in dealing with residents who prove to be challenging – and the physician should contact the programme as soon as an issue arises to determine the appropriate way to handle a given situation.

The safety of patients must come first at all times, followed by the safety of the resident and the rest of the health care team.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.4.5

ENHANCING THE INTEGRATION OF MEDICAL STUDENTS INTO RURAL COMMUNITIES

Lisa McFayden
Far West New South Wales Medicare Local, Australia
W Ian Cameron
New South Wales Rural Doctors Network, Australia

If a student or early career doctor has a rural placement they enjoy, and where they enjoy learning, they are more likely to return to that town or at least pursue a rural career. This chapter offers helpful information derived from a pamphlet developed by the New South Wales Rural Doctors Network for communities and practices to enhance the experience of the students' and young doctors' rural placements – with a view to making rural work an attractive long-term career choice.

WHAT CAN WE DO?

Make it easy

Meet and greet	
Go and say hi	Let them know that you're pleased that they've come to your practice and that you're there to help.
	Find out what they're interested in and offer to help with introduction and invitations.
	Have a welcome dinner or barbecue. Include their family.
Orientation	
Physical - where is everything	Take them around the town and show them where everything is. Give them a map.
Resources – who to contact for what	Prepare a folder or booklet with names and contact details of relevant people and organisations and how they can help. Keep it up to date.
Services – what's available when	Shops, restaurants, library, cinema, garbage collections, etc. – tell them what's available and when they operate. Include this information in a resource folder.
Transport	Provide information about any local transport - including

	taxis.
Accommodation	
Suitability	Ensure the accommodation provided is appropriate and includes cooking facilities, separate study areas and telephone and internet services.
Maintenance	Make sure the house is properly maintained.
	Make sure the house is appropriately furnished and equipped.
Preparation	Notify them in advance what they will need to bring with them: bedding, linen and cooking or household equipment.
	Ensure someone has checked the house and equipment prior to their arrival.
	Arrange for someone to meet them on their arrival at the house and show them where everything is.
	Put some milk in the fridge and breakfast for the next morning.
Trouble shooting	Let them know who they can contact if they have any problems with their accommodation.
The basics	
Telephone	Ensure the house has a working telephone. Let them know who to contact if the phone isn't working.
Internet	Medical students and junior medical officers (JMOs) need reliable internet access. Let them know what's available and who to contact if they have a problem.
Coffee	Let them know where they can get good coffee. This is just as important as internet access!
Practice management	
Plan for their placement	Prepare an activity roster incorporating time with visiting specialists.
	Provide opportunity to participate in the full range of clinical activities.
	Try to accommodate any special clinical areas.

Family	
Partners	Help their partner find work if they want it.
	Include their partners in social activities. Introduce their partners to people with similar interests.
Children	Help them find suitable child care, schools, pre-schools and play groups. Help them arrange visits/make contact with relevant people.

Co-ordination	
Co-ordinate your support	Limit the number of people knocking on their door. Don't overwhelm them.
	You don't have to do it all. Work with community groups, the hospital and training providers etc to provide this support.

Make it fun

Introductions

Provide contact details of any relevant groups and clubs. Have someone from the groups or clubs they're interested in contact them and invite them to their next game, activity or night out.

Sports groups

Soccer	Rugby	Football
Netball	Hockey	Tennis
Dance/ballet	Cycling	Running
Rowing/kayaking	Bush walking	Horse riding
Yoga/gym		

Social groups

Church groups	Youth groups
Amateur theatre	Music groups

Opportunities to meet other young professionals

Invitations

Include them in local events
'Batchelor & Spinster' balls
Shows and festivals
Presentations/awards nights

Interesting medicine
Incorporate special interest areas, especially indigenous health

Make it educational
Consider a timetable
Make sure they know when to turn up and where
Make sure the university curriculum is clear and followed Find
out their areas of interest and tailor a programme to suit
Discuss their learning goals and try to meet them
Involve them in as much medicine as possible

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Belgium

secretariat@wonca.net

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Chapter 2.4.6

SUPPORTING THE SPOUSE OF THE RURAL DOCTOR AND INTEGRATING THE LEARNER'S FAMILY INTO RURAL SETTINGS

Anne Chater
Rural Medical Family Network, Australia

The "*nature of medical work is inherently stressful – uncertainty, high personal responsibility, negative outcomes ...*"
Resilience *is 'the ability to succeed, to live, and to develop in a positive way ... despite stress or adversity that would normally involve the real possibility of a negative outcome'.*

Professor Amanda Howe,
Keynote address at the Wonca World Conference, Prague, 26 June 2013.

I believe a book on rural medical education should include a chapter on the rural medical family. Why? It's simple. The love and support of a family is a basic human need – and it is this which gives many a rural doctor the strength and resilience to stay in a rural town providing much-needed health care to its population. It is these same doctors who provide rich medical experience and education for medical students and doctors in training. But it takes both the doctor and the family to be happy in order to stay in a rural area.

Why a focus on supporting the rural medical family?

Rural medical practice is very much 'a family concern' (1). Surveys of rural and urban spouses suggest that levels of commitment and direct contribution to their partners' practices are higher in rural practices (2, 3).

Qualifications and occupations of rural medical spouses often result in value being added to communities in areas such as nursing, allied health, education, the arts and management. In addition, a high percentage of spouses are directly involved in the operational tasks of the private practice, as well as working in their specific fields of training (3).

'The rural doctor's spouse often holds a pivotal position between the practice, the family and the community,' (4)

'Rural medical spouses often work long hours with little recognition,' (3)

'What must be recognised by government, health authorities and communities is that the rural medical family is vital and unique,' (5)

The role of the rural doctor's spouse is complex as seen in the figure on page 3 below.

A unique opportunity

It is when one has lived the life of a rural medical spouse that one truly understands Prof Max Kamien's quote above, about rural practice being a family concern (1). Living and working in rural communities provides a unique opportunity for the doctor and his/her family to be part of the 'health' of that community.

It also puts them in direct contact with medical students, doctors-in-training and their families as they join the practice and community for their rural placements and education. They provide opportunities for these medical students, doctors-in- training and their families to become involved in community events and facilitate their understanding of the socio-economic factors contributing to the health and structure of the community.

And rural practice provides medical students and registrars[1] with the opportunity of seeing and managing the lives of patients from birth to death – an experience not easily accessed in urban areas - and to learn the art of medicine from experienced doctors.

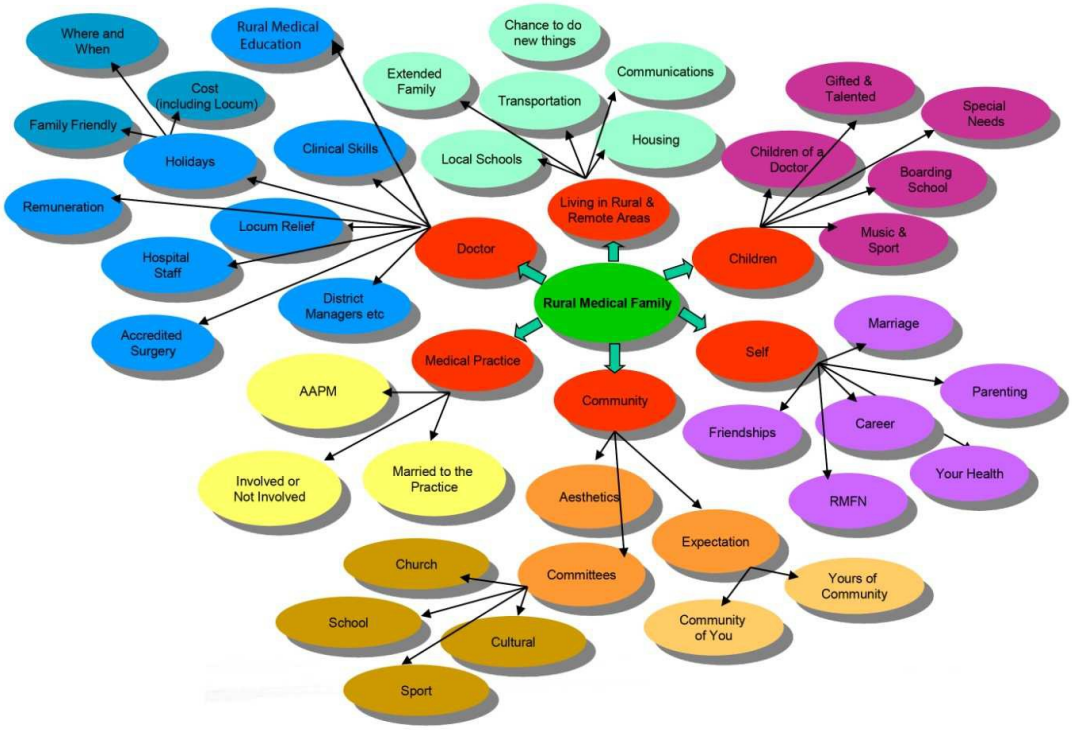
1 A registrar - also called a postgraduate resident or vocational trainee – is a qualified doctor who is part of a structured training programme.

What keeps an experienced doctor in a rural community?

Recruiting doctors to rural areas is the easy part. Retaining them often proves more difficult.

Doctors in rural areas – be they established or in training - who have a well-equipped practice, who are well remunerated and who are able to carry out clinical work are more likely to stay in that area (6). A dissatisfied, unfulfilled spouse who seeks a different life elsewhere, however, may result in a doctor leaving. Assisting and supporting the spouse and family to feel fulfilled and part of the community may contribute to their satisfaction and their desire to stay in a rural setting.

The rural medical family – a complex picture (7)



Support networks, services and programmes

Support can be provided by spouse-directed organisations such as the Rural Medical Family Networks of Australia (RMFN). These networks are state-based, working within rural health workforce agencies funded by the Australian Federal Government. Each state network has a spouse president and committee with an employed dedicated project officer responsible for providing the programmes and services put forward by the RMFN committee.

RMFNs provide that ounce of prevention in supporting rural medical families - which is better than a pound of cure.

Examples of services and programmes supporting the (Australian) rural medical family include the following:

Orientation manuals – an A to Z of living in a rural setting, including cultural and language sections specific to families of doctors trained overseas moving to rural areas.
Educational opportunities e.g. practice management, self development.
Websites e.g. www.rmfnq.com.au.
A quarterly magazine, including a kids' club section.
Spouse bursaries – aimed at assisting financially in retraining a spouse should they require a new set of skills to find a job or role of their choice.
Specific spouse and children's programmes at rural doctor conferences, encouraging the participation of doctors at these conferences. Mentoring – volunteers from the RMFN available for telephone chats. Partnerships with other organisations – such as counselling services, practice management advice, rural women's networks, financial advice, career advice for spouse and family members, boarding school associations and education advocacy for children.
Recognition of rural medical spouses through awards.
Friendship and fellowship through conferences, social gatherings, or social media e.g. Facebook.

Pearls for rural medical families

If you wish to work outside the home, the position may be quite different to what you have done in the past.

Make the most of opportunities that living in rural areas can provide – e.g. learning new skills or having the time to retrain for a new career, starting your own business, designing or writing.

Take advantage of the many sporting opportunities that rural communities and contexts offer.

Rural communities have many people with hidden talents, particularly in the realm of the arts. You'd be surprised what talents lie quietly within a rural community.

Be part of the practice in which your spouse works, if you can. This will give a very good insight into what your doctor spouse copes with in a day.

Have standard responses and answers at the ready in case you are asked about a private matter or a patient.

Become involved with the community – they have so much to teach you.

Embrace the sense of community a rural town can give.

Be prepared to be touched by the exposure to whatever traumatic incidents occur in the community. This will inevitably involve friends and people known to you. Support your doctor spouse through these times, if they need it.

The more a community sees you involved and the more they will come to trust you, the more you will belong.

Develop strategies to manage the burden of community expectations to be all things to all people nearly all the time - and the ensuing lack of anonymity that comes from living in a (small) rural community.

Know your limitations and take on what you can. It's okay to say 'no' when you need to.

Understand that you may be seen as a privileged person in the eyes of some, and that the privileged are not expected to have problems.

Give your children strategies for being the children of the local doctor. Talk to children about the role of the doctor; medical emergencies; why their mum or dad can't always be home at a certain time; why other children might tease them about being 'rich' or 'lucky'; why some children/adults think they should be smart because they are the children of a doctor whilst keeping things in perspective.

Boarding schools – will we or won't we send our children away to school? A decision only you and your family can make.

Have two cars so as to be independent of medical emergencies.

Put the answering machine on at dinner times.

Doctors need to prioritise patients and illness, but they always love their families.

If possible, block off appointment times so doctors can slip out to see their children blow out their birthday cake candles. (An advantage of a small town is that generally it is not far to slip home.)

Block off time in advance for special events e.g. ballet concerts, soccer finals, school concerts or awards nights.

If you want to go to an event (like a performance) in the city, then get organised and do it.

Plan time away and holidays – and book locums early.

When sick, see your doctor!

If your doctor is also your spouse, put on your patient hat, make an appointment to be seen at the surgery and have a proper consultation. Your doctor would want this. Stick to the agreement you and your doctor have agreed to regarding your health management and care.

When children are sick and need to see the doctor, make an appointment, take off any family hats and have a thorough consultation.

Become involved with organisations such as Rural Medical Family Networks or the Rural Women's Network.

Find another rural medical spouse you can trust so as you can 'sound off' without it going any further.

Go to rural medical conferences and participate in the family programmes – a great way to meet people just like you.

Become a mentor for other rural medical spouses – you will have much to offer someone else.

Embrace medical students and doctors-in-training and their families. If nothing else, they are our future.

If life is not what you think it should be, talk to your spouse, talk to others you can trust, seek outside support. The bush is not always to blame.

Take into account what makes it good, what makes it bad!

Be yourself.

Assisting medical students, training doctors and their families

The following is a 'do' list of things that the rural medical family can do to make medical students, training doctors and their families who are in town for a block or limited period feel welcome and included:

Include them in social and sporting events at the family and community level.

Include them in service club activities and meetings.

Allow students to pay their own way to social and sporting events.

Arrange work with people in the community who have disabilities or special needs.

Organise visits to historical sites, national parks.

Organise visits to local agricultural enterprises, local industry and mines.

Organise time with indigenous health workers, aged care workers, home and community care personnel, emergency services personnel.

Encourage presentations to school students on health care topics and careers in health.

Support them through tough times associated with tough clinical situations (as you can't escape them as easily in rural communities). Inform training providers if necessary and assist in arranging a debriefing session.

Encourage local service groups to take advantage of programmes such as HUGS (Working Holidays for Undergraduate Students - an initiative of the New South Wales Rural Medical Family Network and the Australian College of Rural and Remote Medicine's John Flynn programme to expose potential rural medical students and doctors to rural areas).

Try for long-term students, rather than a constant stream of short-term students.

Encourage the rural medical practice to sponsor students to rural medical conferences.

But also

Share the load of assisting them between established doctors, doctor's families and community groups.

Have a break from assisting medical students, training doctors and their families at all levels – practice, family, community.

Living it beats reading about it!

An illustrative anecdote / case study

The male spouse of a doctor-in-training applied for a rural medical family bursary to study for a real estate licence. Achieving this licence meant that the spouse started his own real estate business. This business gave him his own identity and sense of worth within the community as well as provided the town with a new business and service. Something as simple as this bursary meant that the doctor is still in the rural town, the doctor's spouse is fulfilled and the town has benefited from a business which employs locals and provides a service for the town

Discussion

In a co-ordinated strategy to support the recruitment and retention of doctors in rural areas, the support of the spouse and family plays a vital role, and should be considered at all levels - from medical students, to doctors-in-training, residents and established rural doctors.

Being informed

State medical service providers should be made aware of the issues faced by new doctors (3). Medical students, doctors-in-training and their families need to be presented with information that will better prepare them with realistic expectations of rural practice, to assist them in having a more positive experience. Medical education must remember to include such discussion points as having a spouse who is able to adapt to rural settings when considering rural practice as a future career path.

Broader applicability and implementation

Having travelled to many countries and spoken with dozens of rural medical spouses and families, it is my opinion that rural medical families require recognition of, and support for, the roles they play in the retention of rural doctors and in assisting with the care of medical students, doctors-in-training the their families within the community.

Countries where governments can afford such recognition through funded organisations such as the RMFN of Australia are well resourced and would be only too happy to share and help other countries to establish such support networks. A few provinces in Canada have also started rural physician family networks which provide similar support to that of the Australian networks. I believe the framework of such networks, with information appropriate to each context, would be of great benefit in the preparation of doctors and their families venturing to remote areas in developing countries.

Conclusion

The rural medical spouse (and their family) often has a multi-facetted role in the rural community and in supporting their doctor-spouse in areas outside clinical practice, such as rural medical education. This is a taxing and often invisible role and one that deserves recognition and support. Feeling valued motivates people to go the extra mile, and would ensure that medical students and doctors-in-training and their families experience the enjoyment the rural context can offer.

Just as experienced doctors have much to pass onto medical students and doctors-in-training, so too does the rural medical spouse/family have much to offer in strategies that make for a fulfilling rural experience.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.5.1

CLINICAL RESEARCH IN RURAL PRACTICE

Len Kelly
Northern Ontario School of Medicine, Canada

Introduction

While rural areas provide fertile ground for clinical research, very little is being done as rural physicians[1] are typically short-handed and on call regularly, often for multiple services. Research is therefore often begun from 'away' by researchers who either need a rural component to diversify their data base or to meet funding requirements. This practice may help define some undocumented rural health issues, but does not build local capacity.

There seem to be three main limitations for the rural clinician doing research: *time*, *resources* and *expertise*. Concomitantly, there are numerous rural advantages: *curiosity*, *broad scope* of medical practice and *ingenuity* in programme development addressing local needs. How can we encourage and develop rural researchers?

The research-clinical divide

'Perspective'

One of the divides between the research community and the clinical one is their differing perspectives. A rural clinician knows that physicians shoulder a substantial workload. They may have been up all night with a sick child and come to morning clinic or even a research meeting with a more passionate sense of care-giving. This differs greatly from a more dispassionate, and even physician-critical, perspective researchers may bring. This divide is attitudinal and is reflected in an unspoken core value of rural physicians: 'respect is garnered by onerous on-call responsibilities and long-standing service'.

1 Here a 'physician' is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

Non-physician researchers often view this over-investment in their role as a false sense of superiority, when it may simply reflect their perception that when things are going medically wrong in the middle of the night, it is the physician who undertakes the unpleasant and necessary duties. If this brings some sense of ownership, so be it.

'Language'

Since each sub-culture has its own language and short forms, learning the lingo is a common entry requirement. We generally share the language of our peers, so entering the field of research requires encountering our new peers. This can be accomplished by arranged meetings at conferences attended by clinicians and researchers, by additional research training for the rural physician, and/or collaboration with experienced researchers.

Collaboration

Collaboration requires trust. Although many rural clinicians work closely with fellow physicians and nursing colleagues, they have an inherent distrust of academia. This reticence needs to be slowly addressed one relationship at a time.

We do not want to be used as a 'source of data', but need to be full participants in relevant research questions which may help our communities. Research has a bad connotation in many Aboriginal communities who have been used as interesting studies, but often do not hear back from the researchers after the data has been gathered or the project completed (1). Developing capacity and relationships needs to be a long term, two-way process.

Broader applicability and implementation

While there are many ways to consider developing rural research capacity, there are several which have been successful.

Investing in individuals

An inventive rural research fellowship programme has been developed in British Columbia, Canada. Interested rural clinicians can apply for a one- or three-year programme which 'buys' one or two days of their week for the allotted timeframe. The clinician can determine the time they are prepared to invest and the programme sets project completion and publication expectations. The rural clinician is provided with mentorship and several hours of statistical support monthly. They can travel into regional centres or work from home. While the programme investment is flexible and relatively short-lived, it results in the development of research capacity and the completion of relevant rural research questions (2).

Investing in communities

The Northern Ontario School of Medicine successfully piloted the allocation of research interns to numerous distributed researchers for a period of one year. In rural communities these university graduate interns were essentially a community resource working under the supervision of one clinician.

With an intern working daily for a year, interested rural clinicians could move forward questions and projects which otherwise would have remained 'what if's'. By the end of the year, most involved clinicians had succeeded in multiple peer reviewed publications. But, more importantly, a culture of research had developed in many rural areas, which took on a life of its own (3).

Rural location of research infrastructure

Flinders University Rural Clinical School has taken the establishment of rural research infrastructure a more permanent step forward. By placing rural research institutes in several rural regions, doctoral candidates live and work in these distributed sites and see firsthand how distance and geography affect the quality of life and services. Research questions are developed in this environment and it offers a unique opportunity for rural clinicians to rub shoulders with expert researchers and develop some of their own skills (4).

Practice Pearls

Time

A busy rural clinician needs to protect time. Typically this means regularly canceling an afternoon of clinical duties. Taking time away from family and friends may occur but is not a good starting point.

Resources

Research will cost you. Lost income accompanies time away from your practice. What you want to avoid is out-of-pocket expenses.

Small university grants are often available and can offer some funding for part-time clerical support. An excellent use of these funds is to hire a summer pre-med or medical student. In addition if you have an internship programme at a nearby university, providing a placement for an intern can provide substantial research assistance.

Expertise

We need low-level support from these summer students or interns to do much of the tedious data gathering (5). They may be willing to slog through medical records for hours, pulling and leafing through charts for a chance to be a part of a research project.

We will usually also need the expertise of experienced researchers and statisticians. Finding who these are can be a real challenge for rural clinicians. Our intermediary to academic medicine, our rural co-ordinator, may guide the way. Alternately, develop the expertise yourself. Working in a group is ideal, but going it alone may be required. Once your practice and family life is settled (often at the seven to ten year mark) look into the availability of short research courses or even distant education Masters degrees. That way any course assignments can address research questions of local interest or develop appropriate questions and research approaches.

Curiosity

Rural clinicians see families and illnesses develop over time. It is a unique experience and a valuable research perspective. Delivering the baby of one of your earlier deliveries, or even the grandchild in the following generation is an honoured experience. This longitudinal overview of social, medical and genetic determinants of health is unique to the long-standing generalist. It affects the way we think of medicine and the research questions we may formulate.

The curiosity in rural medicine is ongoing. Since we are involved in so many branches of medicine, intellectual stimulation comes from many directions (6, 7).

Ingenuity

Rural physicians need to meet community needs. This often involves developing programmes which may not fit ideally into funding templates and therefore may require creative local solutions. One learns early in a rural medical career that problem solving needs to be done locally, as solutions arriving from afar can be problematic. Rural physicians will typically be involved in developing protocols, policies and formularies for their local hospital. Ingenuity in problem solving is by necessity an acquired skill.

Broad scope of practice

Some medications have been found to be useful in several disparate branches of medicine, even where their mechanism is incompletely understood. For example while Metformin is used for regulation of menses and its anti-androgenic effects in polycystic ovarian syndrome, it is also widely used as an oral hypoglycemic for diabetes. Primary care physicians will prescribe it for either disease, while it might otherwise fall into the practices of endocrinologists and gynaecologists. Treating across diseases with a single medication can give one a unique familiarity with that drug.

Treating the many medical illnesses which can arise during pregnancy often falls to the rural physician who also manages the delivery itself. This perspective of how interconnected treatment, compliance, cost and practicality all affect the patient and her health outcomes is unique. Everything ends at the patient, and since we are

committed to them, rather than one disease or aspect of their care, we may see different issues. For example, if compliance to recommended guidelines is too challenging for a given patient due to concomitant disorders, social responsibilities or poverty, we need to negotiate a manageable treatment plan.

Conclusion

Research is not for everyone, but many rural clinicians have much to offer. Capacity development may have to occur on their terms as their primary clinical duties will be constant. Solutions need to recognise the 'part-time' aspect of the participation of busy rural clinicians and the sub-cultural gap separating them from the research community, whose members rarely visit distant clinical locations.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 2.5.2

CLINICAL RANDOMISED CONTROLLED TRIALS IN RURAL PRIMARY HEALTH CARE SETTINGS

Athina Tatsioni *University of Ioannina, Greece* **Christos Lionis** *University of Crete, Greece*

Introduction

There has been a continuous discussion about the effectiveness of primary care and family medicine in the literature. Research in rural primary health care has received negligible attention, although important developments in Australia, Canada and some European countries have been reported during the past years. Although the body of published rural research in Australia is growing steadily, a bibliometric analysis of Australian rural research indicated that only 1% of the total number of Australian health publications between 1990 and 2007 addressed rural health (1).

While the issue of research capacity is essential to explaining the limited number of published research papers in rural primary care (2, 3, 4, 5, 6), other issues on conducting and reporting rural health research also need to be identified and addressed in order to ensure the robustness of the results in rural primary care randomised control trials (RCTs). Key points needing prompt attention, as reported by an Australian paper, include privacy of participants, collection of data, cultural traditions of indigenous communications, dissemination of results, and giving something back to the community (7). Meanwhile a thorough look into the type of interventions assessed in RCTs which are conducted in the rural field is suggested, so that investigators may be aware of specific issues that need to be considered to enhance the validity of their trials.

In this chapter, we focus on RCTs conducted in rural primary care settings worldwide. We aim to identify the interventions in rural primary care settings that have been evaluated in at least one RCT and we describe certain characteristics of these trials. Among the study's objectives is to raise a discussion regarding what may be lacking in clinical research in rural practice and the types of efforts and actions required to build research capacity.

Methods

We searched Pubmed (from inception to May 2011) to identify RCTs conducted in rural primary care settings, limiting our search to English articles on human subjects. We used the following algorithm: 'Rural AND ('Family Practice'[Mesh] OR 'Primary Health Care'[Mesh] OR 'Physicians, Family'[Mesh] OR 'family medicine'[tiab] OR 'family practice'[tiab] OR 'general medicine'[tiab] OR 'general practice'[tiab] OR 'general internal medicine'[tiab] OR 'family physician'[tiab] OR 'general practitioner'[tiab] OR 'primary care'[tiab]) AND ('Clinical Trials as Topic'[Mesh] OR 'randomised controlled trial'[pt] OR 'controlled clinical trial'[pt] OR randomised[tiab] OR placebo[tiab] OR randomly[tiab] OR trial[tiab])'. Electronic search was complemented by perusal searches of the references of the included articles as well as the references of review articles.

We excluded studies that were not conducted exclusively in rural areas, i.e. trials that included both rural and semi-rural or urban settings. We also excluded trials that did not explicitly state that they were conducted in rural primary care settings as well as those that compared an intervention between a primary care with a secondary or tertiary care setting, e.g., myocardial infarction thrombolysis performed at home vs. thrombolysis performed at hospital. In addition, articles that described only the study protocol without reporting the results of the trial were not included.

We extracted the following items from each article: first author, year of publication, country where the RCT was conducted, sample size, number of arms, design (parallel, crossover), randomisation unit (individual or cluster), intervention, comparison (another active intervention; standard or usual care; placebo or no treatment), primary outcomes, and follow-up period. We also recorded how the authors interpreted the results of the trial. Specifically, we categorised studies in three groups - i.e. studies reporting that the intervention was effective; studies reporting that the intervention had no effect; and studies which reported that the intervention was harmful. Finally, we determined whether trials reported any funding sources.

We described the data using absolute numbers and percentages for binary and categorical outcomes; we calculated median and interquartile range (IQR) for continuous variables.

Results

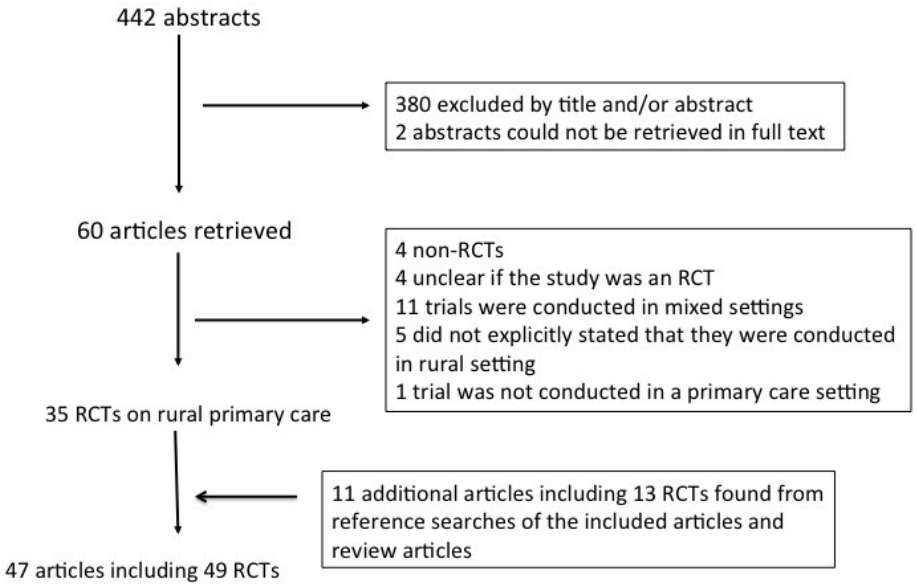
Our initial search retrieved 442 abstracts. We excluded 380 by title or abstract and we retrieved 62 articles in full text. Out of these, we excluded 25 due to the following reasons:

the trial was not an RCT (n= 4);
the study design was unclear (n=4);
the trial was not conducted only in a rural setting (n=11);
the trial was unclear about the setting it was conducted (n=5);
the study was not conducted in a primary care setting (n=1).

We were not able to retrieve two articles published in 1982 and 1978 respectively in full text.

After searching the references of the included studies and the references of the reviews, we found 11 additional papers. Therefore, we finally included 49 RCTs reported in 47 articles (Figure 1).

Figure 1:
Flow chart of the eligible studies



The median year of publication was 2002 (IQR 1996-2005).
Nineteen (40%) out of the 47 studies were conducted in US, seven in Canada (15%), seven in European countries (15%), five in Africa (11%), five in Australia (11%), and from one trial in Israel, Thailand, Honduras, and Costa Rica.
Median sample size was 182 (IQR 74-727) participants.
Thirty (65%) out of the 49 trials used the individual (physician, patient, health care worker) as their randomisation unit, one RCT used the family, while 18 (33%) were designed as cluster RCTs, randomising clinical settings or practices, and communities or towns.
There was only one RCT with a cross-over design. Seven trials (15%) included more than two arms.
The median follow-up period for the 49 trials was 12 (IQR 6-18) months.

The RCTs evaluated a diversity of multi-faceted interventions rather than single pharmaceutical treatments (Appendix A). There were only two trials that specifically examined the efficacy of a single drug intervention; one of them compared the use of anistreplase at home with placebo for acute coronary artery disease and the other evaluated the effectiveness of an antacid tablet vs. placebo for lowering LDL. RCTs reported either the use of standard and usual care (13/49) or another intervention (22/49) as control. Fourteen (28%) trials used placebo or no intervention in their control group.

There were only two RCTs that reported hard outcomes such as survival or mortality; the rest of the trials used surrogate markers to measure efficacy of interventions, health services use outcomes, and questionnaires to measure the performance of interventions by comparing the score change between the arms.

Outcomes were relevant to physicians' performance in one third of the trials while the rest of the RCTs referred to patients' health care endpoints (Appendix B).

Twenty-nine (59%) out of the 49 RCTs suggested that the intervention was significantly effective; however, 18 (39%) studies suggested that there was no effect difference between the intervention arm and the controls. There was only one trial that found the intervention harmful.

Thirty-two (65%) out of the 49 trials reported funding sources.

Discussion

Our overview on RCTs in rural primary care revealed few published trials, half of which were conducted between 1997 and 2005. Less than 25% of the trials were published after 2005. While half of the trials were performed in North America (US and Canada), there were RCTs conducted in rural settings on all five continents.

The majority of these trials followed the standard parallel two-arm design for RCTs. One third of them were designed as cluster randomised trials, using practices, communities, or towns instead of individuals as the unit of randomisation. They evaluated a diversity of multi-faceted interventions and reported a variety of outcomes. Hard outcomes were lacking. However, a high proportion of interventions were found to be effective. The duration of follow-up was moderate. Funding sources were reported in most of the trials.

There was a limited number of RCTs in rural primary health care. This has been supported previously for research in primary care in general. Current literature on community orientation is mainly descriptive and most papers correspond rather poorly to the Wonca definition of general practice (GP) or family medicine (FM) (8).

While there is an important body of opinion papers and non-systematic reviews in terms of person-centred care using a comprehensive and holistic approach, 'person-centred care' remains poorly defined and examined (9). With regards to specific problem solving skills, pragmatic comparative effectiveness studies on new and established drugs or non-pharmaceutical therapy are needed (8).

The limited number of RCTs that our study identified highlighted the lack of research capacity especially in rural primary health care settings. Even in countries where rural research has been translated into experimental research, limitations in rural capacity and especially in educational programmes (10) have been reported, and developing strategies are suggested (2; 3). This finding is also in line with the European General Practice Research Network (EGPRN) study (9), which endorses the recommendations of Wonca that they have been included in the Kingston Report (11).

RCTs in rural primary care included certain characteristics, for which guidelines for their reporting need to be clarified. Besides the specific guidelines that were issued for cluster randomised and pragmatic trials, the reporting of randomised trials comparing multi-faceted interventions would need further guiding from specific recommendations. In addition, outcomes used in rural primary care - such as measures of health services utilisation or questionnaire scores - need to be validated before their use.

An extremely high proportion of the included trials supported significant efficacy for the experimental intervention. Whether all multi-faceted approaches used in rural primary care are indeed efficacious, or compromised internal validity of these trials led to these results, remains to be further investigated. In addition, potential effective interventions will need to be confirmed by subsequent studies before their use in practice could be recommended. Researchers, who will participate in rural primary health care projects, need to be adequately trained to meet the challenges of experimental research (12).

Limitations

Our overview had several limitations.

We limited our search only to one electronic database and we did not consider journals of the rural primary care field that may not be registered in Pubmed. As such, we may have not included a number of RCTs that were not indexed in Pubmed. However, after hand-searching the references of the included and the review articles, the additional retrieved RCTs were also indexed in Pubmed. Our searches were restricted up to 2011. Updated searches need to be performed to clarify whether there was an increase in the number of rural RCTs after May 2011.

We excluded RCTs that compared interventions between rural and urban settings, as well as trials that were conducted in urban, semi-rural, and rural settings simultaneously. However, even after including trials in these settings, the total number of RCTs would not dramatically increase.

In addition, we did not evaluate the quality of these trials, and therefore cannot address quality issues pertaining to the design of these papers. Moreover, we cannot reach any conclusion on the robustness of the results for the eligible trials.

Conclusion

Our study showed that published RCTs conducted in rural primary health care were very limited. They invariably assessed multi-faceted approaches in primary care using a variety of outcomes, and most of them reported that their experimental intervention was more effective when compared to controls. Further investigation is needed to evaluate the methodological quality of these trials and acknowledge issues that may pertain to the design of RCTs in rural primary care.

This overview can contribute further to the efforts that have been undertaken by Wonca in building research capacity and provide some essential input to the Rural WONCA (Working Party on Rural Practice).

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Appendix A

Interventions of rural RCTs

First author	Year	Intervention	Comparison group
Noknoy S	2010	Motivational Enhancement Therapy	No intervention
Hogg W	2009	Anticipatory and Preventive Team Care (APTCare)	Usual care
Ellerbeck EF	2009	arm1: pharmacotherapy supplemented with up to 2 counseling calls (moderate-intensity disease management); arm2: pharmacotherapy supplemented with up to 6 counseling calls (high-intensity disease management)	Pharmacotherapy alone
Oak K	2008	arm1: unscheduled visit to the practice by a librarian; arm2: a brief e-mail to each GP, giving a link to the library homepage	No intervention
Ely AC	2008	Chronic Care Model Model Program (+standard care)	Standard care
Weber V	2008	Electronic Medical Record Intervention for fall prevention	Usual care
McCrae CS	2007	Multicomponent behavioral treatment	Sleep hygiene education
Majoko F	2007	Five-visit antenatal care (ANC) model with specified goals	Usual care
Tessaro I	2007	Cookin' Up Health, a computer-based interactive nutrition intervention	No intervention
Ahles TA a	2006	Information and physician feedback tailored to their management needs	Usual care
Ahles TA b	2006	arm1: information and physician feedback tailored to their pain management needs; arm2: with nurse-educator telephone contact	Usual care
Clarke	2005	Community-based health workers	No treatment
Bergus GR	2005	Providers were given completed PHQ-9 questionnaires (depression screening) at the baseline visit	Providers not aware of patients' screening results
Samore MH	2005	Community intervention plus clinical decision support that were targeted toward primary care clinicians for antimicrobial use	Community intervention alone
Pavlidis C	2005	Earwax removal: instillation of water into the ear canal for 15 minutes before syringing	Syringing immediately
Morris SS	2004	arm1: household-level package alone; arm2: service-level package alone; arm3: both packages	Standard services

First author	Year	Intervention	Comparison group
Askim T	2004	Extended service for rehabilitation after stroke	Ordinary stroke unit service (ordinary service)
Rockwood K	2003	Comprehensive Geriatric Assessment (CGA)	Usual care by family physicians
Taylor CT	2003	Pharmacist intervention for improving certain chronic disease management	Standard medical care
Myer L	2003	Rapid plasma reagin test (Macro-Vue RPR Card Test, Becton-Dickinson, USA) was performed on site by nursing staff	Blood specimens sent to the provincial reference laboratory; all women were counseled to return 2 weeks later to receive their results
Kronick J	2003	Educational intervention: individualised 3-hour training session on using the World Wide Web to research patient-related questions	No intervention
Goldhaber-Fiebert JD	2003	Community based nutrition and exercise intervention	Standard medical care from physician
Arthur AJ	2002	Health check	Personal letter
Bernal-Delgado E	2002	Educational outreach visit, conveying data based on a systematic review of the literature that was reinforced with printed material	Placebo /no treatment
Young JM	2002	Distance learning module for smoking prevention	Preventive care guideline
Elliott TE	2002	Lake Superior Rural Cancer Care Project	No intervention
Hammond CS	2001	A combination of targeted information for patients coupled with a personalised distribution practice guideline information for physicians	No intervention
Ahles TA	2001	Information and physician (+/-nurse) feedback tailored to their pain management needs	Usual care
Mayer-Davis EJ	2001	Intensive lifestyle (reduced fat and calorie intake and increased activity)	Intensive lifestyle plus ongoing formal evaluation for continuous quality improvement
Harrison A	2000	Health worker training and STD syndrome packets (containing recommended drugs, condoms, partner notification cards and information leaflets)	No intervention

First author	Year	Intervention	Comparison group
Rockwood K	2000	Specialised procedure known as Comprehensive Geriatric Assessment (CGA), which consists of initial evaluation and subsequent multidisciplinary management of clinical problems	Usual care by family physicians
Dietrich AJ	2000	The primary care component of SunSafe consisted of a continuing education meeting at local hospitals on sun protection education followed by 2 visits to each participating practice by a research assistant	No intervention
Chan DH	1999	Two months discussing the topic of depression in the elderly with the help of a facilitator and two geriatric psychiatrists	Similar educational resources via the Internet but without the benefit of the small-group interaction
O'Connell DL	1999	Two sets of graphical displays (6 months apart) of their prescribing rates for 2 years, relative to those of their peers, were posted to participants	No intervention
Kinsinger LS	1998	Office system to increase breast cancer screening	No intervention
Hogg WE	1998	arm1: computer-generated customised letters as reminders to patients of outstanding preventive procedures/ one paragraph per family member; arm2: form letter, which outlined all the recommended preventive procedures for all ages and both sexes	Usual care
Davies-Adetugbo AA	1997	Individual, focused breast-feeding counselling	Counseling for diarrhea
Clover K a	1996	Mass media promotion to recruit wome for mammography	Community participation to recruit women for mammography
Clover K b	1996	Community participation to recruit wome for mammography	Family physician involvement to recruit women for mammography

First author	Year	Intervention	Comparison group
Rawles J	1996	Anistreplase 30 units iv (thrombolysis0	Placebo
Turner RC	1994	Computer-generated prompt sheet placed on the front of patients' charts to remind physicians to perform selected health maintenance items	Patient-carried prompt card to remind physicians to perform selected health maintenance items
Frame PS	1994	Computer-based health maintenance tracking system that generated annual provider and patient reminders for all patients regardless of appointment status	Manual flowchart-based tracking system in which patient reminders were triggered by provider request
Brunham S	1992	Videotaped discharge summaries in communicating patient information to rural physiotherapists	Written discharge summaries in communicating patient information to rural physiotherapists
Hempel RJ	1992	6-minute videotape explaining reasons to wear seat belts	Espousing general preventive health care guidelines with no mention of seat belts
Sperber AD	1991	Chewable antacid tablet containing simethicone, magnesium hydroxide, and 113 mg of aluminum hydroxide per tablet	Placebo
Charlton I	1990	Peak flow asthma management	sSymptom only asthma management
Leke RJ	1988	Training and supervision of local nurses and Community Women's Organisation leaders were recruited to urge women to attend antenatal clinic	Training and supervision of local nurses
Curry RW Jr	1980	Referral form accompanied by a request for feedback and a return mailer	Referral form only

Appendix B

Reported primary outcomes evaluated in rural RCTs

First author	Year	Primary outcomes
Noknoy S	2010	Alcohol consumption
Hogg W	2009	Chronic disease management score
Ellerbeck EF	2009	Self-reported, point-prevalence smoking abstinence at 24 months
Oak K	2008	Use of the Cornwall Health Library Service
Ely AC	2008	Weight change
Weber V	2008	Medication use (drop); falls
McCrae CS	2007	Insomnia
Majoko F	2007	Number of visits, referrals from RHC for antenatal, intrapartum or post- partum problems, place of delivery and low birthweight infant (<2500 g)
Tessaro I	2007	Scores on knowledge of dietary fats, food label reading, and readiness to eat 5 fruits and vegetables a day and foods lower in fat
Ahles TA a	2006	Medical Outcomes Study 36-Item Short-Form
Ahles TA b	2006	Medical Outcomes Study 36-Item Short-Form
Clarke	2005	Successful treatment completion in new smear positive pulmonary TB patients
Bergus GR	2005	Change in PHQ-9 scores; proportion of subjects who were actively managed with medication or by referral to a mental health specialists
Samore MH	2005	Community-wide antimicrobial usage; diagnosis-specific antimicrobial use
Pavlidis C	2005	Attempts to remove wax
Morris SS	2004	Rates of use of preventive health services by pregnant women and young children (specifically, the proportion of pregnant women attending at least five antenatal checkup visits; the proportion of new mothers going for a check-up within 10 days of delivery, and the proportion of children younger than 3 years of age going to the health centre at least once during the month preceding the interview)
Askim T	2004	Proportion of patients who were independent according to Modified Rankin Scale (mRS) (independence, mRS</=2)
Rockwood K	2003	Goal Attainment Scaling (GAS)
Taylor CT	2003	Goal achievement for : BP; HbA1c; INR; LDL
Myer L	2003	Perinatal death
Kronick J	2003	Frequency of access; comfort with on-line medical information (Likert scale)
Goldhaber-Fiebert JD	2003	Weight, BMI, HbA1c, BP, fasting Glu, TCHOL, TROGL, HDL, LDL (calculated)
Arthur AJ	2002	Flu vaccination received

First author	Year	Primary outcomes
Bernal-Delgado E	2002	Proportional change in the number of packages prescribed during the six months before intervention and the six months afterwards
Young JM	2002	Improvement in knowledge, attitudes, and skills (questionnaire)
Elliott TE	2002	Physician practice behaviors regarding cancer diagnosis, staging, treatment, clinical trial participation, and post-treatment surveillance
Hammond CS	2001	Health status, urinary symptoms and bother, treatments received, and prostate-related knowledge; power calculation for 10% difference in patient knowledge and anxiety
Ahles TA	2001	Medical Outcomes Study 36-Item Short-Form
Mayer-Davis EJ	2001	Differences in weight, BMI, and fasting blood glucose
Harrison A	2000	Proportion of simulated patients given recommended drugs; correctly case managed (given recommended drugs plus condoms and partner cards); adequately counselled; reporting good staff attitude; and consulted in privacy
Rockwood K	2000	Survival; assessment of individualised goals attained (clinometric tool): < 35 (much worse than expected) to > 65 (much better than expected)
Dietrich AJ	2000	Sun protection promotion activities of primary care clinicians as determined by their self report, research assistant observation, and parent interviews
Chan DH	1999	Multiple Choice Questions (MCQ) test (feasibility, keys to success, utility of Internet-assisted education from an education and evaluation perspective)
O'Connell DL	1999	Reduction in prescribing rates for five main drug categories
Kinsinger LS	1998	Increase in mammograms
Hogg WE	1998	Family Received Index= the proportion of all procedures for which a family was overdue that they received; Family Received Index and Family End-of-study Up-to-date Index= the proportion of procedures for which the family was eligible and for which they were up-to-date at the end of the study
Davies-Adetugbo AA	1997	Prevalence of exclusive breast feeding
Clover K a	1996	Proportion of women attending for mammography
Clover K b	1996	Proportion of women attending for mammography
Rawles J	1996	Mortality
Turner RC	1994	Performance of influenza vaccinations, stool for occult blood, pap smears, breast examinations performed by the physicians, and mammograms
Frame PS	1994	Provider compliance with the health maintenance protocol for 11 procedures determined by chart audits, costs of computer-based tracking, and response of inactive patients to health maintenance reminders

First author	Year	Primary outcomes
Brunham S	1992	Multiple choice questions regarding the patients' problems, goals and treatment for physiotherapy
Hempel RJ	1992	Seat belt use
Sperber AD	1991	LDL; HDL; HDL/LDL
Charlton I	1990	Number of doctor consultations, courses of oral steroids, short term nebulised salbutamol; number of patients with doctor consultations, courses of oral steroids, short term nebulised salbutamol
Leke RJ	1988	Attendance at antenatal clinics
Curry RW Jr	1980	Percentage of consultant feedback; median time interval between a patient's contact with a consultant and receipt of that consultant's report by the rural clinics

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 3.1.1

RURAL CLINICAL EDUCATOR SUPPORT

Paul Worley
Flinders University, Australia

Introduction

Rural doctors usually work in relative isolation and often with insatiable clinical demands and high patient expectations. Taking on an additional role as a clinical educator of medical students or residents[1] can appear personally unachievable, despite knowing that the future of rural practice depends on the next generation being inspired and taught, in order to prepare them to take on a rural career (1). Given this dilemma, how can universities support rural clinicians to take on this crucial and potentially satisfying role? (2)

Nearly 20 years' experience of supporting rural doctors at Flinders has revealed a key approach to clinical educator support – namely symbiosis (3). By this, we mean that the presence of a learner in the practice should be a win-win outcome for both doctors and patients, for the practice and the university, for the community and for government, and for the profession and the individuals concerned. These symbiotic axes are described in detail elsewhere (4).

The following practice pearls focus on the key elements that we have found contribute to the first two axes in particular – supporting the doctor-patient relationship and the university-practice alliance.

Preparation

Universities - Construct your curriculum so that it enables students to stay in one practice for as long as possible – a **longitudinal curriculum**. Over time, the student gets to know how the practice works as well as the expectations of the clinical educator and develops a productive role within the practice. This results

1 A (postgraduate) resident – also called a registrar or vocational trainee – is a qualified doctor who is part of a structured training programme.

in a subsequent return to the doctor on the significant initial investment of time during the first few weeks of the student placement (5).

Before the students arrive in a practice, encourage the clinical educator to **participate as an examiner** in the student assessments. This will assist the doctor to know what the students need to know and take a lot of stress out of the educator experience.

Ensure that the university has well developed **curriculum documents** in both hard copy and web-based formats that include clear and concise learning goals for the students.

Students can provide a constructive role within the practice sooner if they **are well prepared** in both knowledge and, in particular, clinical skills. Having students able to confidently undertake a reliable physical examination enables the doctor to have confidence in the student's findings and therefore avoid repeating elements that have already been undertaken by the student with the patient. **Simulation facilities** can assist in this process.

Practice environment

The positive impact on the practice can be enhanced by the university **investing in consulting space** which may be used by the students within the practice. This enables more productive teaching approaches to be undertaken and also signals the university's long term commitment to the rural practice.

Facilitating vertical integration in education provides support in three ways (6). First, it brings a broader source of funding for teaching within the practice, including a stronger case for investing in practice infrastructure. Second, it supports a stronger learning culture within the practice, raising education to the level of core business. Third, it provides for flexibility in supervision requirements i.e. residents can contribute to supervising students.

Ensure that there is **excellent web connectivity** in the practice. As most practices in developed countries will now have this as part of their standard infrastructure, this can be as simple as providing the rural clinical educators with a university email address and access to password protected resources on the university's website. In the developing world however, university investment in broadband access, either via landline or satellite, can make an enormous contribution to not only the student education but also in overcoming the sense of isolation for the practice.

People

Crucial to supporting rural doctors as educators is **providing a good student support officer** to facilitate the smooth running of the attachment. This includes organising timetables where students may be with multiple different clinicians, arranging student travel and accommodation, and facilitating the timely completion of student assessments.

Linking new rural clinical educators with established teachers is crucial to building an *esprit de corps* between rural clinical teachers. Much informal support can be provided in this way.

Regular meetings by the **academic co-ordinator visiting** the individual rural practices is important in creating a sense of being valued and belonging. It is also important in ensuring that small problems are dealt with expeditiously.

Bringing rural educators together for strategic planning and faculty[2] development is important. This recognises the valuable input that rural clinicians can have into curriculum development and facilitates greater comfort and effectiveness in their teaching role.

Providing opportunities for personal career development and upskilling can make the difference between a peripheral engagement and a core contribution by rural doctors. Providing the opportunity for a rural doctor to develop an academic career whilst remaining in rural practice is a significant recruitment and retention incentive that can be delivered by medical education. This can include supporting rural faculty to undertake relevant formal postgraduate study, for example graduate studies in clinical education (7).

Resources

Rural clinical educators do not need to re-invent the wheel when supporting rural doctors as teachers. There is a wealth of material available on the internet that contains additional examples of what does and doesn't work. Bob Bowman's website has collated experience from many rural doctors into one repository (8). The Best Evidence in Medical Education groups, BEME, has produced a useful guide to faculty development (9). Free access journals also provide evidence that can guide the development of relevant and effective support strategies(10,11).

2 Also referred to as a member of academic staff.

An illustrative case study

Rural doctors are used to being creative and finding solutions in low resource settings. This same ingenuity can be encouraged in supporting rural clinical educators, particularly if rural doctors are equipped with the fundamentals of clinical education knowledge that underpin why we teach the way we do. We saw this occur early in our experience with rural clerkships[3] as follows:

Our curriculum required students to undertake at least two sessions per week with a rural doctor where the student consulted in parallel with the doctor. This means that the student was allocated a separate consulting room and commenced the consultation with their patients on their own prior to the doctor entering the room and reviewing and completing the consultation. Usual practice was for the doctor to see a separate patient in an adjacent room whilst the student was conducting the initial part of the consultation. This practice wanted to have two students, but the doctor did not have enough time to allocate four sessions per week to this level of intense clinical supervision.

After working with our academic co-ordinator to gain a better understanding of the theory behind this approach to teaching, the rural doctor solved the problem by supervising the two students at the same time. Instead of having one consulting room for a student and one for the doctor, the two rooms were allocated to the two students and the doctor went from room to room providing the review and conclusions required. In this way, the same number of patients was seen (and billed), and only two sessions were required to provide this intensive aspect of the course.

This is a relatively simple example of how a potentially stressful situation for a clinical educator – having to commit more sessions than possible to intensive teaching – was solved through giving the rural doctor both the theoretical understanding of clinical education concepts and then the permission to trial a new approach of their own construction.

3 Clerkships – also called placements or rotations – are structured clinical learning opportunities/ contexts.

Conclusion

Rural doctors are resourceful, knowledgeable and enthusiastic clinicians and teachers. Respecting them for these qualities, giving them a language to express their knowledge and skills, and a valued platform to be creative in their expression will inspire the next generation of students and provide our rural communities with a sustainable and high quality health care workforce.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 3.1.2

TEACHING RURAL CLINICAL EDUCATORS

Jane Greacen
Monash University, Australia

Introduction

Community-based training has become increasingly recognised as a really valuable learning environment for trainees, and is also now acknowledged to be a productive workforce support (1). As such, teaching in rural practices is now also seen by governments as a pathway for resolving the rural and remote medical workforce crisis. It is within this context that rural doctors are increasingly taking on trainees - comprising nursing and medical students, as well as pre-vocational doctors and registrars[1] (general practitioner/family physician trainees).

Rural general practitioners (GPs) are regarded as naturally effective teachers, given their broad scope of work. They deal with all aspects of their patients' lives - their health and lifestyle, family, work, life and death issues – and are called upon to be healers, counsellors, advisors, teachers and mentors (1). In addition, rural doctors usually have a wider range and depth of clinical responsibility, including hospital in-patient responsibilities, than their city colleagues as there are usually few (if any) specialist medical services readily available.

Trainees placed in rural community practice, therefore, have far greater opportunities for direct hands-on experience across the full range of clinical presentations than they might in metropolitan university and hospital environments, where this would be increasingly hard to obtain.

1 A registrar - also called a postgraduate resident or vocational trainee – is a qualified doctor who is part of a structured training programme.

Supporting rural medical educators

Rural and remote doctors often work in environments where they have limited access to education resources, however, and may need to travel significant distances and rely on electronic media to obtain the professional development they need to maintain and extend their skills.

Given their increasing roles as medical educators, providing these rural doctors with some formal teaching skills is becoming an imperative. This has led to the development of a raft of 'teacher training' programmes designed for busy practitioners.

This medical education model is consistent with the growing reliance on apprenticeship models of vocational education and the trend towards longer-term clinical placements in undergraduate medical education.

In addition, it is important to note that supporting rural doctors to be educators and mentors for these medical and nursing trainees can also contribute to an effective retention strategy, as it provides these relatively isolated professionals with peer contact and support; refreshes their clinical skills; and engages them in academic and non-clinical organisational activities that revolve around maintaining and building the rural medical workforce cohort.

This chapter will explore some of the practical aspects of supporting clinical educators.

Discussion

Rural medical educator teaching programmes need to meet the requirements of doctors who teach in a wide range of environments and at different levels. Doctors may have medical students in their practices for a few weeks of the year who are mainly observing, or they may be part of an academic teaching unit with students actively involved in their practice for extended periods.

They also may still be trainees themselves, with responsibility for teaching more junior medical staff. They may teach their peers, and they may teach multi-disciplinary teams. They may teach procedural skills, life support skills, the full undergraduate curriculum, or be responsible for supervision and mentoring. They may teach in their rooms, or in a hospital, or both. Whatever they are doing, they are very busy people, and programmes that aim to teach them how to teach must take this into account.

Selecting participants who like teaching and want to facilitate learning would be ideal. Many doctors find themselves thrust into an educator role, however, and may initially engage somewhat reluctantly in teaching. With adequate support, they usually find it very rewarding, as long as it does not become a burden.

Supporting doctors as educators provides credibility and acknowledgement, reinforces good teaching skills, teaches reflection, and helps to standardise learning programmes.

Teach-the-teacher programmes

Teach-the-teacher programmes can be generic, particularly in the academic context. In the service delivery context, however, these programmes are also targeted at teaching how to teach specific clinical skills. For example, teacher training for procedural skills is highly focussed and very rewarding. Much of it is protocol driven, and can be taught by other health professionals, including nurses and paramedics. It has specific challenges, including the need for competence in the specific skills, an understanding of the context in which the skill can be carried out, and the patient communication aspects of procedural care. It requires appropriate equipment and a structured approach to teaching the skill.

Teach-the-teacher programmes should include an outline and explanation of the value of various modalities of education activities such as lectures, tutorials, group discussions, feedback, simulated skills sessions, and simulated scenarios. Preparation, orientation, delivery and feedback are important elements of teaching, and need to be included in these programmes.

Maintaining professionalism and being aware of the impact of the teacher's clinical behaviour is an essential ingredient of any teaching activity. There is increasing emphasis on professionalism and patient safety, patient-centred and team-based approaches to learning, and separation of competency-based procedural learning.

Many doctors have been exposed to the 'See one, Do one, Teach one' system of learning. This approach has been built on to include other elements, including a range of learning approaches as well as practice and reinforcement. For example, in many advanced life support courses, skills training includes 'Watch the skill performed silently, Watch and listen as the steps of the skill are spoken out loud while being performed, then Perform the steps yourself silently for the next person'. This is done in small groups so that each person carries out the psychomotor components of the skill, and can observe it multiple times in the one session.

There is evidence that small group learning is an effective learning environment because it allows knowledge to be shared amongst participants and discussion of the topics helps to clarify issues and support retention of information. It is especially effective when it includes different levels of learners, and different professions, as the shared knowledge builds the content. The opportunity for learners to teach different levels of learners also promotes learning. The groups need to be facilitated by a teacher experienced in managing small group interactions.

The educator's ability to reflect on their own outlook, attitude, and learning method will help them to provide positive constructive teaching and support to their learners and mentees.

What's the evidence?

There has been theory on learning since ancient Greeks developed pedagogy and andragogy and there is now considerable theory on teaching. Educational theory, in particular principles of adult learning, is a necessary component of any teacher training activity, and is appreciated more if it is presented so that it is relevant to the context of the activity. Otherwise it is useful only mainly as reference material.

A number of analyses of research into the effectiveness of different teaching methods indicate that CME is effective in producing both short-term and long term gains, and that multimedia, multiple techniques, and multiple exposures produce better outcomes. However the strength and quality of the evidence is low. The common themes are:

print media is less effective than live media;
interactive techniques are more effective than non-interactive ones, and
multiple exposures to CME activity seem to be more effective than a single exposure.

An illustrative anecdote: The REST case

The Rural Emergency Skills Training (REST) Programme (2) was developed in Victoria, Australia in 2000 by the Rural Workforce Agency with a view to supporting rural doctors to maintain their emergency skills, as well as providing these skills to doctors who were moving into rural practice. The course was compiled from many sources, but in particular, from rural doctors who were considered to be excellent clinicians and teachers. The REST Instructor Training course was developed at the same time, and rural doctors were invited to attend.

REST was developed as a two-day interactive hands-on skills training course, incorporating lectures, skills stations and simulated scenarios. Assessment was built into the course. The Instructor Training Course was developed as a one-day programme for rural practitioners experienced in emergency care and/or rural teaching.

Within a few years, there were more than 70 rural doctors trained as instructors, and REST courses were being held for experienced rural doctors as well as trainee doctors every two months somewhere in rural Victoria and also the Northern Territory. It is now being delivered across Australia.

In 2009, the REST course and the REST Instructor Training Course were taken to South Africa, and adapted for their rural and underserved areas. This course continues to be delivered there.

The REST course is particularly useful because it is adaptable, it is easily transportable, it is standardised and quality controlled, it is delivered by rural doctors, it is intensive and covers the range of emergency skills and scenarios rather than being focussed on a single clinical domain.

Practice pearls

What to do

Improving the teaching skills of rural doctors and supporting them as clinical educators, builds their confidence as teachers, improves learning, broadens professional responsibilities and helps to standardise the learning environment and reduces the burden of teaching.

Small group learning is effective and ideally suited to the rural and remote context (3).

Preparation, orientation, delivery and feedback are important elements of teaching and must be addressed in rural medical educator programmes.

Multi-media, multiple techniques, and multiple exposures tend to produce better outcomes.

Simulation teaching tends to produce improved skills.

Flexible, adaptable and transportable education packages are necessary to support busy practitioners, especially those who take on the role reluctantly as they find teaching thrust upon them

Medical educator teaching should be transportable, adaptable for delivery in different environments, able to be supported and/or delivered electronically, preferably taught by peers, and assessable and standardised.

Understanding how people learn provides the basis to learning how to teach.

Trial and error is invariably a part of learning, but the aim of teacher training is to minimise risk and potential harm to the learner and thus to their future patients.

What not to do

'See one, Do one, Teach one' is no longer enough to promote professionalism and patient safety.

Including a lot of educational theory in medical educator teaching courses is not appreciated, and therefore should rather be included as reference material.

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secretariat@wonca.net

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Chapter 3.1.3

GROWING ACADEMICS: FACULTY DEVELOPMENT IN RURAL AND REMOTE CONTEXTS

Sarah Strasser
Flinders University, Australia

Introduction

Across the world, medical faculty[1] development is delivered by a range of providers and mechanisms each of which reflects the importance it is given by the home university or medical school. It may be also be a requirement of accreditation of the whole organisation.

In North America, medical schools are expected to have separate departments or units for faculty development and continuing professional development which cover all aspects of undergraduate, postgraduate and continuing health professional education. In Australia, faculty development is often addressed both in-house and provided by external organisations representing a dual investment in education, research and health workforce. These programmes often have a particular focus on rural and remote perspectives.

More often than not, faculty development is delivered as part of the rollout of programmes and is presented by staff with little or no experience of faculty development - although train-the-trainer courses are increasingly being made available.

This chapter addresses some common issues in faculty development for rural and remote sites and the local faculty, regardless of who is delivering the faculty development.

1 Here 'faculty' refers to members of academic staff.

Planning and development

As for any other successful education programme, faculty development programmes need to be planned and developed, with consideration being given to learner pre-requisites, learning objectives, delivery methods, content and assessment/ evaluation - preferably in that order. For larger events, project management is also a good idea, to ensure all matters are addressed in a timely way.

Considering the findings of evaluations from previously delivered local, distributed and off-site faculty development programmes utilised by rural and remote faculty can improve future planning. In this way, local heuristics which can impact on the effectiveness of rural and remote faculty development can be identified, including in relation to how and why the programme was delivered in that way at that time. These insights may influence the planning of new programmes.

Rural and remote (satellite) faculty development needs to follow the same principles as faculty development delivered anywhere else. It needs to cover

- medical updates and refreshers (to keep faculty up-to-date in their field of work as credible teachers);
- education programme updates (for faculty teaching in undergraduate, postgraduate and continuing education programmes);
- teacher training; and
- career promotion.

These might all be considered as part of a single comprehensive programme, or may be delivered individually. For example when delivering medical updates, there are opportunities to include tips on how to teach the particular topic. It is also worth considering offering a progressive programme over time that can be accessed as individual units.

In rural and remote faculty development for undergraduate and postgraduate rural medical education, context matters and the impact on how it is delivered - either on-site, by distance, or off-site - needs to be considered. Factors to address include

- affordability (e.g. scale and costs of delivery, costs for attendees);
- access (e.g. timing, available facilities, access to technology and skill sets for distributed education);
- appropriateness (e.g. content and the target audience);
- timeliness;
- history of previous faculty development or other education sessions, such as recent delivery of similar content by another institution;

patterns of attendance;
practice habits for times when busy or on holiday; and
previous evaluations of faculty development programmes.

Ideally it is a multi-pronged approach with a number of different ways for rural and remote faculty to access faculty development and reflect their individual needs as a mature or novice faculty member.

The programmes may also attract others - such as prospective faculty, or those involved in teaching but who are not designated as faculty, or those just looking to obtain continuing medical education. As establishing a critical mass of trainees can be a challenge in rural and remote settings for live delivery of programmes, making all feel welcome is important and careful analysis of the likely audience will help build a successful programme.

Content

As for any medical education, the best results will be produced through input on content from the learners (e.g. developed through a needs analysis) together with alignment between the learning objectives, delivery and evaluation. If the programme is to be accredited, this may require that criteria be addressed that impact on the development and delivery of the programme - such as learners or a representative of the accrediting body being involved from the beginning of the planning of the programme.

It will help keep the programme focused by specifically considering what is in it for the target audience and why they should want to give up valuable time to do this activity - as well as what is in it for you (institution) and what you really want to get out of it. This may be both formal and hidden curricula, tacit learning as well as addressing the overarching goals of the university/medical school/funding agency. It is important to build mastery into the programme - so that participants learn a skill while undertaking the faculty development programme - as well as all the other principles of adult education.

Using a programme logic model to present all of these factors on a single page mitigates anything being overlooked and will readily identify the likely short- and long-term impacts, making it easier to approve. This can be given to authorities and funding agencies as a comprehensive picture of what you are trying to do.

Incentivising uptake

Faculty development is incredibly important to the establishment, ongoing sustainability and growth of a new programme. It helps to align faculty to the direction of the programme, clarifies language used, and nurtures collegiality and their engagement with the programme. Despite this, faculty development tends not to be well attended and may require enticements to participate.

Accredited training

Continuing medical education (CME) credit is a 'no brainer' - even when faculty seem to have no need for any additional points - as it signifies that someone has looked at and approved the programme as being valid. This can have drawbacks, however, as it can require considerable effort by the educators to comply with the requirements of CME and needs long-term planning to meet the various imposed deadlines for consideration by various committees of the different professional accreditation bodies (in particular when more than one discipline is included in the target audience). It may be worthwhile considering becoming accreditors of CME programmes in your own right to facilitate the process and timing.

The other drawback is that certification of a programme may be done by someone with content expertise but no rural and remote understanding. They may accredit a programme of no relevance to a rural and remote site or may insist on some aspect in the delivery of the programme that is impractical in the rural and remote context. These issues are often not necessarily obvious to the participants and can create a problem of competition for the time they have devoted to faculty development – as they are free to choose their own faculty development programme and what they will attend. Some medical schools require their faculty to undertake a certain amount of 'home grown' faculty development to remain as faculty members or for consideration of promotion.

A progressive programme can be developed into being a higher degree, which will attract a particular type – but it is worth developing financial incentives such as waiving of fees or scholarships to build up a local academe. This encourages ownership of the programme as graduates become master teachers and/or teacher trainers themselves. Establishing a buddy system of teachers is particularly useful to new teachers to be fast tracked into a community with the local heuristics being passed on, such as referral patterns as well as local teaching tips and strategies.

Other strategies

A variety of strategies can be used as part of increasing the uptake of faculty development in rural and remote sites. These may include a one-to-one approach for faculty development, such as 'guerrilla faculty development' when you turn up unannounced with a packed lunch at the office to take time to discuss how they are going generally. A less surprising way is to book ahead and undertake a more specific academic detailing session, which will identify ongoing faculty development needs. It has the added benefit of being sure the faculty member is there!

For a larger group, incentives include providing a meal with the faculty development programme, linking faculty development to other events, or making it part of a whole family activity. While these need to be reviewed through the eyes of the accreditor (as they may impact on the approved CME/CPD accredited time), they are a particular attraction for rural and remote faculty who might otherwise rarely get to meet each other. In particular it can be a big draw to include quality family time with a faculty development programme, rather than have it as an isolated activity which is seen to have a negative effect on family time and a balanced life style. Gimmicks such as faculty hats and T-shirts have their own place in identifying faculty and often are considered more valuable than you might think by the participants. The visual recall of educational outcomes by seeing the date and place on a conference bag is an untested theory - but anecdotally seems to help the learner make connections!

Awards and celebrations are important to keep faculty engaged. Recognition of service and reward for effort, generating a feeling of respect and being valued as rural and remote faculty, are all key to successful faculty development for rural and remote sites. Teaching awards from students are highly prized and students may need the faculty development team to help organise them.

A menu of delivery options

Part of the multi-pronged approach is to develop a comprehensive programme that can be accessed in a variety of ways. These might include local on-site delivery, asynchronous distributed education, a visit of rural and remote faculty to the home institution; or offering a week-long programme at an overseas location or incorporating it into a cruise.[2]

It is worth having any conferences (on any topics) which are delivered at one's own school include faculty development tracks in the programme, with events flagged as containing elements of teacher training, professional development etc.

Other recommendations for faculty development from a recent conversation at the CLIC conference in Big Sky Montana, hosted by WWAMI[3] include:

bring students back to talk about their experience, share the excitement of teaching;
bring in expertise - but also fully utilise the skills of local faculty to teach;
with the aim of making the supervisor's job easier: identify specific strategies for students requiring remediation including SWOT teams; strategies for teaching when clinical practice is quiet or busy; strategies for locally defined 'worst case scenarios in teaching';
'start as you mean to go on' and create four faculty development days a year and facilitate faculty input into the curriculum;
other strategies include flashcards, flash banners on websites with faculty development/teaching tips; podcasts;
define roles and responsibilities;
provide more career progression information and support;
provide a stipend for attending Faculty Development;
provide more faculty development on leadership, teamwork, health systems and educational theory.

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2 I have seen a recent advert for CME, which could conceivably be adapted to address faculty development in a programme that is made available at a variety of 'sun and ski' holiday destinations every week for a number of months in the holiday season. Participants choose the week they want to go and pay to attend a couple of hours each day at an accredited programme delivered remotely, with the rest of the day free to do what they like. A particular advantage of this programme is that it is made available to all registrants to repeat free of charge later in the year by distance education to refresh their memory or make up for any gaps. It certainly caught my attention!

3 WWAMI is a collaborative medical school among universities in five northwestern states, Washington, Wyoming, Alaska, Montana, and Idaho.

All of these styles of delivery have their own benefits/disadvantages in whether or not they support making connections, are convenient and/or address more objectives than just faculty development - such as getting a better understanding of the medical school and university. Budget and scale are factors as decisions are made about what the whole programme over a year might look like.

The funding

Financial planning is another important part of making faculty development viable. Whether or not you charge fees; whether you provide reimbursements for travel and accommodation for participants from rural and remote sites; whether honoraria are paid to presenters; and estimates of quantities and costs of food and drink – need to be considered, made transparent and used on a consistent basis. Conflict of interest from financial incentives and sponsorship can impact on accreditation, so it is important to know what is allowed or not. This varies from country to country and between the different professional accrediting bodies.

Developing a whole of project budget spreadsheet helps ensure that it is all kept within means. This assists in helping to decide on the venue size and costs in relation to how many participants are needed and at what price to make it financially viable, and whether it is important for delivery of faculty development on other occasions whether it makes a profit or not.

Linking to the medical school

Being visited by other faculty, senior administrators of the medical school or experts in the field is particularly important for rural and remote faculty – as is visiting other sites. While this is for more than just faculty development, every visit can have a faculty development moment and is perceived as part of the recognition and acknowledgement of rural and remote faculty members' contribution to the institution. The art to this is letting everyone know what is happening beforehand so that they can plan and get the most out of these visits, and also to spread the word as to the benefits received from such visits. This can be done with a formal report but also short paragraphs in local news updates from the faculty development department.

Communication from Faculty Development units about upcoming events, sharing teaching tips and providing information about faculty and staff and the other education programmes is a very important part of keeping everyone engaged and up-to-date. Surprisingly this is often an incredibly difficult thing to do and it is worth having someone dedicated to the task.

Knowing how faculty prefer to be notified is important to ensure that they will receive and most likely read any such newsletters. The weekly 'Friday fax', although almost a forgotten technology in mainstream clinical practice, is still a surprisingly popular way to receive short updates in remote sites, and has the benefit that it may well be read by other staff beyond the single faculty member. (This also helps to keep them on track as it can often become a part of the practice's conversation around the tea table.)

Different faculty will have different planning styles. I have mainly come across two types: those who plan at least six months in advance and those who are open to last minute opportunities that become suddenly available. It is well worth remembering this and whether through cancellations or just insufficient registrations, last minute messages about availabilities of programmes is worth sending, even the night before. It is often surprising who will just turn up on the day!

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Avenue des Arts 7-8
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Belgium

secretariat@wonca.net

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Chapter 3.1.4

PROFESSIONAL DEVELOPMENT AND SUPPORT FOR CLINICAL EDUCATORS

Con O'Maonaigh
Memorial University of Newfoundland, Canada

Introduction

With the evolution of medical school training and the recognition that there is more than a whimsical value in the involvement of peripheral preceptors[1] in the teaching of medical students, the issue of how to support and nurture these teachers needs to addressed.

Rural and peripheral sites are excellent opportunities for clinical exposure, learning and mentoring, especially with a view to graduating doctors who wish to work in a rural or community setting (1, 2, 3). As rural exposure and teaching are some of the reasons undergraduates choose a career in rural medicine (1, 3, 4, 5,6), it is important that these opportunities are inspirational as well as positive educational experiences.

Rural preceptors

The selection and nurturing of suitable people as preceptors is central to having faculty[2] who can teach learners successfully (7). The majority of practicing doctors enjoy having medical students and residents[3] in their practices (8). They also feel that they know what should be taught, particularly in the context of their own environment and clinical areas (3, 9).

1 A preceptor – also called a clinical instructor or adjunct faculty/academic staff – are clinicians (person who has core clinical skills) who does clinical teaching at a rural (distant) site. They may work full-time or part-time for the medical school / training institution in a paid or honorary capacity.

2 Here 'faculty' are members of academic staff.

3 A (postgraduate) resident – also called a registrar or vocational trainee – is a qualified doctor who is part of a structured training programme.

The increasing use of rural preceptors to teach medical students and residents is putting greater demands on these physicians, however. For doctors who have worked independently and without any formal or continuous relationship with teaching institutions, this new commitment can be challenging, as it takes up their time and affects their professional lives. If the demands of the practice are compromised by the demands of the teaching requirements, there is a strong likelihood that the teaching will suffer.

It is therefore critical that faculty support is offered to assist these physicians to balance their teaching responsibilities with the demands of their medical practice. If the teaching, assessment, mentoring and administration load placed by medical schools is too great, they run the risk of overloading these community-based faculty. So the ability to deliver quality teaching in rural areas depends on the resources available, which includes a critical mass of physicians in the community. Identifying a more experienced rural preceptor who can be a resource to the newer ones could both help with their duties as well as support a sense of collegiality among the teachers.

Rural preceptors include family doctors as well as specialists who practice in regional/community hospitals or who deliver itinerant services to these sites. Their effectiveness in training residents will partly depend on their shared belief that rural medical practice has unique challenges and requires a specific skill and mind set. While some preceptors are natural teachers and relish the opportunity to reveal the intellectual and clinical challenges of rural practice, the literature identifies many areas which can be improved to make the training of residents and the experience of the preceptors more effective and successful (9,10).

Setting up sites

All the physicians in an area should be involved when a teaching site is being recruited, as a site must have at least two senior preceptors for there to be some stability and for the burden of extra demands which come with the presence of students and trainees to be shared. Preceptors should be welcomed into the programme as equals to their colleagues in the larger 'teaching' centres – and this recognition should be cultivated throughout the duration of their involvement with the medical school.

At the first meeting, the purpose of the rotation, the medical school's expectations, and the expectations of the trainees and the trainer need to be explored and clearly identified.

Contracting and reviewing

In an initial contracting session, it is critical that both preceptor and programme have a clear understanding of the purpose of the rotation (9) and that the resident is briefed and that responsibilities and expectations are defined. A document outlining the infrastructure of the site, the composition and scope of the practice, and the names and responsibilities of personnel should be available to trainees at the start of the rotation.

In addition the residents and students should have set periods with the preceptor which are used for reviewing issues – and these will also allow the preceptor to find out about the trainees, about their families/dependents if any, and their career interests and plans.

In many rural isolated practices, the resident comes to depend on the physician not only for clinical teaching but also for social support, They become a friend of the doctor's family, spend time outside of work with the doctor and in some circumstances, rely on them as a confidante. In addition preceptors need to be supported in dealing with a generation of students who also have families and family lives. A contract upfront can help to keep the training task in focus alongside these more personal interactions.

While ideally the trainees should be inspired to feel invested in the practice, the attitudes of medical students and residents are changing. They are less likely to define themselves by what they do, may be less accepting of burning the candle at both ends, and may place an entirely different value on what was once considered a privileged career or vocation (11). Exercises in faculty development need to address this change in attitude and how the rural faculty might deal with it.

Meeting preceptors' needs

As noted above, it is important that the goals and objectives of a rural rotation are defined and understood by the preceptor, medical school and trainee, from the start. These then form the basis for designing faculty development, which should address the needs identified by those in community-based practices who teach students and residents during their rotations (9,14). In focusing on the needs identified by the faculty, the medical school may feel there are areas where it can develop programmes to meet its needs. This should also be a process where the medical school's expectations can be explored and be adapted to the professional and clinical realities of rural practice without compromising academic excellence.

Areas to be addressed through faculty development might include
- contracting,
- developing priorities,
- didactic teaching techniques,
- developing specific clinical scenarios/ moulages,
- community-based research,
- use of technology, internet and web-based resources,
- providing feedback to residents,
- critical assessment, and
- evaluation.

Design and delivery

The preceptors need to know that they can have input into the programme design/structure within the limitations of the programme's goals or purpose.

While many of the preceptors will have had informal teaching experience, they may not have had experience of formal teaching and assessment. Understanding the importance of appropriate assessment and learning how to give useful and productive feedback would help them in this more formal teaching role. If there is a competency-based component (as with CanMEDS)[4], the preceptor will need to be aware of the need for observation, assessment and evaluation in this context (12).

4 'CanMEDS is an educational framework identifying and describing seven roles that lead to optimal health and health care outcomes: medical expert (central role), communicator, collaborator, manager, health advocate, scholar and professional.' (http://www.royalcollege.ca/portal/page/portal/rc/resources/aboutcanmeds)

Modes of delivery

Faculty development can be delivered in many ways. The literature supports the following as activities which rural faculty identify as useful in improving their preceptor skills.

The use of scenarios

As rural faculty, preceptors often face unique clinical dilemmas - and their familiarity with these issues can belie the extent of the challenges they present. Cases can be used by faculty to develop teaching portfolios as they are often particular to rural practice and the residents needs to be taught rural family medicine in this context (3,11). In addition, faculty development should help the preceptors to not only teach standard care but also contingency care which may need to be provided in particular clinical scenarios in specific rural areas.

Use of moulages

As residents and students will spend extended periods in rural sites, provision of the infrastructure /materials to teach moulages (or clinical scenarios) on site need to be supported financially by the medical school. Scenarios like those covered in ATLS[5], PALS[6] and ACLS[7] can be taught equally well by rural preceptors – and can be taught in the context of the resources that exist in these areas.

As moulages can be an effective ways of teaching, preceptors should be supported in developing them and using them in their teaching, with support being offered to those who have not previously led a moulage.

Role playing

While role playing is a long-established activity in the teaching of family medicine, not all rural preceptors will have had the experience of using them themselves - particularly international medical graduates and graduates of a particular generation. Given their value in teaching, support in the use of role play should be offered in faculty development.

5 Advanced Trauma Life Support
6 Paediatric Advanced Life Support
7 Advanced Cardiac Life Support

Technology

The web and internet have significantly reduced the isolation of both the rural preceptor and the visiting trainees. Webcast workshops involving rural doctors and, more specifically, workshops and presentations delivered by rural preceptors can be delivered to the students and preceptors (11,14). Where possible

establish a web portal which can act as a resource to the rural faculty for educational tools and for research; and

ask the rural doctors to become more involved in the traditional activities of the medical school such as giving workshops on clinical skills or specific medical conditions .These can be presented in a contextual way, showing the students the relevance of the topic in the context of community clinical practice.

The internet also makes it easier to communicate with the faculty infrastructure and support in the 'medical school' and to be involved in the ongoing activities without leaving the rural community. Web-based communication can be used for meetings (at least in first world countries) as they allow preceptors from many sites to meet, often without leaving their offices.)

For these strategies to be viable, they need to be supported financially by the medical school. As exercises in productive faculty support, this is money well spent.

Feedback and support

The need for the rural preceptors to meet regularly to share and discuss issues of mutual concern has been a recurrent theme in the literature (4,14).

In addition, there has been the proposal that a discipline faculty member, whose responsibility it is to liaise support and visit the rural sites, meets with the preceptors and be a resource to those teachers. Preceptors have also indicated that these meetings should include some form of continuing medical education (CME) activity, thus making it possible to accommodate both a faculty development need and an educational one at the same time.

'Academic detailers' should be identified from among programme faculty members and allocated to specific sites (15). The 'detailers' are responsible for liaising with their sites on a regular basis, reviewing the activities of the students and the residents, getting feedback from both the teachers and the students, and being current with the status of each learner in each site. They are the first on-site contact for students - and should visit the site at least twice a year.

Student feedback needs to be brought to the preceptor's attention on a regular basis in order to review the activities of the site and the usefulness of the rotation. The preceptors, in turn, needs to keep the programme aware of the progress of the students, emphasising both their weaknesses and strengths.

Communication between the medical school, its various programme directors and the dispersed faculty is key to maintaining and cultivating the involvement of these preceptors – and there should be a face-to-face meeting with a faculty member after the initial contact. This would ideally as a site visit, as this is the best way to understand the environment in which the new preceptor works. Not only will it give the programme director a sense of the geography of the area which often defines the scope and challenges of the physician's practice, but it will clarify, to some extent, the infrastructure and personnel available and will provide a better understanding of the extent of the practice, the potential for procedural exposure and bedside teaching. This can give the director a sense of the likely impact of learners on a site and the professional demands of the preceptor.

Ready and easy access to the programme director and the programme's administrative staff needs to be available to the preceptors - and the cost of meetings needs to be borne by the medical school. (It is often easier to have these meetings outside of clinic hours and associated with a funded social function such as a meal or barbeque.)

Peer support

Peer-to-peer group meetings have been identified as extremely useful to rural preceptors. Not only do they provide opportunities to exchange ideas and experiences, but can also provide help with difficult conundrums that occur in rural practices and which can best be understood and appreciated by physicians in similar professional environments (4,14).

Recognition and reward

Preceptors need to be appropriately recognised by the medical school by acknowledging their position in the core curriculum of the programme (10,11) .

Academic appointments, either stipended part-time or full-time, are an acknowledged method and can contribute to ensuring continuity of faculty. Ideally recognition and reward should elicit a sense of being 'part of' the faculty and medical school – and any privileges which are associated with this also extend to the rural faculty.

Practice pearls

What to do

1 Good communication.
2 Develop rapport.
3 Understand the preceptor's environment.
4 Identify and clarify early the expectations of the programme.
5 Listen to the feedback from preceptors.
6 Involve them in curriculum development.
7 Assign an academic detailer to visit regularly
8 Acknowledge the work of the preceptors.
9 Be available to help with locum relief.

What not to do

1 Do not take the preceptor for granted.
2 Do not overload the preceptor with excess demands.
3 Ignore the feedback that they give on trainees.

Conclusion

Rural preceptors are keen and enthusiastic teachers and have proven to be excellent mentors for students and residents. It is well established that rural exposure and rural training can result in well-rounded and appropriately skilled medical graduates who are specifically suited to work in these environments.

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Avenue des Arts 7-8
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secretariat@wonca.net

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Chapter 3.2.1

RURAL MEDICAL TRAINING VIA DISTANCE EDUCATION AND REMOTE SUPERVISION

Patrick Giddings
Jeanette McLaren
Remote Vocational Training Scheme, Australia

Introduction

The purpose of this chapter is to present the experience of delivering rural and remote general practice (GP) training offered through distance education and remote supervision.

The Remote Vocational Training Scheme (RVTS) was established in Australia as a pilot in 2000. The programme is for doctors practising in remote communities who would otherwise have to leave their community in order to undertake training. Training is delivered by distance education and remote supervision over three to four years (1). The training programme is in its 13th year, having been delivered to 167 doctors in 150 communities since its inception in 2000. On completion of the training more than 92% of participants have achieved vocational qualifications in general practice.

The programme has also been a successful workforce retention strategy with 84% of graduates remaining in a rural area, with 39% still being in the community in which they trained more than two years after completing the programme. RVTS therefore is primarily a workforce retention programme with its *modus operandi* being educational support to GP fellowship qualifications.

Qualifications for GPs

How is it possible to work as a general practitioner in Australia without recognised qualifications in that field?

Since 1996 there has been a requirement for doctors working as GPs to have recognised qualifications in order to be able to participate in the national health insurance scheme, Medicare. Exceptions are made in areas of workforce need - usually rural and remote parts of the country (2) – such that at least 1 900 doctors working in rural and remote communities are estimated to be working under these arrangements (3). This group is made up of both Australian graduates and doctors who gained their primary medical qualification in other countries.

Despite the significant increase in the expected number of medical graduates in Australia, there is likely to be an unmet demand for medical workforce in rural and remote areas well into the next decade (4).

Practice pearls

Key issues

Excellent outcomes from training in family medicine/general practice via distance education and remote supervision is possible.
Education and training support translates into high levels of workforce retention.

Lessons learned

Family support as part of the training package is highly valued.
It is important to make doctors feel as though they are part of a special group.
Regular contact with a critical mass of people in similar situations is important.
A flexible approach is required to account for the variable situations that remote doctors find themselves in.
It's not for everybody.

What to do

Better suited to more experienced doctors.
Face-to-face meetings of participants early in the training programme to promote group cohesiveness, then at least twice per year.
Emergency medicine skills updated in each face-to-face meeting.
Try to pair learners with supervisors in the same region with similar practice populations and referral patterns.
Regular contact with a medical educator.
Regular clinical teaching visits.
Keep technology as simple as possible.
One-on-one training in technology, if necessary.
Fun social events at face-to-face meetings.

What not to do

High tech distance education solutions that require on-site technical support.
Supervisors that are employers or line managers – as conflicting roles can compromise the educational relationship.

Evidence and discussion

GP training via remote supervision was described in the 1990s (5). In response, a pilot training programme was established in 1999 for a limited number of participants (6) and was transformed in 2003 into the Remote Vocational Training Scheme (RVTS) (7). In 2007, the programme was extended to accommodate annual cohorts of trainees (1). To date, 167 doctors have been trained and 150 isolated communities have had the services of a doctor who has been supported in this way.

RVTS as a retention strategy

A review of the literature has revealed broad agreement that education and training are important factors in the recruitment and retention of the medical workforce in rural and remote practice, though there is little direct evidence to support this assertion (8). Wearne et al (9) examined the retention of doctors who had completed the RVTS and in 2010 reported that 81% of graduates were continuing to work in a rural area. More recent data from RVTS provides consistent findings - with 84% of completed trainees continuing to work in a rural area, while 39% were still

in the community in which they trained more than two years after completing the programme (10).

While remote medical practice has many rewards, there are multiple factors that can contribute to doctors leaving. Professional isolation, lack of opportunities for career progression and a sense of being undervalued by the rest of the profession contribute to low morale and poor workforce retention (11, 12). So how has RVTS been such a successful retention strategy? Qualitative data collected from participants may provide some clues (13).

What trainees said

The importance of being linked into a collegial network is highlighted by the following quotes:

> *"(RVTS) helps me stay in touch with colleagues and professional issues and mainstream thinking whilst 'out there'."*
>
> *"(RVTS) helps with difficult clinical decisions, knowing I have a 'friend a phone-call away'."*
>
> *"Mainly good to have the opportunity to debrief with like-minded people. Also it is nice to be a name, not a number, in a small organisation."*
>
> *"I think the support that RVTS provides is the most important thing. I feel very supported. I feel that I am part of something. The help is there if you need or want it."*

The impact of collegial support on retention is evident in the following:

> *"I wouldn't have stayed as long if I didn't have support from my supervisor and RVTS."*

Participants respond to being valued for the specialised work that they undertake. Positive self-regard is reinforced by a sense of being part of a special group (14).

Family support is a well-documented contributor to the retention of rural and remote doctors (12, 15). Internal programme evaluation suggests measures to support the families of registrars have been key contributors to the success of the programme (6, 16). The immediate family of doctors training with RVTS are supported to attend twice yearly five-day education workshops. The workshops are purposefully held in major cities allowing families to enjoy their many attractions.

Child care and peer support is provided with the help of rural medical family support networks.

Suitability

While remotely supervised training via RVTS has been a successful retention strategy, this approach to training is unlikely to suit everyone. Participants in RVTS are older and more experienced. The average age of participants at entry is 39 (27-64) with the average number of years since attainment of primary medical degree is ten years(4-37) Eligibility for RVTS training requires doctors to already be working in a remote setting, thus demonstrating a preparedness to work in a relatively unsupported isolated environment.

So who is best suited to the remote training model? There is very little knowledge of how to identify individuals best suited to the remote training model and the literature in relation to personal attributes of rural and remote learners is very limited – with the small numbers of studies having examined the personality profiles of rural and remote practitioners general.

Eley (17) suggests that rural and remote male general practitioners appear to have personalities that give them a higher tolerance to risk and a tendency towards sensation or novelty seeking. These traits appear to be less represented among female rural and remote general practitioners. Other studies have found that remote GPs had significantly higher sensation-seeking traits than the population norm (18). The authors are unaware of any studies that examine the personal attributes of rural and remote GP learners.

Illustrative case study

At age 53 and in his 30th year post graduation, PB had been practising in a large city hospital environment for more than two decades. A desire for career change prompted PB to obtain a position in a remote aboriginal community in central Australia, comprising a population of around 250 with 1 000 in the surrounding area.

PB was the only doctor supported by two or three nurses. His new practice was isolated, with the nearest medical colleague being 150 km away and the nearest hospital with surgical, anaesthetic and obstetric facilities being 400 km away.

PB had no general practice/family medicine qualifications at that time. Joining RVTS was the only practical way to train towards specialist GP qualifications via distance education and remote supervision. "RVTS gave me the skills and confidence to practice in a new environment and to tackle the examination and assessment events" (19).

Weekly tele-tutorials with fellow registrars were a welcome opportunity to network with others and to 'brush up' on knowledge. PBs off-site supervisor was a doctor with significant experience of working in a similar environment and was based in the regional centre 400km away.

PB was able to stay in his community for the duration of his training and continues to practise in isolation after seven years. He received specialist qualifications in general practice at the completion of his training with RVTS and stays in touch with his RVTS colleagues via the programme's alumni network.

Broader applicability and implementation

Training in situ as a workforce retention strategy has applicability wherever workforce and training needs coincide. The approach described in this paper is especially applicable in environments where supervision is difficult. Examples include rural and remote environments, indigenous communities and developing countries.

RVTS is extending its training model to doctors working in aboriginal medical services (20), many of whom, despite being located in larger urban centres, are unable to access adequate on-site supervision for GP training (21).

The World Health Organization states that there is a global deficit of at least 2,4 million doctors, nurses and midwives (22). A Canadian organisation is using a similar distance education model to the one described here, to deliver postgraduate training to more than 500 doctors in Sudan via the Global Medical Family Medicine Residency Programme (23). RVTS-style training for doctors in Pacific island countries has been proposed (24).

With the success of RVTS using remote supervision and distance education, the need to extend the model to other health disciplines has been raised (25). Hays (26) suggests that an interdisciplinary approach to supervision recognises the role of the multidisciplinary team in remote medical services and the formalisation of the interdisciplinary supervision that already occurs in remote settings, with experienced nurses providing supervision for junior doctors.

Conclusion

Education and training can be important in the retention of rural and remote doctors. An Australian programme that delivers rural and remote GP training via distance education (RVTS) has been successful in practitioners achieving qualifications as well as in high levels of workforce retention. Membership of a collegial group and support for families of training doctors have been identified as important factors in this. Training in isolated settings is not for everybody, however, and participants in the RVTS are older and more experienced than would be expected of a group of doctors in training.

The adaptability of the RVTS training model makes it suitable for broader application across medical specialties, health disciplines, and training environments.

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secretariat@wonca.net

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Chapter 3.2.2

TELECONFERENCING IN RURAL AND REMOTE MEDICAL EDUCATION

Kristian Krogh
Centre for Medical Education, Aarhus University, Denmark
Katherine Gray
Gippsland Medical School, Monash University, Australia
Debra Nestel
School of Rural Health, Monash University, Australia

Introduction

Educational methods that counter the barriers created by the distances implicit in rural and remote sites support both the learning of the professionals themselves as well as contribute to the efforts to deal with rural health workforce shortages. The development and effective use of distance education approaches is key to enabling these personnel to maintain and improve their qualifications without excessive travel and time away from the community and the patients.

Recent improvements in technology – including sophisticated teleconferencing systems – have provided one set of practical solutions to bridging this gap. As this is relevant for undergraduate medical students as well as qualified clinicians undertaking professional development, both the higher education sector and other training providers are affected.

Throughout this chapter we use 'teleconferencing' to include terms such as videoconferencing and webconferencing. Technological developments have made video communication easily available through smartphones, tablets and personal computers as well as auditoriums or meeting rooms purposely designed with multiple high definition (HD) large screen displays, which create the illusion that participants are in the same room. The usability of teleconferencing systems is, in part, always dependent on technical capabilities.

This chapter discusses the use of these systems in diverse medical education activities, specifically technical and educational considerations in rural and remote settings. We provide an overview of the potential of teleconferencing systems for educational purposes in rural and remote settings – and employ a case study of TelePresence, a high definition teleconferencing system, to illustrate application in a rural setting in Victoria, Australia.

Context of technology-based distance education

Teleconferencing systems can be defined as real time interaction in which participants at one or more locations communicate via an interactive audio-video communication system employing electronic devices (1). This allows for engagement between sites without having to meet physically, a key feature being the opportunity for interaction, critical for constructivist approaches to learning where knowledge and meaning are created through dialogue (2). Teleconferencing systems can be used for teaching, consultation and diagnosis.

Studies have shown the effectiveness and efficiency of learning and teaching using teleconferencing systems (3,4) which are reported as being an appropriate alternative (5) or, in some cases, as equivalent to 'in-person' teaching sessions (6,7). It has also been shown that improved access when using teleconferencing systems increases participant attendance(8).

There are many different approaches to the delivery of distance education, some of the commonly used ones being listed in Box 1.

The Australian College of Rural and Remote Medicine uses a learning management system (LMS) system to connect members in supporting a range of educational activities (9). This enables participants to upload presentations (e.g. PowerPoint) and discuss their contents in real time. The success of the process is, in part, dependent on thorough orientation to the system. Prior to use, participants are asked to check the specifications of their own computer and, once logged in, are guided through the basic functions in an interactive process. The advent of faster and more accessible internet, as well as improvements and reduction in costs of smartphones and tablets, has resulted in a rapidly changing landscape of educational methods.

Box 1:
Commonly used systems for synchronous and asynchronous distance learning

Synchronous learning	Asynchronous learning
Teleconferencing Videoconferencing Webconferencing Educational television Instructional television Direct-broadcast satellite (DBS) Internet radio Live streaming Telephone Web-based VoIP On-line meeting software (like Adobe Connect) Learning management system (LMS)	Mail correspondence Message board forums E-mail Video and audio recordings Print materials Voicemail Fax LMS

Currently, teleconferencing systems appear to be the most widely used and researched method of delivery in distance medical education in Australia. Most studies report the effectiveness of teleconferencing systems, including the benefits of reduced travel times (10, 11) (Box 2). Through providing an opportunity to offer teaching to a wider audience using reduced resources (12), teleconferencing systems overcome the barrier of geographic distance and can provide effective education that would not have otherwise been possible (7).

The effective use of teleconferencing systems is dependent on the availability of specific infrastructure - as they require adequate equipment including video and audio recording and projection, reliable high bandwidth internet connection, and appropriate software. Furthermore, it is necessary for there to be an understanding of the use of the system and how to troubleshoot if things go wrong. Together these can represent significant challenges and costs, depending on the chosen system.

Box 2:
Benefits and challenges of teleconferencing and videoconferencing systems in supporting teaching and learning

Benefits	Challenges
Access anywhere Access anytime Interactivity for teachers and learners Embedded/accessible through diverse hardware (e.g. smart phones, laptops etc) Time saving (especially for reduced travel) Access to otherwise unavailable resources Teleconferencing systems can support skills-based teaching and learning by demonstration and/or feedback on performance	Broadband capability Non-user friendly interfaces Surrounding physical space may need optimisation Orientation to functionality required

When considering any teleconferencing system, it is important to define its educational purpose. In addition presentation resources may need to be adjusted from their original format to suit the system.

Audio quality is critical and includes volume, clarity and timing - and there needs to be a high-resolution image if skills demonstrations are included in the learning activities.



Technical considerations

Most systems are designed for meetings rather than education, so some have a fixed camera position without pan, tilt or zoom capacity. As the way in which participants appear on the screen is important for communication, teleconferencing systems are best used to *capture static situations e.g.* meeting rooms with participants seated behind desk/a table at both or all of the teleconferencing sites. When sessions require *high levels of interactivity* – like the need to stand and explain or show something – then the camera angle can become an issue. Where there is a fixed camera position without pan, tilt or zoom capacity, it is important to acknowledge who is in the room out of the camera view so that participants on either end know who is present and to ensure a safe learning environment.

Most teleconferencing systems have the functionality to share images and workspace, to interpret and discuss X-rays or ECGs, or to be able to interact with presentations, which can be highly beneficial where educational sessions require more than only verbal interaction. Alternative options are possible where systems do have this feature, however, or where the ability to edit and interact is limited.

If the visual quality of the teleconferencing system is in *high definition,* even the facial expressions of the participants are easy to read and the understanding of participants at the distant site is clearer. This clarity also aids the general understanding if audio quality is compromised. It is believed that the possibility of a 'picture-in-picture' mode[1] would be beneficial for everyone involved. If participants cannot see themselves or are unsure of their position on the screen, their interaction with the camera is affected.

Choosing a high definition system will often require a dedicated internet connection. However, as the volume of data increases substantially with the increased quality of the image. This may make the system vulnerable as a drop in up- or down-stream data may lead to a lost connection. This is a particular issue in rural and remote areas where internet connections are not always as fast or reliable as in urban areas.

Educational considerations

Overall, teleconferencing is considered beneficial for learning and teaching. Educational activities comprising varying levels of knowledge, attitudes and skills for learners with different levels of experience have proved feasible with teleconferencing.

Stand-alone high definition teleconferencing systems are suited to the varied nature of one-to-one and small group activities since this renders an image allowing detailed instruction and skill-based learning activities and/or supervision.

When teaching technical skills using teleconferencing, all instructions are delivered verbally, sometimes using visual demonstrations. This may be challenging for the teachers and learners since teleconferencing cannot include the physical guidance which can be offered with hand movements, handling instruments or other personal support when being taught in the same space.

1 Picture-in-picture mode is where one picture is displayed on the full screen at the same time as another is displayed in an inset window on the same screen. The sound is usually from the main picture only.

Case study: Cisco TelePresence to support acquisition of knowledge, attitudes and skills

Our case study, based in rural Victoria, evaluated the use of the high density teleconferencing system CISCO TelePresence model CTS-500. The study was conducted over two years with 59 participants in 18 medical education activities, specifically focusing on facilitators and hindrances (13).

Mixed methods were used to evaluate the use of the technology including participant questionnaires, interviews and structured observations. Numerical data of qualitative ratings were entered into SPSS17.0 and descriptive statistics were computed. De-identified interview transcriptions and free text observations of the activity were analysed thematically.

All participants rated each activity higher than the aspirational mean of 4.5/6. The value of teaching had a mean rating of 4.5/6 (SD=1.6) and learning 4.9/6 (SD=1.9). Participants were most satisfied with the visual quality (mean 5.5/6, SD=0.7) and least satisfied with the physical space (mean 4.6, SD=1.3).

Overall, TelePresence was considered beneficial for learning and teaching, providing an appropriate alternative for direct teaching. Educational activities with varying levels of knowledge, attitudes and skills and across learners with different levels of experience proved feasible with TelePresence, and it created educational opportunities that otherwise would not be available to participants - specialist teachers and simulated patients. The system should not be seen as a replacement for direct teaching methods, however.

The superior audio-visual quality of the system and resulting intimacy was convenient and the ease of use facilitated teaching and learning. The presentation, image display function and audio quality had mixed responses. The fixed camera and poorly arranged physical environment were limitations. While the system is best suited for small group activities and clinical skills-based activities are viable, the latter may be improved by the inclusion of a mobile camera.

It is recommended that technical support be available during set-up and use, a picture-in-picture mode be included and integration of office suite software be improved to provide a joint workspace for display of presentations, images, editing or annotation of documents and file sharing.

According to the literature and our study, it is essential that educational activities that are other-than discussion-based and require some sort of demonstration or observation of skills or behaviour need a higher quality image. This is also the case when teleconferencing systems are used for patient consultations as the higher quality image will facilitate the ability to read the patient's non-verbal cues and facial expressions as well as to assess their condition, e.g. a rash.

Practice pearls

Remote and rural health institutions use teleconferencing systems to overcome the barriers of distance for activities such as teaching, consultation and diagnosis.
These teleconferencing systems are shown to be beneficial for teaching and learning, especially small group activities.
Educational activities that require demonstration or observation of skills or behaviour may need higher quality images than those available on standard systems.
TelePresence is a high definition teleconferencing system suitable for teaching some clinical skills.
High definition systems may require dedicated internet connection as the amount of data moved is increased substantially with increased quality of image. These systems are typically designed with a fixed camera which can be a barrier in some educational sessions.
Orientation for teachers and participants is important for effective use of any teleconferencing system.
Although highly valued, teleconferencing systems are not a substitute for all on-site supervised hands-on training.

Conclusion

We have advocated the use of teleconferencing systems for educational activities in rural and remote areas to increase access to expert teachers and others without the need and cost of travel. Based on our case study and the literature, the use of high density teleconferencing systems is beneficial for teaching and learning, and has shown to increase the benefits of small group discussion and teaching as well as skills-based activities. However, these educational activities demand practice and commitment by the teacher/facilitator. This makes orientation to the system for the teachers and participants essential to optimise learning. Teleconferencing systems are a useful adjunct to hands-on experience but are not a substitute for all on-site supervised hands-on training in the development of competency.

Disclosure

The authors do not endorse or support any particular teleconferencing system. It is important to choose the system specifications according to need and demands for its use.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 3.2.3

E-LEARNING: A BASIC APPROACH FOR RURAL CLINICAL EDUCATORS

Peter G Baker
University of Queensland, Australia

Introduction

Although there is still discussion about the exact meaning of the term, e-learning is essentially learning which occurs through electronic means, using computers - generally understood to mean the internet or the web. Since the internet only came into being in 1991, web-based education is of recent origin, an important point to consider when exploring its use or efficacy.

While the term 'e-teaching' has also been used, given that this is simply the other side of the educational coin, 'e-learning' is now generally used to cover both teaching and learning. What is not included are the administrative aspects of education managed through computers, such as student admissions, course entries and fee payments.

One of the most compelling reasons for using e-learning is to overcome geographical or temporal separation between teachers and learners. This is particularly evident in rural or remote areas, where professional isolation and a relative lack of opportunity for continuing professional development are well recognised features of medical practice. The challenge of providing clinical training at a distance for medical practitioners or students undertaking their studies away from major centres is a compelling reason for seeking effective strategies to overcome the educational inequality arising from specific problems generated by lack of direct contact between teachers and learners. These include an inability to obtain advice or guidance in a timely manner, an inability to interact and exchange ideas with other learners, and the loss of direct transmissive teaching exemplified by the highly valued apprenticeship model of clinical teaching. Using electronic technologies to provide clinical education through web-based programmes is therefore being increasingly adopted as a major component of distance clinical training at both undergraduate and postgraduate levels.

Rationales for e-learning

There are two basic rationales underpinning e-learning. The first is *efficiency*. Replacing traditional teaching with e-learning to overcome barriers of time and distance, provides the opportunity to develop and use new educational strategies, and leverage economies of scale while providing organisational cost savings. This has become increasingly important to teaching organisations which urgently need to find ways to teach more students with fewer teachers (1). A focus on reach or quantity can however be at the expense of richness or quality.

The second is *effectiveness.* By combining e-learning with traditional methods of education, improved learning may be obtained (2).

Clearly there are tensions between these, with efficiency likely to prove popular with management, and effectiveness with teachers - although infrastructure issues are much more important to teaching faculties in the Third World compared to the First, in which accreditation and assessment are the major focus (1).

Educational benefits of e-learning

In medical education, e-learning has been used at both undergraduate and postgraduate levels across a wide range of preclinical and clinical subject areas - including anatomy, physiology, pathology, pharmacology, radiology, dermatology, medicine, surgery, anaesthetics, emergency medicine, obstetrics and gynaecology, psychiatry, paediatrics, public health, and general practice. At the present time however, there is very limited evidence to support the educational benefits of e-learning compared to traditional methods. Many published articles have small sample sizes, outcome measures unrelated to course objectives, lack of controls, reliance on self-reporting, and a wide variety of unintegrated confounding variables (3). There is currently no data on its impact on patient or healthcare outcomes, and very little information concerning changes to clinical practice (4, 5). What is clear, however, is that with certain types of situations or learner personalities, e-learning does produce better learning, while with others, traditional methods are superior (2, 6, 7, 8).

It is also important to recognise that a blended approach, in which e-learning complements rather than supplants traditional teaching, has had better educational outcomes than programmes comprised solely of e-learning, such as in typical distance learning (9, 10, 11,12). One of the main reasons for this is the difficulty in gaining student motivation for, and participation in, e-learning. Time or technical constraints, disinterest, lack of commitment to training, poor course design, lack of computer skills or preference for traditional teaching are some of the key factors responsible for this often frustrating aspect of e-learning (15). Placing all educational eggs in the electronic basket may therefore be a risky manoeuvre (14, 15, 16).

It is also evident from the literature that e-learning is frequently used in educational settings on an untested or heuristic basis, where the opportunity to try new ideas or reach wider audiences is a potent attraction (17). Given the usual outcome of adding human nature to new technology, this is expected and understandable but it may result in learners using novel training methods with no alternative, which may prove unsuitable or inadequate for their educational needs. This is further exacerbated by the lack of peer review of e-learning materials, which should include a review of its underpinning educational theory, design structure, user friendliness, online accessibility, and technology requirements, including website maintenance (9, 18). Face validity therefore frequently forms the basis upon which e-learning is adopted.

Assessing suitability

The first step in e-learning should therefore not be deciding *how* to introduce it into an educational setting, but *whether* it should be introduced, as it has the potential to worsen as well as improve learning depending on a complex range of factors (1, 19). Defining the learning outcomes first, then evaluating the strengths and weaknesses of e-learning can assist in this important initial decision (6). A list of these, which is undoubtedly not exhaustive, is summarised below (2, 9, 19, 20).

Strengths

Reduced distribution costs or increased numbers of users can give economies of scale.
Lower fixed infrastructure requirements such as classrooms, with cost savings.
Fewer teaching staff and less time needed for direct teaching.
Opportunity to introduce new teaching strategies and methods.
Flexible learner access temporally and geographically.
Self-paced, individually tailored, adaptive student-controlled learning.
Content control and sequencing of training.
Improved data storage, analysis, reporting and tracking.
Collaborative student-centred learning.
Convenient means of providing uniform and equivalent training at distant sites.
Numerous research opportunities.

Weaknesses

Social isolation.
Increased initial costs.
Cost-shifting to learners – equipment, printing, internet providers.
Technical problems and IT infrastructure needs.
Built-in obsolescence of software and hardware.
Staff or student lack of e-learning knowledge or experience - including management of altered teacher-student and student-student relationships such as reduced hierarchies, lack of direct interpersonal interactions or responses.
Resources, time and skills needed to develop and update e-syllabi and curricula.
Facilitates plagiarism and copyright infringement.
Raises security, data protection, confidentiality, consent, and identity verification concerns.
Heightened visibility and accountability including professionalism and ethics.
Ongoing management and maintenance of online content and quality requirements.
Organisational change necessities – teacher selection, recognition and support, e-learning system implementation, management and maintenance, cultural adaptation.

If the decision is made to use e-Learning, it is imperative that the teaching objectives, learner actions or interactions, and technology are carefully considered. While the focus is on the development of clinical competence, sound educational theory and practice must also form the basis of the programme (21). (Adult learning principles are regarded as a key component of good e-learning, but a focus on relevance and learner engagement is just as integral to the standard pedagogy used in primary and secondary education). The aim is therefore to achieve deep patterns of learning, encourage reflection, self-efficacy, effective application of knowledge and its integration with prior experience (19).

Synchronous and asynchronous options

Since constructive student interaction and participation are crucial to successful e-learning (13), a useful way of deciding what type to use is to separate it into *synchronous* and *asynchronous* (22), as these embody student relationships and activities with peers, teachers and the learning environment.

Synchronous

Synchronous learning - when learning occurs in real time - is characterised by on-line audio-conferencing, video-conferencing, tele-conferencing., web-conferencing and chat rooms. As this allows students to interact directly with peers and teachers, this can strongly encourage cohesion, collaboration, knowledge transmission, development of new ideas, problem solving, resolution of specific concerns or queries, a shared vision and common goals. Recording of such sessions can enable review as required for both learners and teachers.

Although synchronous e-learning can reach a wide audience, it has temporal limitations, requiring fixed time or place commitments. This may be exacerbated by locality time differences and, in the case of video-conferencing, significant technology requirements, of which speed of image transfer (bandwidth) is a key limiting factor (22).

Asynchronous

Discussion forums, bulletin boards, and email allow students and teachers to interact at variable times and locations, and so have much greater flexibility and convenience than synchronous activities. Their lack of immediacy with other learners or teachers, however, inevitably slows activities such as problem solving or management of learning issues. Information overload can also more readily occur through the ability of asynchronous sites to absorb much greater content than that presented synchronously (23).

More recent internet initiatives - such as short messaging systems (SMS), blogging (individual journals), wikis (on-line submissions with tracked modifications by multiple users), podcasts (streamed audio), vodcasts (streamed audio with video) and social networks typified by Facebook, Twitter and YouTube can also be viewed as asynchronous activities, which are likely to become increasingly important as e-learning opportunities (24, 25). Mobile technologies, such as internet-enabled iPads, other tablet PCs, and mobile phones are also finding increasing roles in both e-learning and clinical practice, where their ability to store factual information or link with patient records can be used both outside and during consultations for education and patient care (26, 27).

In addition to synchronous and asynchronous activities, an e-learning programme will require educational content and delivery software. Content can comprise text, sound or images, in various combinations. It, and supporting software, may be obtained externally or developed internally. There are advantages and disadvantages to both, but cost and availability will often be a key deciding factor (22).

The role of design

Although it has not yet proved possible to construct an effective system of evaluating websites for their medical training suitability (28), good web design also plays a key role in producing an effective e-learning programme, and making learning enjoyable. Information should be presented in a consistent manner, with clear and easy on-line course navigation, short webpages containing important information at the top of the screen, regularly updated links to other pages, current course information, learning tools to enable stimulating interactive discussion or collaboration, and downloads not exceeding ten seconds (22, 29, 30).

Good educational practice

There is general agreement in the literature that the following characteristics are associated with high levels of learner satisfaction and good educational outcomes (1, 14, 31, 32, 33):

Use of real world scenarios with worthwhile learning goals.
Interactive involvement with relevant and useful projects – 'learning by doing'.
Attention to academic standards and stakeholder expectations.
Active participation, collaboration and teamwork.
Inclusion of multimedia, where activation of different senses produces better learning of complex content.
Multiple versions of information presentation e.g. text, text + graphics, audio, or video to cater for different learning styles or students with disabilities. Hypertext links to allow students to follow individual learning pathways. Reliable technology and user-friendly software that is easy to navigate.
Strict guidelines for direct or indirect contact with other learners or teachers.
Good instruction and information concerning use and nature of available resources, required roles, and teaching or learning techniques required.
Availability of adequate and suitable resources.
Opportunity for self-evaluation, formative assessment and performance feedback.
Good support from teaching and administrative staff who understand and are able to manage the learning environment.
Assessment processes which reflect the syllabus, are diverse in nature, evaluate the learning objectives, are presented on-line in a suitable format, allow prompt performance feedback, and enhance the training experience.

An illustrative anecdote / case study

'An internet-based Clinical Discussion Board was set up using Blackboard software, for medical students undertaking six-week clinical placements at rural and remote sites. The original aim was to enable students to gain a greater understanding of the depth and breadth of rural medicine through discussing their experiences and views on-line with each other. It was soon evident that a self-organising curriculum was developing to meet the students' learning needs, with ethical issues being the second most common discussion topic, after internal medicine. Over half the students exceeded the minimum required submissions, suggesting they were using it because they liked doing so. An unexpected benefit of the Board was its pastoral care capability. Through

students' submissions of emotionally challenging experiences, a senior academic staff member overseeing the Board daily was made aware of those who might be in difficulty, allowing early intervention and management. This support function was reflected by over a quarter of students reporting the Board significantly reduced their sense of isolation and lack of contact with fellow students.' (34)

Practice pearls

As a first step, define the learning outcomes.
Don't assume e-learning is the best educational strategy – traditional methods may be better.
Blended strategies, where e-learning is combined with traditional teaching, are generally best.
Separating e-learning into synchronous and asynchronous processes is a useful approach.

Pitfalls

Using e-learning activities which the available technology cannot support.
Inadequate training or experience in the design and use of suitable teaching activities.

Conclusion

Providing undergraduate and postgraduate clinical training to rurally-based learners presents specific difficulties related to distance, and the separation of learners from other learners, and from teachers. A careful evaluation of learning objectives, and required training outcomes, can enable the role of e-learning to be properly assessed, and suitable strategies implemented to improve or enhance an educational programme.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 3.2.4

WEB-BASED NETWORKING: A CASE STUDY

Peter Hutten-Czapski
Northern Ontario School of Medicine, Canada

> *'Clearly there are pockets of frustration among rural physicians in Canada. Part of that frustration comes from feeling isolated, as if the problems that we experience in our small town are unique to us. We rarely get to hear that so many other rural physicians experience similar concerns. We can't meet in the hallways of the big virtual rural hospital to find solutions because the corridors are dozens or hundreds of kilometres in length.'* (1)

Introduction

Back in the1990s, 'email' was hyphenated, and any article on physician 'web-based networking' would have definitions of 'Gopher', 'Netscape' and 'Search Engine' (such as Lycos and Open Text). In that glossary of almost forgotten terms there would have been an entry for 'Listserve: an e-mail-based discussion group based on a mailing list of individuals with a common interest'.

The listserve was a very useful medium for connecting rural doctors, as it could connect individuals across the street as effectively as across the world. The technology handled the prevalent dial-up connections well, and because it was expected to be asynchronous, people from different time zones could converse on a range of topics. All they had to do was to email to a common email address and everyone on that listserve would receive their post.

At the time, a number of such listserves for rural doctors sprung up, with one of the first being RURALMED sponsored by the Society of Rural Physicians of Canada (SRPC). Others included RURALNET-L from Marshall University School of Medicine in Huntington, West Virginia, United States (and another with that name from the University of Cape Town, South Africa); RURAL-CARE from Finland (and another with that name from Australia); RURAL-DOCTORS from the United States; and CaRMeN from the College of Family Physicians of Canada (2). As the internet evolved, some of the listserves flourished but most were abandoned, either by the proponent, or by the users, or both.

Listserves for rural doctors in Canada

In Canada there were two listserves for rural doctors: CaRMeN and RURALMED.

Having started off small in 1995, RURALMED persists and grows. On the heels of RURALMED, CaRMeN, 'the Canadian Rural Medicine Network, was a project of the College of Family Physicians of Canada, developed to promote all aspects of rural medicine but especially the education and training of rural physicians, present and future' (3). According to Dave Williams, director of IT at the College, RURALMED '...started to attract more attention and it was felt that it was counterproductive to run our list [CaRMeN]' (4).

The short history of a listserve

Dr John Wootton, RURALMED's listmaster and SRPC president, remembers RURALMED's origins:

> '*I was taking a break from the 1995 Rural and Remote Medicine conference being held in Montreal by the SRPC. I hiked up to the McGill computer store hoping to look at the first Macintosh Powerbook (with a new Associate Professor card in my pocket, in case I wanted to buy something) and noticed on a cork-board an advertisement about an Engineering faculty listserve.'*

This was a new concept to John and as he read about its being a method to join disparate individuals together, it seemed to him something that rural doctors could use.

> 'I phoned the McGill Computer department who was in charge of hosting the listserves and set one up. The name RURALMED came off the top of my head. I walked back to the hotel and announced the listserve at the Annual General Meeting - and that was it.'(5)

The RURALMED listserve had its first message on Mothers' Day at 8:29pm on 11 May 1995. There were just 35 members on the list. With minimal advertising[1] it increased to 200 subscribers within a year – and in two decades it has grown to having 1,000 subscribers from 12 countries.

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1 There was an article about RURALMED on the 8th page of the 4th issue of the SRPC newsletter, 'Doc'.

In the early days, the four external aspects of the SRPC - namely its web page (on which RURALMED is advertised, its rules published and the postings archived); the Rural and Remote conference (at which it started and seeded the listserve); the CJRM (which provided a precis); and RURALMED itself - were all interconnected. Furthermore what drove discussions on the listserve often drove the political action of the SRPC. This may be less so today as the Society has matured, but 16 years on the listserve remains the vox populi of rural doctors and their issues, while almost everything else on the internet is much more transient.

John Wootton remarks that it is '… a bit surprising that it [RURALMED] continues to flourish and remains hosted by McGill, through benign neglect, for the 15 years plus that it has been running' (5). During this time a web-based inscription form for RURALMED was hosted by the Calgary Department of Family Medicine; John Wootton's email has changed (several times); and even the list's archives, initially done by WebDoctor, had to be taken over by the SRPC where they remain accessible by internet browser in a password protected portion of www.srpc.ca.

There have been a number of related lists that have been sponsored by the SRPC. RuralMed Francaise, the RuralAnaesthesia list, RuralMed BC and a Student list. For various reasons these have never been quite as popular as the main RURALMED list, however.

As heard on RURALMED: A conversation about GP anaesthesia

In early years the discussions on RURALMED were written up for each issue of the Canadian Journal of Rural Medicine (CJRM). The following precis of the early RURALMED discussions, taken from the first issue of CJRM, shows how service needs for general practitioner (GP) anaesthesia, rolled into GP anaesthesia training, into workload, and into new techniques and how they could improve patient care - and how this could be shared among more physicians to make them sustainable.

> 'There was disagreement on whether western Canada needs to train GP anesthetists. Some sources suggest there are not enough positions even for specialist anesthetists. It was noted, however, that in many rural areas there is not enough volume for a specialist to make a fee-for-service living, and in these areas the role of GPs with extra training is easy to defend.

> Regionalisation has brought into question the viability of some rural surgical/anesthetic services. The following question was posed: How big does a community need to be, or how far from a regional centre, before it has a 'right' to basic surgical or obstetrical hospital services?' (6)

The training of GP anesthetists was discussed, with a call for national standards and for the involvement of rural physicians in setting these standards. It was noted that in Ontario it was very difficult to get third year anesthesia training positions. It was suggested that as older GP anesthetists retired there would be no-one to replace them. This led to a discussion of the actual experience of rural GP anesthesia. One participant commented that the level of anesthesia and obstetrics in rural communities tended to be high and complications infrequent. There was also speculation about the positive effects on patients' recovery when they are in the presence of physicians and nurses known to them, and the positive effects of proximity of family. These factors would be worthy of study in the rural context.

Rural obstetric anesthesia was the subject of another anesthesia thread. There is clearly no absolute consensus as yet about the role of epidural anesthesia in the management of labour, especially in the rural context. Conflicting claims about the effect of epidurals on the progress of labour abound. References were cited linking epidural anesthesia to an increased incidence of instrumental delivery. Other evidence was put forward suggesting a lack of association. The issue is clearly complex. Again, the suggestion was made that the context of the epidural (i.e. supportive, familiar surroundings) was also important.

These aspects aside, it was noted by several participants that provision of epidural services in a rural area is difficult at the best of times. Many GP anesthetists working in rural areas are already on call frequently for surgery and are reluctant to provide an 'epidural service,' wary of the toll on their families and their personal time. As a result, some areas provide epidurals only when labour is 'prolonged and complicated.' Nevertheless, the provision of the service is described by one physician as leading to 'huge professional and maternal satisfaction.' (6)

The introduction of a new, combined spinal epidural technique was discussed, with the suggestion that this technique might open the door to the involvement of non-anesthetist family practitioners in the provision of the service.' (6)

The beat goes on

With the growth of on-line email services (e.g. gmail based in the USA) it is increasingly difficult to ascribe countries of origin to the RURALMED subscribers, but the majority are Canadian. Among them are rural GPs and specialists, students, residents, nurse practitioners, and a few academics. Subscribers do not have to be members of the SRPC but as the listserve and the Society's growth have been interdependent, it is not surprising that most are members of the Society.

There are only a few rules associated with the list. Collegiality is expected; attachments are discouraged (as some subscribers remain on dial-up); and while advertisements are welcome, commercial interests who would use RURALMED for targeted advertisement are prohibited.

The future

The future of rural doctor web-based networking is, on one level, easy to predict. Innovations will provide increasing bandwidth and smaller and more powerful physical devices are being paired with new ways to communicate. Rural doctors will continue to be physically isolated and will seek others in similar circumstances with whatever technology is available.

Which technology will be dominant in this role is a matter of contention. Short messaging systems (SMS), blogging (individual diaries), wikis (on-line submissions with tracked modifications by multiple users), podcasts (streamed audio) and social networking websites (typified by Facebook and Twitter) are already affecting medical practice, although they have not limited listserves (7). Currently it appears that the RURALMED listserve remains the dominant networking technology for rural doctors (in Canada) and it is continuing to grow – growth that needs to balance enough pertinent and engaging traffic to be worthwhile with not be too much traffic to overwhelm it.

John Wootton suggests that RURALMED continues partly because the newer technologies don't fit as well.

> 'The content of RURALMED was never conducive to one-liners as the most interesting posts have been at some length. In fact some responses are so long that you almost have a reluctance to read them. RURALMED is not as intrusive as Twitter and Facebook, and does not demand a response as there is no sense that there is a group of people hanging on their screens waiting for your immediate response.'

There can be a large number of rural doctors 'lurking' on the listserve, responding only occasionally when an issue of particular importance to them is discussed. 'By virtue of the fact that RURALMED handles the whole range of rural issues, with expectation of communal and not individual response, it endures.'

After all this meandering of intertwining threads to encompass discussions on the value of rural medicine, the need for better training for this setting and workforce issues continue to this day.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 3.2.5

ENHANCING RURAL MEDICAL EDUCATION THROUGH WEB-BASED ACCESS TO LIBRARIES

Patty Fink
Northern Ontario School of Medicine, Canada

Introduction

Filled with stacks of books, the library is a central component of all learning. For many, it represents a space to study, to peruse the shelves, or to find support from experts at the reference desk.

Libraries today are no longer simply defined by physical space, however. With users distributed in far-ranging geographic locations, with diverse needs, the concept of the virtual library is increasingly a necessity. To achieve an on-line presence, libraries are exploring web-based technologies that help to provide resources and services to users at a distance.

Libraries do

offer virtual research assistance;
represent hubs of social media know-how;
help to evaluate the evidence, critically appraise;
provide relevant resources for both life-long learning and at the point of care; and
support new technologies, such as mobile devices.

Libraries don't

have unlimited budgets (and must select the best resources based on available funds); and
always have the network architecture needed to be completely web-based.

Research support

A traditional area of support in any library is the reference desk where users can obtain research assistance from a skilled professional. Since visiting a library is not an option for all, libraries are implementing virtual reference desks. Sometimes referred to as mobile or virtual reference, this practice is 'a reference service initiated electronically, often in real time, where patrons employ computers or other internet technology to communicate with reference staff without being physically present' (1).

There are multiple on-line tools that allow libraries to facilitate this reference dialogue in the virtual world, most with either an initial purchase cost or for an annual licence fee. While some question whether the learning experience is the same as in person, it is clear that the technology provides an option to obtain reference services for those whose physical access to a library is limited by geography (2).

Social networking

Social networking technologies, born of the Web 2.0 movement and the principle of on-line communities of participation, are in essence distributed communities (3). They are networks that enable relationships, information sharing and, of course, a degree of social fun. They are also the tools through which library users are communicating, collaborating and sharing.

Libraries have embraced the principles of Web 2.0 in order to tap into these vast on-line communities. Whether instructing on the use of RSS feeds for current awareness, creating Facebook group pages for information sharing or recording and distributing podcasts, libraries are using social media tools to reach users in these on-line communities.

New York University's Health Sciences Library launched a Twitter account, a service for micro-blogging, which lets libraries tweet news, events and promote resources. Although difficult to measure the effectiveness, the only cost is in human resources, and the reach is exponential (4). Not only can libraries use these tools to provide valuable updates, they are also poised to assist users to adopt these new technologies. By experimenting with social media, the library becomes a source for those who seek to know more about, or how to access, these new social technologies.

Instruction

Library instruction typically embraces a blend of asynchronous and synchronous technologies. While assisting users via the telephone or email is an option, it is frequently frustrating for both the librarian and user. Synchronous technologies, such as web-based conferencing, enable librarians to communicate with users in an interactive way. Users can follow a demonstration on their own computers, as librarians instruct on the best search techniques etc (5). Webinars of this type can be formal or informal, they can be for groups of many or for only one person. The flexibility ensures the same ease of conversation that one might experience by walking into a librarian's office to ask a research question.

The Central Queensland University (CQU)Library published a case study that highlights multiple methods of library instruction utilised for distance education. Since 1996, the library programme has developed courses to ensure that learners have the best information literacy skills regardless of their proximity to campus. The Library's value statement is as follows:

> 'CQU Library will endeavour to make available relevant and timely information literacy programmes to all students of the University. Information literacy concepts will, where possible, be integrated with the curriculum, attaining quality learning outcomes, and develop transferable skills. A variety of programmes will be developed to provide a range of learning opportunities and to make the most effective use of staff and student time and resources.' (6)

The CQU librarians developed strategies for different client groups, using multiple technologies for delivery - including video conference, computer-assisted learning programmes, web-based courses/tutorials and virtual workshops. For each of these technologies, librarians exercised careful consideration of the topics, while assessing the corresponding selection of technology. For example, the computer-assisted learning programmes, which enable learners to move at their own pace through a series of web-based sections, proved effective for teaching specific skills such as searching a database. On the other hand, virtual workshops proved ideal for small-group learning with highly specialised needs. Video-conferencing requires an established architecture, but proved to be an effective method for large group

lectures across multiple campuses – while the library's inclusion in web-based courses (learning management systems) provided the greatest options for interactive learning, as well as integration into the curriculum (6). This case study cleverly articulates the various technologies available for library instruction, while highlighting the ideal type of learning for each.

Evolution of collections

In tandem with libraries moves to embrace new technologies in order to provide web-based services to users, they are also increasing the proportion of electronic resources in their collections. Although print has not entirely disappeared, the electronic library is vital for users at a distance (7).

Within this collection shift, libraries struggle with the desire to provide a vast selection of electronic resources and the need to balance budgets. In an ever increasing on-line environment, with students learning in multiple settings sometimes at a great distance geographically, the ideal format for resources is electronic. However, the cost for electronic resources can be greater than print.

Increasingly, consortia are established to achieve greater purchasing power. In Canada, there are several of these initiatives, all of which are geographically organised (usually by province). Although each model is different, the goal is to provide the best resources to their users for the lowest cost (8). As libraries migrate their collections to the virtual environment, they must explore alternatives to ensure fiscal viability over the long term.

Point of care tools

In addition to budget constraints, libraries must also contend with the evolution of on-line resources. For example, a distinct type of electronic resource has emerged as part of the evidence-based medicine movement: the point of care tool. Sometimes referred to as bedside information products, these point of care tools arguably provide succinct, synthesised information from easy-to-use interfaces. These on-line resources are a large growth market for library vendors, with companies heavily marketing their new products. Examples of these tools include: UpToDate, FirstConsult, Cochrane Library, eMedicine, DynaMed, BMJ's Clinical Evidence, Essential Evidence Plus etc. As users increasingly request these tools, Libraries must evaluate and select the best of the offerings, as few can afford the licences for them all (9).

It is clear that the popularity of these tools is growing, and that physicians and learners at the bedside are eager to have access to this type of resource. This also means that possessing strong critical appraisals skills are a necessity. Each point of care tool has internal standards for the information summarised, and the evidence-based results are only tested within the rigour of their own internal processes. As the appeal of point of care tools increases - specifically the access to concise information in a readily digestible form - the user must be trained to evaluate the validity of the information being summarised. Librarians have extensive expertise with critical appraisal skills and should assist with this type of information retrieval training (10).

Mobile devices

Not only has it been imperative for libraries to provide electronic resources to their distributed constituents, but they must also adapt to the rapid uptake of mobile devices.

In clinical settings, smart devices are frequently utilised for quick consultation. Sometimes referred to as m-learning (mobile learning – i.e. learning that occurs using mobile technologies), this distinct trend is a challenge for libraries (11). It is no longer sufficient to simply provide a quality on-line collection as the resources in that collection must also be available in a mobile version. This can take many forms; for example some vendors provide specific applications for downloading to a device and others offer mobile web-versions of their databases. The difference lies in connectivity. The mobile web-versions usually require an internet connection or cellular service, whereas the downloaded applications can function off-line.

The ease of access to resources via mobile devices certainly facilitates access at the point of care, ensuring the point of care tools described in the previous section are available at the bedside.

Challenges

As noted in the study by Appleton and Orr (6), although technology provides multiple options for web-based learning, the technologies are not always reliable, the instructors and learners are not always familiar with the interfaces and addressing numerous e-learning styles is still problematic. Since technology continues to change at a rapid pace, it is difficult for library staff to stay abreast of trends and ensure that they have the appropriate skills to train users.

It is also crucial that libraries continue to benefit from stable funding. In order to provide the breadth of resources required for both lifelong learning and tools for the clinical setting, a healthy collections budget is vital (12).

If libraries can maintain a stable funding source, there remain two hindrances to access of collections: adequate bandwidth and cellular networks. In the cases of the countries which have begun to address the infrastructure needed to eliminate these barriers, libraries' shift to a web-based environment happens with greater ease. In countries where the networks are not yet in place, libraries will be challenged to keep a pace with their counterparts (13).

Lastly, as most license agreements stipulate the types of users who are authorised to access resources, access to a library's collection can also be limited by these terms. To meet the legal obligations, users must often be officially affiliated with the library, for example as faculty or staff. Although this can limit the accessibility of libraries, there are often other service options in the web-based environment, for the unaffiliated. Libraries typically post tutorials, podcasts and other media to their websites without restriction. Subject guides usually comprise a mix of licensed resources, as well as freely available sources, providing links that any user can follow. As such, any library's virtual environment can be viewed as a portal to learning, regardless of affiliation.

Conclusion

Transforming libraries is a necessity in order to meet the needs of users in a technological age. While the bricks and mortar, including the book stacks, are still common physical aspects of many libraries, the virtual library is not a possibility for the future, it is a reality today.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.1.1

EXCELLENCE IN 'BUSH MEDICAL SCHOOLS': THE VALUE OF RURAL EDUCATION

J Campbell Murdoch
University of Western Australia, Australia

Introduction

It was said in my home town of Glasgow that the quality of care in general practice was inversely proportional to the distance to the nearest teaching hospital. Certainly it has always been noted that practitioners who work in rural and remote areas develop knowledge and skills which are widely admired. However it was only when shortages of such skilled physicians[1] began to appear that such people and places became regarded as a source of medical education.

This chapter will describe how medical education in rural and remote locations in Western Australia began, in a very short time, to provide an equivalent quality of undergraduate medical education to that provided by elite specialist teaching hospitals. It is hoped that the lessons learned in this exercise will encourage the development of the CLERC approach (Clinical Learning Embedded in Rural Communities,) where the key approach is not the transfer of excellence from the centre to the periphery, but the recognition that academic excellence is possible in all settings, provided that appropriate support is provided.

What's the evidence?

Whenever there is a departure from the usual strategies for undergraduate medical education, great care is taken to ensure that the new approach results in no harm to the student in terms of their performance compared to those who were educated traditionally. Establishing a rural curriculum is, however, much more than merely adding to the geographical possibilities in teaching. The ultimate point of the exercise is to ensure that graduating students seek a future career in rural medicine
- making statistical differences in marks between rural and urban cohorts

1 A 'physician' here is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

insufficient evidence for the success of such a venture. However, both the quantitative and qualitative nature of the evaluation carried out for the first five years of the CLERC method do suggest that the principles followed have promoted promising trends in the approach.

Evidence about process

The setting up of the West Australian model and its evaluation has been fully described elsewhere (1,2). Five years of action research and constant comparative analysis were used to identify components that had contributed to quality delivery of teaching and learning effectiveness at multiple sites which had considerable clinical and environmental diversity. The conclusion was that good quality sites had the following characteristics:

1. 70% of each week as clinical time;
2. a structured, clearly articulated and disciplinary focused academic programme;
3. a modified problem-based learning programme;
4. students who learned clinically in pairs, and
5. a generalist, rather than specialist, focus.

The human factor: anxieties and difficulties

Initially there had been great anxiety in the student body, even where the students were highly motivated to join the new programme (3). In the 2003 evaluation, the main source of the anxiety arose from concerns that the teachers in the rural sites would be unable to deliver an equivalent programme to that given on the main campus. This anxiety disappeared by the second year and a later evaluation four years on (4), showed that, while the students were generally satisfied with the programme, in some sites both students and teachers felt some frustration, largely because of the intimacy of the relationship. Students were now complaining of getting too much formal tuition! One student stated

> "*It bugged me a lot . . . getting a lot of formal teaching, between 12 and 15 hours a week - and I didn't think we were getting much out of the scattered approach to the content and so I felt I was just waiting to get out to see the patients."*

There were also issues arising from living together.

"First thing he does in the morning is turn on the TV, it sends me crackers."

The teachers had left behind the romantic attachment to teaching and had begun to voice the same attitudes to students as might be heard in the base medical school.

"It's been very interesting, a few learning curves and a few problems ... some of the students are a challenge ... In general they are always late, often miss sessions, don't turn up to clinical sessions and despite repeatedly asking, things are not done. In tutes they are quite disruptive, loud, a bunch of high school kids on camp ... There are two or three bordering on psychological problems which has made me feel quite down at the end of the week. They are quite belligerent."

The reality is that teaching and learning in a remote rural community is qualitatively different from the established norms. The clear intention of the programme was to establish longitudinal clinical clerkships[2] in areas of workforce shortage and difficulty - all of which were a long way from the base campus - so it is not surprising that the students had some difficulties. Likewise expecting academic staff cope with these highly charged issues - when only five of the 29 staff had any experience of undergraduate teaching - was a big ask. It was a difficult journey at times, as well as a satisfying one (5). Argyris has stated that '[o]ne of the major difficulties of action science rests in the defensiveness of human beings; their ability to produce self-fulfilling and self-sealing systems of action and justification, often with patterns of escalating error' (6).

Evaluation

Qualitative evaluation can be difficult, especially where such faculty and student difficulties are identified. Qualitative issues were identified in the 1997 evaluation of the Dundee Ready Education Environment Measure (DREEM) (7) – a survey containing 50 validated questions, trialled across multiple cultures and countries and found to be valid (8).

2 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

Other qualitative issues demonstrated included the following:

Students had a preference for long rather than short rotations (9).

There were no significant differences in students' perceptions of their learning environment in the teaching of obstetrics and gynaecology between the tertiary hospital, combined programmes involving a tertiary and secondary metropolitan hospital, rural sites with a population of more than 25 000, and rural sites with a population less than 25 000 people. In the rural sites, total DREEM scores were not influenced by the presence or absence of a resident specialist obstetrician/ gynaecologist (10).

Learning was more than marks (11) i.e. the rural experience was experienced as offering a lot more than the city training. Students moved from theoretical knowledge (knowing what they were taught) to a new way of experiential knowing that had consequences for their subsequent learning, clinical behaviour and attitudes.

Three major reasons for coming to the Rural Clinical School of Western Australia (RCSWA) were identified (12), with most students giving more than one reason. Over 80% of the students reported that they expected to receive broader and better clinical and academic learning opportunities in the rural setting. Three-quarters of the students chose the RCSWA in order to have the chance to have a year experiencing rural life, while one third of the students came for personal development and increased life experience.

Evidence about outcome

From 2002 to 2007, 245 students enrolled for a whole academic year in the programme and 243 (99%) completed the course in the rural site. One student relocated to the city because of family illness and only one student left the School in mid-year. Two students failed the end course assessment and both repeated the year successfully, one in the same rural site.

There were many concerns expressed as to whether students at smaller sites, where specialist staff were non-resident, would have a less fruitful academic environment and thus perform worse in the end-course assessment. A study was carried out to assess whether this was the case (13). From 2003 to 2006, the students from the metropolitan site and the rural sites sat the same end-course assessment. The overall marks for rural students showed a statistically significant difference from metro students as shown in Table 1. There was no significant difference in the marks between larger and smaller sites but students at small sites were more satisfied with their educational experience than those at the larger sites.

Table 1:
Comparison of student examination marks according to site size and location, 2003-2006

Site	**Number of students**	**Final Mark** (%)	**Rural v Metro** P value
Metro	342	71.0	
Large rural (>20K)	68	72.3	<0.05
Small rural (<20K)	48	72.4	<0.05

Recruitment to rural practice

Evidence of an increase in the recruitment of rural clinical school graduates to rural practice is the main outcome against which the considerable investment should be judged. Two studies had indicated early promise of success.

An analysis of the 2003 and 2004 cohorts (14) showed RCSWA graduates were three times more likely to take rural internship positions as their metropolitan colleagues. The same study of ongoing postgraduate contact with the RCSWA cohort has identified that 23 of 28 graduates had chosen to undertake at least some time in the country during their PGY1–3 years[3].

3 This is an Australasian convention for the first three postgraduate years after graduation i.e. PGY1, PGY2, PGY3.

A further paper (15) followed nearly 500 graduates by name through to their PGY1 and PGY2 workforce decisions. It examined postgraduate work after an undergraduate clinical year spent in the RCSWA, compared with six weeks Rural Undergraduate Support and Co-ordination (RUSC)-funded rural experience in a six-year undergraduate medical course. Rural background, sex and whether they were holding a Rural Australian Medical Undergraduate Scholarship (RAMUS) were taken into account. The study found that participation in the RCSWA programme was associated with significantly more postgraduate year one rural work than RUSC placement alone (OR = 1.5, CI 0.97–2.38). The RCSWA workforce effect increased at postgraduate year two (OR = 3.0, CI 1.6484 to 5.5935 relative to RUSC). Rural-origin practitioners who chose the RCSWA programme were more likely than other rural-origin practitioners to take rural rotations in both postgraduate years. RAMUS holders' choice in relation to the RCSWA programme predicted later rural work.

A recent study has been published (16) of graduates from the University of Western Australia (who were in Year 5 of medical school between 2002 and 2009) which compares the current work location (March–June 2013) of those who participated in the RCSWA (RCSWA graduates) and those who did not (controls). The location of 1,017 eligible graduates (91,1%) could be traced. Of 258 RCSWA graduates, 42 (16,3%) were working rurally compared with 36 of 759 controls (4,7%). Of 195 RCSWA graduates from urban backgrounds, 29 (14,9%) were working rurally compared with 26 of 691 urban background controls (3,8%). Of 63 rural- background RCSWA graduates, 13 (20,6%) were working rurally, compared with 10 of 68 rural-background controls (14,7%).

Practice pearls

Key issues

Efficient delivery of a generalist curriculum

The circumstances leading to the setting up of the West Australian model were unique in that the founding head was a senior generalist academic who had held Chairs in three countries but who had returned to full-time rural practice for three years. Working in that environment, he came to realise that rural practice was as fertile and fulfilling an academic environment as a teaching hospital. The translation of the traditional modular fifth year curriculum at the University of Western Australia presented an opportunity to exploit the unique setting in the clinical education of the students.

In the first instance it was decided to plan a parallel curriculum using the same subjects and methods as the central campus, but weaving the individual modules into a year-long course. The disciplines taught were internal medicine, paediatrics, women's health, general practice, musculoskeletal medicine and oncology. A pilot 14-week course with seven students commenced in 2002 with general practice and women's health agreeing to combine their courses.

From 2003 to 2007, all the courses were taught at rural and remote sites across the state of Western Australia. Students lived and worked in ten different sites in groups of three to ten, with some sent as far as 2 400 km and others only 200 km. The host towns range from 4 500 to 36 000 in population. Strong leadership was required to ensure that all courses were taught at the remote sites. A total of 245 students completed the clerkship.

After four years, with the addition of students from a new medical school, this was changed to an integrated curriculum in rural and remote medicine, which both schools recognise as equivalent to their urban curriculum. The teaching was based around clinical work according to a 7+3+1 formula – i.e. in one week the students were expected to work 11 half days of which 7 were clinical sessions, 3 were teaching sessions and 1 was personal administration.

Faculty development of locally resident health professionals

It was originally intended that there would be four sites, based in locations with large hospitals, but there are now 13 sites, some of which have quite small populations.

All sites have local co-ordinators with university appointments at the level of associate professor or above. Quarterly co-ordinator meetings allowed discussion and feedback on curriculum but there is local autonomy on delivery, according to local conditions. Most co-ordinators are generalists but a minority are specialists.

Student selection, welfare and supervision

All students were selected through interviews involving co-ordinators. Interest in rural health and evidence of preference for self-directed learning were factors.

Students were accommodated free of charge in households of three to six. Those with cars could have them transported to sites. Four-wheel drive vehicles were available and driving instruction was given. All sites had internet connections and cell phone rentals were subsidised.

Integration in the local community was encouraged through sporting groups and local part-time employment.

Quantitative and qualitative evaluation

Because we were teaching the same clinical curriculum as was taught on the main campus, it was important in the beginning to benchmark the process with the city-based departments. As a result, the students returned to the Medical School to sit the same examinations as their colleagues for the first four years. We also followed the same assessments as the discipline-based courses.

At the same time we were fortunate in having a qualitative evaluation of each student and co-ordinator which identified, indeed uncovered, issues which might not normally be described. This process has been fully described by Denz-Penhey and Murdoch (4). Eventually this costly exercise was replaced by the completion of the Dundee Ready Education Environment Measure (DREEM) which was found to identify the same issues more efficiently.

Support for the process from institution and community

There was universal support for the CLERC programme from the host institution, largely because the initiative was well funded and because it came at a time when student numbers were expanding which meant that directing students to rural teaching did not come at any cost to individual discipline teaching. The communities were equally supportive because the model was seen not only as a way of recruiting doctors for the future but as a way of attracting personnel and therefore improving present health services.

What to do

Select sites carefully and ensure that there is enough clinical activity to support the curriculum.
Ensure buy-in from health services, local health professionals and communities.
Look after the students and provide them with comfortable low-cost accommodation and telephone and internet access.
Ensure that local co-ordinators are trained and fully aware of the medical school curriculum.
Encourage visits and internet contact from central specialist teachers especially in the first year of operation.
Benchmark curriculum and assessment content against the parallel course.

What not to do

Don't have less than three students at each location.
Don't allow frequent absences from the rural site.
Don't tolerate claims from central specialist disciplines that there are topics which cannot be taught outside a large hospital.
Don't allow fly-in/fly-out teachers or students.

Discussion and conclusion

The CLERC programme in the RCSWA has provided an educationally effective high quality model for teaching and learning health sciences in rural and remote Western Australia. The programme provides an integrated method with a broad case-based teaching model underpinned by strong educational technology, a unified assessment system, and a developing academic expertise that is in contact not only within the two universities that contribute students, but also into the wider national and international educational circles. Its academic results speak for themselves. CLERC is demonstrated to be academically excellent in teaching essential medical knowledge and skills, as well as enthusing students about their clinical experience.

The programme moves from strength to strength as it is embedded in local communities, including those of Aboriginal people whose role as teachers and assessors is still being explored. The intellectual capital being established in this 'bush medical school' is ready to exponentially spread into pre-vocational, collegial and postgraduate education, with substantive health department endorsement. This will progress through its own undergraduate students who are requesting country

practice placements as graduates, and through doctors who are eager to join the teaching and learning team.

The main remaining questions concern the broader applicability and implementation of what is admittedly an expensive form of medical education. Recently Walsh has drawn attention to the increased costs in travel and accommodation, tutor support, information technology and pastoral support which such programmes undoubtedly involve. However he points out that if such strategies succeed in attracting more medical graduates to work in rural areas, 'it is likely that the initial investment in the programme would be returned many fold' (17). The fact that we have demonstrated an effect in attracting graduates of our programme to return in greater numbers to rural and remote Australia makes us confident that this investment has been a wise one.

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Rural WONCA (Working Party on Rural Practice)
World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.1.2

OPTIMISING RURAL MEDICAL LEARNING

Alan Bruce Chater
Janine Wyatt
University of Queensland, Australia

Introduction

Approaches to rural medical education can be characterised in many ways. One significant dichotomy is the tension between *all* students receiving some rural experience versus providing *some* students with a longer encounter. Shorter terms provide a snapshot of rural practice and allow students who have had little or no previous rural experience to become acquainted with, and hopefully inspired to continue with, rural practice. The longer longitudinal clerkships,[1] on the other hand, usually involve twelve-month placements and are usually targeted at students with a rural background or students who have an expressed interest in rural practice. This chapter concentrates on the shorter rural exposure and how to maximise the benefit of this experience.

Prior preparation prevents poor performance is a truism in many fields. It is particularly so for student immersion in rural areas.

In preparation for rural medical education, the emphasis is often on the orientation to the town and practice and how to provide appropriate and culturally sensitive care in rural communities (1). While this is important, having the skills to provide a service (even if at student level) and to become part of the rural health care team is also a vital part of preparation. While adequate preparation is self-evident as a prerequisite to those fully qualified for independent practice, it is just as true for those on the continuum of training for rural practice. Making the students confident and competent for rural practice ensures that the skills applied are more automatic, rather than cognitive.

1 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

Learning sites

Rural placements are good places to learn (2) as they provide the student with a high workload, a wide variety of presentations, treatments and interventions, and a more 'hands on' experience whereby students develop greater procedural competence (3). With workforce shortages, rural preceptors[2] (supervisors) are busy and often lack the time to do the initial preparatory teaching, especially in the more tactile psychomotor skills. These skills are best taught in small groups with the use of simulators, simulated patient models or animal models (4). The rural practice then provides the environment for these to be refined, rather than learned.

Like all learning environments, universities provide varied experiences which are compounded by students having different learning styles. There is therefore a need to ensure a reliably uniform experience for students, as well as to be familiar with the characteristics of adult learners (5). It is important that students feel assured that their skills are sufficient and will hold them in good stead for the present and future learning environments; that they have both the competence and confidence to face a challenging learning environment and to get the most out of it.

It is also important for the busy preceptor to be able to do what they do best, which is to develop and fine tune the students' skills in the clinical environment (6).

What's the evidence?

Many studies have looked at what influences students to take up a career in rural practice. Factors that influence future careers include selection, rural background, financial and lifestyle considerations, community-based teaching and the curriculum (7-10).

Most rural doctors are from urban background (11). Jones et al (12) found that intentions towards generalist practice influenced intentions to take up rural practice. These intentions may be well formed from an early stage in some students, but they evolve more slowly for many students as many students have no experience of rural life or rural practice. This is true of the majority of medical schools.

2 The term 'preceptor' is defined as 'an experienced practitioner who teaches, instructs, supervises and serves as a role model for a student for a set period of time, in a formalised programme'.

In shorter rural experiences, Tolhurst et al (11) found that, while exposure to rural practice depended on the interaction between student and location factors, this exposure provided students with knowledge of rural locations and helped them to identify a suitable rural location for practice. This exposure generated an interest in rural practice among urban background students and may increase the number of students who become interested in rural practice and who decide eventually to enter rural practice. Research also indicates that exposure to rural medicine placements in the pre-clinical years is a key predictor in medical graduates choosing a career in rural medicine (13,14,15).

Over recent years, almost all governments worldwide have increased medical student numbers. While some of this has been sufficiently supported, much of this has meant placing a strain on the ability of preceptors to cope (16). While the foundations of medical practice are vitally important, most doctors will attest to need for clinical experience to consolidate, contextualise and complement this learning. The quality of this environment is vital to future practice and in the decision of students with regard to future careers.

Many universities have required short exposures comprising of only days or weeks. In Australia for instance, the scheme such as the John Flynn Placement Programme allows repeated short exposures. The Rural Undergraduate Support and Co-ordination Programme (RUSC) is an initiative developed and funded by the Department of Health and Ageing in order to expose medical students to short placements to encourage them to adopt a career in rural practice. RUSC programme policy mandates that medical students undertake a minimum of four weeks structured residential placement (17).

While there is considerable evidence that longer exposures are more likely to lead to future rural practice, there is little evidence to suggest the gradation of rural intent with time. The authors' experience, confirmed anecdotally with others in rural practice, is that most students become confident members of the rural health team by four to six weeks. This would seem to be the minimum term length for effective skills improvement.

An illustrative anecdote: University of Queensland's Rural and Remote Medicine rotation

Third year medical students of the M.B., B.S. programme (four-year postgraduate course) at the University of Queensland whose studies are supported by the Australian government are required to undertake the 'Medicine in Society Stream A: Rural and Remote Medicine' rotation (RMR). During this rotation students are immersed in rural practice for a six-week placement, usually in a rural general practice or rural hospital.

The aim of the RMR is to provide a safe, high quality experience of rural medicine for all domestic third year medical students. It is one of five rotations within the academic year, and approximately 70 students participate per rotation. While the rotation is a valuable learning experience, the preceptors have noted that students' skill levels varied widely, particularly early in their first clinical year (doing rotation one and two).

Because it was recognised as vitally important that students be adequately prepared and 'work ready' for the rural placement (18), a structured orientation programme, comprising lectures and procedural workshops, was held in three locations (Rockhampton, Wide Bay and Toowoomba) in the first week of the RMR. This enabled skills practice and ensured student concerns and expectations about what they can or cannot do were allayed.

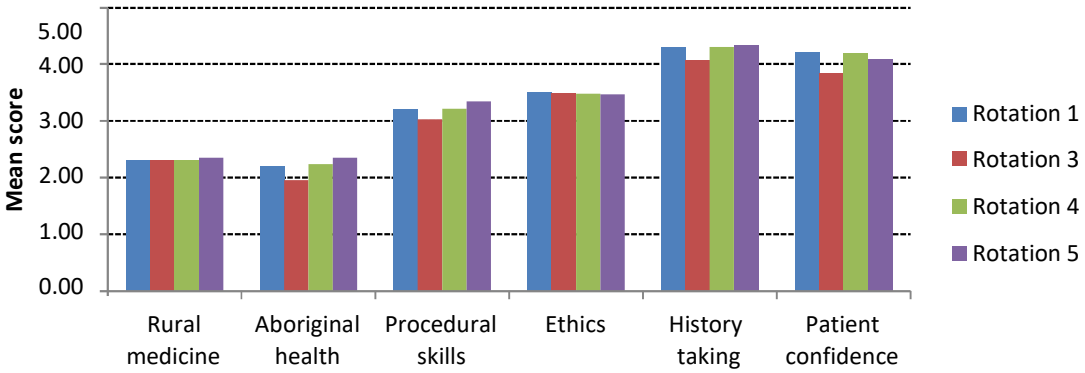
Reviewing the RMR orientation programme

Over the years, the orientation programme and the clinical placement has been systematically reviewed and revised in response to student and preceptor feedback.

In 2012, approximately 300 third year medical students who were enrolled in the Medicine in Society rotation Stream A: Rural and Remote Medicine completed two questionnaires (with the exception of those in rotation 2 , where students were asked to complete an evaluation for the whole of Medical school instead). One questionnaire was completed at the end of the orientation programme - for which there was an 89% response rate - and the other at the completion of the rural placement – which had a 84% response rate. Raw scores on the original five-point scale (1 = '*not at all'* to 5 = '*very much'*) were converted to mean item scores.

Students in each of the rotations were asked in the orientation programme questionnaire to indicate their level of experience in, or exposure to, six aspects of medical practice prior to this orientation week (Figure 1). For each of the rotations the students' levels of exposure to all aspects was very similar, despite increasing clinical experience as the academic year progressed. The consistently low level of experience/exposure to rural medicine, aboriginal health and procedural skills emphasised the need to ensure that the rural medicine orientation programme intensively prepared the students on these aspects for their rural placement.

Figure 1:
Indication student level of experience in, or exposure to, six aspects of medical practice



During the orientation programme students participate in a number of lectures and workshop sessions. These sessions were initially determined in consultation with practicing rural preceptors, with a view to identifying aspects of rural medicine in which students need to have a level of proficiency. This is important as the busy rural preceptors take a predominate role in teaching students: 47% of students received the most teaching attention from their main preceptor, while 25% were taught by secondary preceptors. The remainder of the teaching was being carried out by other staff.

The teaching effectiveness of the presenters and perceived usefulness of the orientation programme sessions were measured respectively after orientation and at the end of the placement. Table 1 presents the overall rotation mean usefulness scores for each session, with a higher mean indicating greater perceived value of a session.

Table 1:
Comparison of orientation and placement programme questionnaire results

Orientation sessions	Orientation Program			Placement Program		
	n	% rated each item as either some, very or extremely valuable	Mean	n	% rated each item as either some, very or extremely valuable	Mean
Introduction to rural and remote medicine Rotation	234	76.9	3.82	269	82.2	3.07
Rural communities and rural medicine	235	80.9	3.87	270	81.9	3.07
Introduction to Indigenous health	237	80.6	4	268	70.1	2.98
Resuscitation of critical ill / injured patient	234	89.7	4.15	269	92.6	3.74
Applied trauma management	235	89.4	4.18	270	94.1	3.75
Tropical & rural diseases	236	89.8	4.22	269	88.1	3.58
Toxicology	220	84.5	4.02	262	86.6	3.39
Dermatology	232	82.8	4.06	269	93.3	3.75
Musculoskeletal workshop	237	85.7	4.16	266	87.2	3.51
Interpret x-ray	177	65.7	3.63	251	83.3	3.45
Interpreting ECGs	229	77.3	3.91	268	86.6	3.51
Excision/Suturing	237	92.8	4.39	269	97	4.41
Insertion chest drains	237	93.7	4.38	269	81.5	3.97
Insertion of intraosseous	235	96.2	4.43	269	81	3.47
Surgical scrubbing	190	69.5	3.76	267	82.4	3.5
Insertion IDC	210	81.4	4	270	84.8	3.48
Plastering technique workshop	224	93.8	4.36	267	91.8	3.49
Airway Management	234	89.3	4.27	270	94.8	3.82
Basic Life Support /Advanced Life Support	220	91.2	4.25	269	94.4	3.86

The orientation programme results (columns 1-3) demonstrate that the students rated the presenters of the orientation programme sessions very highly.

Over time, and in response to poorer earlier results, the focus of the programme was changed where possible to hands-on workshops and interactive sessions. These took into consideration that as adult learners the students would want to be able to apply whatever knowledge and skills they gained in order to build a bridge between the skills laboratory learning and the real life patient setting (19). The 2012 results highlight the success of this modification.

Retrospective review of orientation

The retrospective review of orientation sessions after the placement was also evaluated in relation to preparing them for their rural placement.

Column 7 in Table 1 above presents the mean scores for each overall session with a higher mean indicating greater perceived value of a session in preparing them for the rural placement. While the results are less impressive than the preparatory score this may in fact reflect that the skills had not been able to be utilised in the rotation placement. Students mentioned that it was "difficult to remember specific workshops seven weeks ago; it was a good week however" and that "the things I found less useful were just because I was not exposed to these things during my placement". Also I "didn't get to do much of these on my placement but they were valuable to learn / revise" and "some of the sessions such as tropical disease and indigenous communities were not particularly relevant to my placement".

Column 6 in Table 1 shows the proportion of students who across these collapsed categories rated each item as either *some, very* or *extremely valuable* as preparation for placement. Qualitative data indicated that students considered that "[t]he orientation was very useful in preparing me for my rural rotation". It was "[w]ell organised and interactive" and "[g]reat procedural skills and genuine advice was given to students about the rural perspective". Another student commented that they "had the opportunity to resus a snake bite victim so I found orientation very helpful".

Students were asked if they were able to apply the learnings from the orientation programme while on their placement. Using a scale of 1 ('*strongly disagree')* to 5 ('*strongly agree')*, categories were then collapsed into D = '*disagree'*, U = '*undecided'* and A ='*agree'*. Eighty one per cent of students across the collapsed categories of 'agreed' and 'strongly agreed' indicated that these sessions were useful.

After their clinical placement, students were asked to indicate their level of agreement with statements about learning outcomes for the rural rotation, using the same 1 – 5 scale. Mean item scores were determined for each statement and are detailed in Table 2 below.

Table 2:
Indicated level of agreement with statements about learning outcomes for the rural rotation

Learning Outcomes	Mean
I was given clear guidelines regarding what was expected of me (e.g. learning objectives, assessment)	3.55
I developed increased confidence in my clinical ability	4.27
I gained an appreciation of the greater depth of clinical responsibility inherent in rural practice	4.22
I gained an understanding of the significance of professional ethics among rural doctors, particularly in relation to confidentiality in the local community	4.00
I practiced my procedural skills	4.40
I acquired experience in consultation skills	4.33
I gained experience in the diagnosis and management of common rural health practice problems	4.05
I observed the diversity of conditions seen in rural practice	3.92
I increased my knowledge of Indigenous culture and the impact of Indigenous heritage on health	2.83
I gained an understanding of the clinical reasoning required to balance the benefits of transfer with the benefits of local treatment	4.05
I developed an understanding of inter-professional health care and services in the rural environment	4.02

Over each of the rotations, students constantly agreed with the following statements:

'I practiced my procedural skills' (mean score range 4.59-4.25);

'*I gained an appreciation of the greater depth of clinical responsibility inherent in rural practice'* (mean score range 4.52-4.09); and

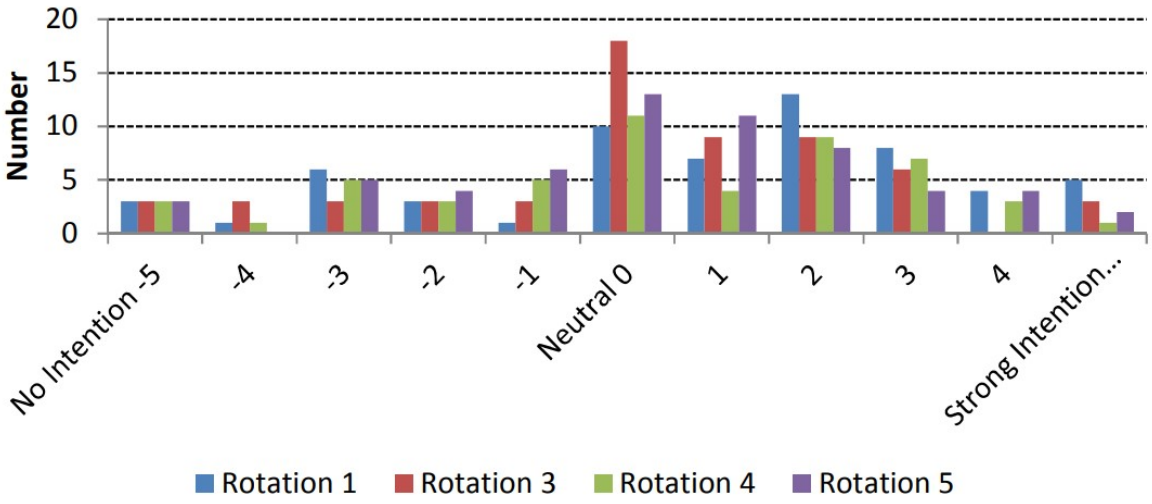
'I developed increased confidence in my clinical ability' (mean score range 4.45-4.07).

The mean scores for these statements for the four rotations have consistently been over 4.00.

Reviewing the effect on rural intent

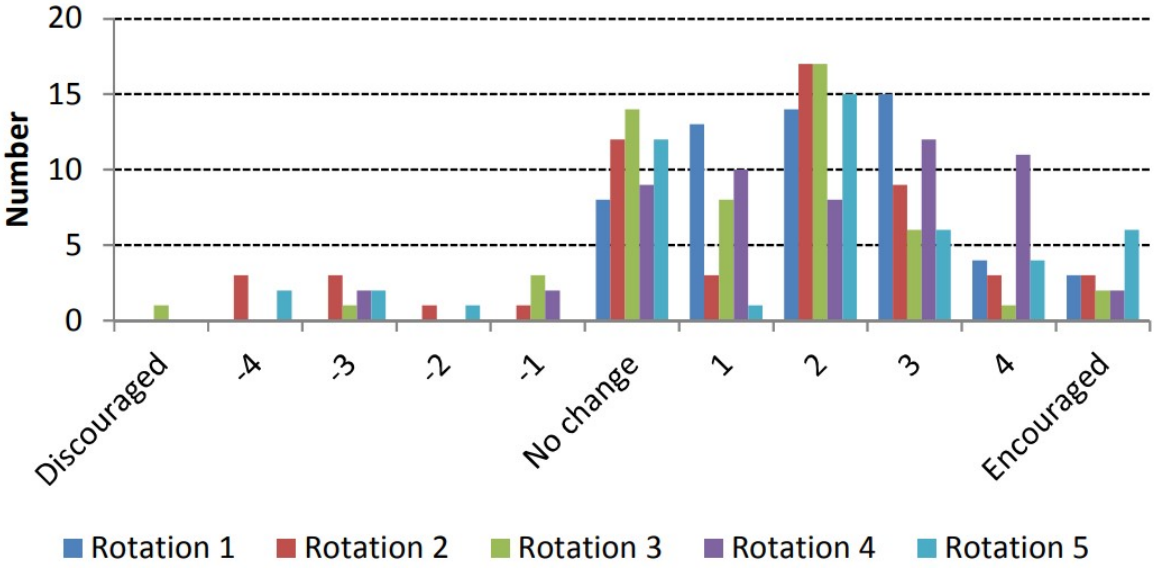
Prior to their rural placement, students were asked to indicate their present level of intention to pursue a medical career in a rural or remote location, using a scale of -5 = '*no intention'* to +5 = '*strong intention'*, with a midpoint of 0 = '*not sure*' - and were invited to comment. Figure 2 shows the distribution of student responses across the 11 original categories highlighting quite a number of students with either a neutral or negative intention.

Figure 2:
At the present time what is your level of intention in pursuing a medical career in a rural or remote location sometime in the future?



Students were then asked to indicate how the rural placement had altered their intention to pursue a medical career in a rural or remote location. The original scale was -5 = '*discouraged'* to +5 ='*encouraged',* with a mid-point of 0 = '*no change'*. Figure 3 shows the distribution of student responses across the 11 original categories.

Figure 3:
How did the Rural Medicine placement alter your intention to pursue a career in rural or remote locations?



Over the five rotations, 193 of 270 students indicated that they were, to varying degrees, encouraged to pursue a medical career in a rural or remote location. There was no change in the intention of 55 students, however, while a few students (n=22) indicated that the placement had to some degree discouraged them from pursuing a career in rural medicine.

As indicated above, one limitation of this study is the use of intention to take up rural practice rather than actual behaviour as the outcome variable. This is the best available surrogate until the longitudinal data are available to enable us to monitor the relationship between early stated intentions, medical education experiences, and actual behaviour (12).

Practice pearls

What to do

- All students should have a rural term.
- Longitudinal placements for a select few miss the students who don't know what they are missing.
- Prepare students for all rural terms, no matter how long.
  Prior preparation for shorter terms is essential.
- Make the rural term a key procedural term in the medical school curriculum.

- Ensure that the skills taught are relevant to the rural environment. Psychomotor and procedural skills are key components.
- Target what preceptors want taught.
- Orientate to rural culture not just indigenous culture. Challenge the stereotypes.
- Rural role models important.

What not to do

- Don't have terms shorter than four weeks.
- Don't assume teaching capacity is static – find innovative ways to build it. Avoid context-free teachers.
- Avoid too many lectures.

Broader applicability

Rural short-term placements have become the poorer cousin of extended rural placements. With evidence that longer placements are more likely to lead to retention, these have been seen as a better use of resources. The longer placements have also been seen as a commitment by students to a rural intent and a future rural career. Many students are attracted to extended rural placements by the reports of more one-to-one teaching and incentives such as free accommodation. Preceptors are attracted to these students because they stay for longer and are embedded into the rural team.

On the other hand, shorter terms offer all students a chance to experience rural practice in a similar way to the way they experience other specialties. This can open their eyes to this form of practice and its benefits. Shorter terms can place a higher teaching workload on preceptors but it can be seen that prior preparation to placements enables the student to become more quickly a member of the local team and is effective educationally and in terms of attracting future workforce.

Conclusion

By targeting what is required for rural practice and incorporating what preceptors want taught in the orientation programme the University of Queensland, Discipline of Rural and Remote Medicine has provided a very useful educational component of the curriculum and had positive effects on student's attitudes to rural practice.

Short placements need adequate student preparation in not only cultural aspects but in practical skills if they are to be successful. While there are considerable gaps in longitudinal evidence supporting the effectiveness of Australian undergraduate rural curricula, short-term placements that are designed to increase the numbers of medical students choosing rural practice (20) can be effective.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.1.3

UNDERGRADUATE MEDICAL TEACHING IN RURAL AND REMOTE SETTINGS

Sarah Strasser
Flinders University, Australia

Introduction

The overarching goal of rural undergraduate medical education is to deliver team-ready graduates who are well equipped to work in rural and remote environments. Even if students end up working in a city practice or in policy development, they will have a good understanding of the rural context on which to draw to deliver improved health care relevant to both urban and rural settings.

Quality education goes hand-in-hand with quality patient care. Teaching is a normal part of clinical practice and rural doctors have a particular aptitude for being effective teachers (1). The patients usually enjoy the students' interest and the greater amount of time that students can allocate to their issues.

It has recently been said that it takes more hours of training to become a good rural doctor - around 10 000 hours - than for a city practice, which might require closer to 8 000 hours (2). As students will not learn it all in one rural placement, however, the earlier and longer they are learning about rural practice, the better. Identifying the demographics of the population you serve is helpful information for students and can contribute to setting expectations. In the initial stages of establishing a rural programme, the nature and numbers of conditions that can reasonably be expected to be seen in a period of time may help to justify the length of time for a rural placement. This information may be available to you from billings data or snapshot audits, at different times of year, or from local health research units. In addition student log books and feedback will be helpful ongoing information to ensure the quality of the rural programme.

The role of the rural teacher-clinician in undergraduate teaching is that of a master, guide, advisor, supervisor, coach, mentor, assessor and sometimes friend. In addition, in remote settings where you may be the only contact, you may also be physician[1] and parent (even though this will be considered controversial by some - but is a reality and, on occasions, a necessity). In the current era in which undergraduate medical education is tending back towards apprentice-style learning, the rural/remote teacher fills all these roles. In contrast on the home campus these might be found in many different people in different departments with different roles - just as access to expertise in rural practice is through a generalist, compared to urban practice where access is via a specialist.

Couper has defined eight key aspects of a paradigm shift in medical education which most readily occurs in rural teaching sites (4):

Old Paradigm	**New paradigm**
Context of learning	Learning context
Teaching	Self-initiated learning
Control	Facilitation, participation
Courses	Increasing the resources
Speaking a lot	Listening
Posing as experts	Co-learners, participatory
Exam driven	Relevant to each student
Role play, theory	Reflective action, quality improvement

Developing a curriculum

The most common question from supervisors is about curriculum content and what has been taught before. A thorough reading of the medical school's curriculum material might help – as might the school's most recent accreditation report and self-critical analysis, if available.

1 A 'physician' here – and as used in North America broadly – is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

Before you charge into identifying content, however, the preferred approach is to identify the learning objectives first and, from these, to determine the assessment so that they are aligned. Only after this do you think about content, how you will deliver the content and whether the assessment process can be aligned with the delivery as well, as this consistency will reinforce learning.

It is most likely that you will be given a list of objectives from the parent/home school rather than having to develop this all from scratch. This is important for accreditation purposes of a school with a programme delivered across multiple sites, where learning objectives and their assessment need to be the same or seen to be equivalent. This also matters from the students' perspective with regards to fairness of student experience between sites and to allay fears of second class medical education (and medical practice) in the rural setting.

How the learning objectives are taught, however, will be different from site to site and this is where 'context counts' with regards to the educational environment. For example a learning objective about the treatment of rheumatic fever in Adelaide, South Australia, may be taught as part of the academic programme with a specifically designed lecture; whereas in the Northern Territory the same learning objective will be learnt from seeing patients in a clinic setting. Students from both sites undertake the same assessment (in this case, a short answer question).

Your own practice and experience will give you a rich resource of curriculum material. Drilling down from patient encounters (in and out of the practice setting) to the key objectives will help you to build a matrix of learning outcomes achievable by the end of a placement in the rural programme. This can be targeted to any stage of student learning. Establishing any pre-requisite knowledge or skills, developing learning objectives and identifying opportunities to assess whether students have mastered your intended outcome (observed change in their knowledge, behaviour or skillset) is the basis for any curriculum development to then consider the likelihood of suitable content and logistics of delivery.

Whenever possible, providing students with opportunities to practice exams and other forms of assessment (which will preferably be outcome or competence based) is important (and easier to do with multiples of students). For students, this consolidates the rural site as a real place of learning. A milestone in the development of rural programmes is when you can provide the facilities for secure exam processes to be undertaken in the rural setting. (Another is when you are able

to assist from the local site with selection and admission processes which has similar administrative issues to assessment processes).

To get you started if you are new to teaching, it is certainly worth reviewing the list of patients you have seen in a day to identify learning objectives which can be derived from these cases and plan teaching and/or assessment strategies. You may be surprised at how many learning objectives there are in even just a single patient presentation - in particular when you are their primary caregiver and know their context well. This activity will help you identify where you can cross reference between curriculum domains or disciplines, to maximise learning.

For the rural curriculum to be sustainable, the learning objectives and tools for monitoring and assessment need to be sustainable within the local community. Prior research on the local demographics and your patient population; availability, access and affordability of resources; and experience of local practitioners is helpful in assessing the capacity (space and numbers) and capability (learning opportunities current and for future development) of the site.

Teaching and learning

'The curriculum walks through the door': Patients as learning opportunities

A characteristic of rural practice is that 'the curriculum walks through the door' rather than being provided by an academic programme of lectures and text books. Not only does this present unique opportunities to address some of the individual student learning objectives but the real life cases and hands-on experience is more likely to be remembered by the student, especially when they are not 'at the end of the queue' of junior doctors to examine the patient.

So, for example, the learning objective of the student being able to remove a fish hook is going to be best taught by having a patient with a fish hook to be removed (either in a live or simulated situation) and best observed and assessed in an Objective Structured Clinical Examination (OSCE) - as opposed to learning from reading a textbook and assessing what was learnt through a multiple choice question (MCQ).

It is helpful to become adept at using opportunistic patient encounters to their full advantage by exploring the full range of potential learning objectives and teaching within the single encounter; the current complaint, the longer term history of the patient, the doctor:patient relationship, and local context all provide opportunities for learning.

Teaching strategies

Generally in a rural setting time for teaching is in short supply. Planning and using time and resources (including other personnel) wisely to accomplish the key learning objectives is important - making 'every moment a learning moment'. Rural doctors are used to handling these sorts of constraints and pressures which can lead to medical education innovation. (Lessons learned from these innovations often have carry over to other settings and are well worth being shared).

A number of teaching strategies can be used in the rural setting - all of which tend to be patient-centred case-based learning with structured discussion, analysis and problem solving. Examples are immersion, distributed medical education, and simulation. Key methods of teaching include clinical supervision, role modelling, mentoring or coaching, peer learning and self-directed learning, including asynchronous learning and use of multiple resources now available on line, in vivo or with simulation. Interactive discussion tends to maximise the best of medical education and the effectiveness of remote and rural doctors as teachers, and leads to the best outcomes for rural undergraduate medical education programmes.

Peer learning, with a co-learner, also aids students' individual learning and underpins why many practitioners have started to insist on hosting multiple students, rather than one at a time. Together two learners can interrogate their understanding and help each other, and seek your opinion with a higher order of questions. In a team situation this can also be seen as the group helping to ensure nobody falls through any knowledge gaps. Peer learning can also provide social support and many programmes send a minimum of two students at a time for rural and remote placements.

The context and patients as a learning resource

Different settings for learning in the rural context include a range of non-traditional sites. This could be consulting under a tree in remote communities, or in your own home while you role model the multi-tasking of a rural health professional with other commitments to the community and family outside of the clinical setting. These are rich learning experiences, in particular when compared to ward rounds in metropolitan hospitals where the tendency is for them to be conducted around charts rather than at the bedside.

In rural practice the focus is still on the real-life patient – and learning in this real- life setting with real-life patients and clinicians offers exposure to the nuances of treating patients which are more likely to be elicited through discussion with the clinicians, and significantly, the patients themselves (e.g. how long a patient needs to continue treatment, and when a patient should return for follow-up). Thus connections are made with what already has been learnt (e.g. from microbiology, pharmacology, public health, or the cardiovascular system), bringing it all together in a single patient interaction. Working through issues that have particular meaning for the patient or clinician at the time, will make more sense to the student and makes learning more 'likely to stick'. Conversely it will also bring into sharp focus what has not been learnt or has been forgotten which is in itself a good motivator to learn. This is how doctors learn in practice and needs to be reinforced to help the transition of students into thinking and behaving like doctors.

Another key aspect is learning directly from patients. Where there is a longitudinal programme, the student can either see a panel of patients on a regular basis, or can learn through individual prolonged patient contact (with a specific student appointment or before being seen by a qualified practitioner). Determining which patients might be part of a panel and whom students might see from a busy schedule are important logistical aspects of teaching to ensure they are sufficiently exposed to the breadth and depth of the rural curriculum. Giving students a sliding scale of responsibility with 'their own' patients over time is rated as most effective learning by students. (This will obviously vary for different patients, as it will for different students – but this is part of the art of teaching and provides diversity for clinical teachers to stay engaged in teaching.)

Study plans

The real issue, of course, is what has been learned rather than just taught. This needs to be assessed for each individual student through observation, discussion and assessing the questions they ask and/or responses they give (just as you might diagnose a patient, assess the student). Understanding what a student already knows and to what level, will help you to develop together a study plan or learning contract to address expectations (of learner and supervisor – yourself and others) and in particular any identified important gaps. Your experience of what students find challenging at this stage of learning can help to clarify the plan – but for the best outcomes, the student needs to own it. To have identified the student's personal learning objectives, how they might be addressed and how they will know they have been achieved, is an important step in ensuring that they achieve the goals. Without a plan, there is less commitment to act despite any willingness to learn.

You and the student

A particularly common fear is that the student might know more than you. While this is highly unlikely to be the case, given the difference in years of practice, patient encounters and experience, it does not mean that you will not learn from having students; you probably will. Use this to your advantage; find out where their skills might complement your own, use this to patients' advantage and acknowledge your learning from them (a great way to start a strong teaching/learning partnership).

In the case of the over-confident or very knowledgeable student, it is key to engage them in the challenge of learning. This can be done by either introducing a higher level of thinking, such as the use of comparisons ("How does this patient's illness compare with the patient we saw last week?"); or hypotheticals ("What if the patient was female; would it make a difference and does it matter?"). You could also suggest that they 'be you for the day' and literally get them to sit in your chair while you observe them. This strategy will allay your fears and stimulate the students to see that there is always more to learn. There are similar strategies for when the clinic is slow, or too busy.

When you are concerned that the student might have a knowledge deficit or unacceptable attitude, or 'something you can't quite put your finger, on but the placement is not going well', proceed to diagnose the student and develop a management plan, ideally with the student and without delay. Direct discussion as part of a trustworthy relationship between supervisor and student is an important

first step as an early raising of awareness with the student may be all that is needed to rectify any situation.

Gather more information by discussing with others in the practice setting or who have interacted with the student; get their observations on how the placement is going. This is easier to do in the closer knit setting of rural practice. The sooner a record is made (observations, feedback given to the student and following feedback any further outcomes), the sooner something can be put in place to help the student and for yourself; medical schools and universities are usually slow to respond. Documentation also helps map whether it is a once-off occasion rather than a pattern with the risk of becoming a persistent habit.

Informing the medical school and asking for help early is the best course to take in anything other than a minor issue. It is the role for academics and/or student support officers to provide help to you and the student, and not leave you feeling that you have to take on the whole responsibility of getting a student back on track. Continuing professional development often provides sessions on the challenging learner and you will find that your learning from these instances contributes to the interesting challenge of teaching. Students often reveal that this was a moment of intense learning for them and even may have changed their life - with you, the rural doctor, often becoming a strong mentor for them continuing into later life. These encounters for the student may not necessarily have the negative impact you might fear.

Pastoral role

Undergraduate students are not an homogeneous group and they will have facets where they are still adolescent in their development, in particular in their professional development, no matter their age or stage of learning. Once in a rural or remote setting, students are more visible and any problems they have will often be revealed – be this personal, professional, academic or social. As the rural teacher, you or your delegate need to be prepared for some worst case scenarios and be 'on the alert'.

As it is unlikely that students will have been under such scrutiny prior to their placement with you – and as nothing counts towards university regulatory processes until it has been documented, the trick is to document everything contemporaneously (as per patient notes). There are many parallels between the relationship of student:teacher and patient:doctor. In talking things over with your

student, it is also important to check your assumptions; sometimes they will be much more comfortable with their situation than you might expect. If you are not comfortable with the situation, ask for help from the home campus straight away; they usually have prior experience of the issue, if not with the same student.

Being a rural teacher-clinician

Relationship with the institution

Being clear about the overarching goals of the rural programme and where you fit in is essential to establishing your confidence in the role and thinking of yourself as a teacher rather than just a clinical co-ordinator.

Being familiar with the curriculum, academic governance and who's who at the medical school is important to make your life as a teacher easier. Being involved in the programme in academic administration, admissions, assessment, research and whatever takes your interest, beyond 'just' teaching at the rural site, is important for credibility with students, your colleagues and to help get across an understanding of the rural perspective on any issue at the home base – from doing this you will shepherd the rural programme.

Professional development

Usually when faculty[2] start teaching, they expect that someone will give them all the answers. For rural faculty in particular this is unlikely to occur in a way that is timely or useful, unless you have a particularly strong and rurally-focussed faculty development or continuing professional development department in your medical school.

Although there are a number of courses available, including on-line, often the best way to develop teaching skills is to establish a local group of colleagues with an interest in teaching and a mentor to help explore your reflections on your practice and teaching as you undertake the task. You will soon become the expert for your own setting and patient population. Fears about worst case scenarios are usually the greatest concern (just as it can be for students) so elaborating on what these might be and working through potential solutions with your colleagues is most helpful.

2 'Faculty' is another term for members of academic staff.

Student feedback

Do not be afraid to ask students directly for feedback; it can be invaluable to your own learning. Journalling student feedback and/or developing your own education portfolio[3] is helpful to establish for yourself how quickly you develop your teaching skills.

Monitoring progress – and gathering evidence for advocacy

As a rural teacher, it is your job to guide further programme development – look to see what other rural programmes have reported and see if you can replicate or build from that experience.

Once the programme is in place, it will need regular monitoring and review, as well as students' progress tracked. Frequently asked questions about the quality of the ongoing programme and what students will learn in the rural setting related to exposure ('the curriculum walks through the door') and guided experience ('are they safe in there') (9, 10).

As other, non-rural faculty will generally not understand the full nature of rural practice, putting a research agenda in place is vital to the success of any rural undergraduate medical programme. This should cover the initial description of the programme through to full-on medical education or clinical research, ongoing monitoring, refinements, *and* publishing This needs to be done early, often prior to any other evidence of success being available (such as consistent student success in assessments or their careers which may take years of tracking). Involving the students in the rural research agenda is likely to generate more interest in and understanding of rural practice, as well as may make for a lighter work load for supervisors.

3 An educational portfolio is increasingly being requested by academic institutions for promotion and tenure. Although promotion and tenure is often assumed to be of less importance for rural teachers, I have found that this is not the case in all circumstances and it is worth checking with individual faculty what their preference might be to show that they are valued as teachers in the programme.

Four formal aspects of rural undergraduate medical education

There are four key formal aspects of rural undergraduate medical education (3):

1. **Rural clinical education**: a broad range of learning opportunities with early placements and later attachments.
2. **Rural aspects of other topics in the medical course**: rural mental health, rural women's health, rural men's health, and rural public health.
3. **Rural health and practice**: the specific discipline.
4. **Rural social club** and mentor schemes for students.

These are learnt through a formal (prescribed) as well as through an informal curriculum – which might include tacit learning (observation and mimicry); hidden curriculum (objectives not identified in the curriculum but learned, such as 'learned helplessness' when specialists espouse superiority to other practitioners); as well as what is not taught i.e. what is silent and/or missed by both learner and teacher.

Rural clinical education: The triple diagnosis or 'core plus' curriculum

For a variety of reasons, patients in rural and remote settings have been shown to present with a greater likelihood of co-morbidities and more advanced stages of illness. This co-exists with particular constraints in management because of the local health service delivery, lack of resources, patient factors and the greater impact of socio-economic determinants of health. The rural patient is thus often referred to as having a triple diagnosis: clinical, social and contextual (rural context) rather than only having a single issue (as per conventional textbook or funding formula for clinical practice).

The triple diagnosis underpins the concept of rural undergraduate medical education, providing a 'core plus' curriculum. Explaining this framework to students will help them interpret what they see in rural practice (organising principle). It is usually well accepted by students and considered a stimulating challenge to learn, rather than just an extra work load. The acquisition of additional skills, understanding and behaviours learnt while in rural and remote programmes is seen by students and future supervisors (at any site) as a benefit: students often not only improve their scores but also their ranking in medical school (5), as well as achieving subsequent successes in postgraduate training (6).

Rural aspects of other topics in the medical course

Being familiar with the overall medical curriculum will help in being able to identify learning objectives that are common to other specific topics in the medical course. Cross–referencing between disciplines and topics is a useful task for the student to become familiar with the whole curriculum and also to think about comparisons between rural practice and other settings. Discussion around this often highlights nuances that might otherwise go unobserved.

It will not be surprising that students can learn from other practitioners from different disciplines and educators from the community who may not traditionally teach medical students. Key questions to help guide them in their teaching may include asking them to explain or demonstrate "why you do what you do and how is your practice in rural or remote different to other settings"; and, "how you fit in to the local health system, in particular how you articulate with other clinicians."

Rural health and practice

The rural medicine curriculum (both undergraduate and postgraduate) emphasises context rather than content, highlighting the distinctive features of rural health, rural communities and rural medical practice (7). It is thus usually more than the core curriculum required by the medical school, with additional learning objectives reflecting the rural context. The ten key components are as follows:

1. Rural culture: the close-knit supportive community, strong behavioural norms, and self-reliance and stoicism.
2. Rural health status: country living is not healthy living (avoidable deaths, more serious injuries, and specific lifestyle related illnesses).
3. Clinical tasks: emergency and acute care, hospital in-patient care, comprehensive continuing community care.
4. Rural health services: access is the major issue (geography and demography, workforce shortages, and the delivery of care whether it is provided locally, at a distance or by visiting health professionals).
5. Rural health policy and politics: policies determined in the city; declining rural economic power, reducing political influence.

6. Nature of rural practice: multi-skilled, independent professionals (general practitioners provide specialist services); important community role: family and social issues.
7. Public health: primary health care approach, the social determinants of health, occupational and recreational health and safety, health promotion.
8. Special needs groups (limited access to specialised services): Aboriginal people; women; old, young and disabled.
9. Multi-disciplinary teamwork: nurses, doctors, allied health professionals.
10. Teacher training with active involvement of rural doctors (requiring faculty support, educational materials, and rural input to curriculum development).

This is complex, and as the rural teacher- clinician, your role is to enable the students to experience for themselves the rural curriculum components through patient contact. A key outcome of learning is for students to understand the complexity and general nature of the rural context, retain that in the background, while focusing on particular issues for the patient, with both patient's and doctor's agendas weaving to and fro. In the mix, the hidden curriculum and tacit learning will occur.

Rural social club and mentor schemes for students

As the rural undergraduate teacher-clinician, you may need to be involved in, and guide the establishment or development of the rural student club. Drawing on your own experience (or of what was missing when you were a student) will help, although in the main these clubs are run by the students themselves, requiring little extra help.

The rural student clubs and mentoring schemes are important for addressing the hidden curriculum: busting myths and correcting misinformation as well as identifying the positives and providing student support. These can include

negative perceptions of rural and remote practice;
attraction to rural and remote practice;
recruitment and retention of facilitators; and
rural practice career pathways.

The rural student social clubs often provide a 'home away from home' where students from a range of health disciplines with a rural background and/or interest in rural practice can congregate with like-minded others across the year levels (vertical integration). In particular, the clubs are able to build in learning about the skills important for rural practice, which often need extra emphasis beyond the formal curriculum. They can also help to familiarise students with the variety of rural practice and rural communities: "when you have seen one rural town, you have seen one rural town" (8). Invited speakers, evenings with mentors, meeting other rural practitioners, visits to communities, incorporating 'health professions as a career' promotion or an academic programme (e.g. disaster medicine) into site visits are just some of the activities that student clubs support.

Being a role model

To facilitate a student's comprehensive understanding of the work in a rural practice it is helpful to include students in everything you do – although you also have to have some down time and an opportunity to refresh. Even if you do not involve your student in all aspects of your life (more than just academic and professional), talking to them about how you manage to survive and thrive is valuable to them in perceiving a comprehensive picture of the rural or remote practitioner. It will be important for rural practice for students to observe how you juggle competing demands and how you interact with others personally (professionally and socially).

Critical to this is self-care. It is not a good idea to teach when you are feeling burnt out as this is experienced by the learner as being an overwhelming situation. All of the aspects of life as a rural health practitioner are absorbed by the student and learned as tacit learning, and part of the hidden curriculum. Discussing how you manage your life and other conundrums helps to 'make explicit the implicit' and so helps ensure students get the messages you want them to get, rather than what they infer or surmise.

Conclusion

Having said all of that - the most important aspects are to enjoy the work you do and provide students access to your patients. If you are not enjoying teaching students: stop, and ask for help.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.1.4

DEVELOPING RURAL UNDERGRADUATE MEDICAL EDUCATION IN WALES

Martin Green
The Institute of Rural Health, Wales, United Kingdom

Introduction

All undergraduate medical education in the United Kingdom is delivered through the framework prescribed by Tomorrow's Doctors (1). Paragraph 104 recommends that 'the students must have opportunities to interact with people from a range of social, cultural and ethnic backgrounds'. Furthermore paragraph 106 recommends 'experience in a variety of environments including hospitals, general practices and community medical services'. As Welsh Centre for Health figures for 2004 suggest that 35,1% of Welsh residents should be considered as rural dwellers (2), the conclusion can only be that a considerable part of medical training in Wales should take place in rural locations or with rural patients.

Developing 'country practice'

An early sign of a rural element in our medical training was seen in 1949 when Dr William Pickles delivered his lecture 'Epidemiology in Country Practice' to the students in Cardiff. In the early 1980s another important milestone was achieved with the establishment of a network of training practices throughout Wales under the guidance of Professor Nigel Stott. Many of the placements were centred on practices with community hospitals and consequently in more rural locations.

Our most rural county, Powys, currently provides more than double the student placements than it should, taking into account the population numbers. Initially the placements were for one week in the fifth year of training but were gradually extended to the current six and a half weeks.

The Institute of Rural Health

The 1998 constitution of the Institute of Rural Health in Mid-Wales, some 150 kilometres north of Cardiff, has enabled further rural educational activities to be developed in conjunction with Cardiff University. They are as follows:

1. Year 1: introductory lecture to the whole class and a weekend student selected component (SSC) for 15-20 students.
2. Year 3: small numbers of nine-week SSCs.
3. Year 5: small numbers of elective provision and placements.

While this means that all students are aware that the medical challenges in the countryside are different, not enough rurally-based education is available.

Expanding rural education

The factors that have historically facilitated expansion in rural educational activity are as follows:

1. The high quality of the education provided.
2. The co-operative working relationships between rural enthusiasts and university-based academics. Apart from the year 5 placements, all the developments have come about through a bottom-up approach.
3. The doubling of student numbers over recent years to over 300 clinical students, leading to the recruitment of more rural clinical teachers. These numbers have stabilised more recently.

There are a number of barriers which need to be overcome to facilitate the expansion of rurally-based undergraduate education, however. General issues will be considered first.

Practicing in the Welsh countryside

Wales is a small country of just over 20 000 square kilometres with few inhabitants living more than 60km from secondary care and 120km from tertiary care. Health outcomes are better in the Welsh countryside than for the urban areas of Wales. General practice list sizes are smaller – and there are no apparent recruitment issues for appointment of doctors.

Urban-based planners of all disciplines largely pay scant regard to rural issues, as the problems are less overt in the rural parts of our small and developed part of Western Europe. There has recently been evidence of this in the political sphere when the new Welsh Assembly Government removed the post of rural affairs minister from its cabinet. It is within this context that the rural profile must be kept high as part of ensuring a vibrant undergraduate education sector.

Teaching and research in rural areas

Secondly there is a need to enhance teaching and research capacity in our country practices. There is some financial support available to gain teaching qualifications and attend teaching courses through Cardiff University for the general practice teachers. This is essential to improve standards – and the established teacher should also not forget their duty to inspire the next generation.

As busy clinicians have limited time to devote to academic activities, there is a need for academic posts to be developed with rural bases to increase research and teaching capacity. There will also be a need for further significant financial support to achieve this.

Student issues

Thirdly we need to be aware of student-based issues as students learn best in a happy and supported environment. While the clinical experience and teaching in our practices is paramount, this is not generally a problem given the enthusiasm and quality of our teachers. The effects of relative isolation must be minimised whilst the students are placed with us and this can be (and is often being) achieved as follows:

1. provision of high-quality IT equipment for academic work and social interaction;
2. placement in joint accommodation;
3. bringing groups of students together for joint tutorials; and
4. hospitality within our rural communities.

The medical school grapevine is a powerful force; if the students hear that education is of high quality in rural Wales they will ask to be placed in our practices.

Finally in Wales the Cardiff curriculum is being completely re-organised through the C21 project. As any large-scale re-organisation is a time of opportunity, now is the time to engage to extend our role in the education of the Welsh undergraduate.

Conclusion

Significant rural undergraduate educational activity is being undertaken in Wales at present but there is definitely scope for expansion. This can be achieved by maintaining a high profile for rural health issues, enhancing rural educational standards and capacity as well as ensuring a high quality student experience.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.1.5

MULTINATIONAL MEDICAL STUDENT CLUBS

Ian Cameron
New South Wales Rural Doctors Network, Australia

Introduction

I have used the example of the Student Network Organisation (SNO) of The Network Towards Unity For Health (The Network TUFH) as an example of a multinational student club that has been operating since 1993.

Background

The Network began as a World Health Organisation (WHO) project in 1978, with a meeting of 18 'innovative' medical schools in Jamaica. While these universities were seen as those promoting academic community partnership, a major focus in the early years was on problem-based learning and small group learning.

In 1998 WHO began another project (Towards Unity For Health - TUFH) which extended the partnership approach to include policy makers, health service organisations and health practitioners. In 2000 these two merged to become The Network TUFH - no longer as WHO projects but in official relationship with WHO. The Network TUFH is also in official relationship with WONCA (the World Organisation of Family Doctors).

Purpose and structure

The Network TUFH has a number of task forces and has a yearly conference hosted by one of its member organisations. Most member organisations encourage student attendance and participation in The Network TUFH conferences and in 1993 this was formalised with the formation of the Student Network Organisation (SNO). SNO has its own membership base and elects its own committee. Support is provided from The Network TUFH Secretariat.

In the three years to 2009, The Network TUFH conferences were attended by 900 delegates, including 300 students who came from diverse countries including Kenya, Columbia, USA, Sudan, Australia, Belgium, Uganda and Holland.

Lessons

1. As a student organisation is, by its very membership, always changing it is important that it is supported by a less fluid organisation like Network TUFH.
2. It has been important for SNO that the students elect their own committee. This ensures that SNO is not seen as a minor addendum to the host organisation. The Secretary General of SNO is a member of the Executive Committee of the Network TUFH. Network TUFH conferences have few plenary speeches but it has been common for SNO to provide one of the plenaries.
3. SNO is consulted and has input to the conference programme. For instance at the Bogota conference (2009) SNO proposed a day-long pre-conference workshop on developing leadership as part of undergraduate activity.
4. While lasting friendships are made within SNO, it is not a tool for arranging overseas electives. These may happen, but there is a greater emphasis on student development within their own country.
5. At each conference there is an international mentor scheme where participating students are matched with a mentor, usually from another country. This sometimes develops into a lasting relationship after the student's graduation with ongoing discussion on career paths and further education options.
6. For non-student delegates, having the students participating at conferences is fun. There is a two-way flow of education, and established practitioners learn as much, or more, from the students as the other way around.
7. Students can make a huge difference to the success of the conference:
   they participate in conference planning;
   there is a separate poster prize for student posters;
   they arrange the printing and sale of conference tee shirts – a small profit can make a huge difference for the students of the host organisation;
   they may organise the conference dinner and dance – students know how to have fun!
   they can act as conference guides and give advice on local activities for delegates and accompanying people;
   they act as guides for the field trips that are part of The Network TUFH conferences.

Difficulties

As mentioned above, the biggest difficulty will always be that students move on from being students! This creates the need for succession planning, both in people but also in maintaining organisational momentum and history. There have been a number of ways that this has been addressed within The Network TUFH.

1. ***Commitment of member organisations to supporting students to multiple conferences:***
   The Belgian students who attended the Vietnam conference carried the SNO momentum to the next one in Ghent; the Ugandan students who were in Ghent carried on by organising in Kampala; the Columbian students who were in Kampala organised their colleagues for the next conference in Bogota.

2. ***Ongoing commitment of member organisations to student attendance:***
   Although the same students are not always there, there are enough to continue the momentum, with the support of some faculty[1] members. For example, the universities of Maastricht, New Mexico and Moi (Eldoret Kenya) continually support students – and these students tell others at their university so that there is a continuity of 'corporate feeling' even if the same students do not attend.

3. ***Support from The Network TUFH Secretariat:***
   In getting to know the students, in knowing their needs and in involving them in conference planning and activity the Secretariat ensures continuity of participation in SNO.

Possibilities

Social networking through the internet throws up all sorts of possibilities. SNO has had blogs both at the global and WHO regional level. Facebook has not been used systematically, but rather it used more by individual students to stay in touch.

Both of these options need moderators to ensure they continue safely, but also need to have enough content for participants to log on. Maybe this could be the focus of a permanent student elective?

1 'Faculty' is another term for members of academic staff.

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Chapter 4.1.6

RURAL SEEDS: INNOVATION AND RURAL HEALTH CARE

Mayara Floss,[1] *Grupo Hospitalar Conceição, Brazil*
Andressa Cavalcante Paz e Silva,[2] *Taquari's Valley University,Brazil*
Karine Kersting Puls,[3] *Grupo Hospitalar Conceição, Brazil*
Ana Júlia de Araújo,[4] *Federal University of Uberlândia, Brazil*
e Marcela Araújo de Oliveira Santana,[5] *Federal University of Uberlândia, Brazil*
Paola Iana Fucks da Veiga,[6] *Taquari's Valley University, Brazil*
Amber Wheatley,[7] *Wales Deanery, United Kingdom*
Veronika Rasic,[8] *Wessex Deanery, United Kingdom*

Introduction

Rural Seeds – or 'World Rural Doctors in Training'– is a network comprising largely of students and young doctors with an interest in rural medicine who collaborate closely with experienced doctors and other health professionals. Rural Seeds was established in 2016, following the success of the Rural Family Medicine Café in 2015 and Rural Health Success Stories in 2016. It was officially launched in 2017 at the 14th Wonca World Rural Health Conference in Cairns, Australia, as part of the conference's 'Call to Action'.[1]

The aim of Rural Seeds is to be a worldwide network that raises awareness and improves the guidance in training for rural practice for people in the early stages of their career development. It uses the mentorship and knowledge available from the Wonca Working Party on Rural Practice (WWPRP) and also liaises with the Wonca Young Doctors' Movement. One of its main aims is to contribute to the UN17 Sustainable Development Goals , especially goal number 10: 'Reduce inequality within and among countries' since inequality in access to health services still persists around the world, particularly in rural areas.[2]

Rural Seeds works to identify rural health care needs in various regions and to understand what improvements can be made through the local and global rural community. While the main channel of communication is a Google Group, there are also

1 Rural Seeds Ambassador and Executive Member of Wonca Working Party on Rural Practice.
2 Medical student, Taquari's Valley University, Lajeado, Brazil.
3 GP trainee and Executive Member of Wonca Working Party on Rural Practice, Porto Alegre, Brazil.
4 Medical student. Federal University of Uberlândia, Uberlândia, Brazil.
5 Medical student. Federal University of Uberlândia, Uberlândia, Brazil.
6 Medical student, Taquari's Valley University, Lajeado, Brazil.
7 Rural Seeds Ambassador, Foundation Year 2 doctor, Wales Deanery, UK.
8 Rural Seeds Ambassador, Liaison to WONCA YDM and GP Trainee, Wessex Deanery, UK.

other regional groups and social media spaces for involvement. To become a member of the network, a person needs to complete a form providing general information about themselves and their reasons for joining.

Box 1. Discovering Rural Seeds

- Forms for joining Rural Seeds: http://bit.ly/RuralSeedsForm
- Rural Seeds Twitter: @ruralseeds
- Rural Seeds Facebook: @ruralseeds
- Rural Café YouTube Channel: http://bit.ly/RuralCafe
- Rural Seeds YouTube Channel: http://bit.ly/RuralSeedsYT
- Rural Health Success Stories: http://ruralhealthsuccess.blogspot.com/

Some members have participated in advocacy aimed at university staff and national student associations, as a result of which college curricula have been changed, presentations have been given at conferences, and promotional content has been developed. These interventions have the potential to 'spread the seeds' of change within members and their communities.

The aim of this chapter is to present the activities being developed and undertaken by Rural Seeds, using data collected from social media and on-line questionnaires.

Student and young doctor advocacy

There are many disparities between the environments in which people in rural and remote areas live compared with those in urban areas. Among these are fewer health care professionals, higher rates of chronic diseases, lower breastfeeding rates and higher rates of infant mortality.[3; 4]

Rural Seeds advocates for rural health by networking with medical students, young doctors and other health professionals, both virtually and in person. This is done via discussions regarding methods to improve rural health care, through the dissemination of information and the training of students and doctors. The goal is to reduce the social and occupational isolation of health care professionals working in rural and remote areas.

In this context, advocacy is a way to discuss and promote activities that may improve access to care and reduce health inequalities.[5] It aims to influence decision makers to mobilise resources and support the implementation of policies that address the social determinants of health which underlie health inequity. As an important part of the health system, doctors should challenge health inequalities and advocate for their practices to contribute to the improvement of health care.[5; 6]

The 'rural pipeline'

There are several factors that influence a doctor's choice to work in a rural environment. These include coming from a rural background themselves, exposure to rural health in the medical curriculum or during their training, and the rural working environment and living conditions.[7] These factors influence the 'rural pipeline' which comprises the mechanisms that aim to encourage people to work in rural areas.[8]

Although studies show the value of the 'rural pipeline' to increasing the number of health professionals who choose rural practice, predictors of longer-term rural practice indicate that only some of these factors influence whether doctors actually remain in rural areas. Other factors – such as social, cultural and occupational influence, and community support for professionals – may, in fact, have a greater influence on how long they remain in rural practice.[9; 10]

Isolation

One of the difficulties faced by doctors in rural and remote areas is isolation. Rural health professionals have more difficulty in referring patients and in obtaining specialist opinions, which causes anxiety, particularly for junior doctors.[12] A study of junior doctors in Pakistan demonstrated that fear of isolation, together with quality of life and career development, were factors that influenced their decision to choose to work in a rural environment.[12] The doctors in the study were concerned about the differences between the rural work environment and the infrastructure of a tertiary hospital, including the lack of availability of equipment, pharmaceuticals and medical supplies. Another study – undertaken in Pennsylvania with doctors who worked in both rural and urban areas – showed that the junior rural doctors were more likely to report career dissatisfaction and to leave due to stress and high work demands, exacerbated by isolation.[13]

The 'isolation' factor is also identified by medical students as an impediment to working in rural areas. In Botswana, research with third and fifth year medical students who had completed a placement in a rural practice showed that more than 70% of them considered that working in a rural area leads to professional isolation, career stagnation and lack of learning opportunities.[14]

A study in India showed that networking can provide academic and social support to junior doctors in rural hospitals and can be a way to reduce their isolation. As such, it can influence students' conceptions of working in a rural hospital and of a career in such settings. The study suggested, among others, using videoconferencing and Yahoo groups for improving networking opportunities in rural areas.[15] Rural Seeds aims to provide additional networking opportunities for those currently, or who are considering, working in rural settings.

Rural health cannot be discovered by chance - case studies

A way of raising awareness about rural health care is through having people talk about their own experiences. Networks of students and young doctors, such as Rural Seeds, offer opportunities to share experiences and acquire knowledge about rural health care. Examples of some experiences are as follows:

"*I discovered rural medicine by chance in college when I participated in the Rondon Project which is a social integration project that involves the voluntary participation of university students in the search for solutions that contribute to the sustainable development of poor communities and to improve the wellbeing of the population.*

At the end of my first year of college I went to Piaui, a city of 5,000 inhabitants. I was born and grew up in the capital of this state and for the first time I was going to a city so small and distant from the large urban centres. When I arrived in that remote city, I realised there was no doctor there and I saw that access to health for those who live in rural [areas] is very different from the level of access in the capital city.

This experience changed my view and my training. Getting to know the countryside aroused a love that could only have been awakened by experience."

- Karine Puls, Brazil

"When I was in the 4th year of medical school I heard about the necessity of providing specialised training in rural settings; that there were some skills and competencies particular to a rural GP, and that it actually happened in many parts of the world, such as Australia. The way I spent the rest of my medical training changed.

Much of my reality of the community was restricted to an urban area training and there were no available textbooks in the university library about rural medical education. The findings about rural perspectives came by chance and not by choice. Even after being exposed to the lack of access to health[care] people from the countryside have to deal with, the real insight only came after the direct advocacy of Mayara who came to my university to talk about rural health. At that time she was a student who was doing her rural internship but with a great background about rural. Since then, I joined the cause and started to advocate for rural health also.

In the situation of curriculum without any rural focus, Rural Seeds' network is an illustrative example on how a useful tool, built by people, can be a powerful mind- and life-changing force."

- Andressa Paz e Silva, Brazil

"I have discovered rural health by chance when I was medical student and went to Ireland under the Brazilian programme 'Science Without Borders' in 2014. I had the opportunity to do an observership in an island in Connemara region following a rural family doctor. After my observership, I went to a World Rural Conference in Croatia and networked informally to discuss about it.

When I came back to Brazil I was feeling isolated because I could not find any peers in my university to talk about rural health. In 2015 came the idea of the Rural Family Medicine Café that unfolded later into Rural Seeds."

- Mayara Floss, Brazil

"I have been aware of rural health care through most of my training as I spent my childhood in a rural area. During my training in Croatia we were all aware of the need for medical professionals in rural areas and on many of the Croatian islands. However, we did not receive any particular training for rural medicine, nor was there a rural medicine training pathway.

I participated in the Wonca Rural Medicine Conference in Dubrovnik and helped to organise a student and young doctor programme for the event. Through this I met many inspiring rural practitioners and began to gain a better understanding of rural medicine and the different challenges associated with it.

During my family medicine training I was sent to a rural village due to a shortage of doctors in the area. This was my first real encounter with rural medicine. I was faced with a population that required a lot of care and had few resources to provide that care. This quickly resulted in my first experience of burnout. These factors contributed to my decision to move to the UK to continue my training. I believe that more needs to be done to promote rural medicine and empower rural health professionals and I hope that we can do this with Rural Seeds."

- Veronika Rasic, Croatia/UK

"I grew up in what I would call a remote setting on Virgin Gorda in the British Virgin Islands. My view of health care was shaped by the fact that there was only one clinic with two doctors and a handful of nurses on the island and the nearest hospital was a boat ride away.

When I left the Virgin Islands to study medicine I knew that a modern medical curriculum would not equip me with the skills I needed to function at home. After starting my medical training at Swansea University, I joined the Rural and Remote Health in Medical Education track and met a number of rural health care professionals locally. I was also encouraged to join the Wonca Working Party on Rural Practice and this put me in contact with health care professionals around the world who were passionate about rural medicine. Eventually I joined the first Rural Family Medicine Café and then Rural Seeds."

- Amber Wheatley, British Virgin Islands/UK

Rural health will not be sustainable if it is a career that is only discovered by chance. Rural Seeds is one way of inspiring interest in rural health through an international network – providing opportunities for identifying similar challenges in different parts of the world, and to consider possible solutions.

Rural Seeds: Opportunities, projects and actions

As a young network full of creativity and ideas, Rural Seeds is still developing and working out how best to manage itself and embark on projects. Some of the activities will be presented here.

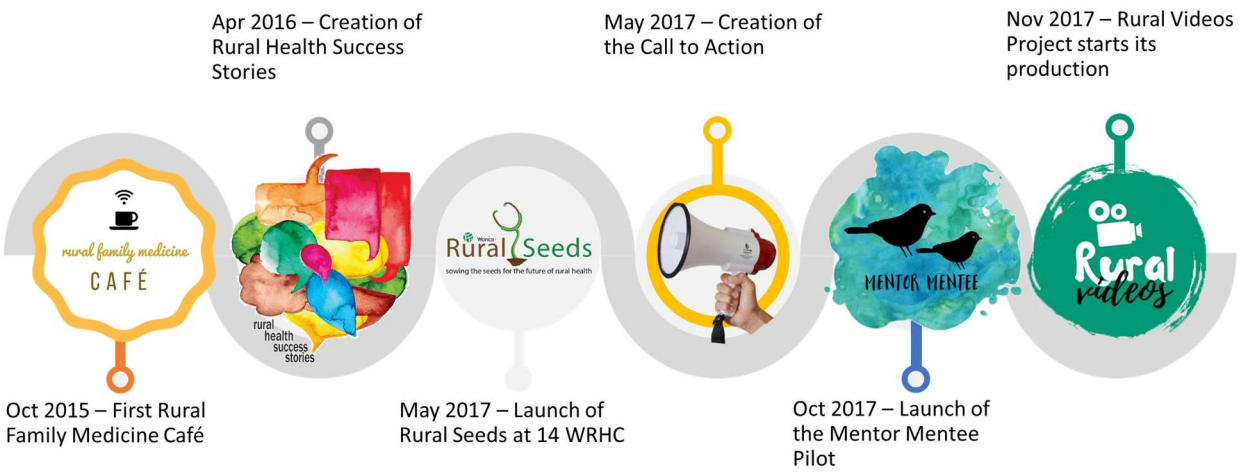


Figure 1. Rural Seeds timeline

Call to Action: 'Health for all rural people around the world'

The Call to Action was created in consultation with students, young doctor organisations and individuals present at the Wonca 14th World Rural Health Conference (14WRHC) held from 29 April to 2 May 2017 in Cairns, Australia.[1] It aims to give a voice to rural health professionals in training and to set integrative and supportive goals for the rural health sphere, based on the cumulative experiences of organisations and individuals. Three main areas were identified for action:

- Education and training
- Co-empowerment
- Communication.

Details of these – taken directly from the Call for Action – are as follows.[1]

Box 2. Call to Action

Education and Training

- 'Promote rural health career options at both undergraduate and postgraduate levels.
- Support student endeavors to include or increase the content or quality of rural health in their local medical curricula.
- Empower local communities to contribute to the development of sustainable rural health care practices for their region and support translation of these approaches into the local medical curriculum and reality.
- Establish or expand new rural placement opportunities, ensuring adequate modelling from well-established rural health programmes wherever applicable
- Encourage and facilitate culturally-aware education structures as part of the rural health curriculum and ensure adequate preparation has been provided prior to placement in a community with differing cultural attitudes than one's own.
- Increase the attendance of rural health professionals in training to World Rural Health Conferences through careful consideration and mitigation of associated costs and other barriers to accessibility.'

Co-empowerment

- 'Continue the development of *Rural Seeds*, *Rural Family Medicine Café*, *Rural Health Success Stories*, and other international organisations and platforms that support the needs and practices of rural health professionals in training.
- Develop a toolkit for local rural health projects to ensure that they are better connected with international networks.
- Promote the advocacy and lobbying efforts of other rural health professionals in training with regards to rural health education, training and practices.
- Collaborate with interdisciplinary rural health professionals in training on issues of common interest.
- Ensure equal opportunities exist in rural health irrespective of gender, ethnicity, religion, sexuality or disability.
- Support the development of national rural placement guides for young professionals who are due to commence a new rural placement.
- Build quality relationships with local communities for reciprocal learning.
- Seek out and utilise community role models to promote rural health needs and as a career choice.'

Communication

- 'Improve the utilisation and proficiency of social media as a tool for empowerment and engagement in rural health.
- Increase the sharing of art, stories, songs, poems, narrative-based medicine and other creative endeavours for the benefit of both rural health professionals in training and rural patients.
- Ensure that adequate face-to-face connections are maintained wherever possible.
- Survey members on their preferred methods of communicating, sharing and connecting and adapt communication methods accordingly.'

The Call continues:

'In addition to the call to rural health professionals in training above, we also call on governments and universities to support the endeavours outlined and to action the following plan:

- establish and expand supported and integrative rural health training networks across undergraduate and postgraduate levels; and
- increase consultation opportunities with rural health professionals in training and facilitate the translation of their ideas and needs into the provision of rural health practice.'

The aim is to review the Call to Action every two years to ensure adequate progress is being made. This will include refining proposed targets, noting any shortfalls and achievements and using these to improve the ways of meeting the objectives.

Rural Seeds Projects

As the time of writing, Rural Seeds has four ***active projects:***

- Rural Family Medicine Café
- Rural Videos
- Rural Health Success Stories
- Mentor-Mentee Programme.

It also has two ***discontinued projects***:

- Rural Wiki
- Rural Advisor.

Finally it has one ***upcoming project***, the pilot 'Spreading Rural Seeds'.

Active projects

- **Rural Family Medicine Café**
  The Rural Family Medicine Café is a live, and lively, monthly forum focussing on rural family medicine and involving health care practitioners and students from all around the world. It aims to address issues that are common in rural settings, including support and engagement of rural health care professionals.

  Organising a café involves choosing an appropriate topic, deciding on the date and time of the café, publishing and promoting it on social media and inviting participants. It also includes co-ordinating comments on Facebook and Twitter and posting the video of the discussion after the café.

  As at October 2018, the project had held 36 sessions with participants from all continents.

  Manual: 'How to do a Rural Café?
  The Rural Family Medicine Café has grown into a virtual community and an informal learning environment with international participation. While the cafés aim to overcome geographical and professional isolation using social media, issues such as internet access became apparent. As a result, a manual on how to run rural cafés locally was designed[16] giving step-by-step instructions, including the equipment needed and how to utilise social media. This allows professionals in rural areas to connect with each other in their own language and time zone and discuss issues pertinent to them.

- **Rural Videos**
  The aim of the rural videos project is to explore some topics relating to rural health, specifically for undergraduate medical students and newly qualified health care professionals.
  With the financial support of the Brazilian Society of Family Medicine and in conjunction with the Brazilian Working Group for Rural Health, a Brazilian group within Rural Seeds was able to obtain the software and tools needed to produce short videos which have also been used to educate the general population on specific topics in rural health. The videos are:
  - 'Do you know what rural health is?' (English and Portuguese)
  - 'Why rural health is different from urban health'
  - 'Planetary health: what is this?'
  - 'Rural Seeds'
  - 'Mentor-Mentee Programme'.

  The Rural Seeds video network was also used to produce 'Francesa Alta', a documentary about pesticides (directed by Dr Paola Veiga) and 'Ruralices' which is a

poetic perspective on the work of rural young doctors, with images from Dr Mayara Floss and text from Dr Amber Wheatley.

'Francesa Alta', 'Do you know what rural health is?', 'Planetary health: what is this?', 'Ruralices' and 'Why rural health is different from urban health' were selected for the International Short Film and Arts Festival at the 15th Wonca World Rural Health Conference held in New Delhi. The last two were awarded for the best soundtrack and best animation respectively.

- **Rural Health Success Stories**
  Rural Health Success Stories is a collection of creative writing pieces, written by rural health care professionals and students interested in rural medicine, with the aim of engaging and inspiring rural health care professionals. Even though 'success' is included in the name, the project shares stories which address all aspects of working in rural areas.

  A product of a partnership between Wonca Rural South Asia (WoRSA) and Rural Seeds, each piece is published on the Rural Health Success Stories blog (http://ruralhealthsuccess.blogspot.com.br/). The goal of this project is to produce a book with images and rural stories from all around the world.

- **Mentor-Mentee Programme**
  The Mentor-Mentee Programme was established in 2017, following discussions at the World Rural Health Conference on methods for reducing isolation of rural health professionals. It aims to connect rural medical professionals in training with more experienced colleagues, to help them achieve their potential in rural health care – with a view to reducing isolation and to creating more equitable access to training opportunities around the world. (For further information, please refer to the chapter in this Rural Medical Education Guidebook on 'Mentor-Mentee Programme: Mentoring in areas without established rural training pathways'.)

Discontinued projects

Although Rural Seeds is run entirely by a small group of highly motivated volunteers, one of the challenges with implementing projects has been maintaining consistent involvement given competing personal commitments, including university or medical practice. As a result, some projects could not be sustained and have been left incomplete. Two of these are RuralWiki and Rural Advisor.

- **RuralWiki**
  The aim of this project was to collate information specific to rural medicine, providing a user-friendly point of reference. The idea was to create a specific place for rural information in a way that allowed people all over the world to contribute to themes (like a Wikipedia). This did not develop, however, given a lack of funds and access to the expertise needed to design such a platform.

- **Rural Advisor**
  This project was inspired by the travel review site TripAdvisor which provides information and reviews on activities, restaurants etc. by users of the site.
  Rural Advisor would have facilitated easier access to information on rural short-term work experience opportunities (internships) around the world as well as comments and evaluations on the experiences by 'users'. The central idea was to connect locals, universities and rural professionals who are offering internships in rural areas with people interested in undertaking these internships. It would have focused on undergraduate medical students but could have included postgraduates. It would also have indicated whether or not internships were 'certified by an official organisation'.

  Rural Advisor was to be a website/app accessible only to people or institutions who had registered as users. This project stalled because of the lack of funds to develop such a website or app and the lack of support to maintain such a project.

Upcoming project

- **Spreading Rural Seeds - Pilot**
  Rural health is a neglected topic in medical school curricula around the world. A huge number of health care professionals complete their training without being exposed to, informed about or prepared for the reality of rural health care.

In Brazil this situation caught the attention of some students and inspired the creation of 'Spreading Rural Seeds' which aims to encourage medical student exposure to rural health via student groups such as academic leagues. Members of Rural Seeds conducted presentations on rural health activities and experiences in rural health, and also invited students to join Rural Seeds. A pilot meeting was held in Passo Fundo, Brazil, in three academic leagues.

As a result of involvement with Rural Seeds, two medical students in Brazil are in the process of creating four-week rural work experiences at the Universidade Federal de Uberlândia. The main constraint with incorporating rural health into the curricula has been the financial support needed to hire additional preceptors. Despite challenges with the preceptors and infrastructure, a positive experience has been reported.

Scientific production and research

Since the inception of Rural Seeds in 2015 at the 13th Wonca World Rural Health Conference in Dubrovnik, its members have given a number of conference presentations regarding rural health for young health professionals in training, focusing on scientific research and projects for family doctors. Examples are as follows:

- The first Conference Rural Cafés with live transmissions took place in 2016 at the 21st Wonca World Conference. Since then, Rural Cafés have been transmitted from all the other World Wonca Conferences, as well as from the 4th WHO Global Forum for Human Resources in Health, Dublin, Ireland in 2017.
- A key presentation on 'Rural Stories, Leadership and Co-empowerment' was included in the 14th Wonca World Rural Health Conference, Cairns, Australia in 2017.[17]
- One of the Rural Seeds ambassadors participated in the Investing in Rural Women and Girls event at the 62nd session of the Commission on the Status of Women, WHO in New York, USA.[18]
- Rural Seeds members have being actively involved in organising workshops such as 'How to produce Rural videos', 'Rural Doctors in training around the world', 'Rural internships/electives', 'Mentoring in rural areas' and 'Social media and rural health'.
- They have also engaged in oral communications presenting the network and its projects and have participated in many discussions and panels. For example they participated in panels and meetings of the Wonca Young Doctor's Movement.
- The work of two Rural Seeds members was recognised at the 15th Wonca World Rural Health Conference, New Delhi, India, 2018 : 'Rural health and medical education: The view of a medical student' and 'Rural Seeds: Innovating the rural health care'.
- Rural Seeds members also participate in local conferences.

Social media

Rural Seeds is active on several social media platforms including Facebook, Twitter and YouTube.

The Rural Seeds **Facebook** page was created to be an informative and visually attractive channel to raise awareness of rural health issues (see Figures 2a and b). This included promoting Rural Seeds projects and rural health conferences around the world. The Rural Seeds Facebook has had over 4,900 interactions to date and gained about 400 followers between 2017 and 2018. Interactions on the Facebook page are done primarily through various posts.

Figure 2a. Social Media marketing:
Campaign 'You Should Consider to be a Rural GP'



Figure 2b. Social Media marketing:
Quotes and examples of social media campaign



On the other hand, interaction on the Rural Seeds **Twitter** page takes place mainly during the monthly Rural Café meetings through the handle '#RuralCafe'. To date, there have been 144 posts on the Twitter page with the highest interaction coming from the promotion of the animated video 'Do you know what rural health is?' in both English and Portuguese.

The structure of Rural Seeds

Rural Seeds has a horizontal structure to ensure that all members have an equal voice.

It is organised around its projects, each being co-ordinated by one to three Project Leads who are, in turn, co-ordinated by a Rural Seeds Ambassador. Ambassadors help Project Leads to develop and implement their projects – and also act as representatives for Rural Seeds members at professional events.

Additionally, Rural Seeds has a Young Doctors Movement (YDM) Liaison, a Social Media Co-ordinator and a secretary.

The functions of each role are as follows:

- The **Rural Seeds Ambassador** promotes rural health and its continuing development and helps inform and guide members of Rural Seeds. They are also expected to be advocates for the health of rural communities and rural health care workers and encourage engagement and collaboration across different health sectors. The primary function of the Ambassador is to work closely with the Project Leads to develop and promote projects and activities. They also represent Rural Seeds at conferences, events and congresses.
- The **Rural Seeds Project Leads** must choose appropriate topics for projects and activities and organise them accordingly. They are expected to report activities to the Ambassador and assist in the promotion of projects and activities on social media.
- The **Young Doctors Movement (YDM) Liaison** involves the various YDMs within Wonca in Rural Seeds activities. They are responsible for relaying information on Rural Seeds projects and activities to the Wonca YDM Lead with a view to facilitating collaboration and sharing of information.

Practice pearls

- **Register participation**: In order to participate and stay up-to-date, people are encouraged to sign up to the Rural Seeds network via a registration form (http://bit.ly/RuralSeedsForm). By doing so, Rural Seeds members join a mailing list where project and activity information is shared.

- **Collaborate in projects via networking:** Having a variety of projects allows Rural Seeds members to explore their strengths and join in projects that suit their availability. This ranges from the monthly commitment of co-ordinating a Rural Café to ad hoc involvement like publishing a rural health story. Rural Seeds encourages its members to network horizontally and interact with each other to develop opportunities for both undergraduate students and newly qualified doctors.

- **Empower members:** Rural Seeds members are encouraged to spread 'rural seeds' and empower governance bodies to develop projects locally – including rural cafés, student clubs and research – given that not all bodies of governance are geared towards equity in health and towards the importance of rural health care.

- **Financial support:** While there is plenty of energy, innovation and enthusiasm from students and young doctors interested in rural work, a lack of funding for projects and for attending international conferences is a perennial issue. Members are encouraged to use the Rural Seeds networks for advice on funding. Rural Seeds also advocates for reduced conference fees for students and young doctors working in rural areas.

- **Recognise the achievements of the network:** As part of empowering and encouraging members, Rural Seeds highlights the achievements of its members who face social and occupational isolation and work in difficult circumstances. Achievements are recognised and circulated by members over social media. These include hosting rural themed conferences, publishing research, initiating projects for improvement of rural health care and work in rural health advocacy.

- **Advocacy:** A central part of Rural Seeds is advocating for health equality for rural populations and for improved working conditions for rural health care professionals. Rural Seeds also assists with advocating for medical students working towards incorporating rural medicine into their academic curricula. While universities and other professional bodies are not always supportive of students developing a career in rural health, Rural Seeds aims to provide a network for advice and support for students wishing to do so.

Challenges and opportunities in the future: Growing the seeds

In writing this chapter, it has been interesting to reflect on how many people have discovered rural health by chance. This raises the question of how many health professionals around the world have not considered a career in rural medicine simply because they had not experienced it. This can be likened to seeds lost in infertile land.

Rural Seeds has developed into a network with a strong public profile and multiple projects – the intention being that this will raise the profile of rural health, making it a more visible and viable option for health professionals. By creating a community through its projects, it also intends to reduce the isolation of rural practitioners, thus supporting their continuing in this work.

Besides sowing seeds, it is important to provide opportunities for those seeds to grow. This can be achieved by collaboration with other rural health initiatives around the world to facilitate the development of innovative and sustainable rural health practices. Strategies to achieve this have been outlined in the Call to Action described in Box 2 above.

Despite many of the positive outcomes outlined in this chapter, Rural Seeds is still challenged with finding more effective methods of encouraging members to actively engage in existing projects and to develop projects of their own. One way to address this would be to develop a guide on fundraising and how to engage financial administrative personnel, since many projects require financial planning and support.

Rural Seeds is interested in supporting local organisations and individuals advocating for rural communities to achieve better visibility and bring about changes in rural health. It will continue to be an open and innovative network that welcomes a diverse

range of experiences and opinions in the spirit of attaining health care for all and making rural practice an attractive career option for all health care professionals.

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12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 4.2.1

MEDICAL SCHOOL ADMISSIONS POLICIES TARGETING RURAL STUDENTS

Pamela Stagg
Flinders University, Australia

Introduction

It is recognised globally that there is a lack of medical and allied health professionals in rural areas and that this contributes to the lower health status of rural populations (1-9). There is also consensus that students from rural areas are more likely to practice in rural areas (4, 10-16) and that efforts need to be made to recruit more students from rural areas into medical schools (17). In Australia, the government has mandated that 25% of Commonwealth-supported medical school places must be allocated to rural origin students (14, 18, 19). In addition, 17 Rural Clinical Schools have been introduced across the whole of Australia (19) and five new medical schools in regional Australia.

Addressing disadvantages and disincentives

Despite this recognition, in most countries the number of applicants to medical schools from rural areas tends not to reflect the population ratio in those countries (3, 20-22). This has been attributed to a number of pre-medicine disadvantages including simply living in a rural area where there is often limited access to a high school science curricula, career counselling, mentoring and career information (3, 21-27). Combined, these factors mean that lower numbers of rural students apply to enter urban-based medical schools (21, 22, 27, 28). Further, from this smaller pool of applicants, a lower proportion of rural applicants are offered places than non- rural applicants (3). It has been proposed that this is because admission processes inadvertently discriminate between rural and urban candidates (21, 25), although at the University of Calgary in Canada, research found that the admission process did not disadvantage rural origin students (20). In 1999 Rabinowitz (29) called for more medical schools to change their admissions processes in order to admit more rural students into medical schools.

There is a view amongst medical educators across the world that increasing the number of doctors alone is not the answer to society's health needs. This view is encapsulated in the formulation of the Training for Health Equity network (THEnet) (30), a collaboration of medical schools that have adopted a social accountability mandate to orientate their education, research and service activities to the priority health needs of their communities. An important component of this mandate is to recruit medical students from local, underserved rural areas.

The United States

In the United States (US) a number of medical schools have been established with the express aim of graduating doctors responsive to the health needs of rural populations in America (31-34).

One of the earliest and most successful programmes to address the rural workforce shortage started in America at the Jefferson Medical College of Thomas Jefferson University. In 1974 the College developed the Physician Shortage Area Programme (PSAP) (11) which selectively recruits and admits rural students. The PSAP offers an educational curriculum designed to increase the number of rural doctors and especially primary care doctors – and the programme has been extremely successful in doing so. In 2011 (35) outcomes of the PSAP showed that its graduates:
are more than eight times as likely as their peers to become rural family physicians;
have a retention rate of 79% after 11-16 years in practice; and
accounts for 21% of family physicians practicing in rural Pennsylvania who graduated from one of the state's seven medical schools, even though they represent only 1% of graduates from those schools.

One of the major strategies of the School of Medicine at the University of Washington is to designate places for rural students, sponsored by the five states served by the Schools, known as the WWAMI region (Washington, Wyoming, Alaska, Montana and Idaho). In 1992, the School established the Native American Centre of Excellence (NACOE) whose priority aims are to recruit American Indian (AI) and Alaskan Natives (AN) students into the school, to provide culturally appropriate support and to integrate native healing into the curriculum (31).

Canada

A review of the future for medical education in Canada undertaken in 2011 identified ten priority issues which need to be acted on in order to build a suitably trained rural medical workforce. The highest priority was for medical schools to adopt a social accountability mandate to address local and community needs. This was followed by improving access to medical school and improving the admissions process in response to those needs (36).

Recruiting medical students from local, underserved rural areas is evident at the Northern Ontario School of Medicine which has a mandate to favour rural, Francophone and Aboriginal applicants that meet the academic criteria for admission (37). And there has been a change in the admissions process at the University of British Columbia, where two new rural sites established as a result of expansion to a distributed campus model have their own admissions committees and a specific admissions stream for Aboriginal students (38).

Australia

In Australia, the Northern Territory Rural Clinical School (NTRCS) has an enrollment quota of Northern Territory residents and Aboriginal students. Established in 1997, NTRCS graduates are more than ten times likely to undertake an internship in the Northern Territory (NT) than non-NTRCS Flinders graduates, with 70% of NT quota students choosing internships in NT (39).

A small quota of four rural origin students are selected into the Flinders University School of Medicine each year by a committee of rural community members (40). These students are guaranteed a place in the rural-based, longitudinal integrated clerkship1, the Parallel Rural Community Curriculum (PRCC) (41). Students from both rural and urban backgrounds can apply for the coveted PRCC places. Half of the urban origin graduates of the PRCC report being 'converted' by the experience to embark on a rural-based career (40). Overall 70% of PRCC graduates are practicing rurally (42).

1 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

The James Cook University, located in tropical north Queensland was established with the aim of graduating doctors with the skills, knowledge and desire to practice in rural and remote Australia (43). Both Flinders and James Cook universities have been successful in building the 'education pipeline' by retaining graduates in intern positions in rural areas(44, 45).

South Africa

In South Africa, as in the countries already mentioned, there is both a shortage of rural doctors and a lower proportion of rural students entering medical schools (22). Government policy enacted since South Africa achieved democracy in 1994 is driving reforms in medical schools. The Health Professions Council of South Africa accredits medical education programmes and the Council is a major impetus for change. Recent changes require medical schools to admit and to graduate more black, (particularly) female doctors willing and able to work both in the public service and in rural areas (46).

Since 1994, there has been a substantial shift in the demographics of applicants to the eight medical schools in South Africa. Black enrollments now account for nearly 70% of the total intake and over 40% are black Africans. However this is not the case at graduation. White students formed a greater percentage at graduation than enrollment, whilst black Africans formed a smaller percentage at graduation than at enrollment (46).

One medical school that has reversed this situation is the Faculty of Health Sciences at Walter Sisulu University (WSU) - established in 1985 to help address rural workforce inequities in the Eastern Cape, one of the poorest and most regional provinces. As at 2008, WSU had graduated 745 doctors, of whom 70% are black (47). This substantiates the claims of De Vries and Reid who suggest that

> 'the South African situation is similar to that in other countries, with rural-origin medical students more likely to choose rural careers than urban-origin students. Rural-origin graduates are also more likely to choose general practice. It is recommended that the selection criteria of the medical faculties be reviewed with regard to rural origin, and that the career aspirations of applicants to medical school be taken into account in selection, particularly with regard to primary care or general practice' (48).

The Philippines

In contrast to South Africa where government policy is driving reform in medical schools, the same cannot be said in the Philippines. In 1994 a new medical school was opened at Ateneo de Zamboanga University, Zamboanga City on Mindanao Island - one of the most underserved areas of the Southern Pacific and where nearly one third of the 72 million people in the Philippines lives. Seventy percent of the people live along the heavily populated shorelines of the islands where travel is predominantly by boat and access to inland areas is mostly on foot (49).

While the mission of the Ateneo de Zamboanga University School of Medicine states that the School 'exists to help provide solutions to the health problems of the people and communities of Western Mindanao' (49), the founding Dean of the School of Medicine in 2008, Dr Fortunato Cristobal, lamented in an interview that

> 'recognition has been our greatest challenge. While we have achieved recognition internationally, we have yet to receive recognition or much support from the government. The courage to shift away from the traditional approach has always been met with scorn, ridicule and outright opposition from the medical profession itself, as well as from government institutions, which have been reluctant to give us the mandate to pursue and probe innovative approaches' (50).

Recruitment plus

The evidence is conclusive that selection processes employed by medical schools do influence medical students geographical practice location (11, 23, 28, 39-41, 43, 44). However, there is growing body of evidence to show that preferential admission to medical school alone is not enough to recruit sufficient numbers from rural and underserved population groups such as Aboriginal, ethnic minority groups and linguistically marginalised populations to redress their health needs (25, 28, 36, 46, 49).

The solution lies in a multi-factorial process, beginning pre-medicine (33, 34, 50). Frenk et al describe this as a systems approach where the interdependence of the health and education sectors is paramount (50). Achieving a balance between the two systems is essential for efficiency, effectiveness, and equity. Frenk et al state 'the ultimate practice location of graduates is shaped by multiple factors, including school location, criteria for admissions, curricular exposure, appropriate incentives,

and, most crucially, the values, commitment, and social goals of the graduating student' (50).

The education 'pipeline to practice' commences at high school, prior to entry to medical school (3, 23-27, 50, 51) - where career counselling, mentoring and special tuition is needed.

Locating medical schools in rural and regional areas will attract local students and retain local health professionals in those areas of need (2, 19, 32-34, 50-52). Affirmative selection policies that quarantine medical school places for rural students are essential and should be linked to the values and purpose of the institution (11, 33, 34, 37, 39-41, 43, 50). Establishing selection committees with local community members reduces inadvertent discrimination by urban-based admissions committees (40, 50) and empowers local communities to select medical students with values they see as important.

Alleviating the financial burden of rural students is necessary as university fees can be a deterrent and the alternative is often the accruing of large debts. Locating educational facilities in the proximity of the underserved regions will also go some way to reducing this financial burden on rural students (50).

Importantly, the provision of rural-oriented curricula which encompass the principles of continuity will influence students to practice rurally (6, 33, 34, 37, 41, 44, 53). Continuity is acknowledged as encompassing continuity of care, continuity of patient interactions and continuity of preceptor – and results in an integrated learning environment (54). As such continuity is the key to relevant, high quality medical education.

It has been found that the longer the clerkships the higher the percentage of students return to practice in rural areas (10).

Conclusion

Together these strategies will increase the number of students entering and graduating from medical schools – and will result in more students of rural origin practicing culturally and socially appropriate medicine in rural regions across the world.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.2.2

RECRUITING MEDICAL STUDENTS FROM RURAL AREAS

Sue Page
Northern Rivers University, Australia

Introduction

Doctors are more likely to practice in rural areas if they have five or more years of rural childhood upbringing (1) - although for specialty doctors, only those with at least 11 years rural background are significantly more likely to be practising in a rural location (2). Many universities therefore seek to increase their uptake of rural origin students, although most struggle to identify the most effective approach.

Rural students differ to urban students. For reasons that are loosely societal, family, and individual (3), they are less likely to complete high school and/or the tertiary education required for entry into medical courses that are increasingly postgraduate degrees (4). While academic grades are influenced by motivation and innate capacity as well as the home and school environment, access to university is further influenced by the financial ability of rural families to both lose a potential rural farm worker and to support the student living away from home. The impact of itinerant agricultural family lifestyle on academic achievement is also considerable.

Motivation to attend university at all is influenced by a range of factors. These include family expectations, measured against the perceived benefits of education, including employment options. Rural parents are less likely to have completed education themselves and are likely to be lower in socio-economic status, reducing their ability to support their children through higher education (5). Rural students are more likely to believe their parents do not want them to attend university, and homesickness has also been identified as a significant factor influencing non-completion of studies.

Promoting access for rural and Indigenous youth

Despite major government investment, students of rural origin in Australia remain significantly under-represented nationally (6).

Extrapolating from the 'pipeline' approach (which proposes that recruiting rural origin students needs to start early in order to channel them towards medical education) (7), the critical areas for change appear to be the following:

1. measures to address retention of rural students during their primary school, high school and undergraduate years;
2. contact between rural schools and the academic medical profession;
3. university selection processes; and
4. engagement between medical students and rural school students.

1. Measures to address retention of rural students during their primary school, high school, and undergraduate years.

The desire to work in health often commences as early as school years 5-8, shaping a variety of education choices including attendance rates, subject selections, and even whether they choose local or urban secondary schooling. Rural students, particularly those from Indigenous communities, drop out of school for a variety of reasons (8). Successful education retention strategies target the transition at each school stage from pre-school through primary school to high school and have systems to link schools and students to community mentors and to university residential programmes.

Rural students may be the first in their family to attend University. They will be unfamiliar with available support structures and fear increased pressure due to living away from family and social networks. Rural families may need to budget over several years to afford the additional costs of a student living away from home. Opportunities for students to remain longer in rural areas are increased through joint pathway programmes in which urban universities offer their programmes through rural university sites; or link undergraduate courses in rural areas with dedicated places within postgraduate health career programmes.

Indigenous students will particularly struggle with changed cultural contexts and need personalised support programmes.

The impact of failure may affect not just the rural student, but the educational culture of their family, school, and community.

2. *Contact between rural schools and the academic medical profession.*

Exposure to rural clinical settings helps students socialise their profession and influences career choices (9), enhancing the impact of rural origin selection. In addition students acting under supervision can expand the scope and range of existing clinical services through parallel and structured consulting. In combination, these activities heighten awareness within rural communities of health careers and encourage more formal mentorship arrangements.

Further, increased academic presence in rural areas provides opportunities for professional development of clinicians, greater evaluation of rural health service outcomes, and higher uptake by rural communities of health promotion activities.

3. *University selection processes*

The influences of standard selection processes - that include academic merit, interviews, and aptitude testing such as UMAT[1] - on rural and Indigenous students' access to universities is not clear. Many universities have introduced schemes to positively discriminate towards students of rural and Indigenous origin to redress equity of access (10) – with those universities whose entire programmes specifically target rural students being the most likely to deliver results (11). For example through a process of affirmative action the University of Adelaide was able to double their intake from 5% in 1993 to 11% in1994 (12).

As rural employment opportunities often rely on local networks rather than more formal processes, students may be less experienced in preparation of curriculum vitae and interviews. Bridging courses that address communication skills in addition to academic content have been shown to improve success in rural and Indigenous health career applications.

1 Undergraduate Medicine and health Sciences Admission Test, developed by the Australian Council for Educational Research http://umat.acer.edu.au/

4. Engagement between medical students and rural school students;

Rural youth who complete high school are less likely than young people in urban areas to apply to medical schools (13). A possible reason for this is the lack of professional career role models in regional areas – given that rural doctors are more likely to be older and male (as well as overworked due to workforce shortages). This provides limited scope as a role model, particularly for younger and/or female medical students.

Illustrative anecdotes

All medical students attending long-term clinical placements in Northern New South Wales are invited to mentor and inspire local primary and high school students. Organised activities include:

1. Primary school health and science days
2. Plateau Enrichment Programme
3. High school career days

Primary school health and science days

Medical students provide Science Days within local primary schools during which they showcase the anatomy of the heart, lungs, liver, eyes and kidneys and link them to simple healthy lifestyle messages.



Jeff Masters and Claire Waller from University of Woollongong teaching anatomy to Alstonville Primary students.

"Cow's hearts, eyes and kidneys provided the basis for the anatomy sessions in which the medical students taught the children some basic knowledge on the way these organs work within the body. The medical students were greatly impressed with the knowledge and enthusiasm of the primary kids who were rapt to be poking and prodding the organs. Screams of disgust were heard across the schoolyard as lenses were cut out of eyes and children held hearts in their hands. The day was worthwhile for all involved and the UOW students hope that they coaxed some kids into considering medicine as a career so that they can have someone to cover for their holidays in the future!"

(Excerpt from school newsletter 2009)

Plateau Enrichment Programme



The annual Plateau Enrichment Programme enables selected students aged 10 and 11 years old from ten primary schools in rural areas to travel by bus for a day to the University Centre for Rural Health (UCRH) Campus in Lismore. Supported by the North Coast Area Health Service (NCAHS) and UCRH staff and students, the school students are able to sample a variety of health careers including exploring an ambulance, spending time in the radiology department, working with a physiotherapist, and even touring the hospital kitchens.

As part of a public health section they are encouraged to find programmes to tackle in their school, such as improving healthy food choices for lunch.

High school career days

Collaborating with a range of role players (the UCRH, with multi-disciplinary clinicians from the NCAHS, the New South Wales Department of Education and Connect[2]), university students on rural clinical placement showcase their CPR[3] and anatomy skills to aspiring health students from 39 local high schools through a various clinical workshops.



Tom Goodsall, Sydney University student, teaching anatomy in Lismore, New South Wales.

2 Connect is a government programme connecting business sector to vocational training http://skillsconnect.gov.au/

3 CPR = Cardiopulmonary resuscitation

A favourite section is an interactive panel where school students can ask questions of their university colleagues. The advantage of age peers is evident when one health student answering the question "Do you have to work really hard, or can you still have a life?" gave a rapid fire and utterly hilarious rundown of his previous week's social activity! Students rate this session 'highly satisfactory' and the following weeks provide opportunity for further questions and advice via email and phone contact with school advisers.

Practice pearls

What to do

Raise awareness of rural health career options within rural primary and high schools.
Work with rural high schools to identify potential students who can be supported - such as through mentorships.
Link medical students and clinicians to high school career days.
Create opportunities for rural high school students to access urban university campuses prior to enrolment.
Offer bridging courses.
Offer overt links between pre-med courses in rural universities and urban medical programmes.
Review university selection processes to promote rural uptake including quarantined places and bonus marks.
Provide financial assistance for rural students including scholarships.
Provide university mentorships both social (such as rural health clubs and cultural supports) and academic (such as additional tutoring).
Provide pastoral care (including access to counselling services).
Celebrate successes widely and particularly within rural communities.

What not to do

Don't assume that if positions are quarantined (or protected) they will automatically be filled. Recruitment campaigns will be needed.
Once selected, rural students cannot be treated the same and expected to achieve the same outcomes as students from university towns with more wealthy and educated parents. Additional support will be needed.
Avoid the assumption that all rural students will return to rural areas. Rural origin increases, but does not guarantee, rural workforce availability which is also influenced by hospital and early career experiences.

Don't ignore the impact of any negative internal university attitudinal barriers as these expose rural students to covert criticism of their ability and of rural careers.
The failure of a single rural student may create a lasting effect on that community, limiting the aspirations of future students. Maintain close links with key rural stakeholders to reduce the development of negative perceptions.

Conclusion

For nearly 30 years, research has shown that students who originate from rural areas are more likely to work in rural areas after graduation. Despite this, rural origin students remain under-represented in university intakes in most countries. The reasons for this are varied, and strategies for change must address barriers and enablers within community, government, and university jurisdictions.

A distinction needs to be made between desiring to increase rural origin students as a matter of social justice and desiring to increase rural origin students as a rural workforce strategy, as the key stakeholders and the prioritisation of strategies will differ.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.2.3

PROMOTING RURAL PRACTICE THROUGH STUDENT SELECTION

Tarun K Sen Gupta
Louise Young
James Cook University, Australia

Introduction

Selection of students into medical school is generally regarded as the single most important variable predicting graduate doctors' future rural practice. A variety of recruitment strategies have been identified regarding selection into medical school – but as selection is just one variable in the continuum of recruitment and retention, it is therefore best regarded as part of an overall rural strategy.

This chapter will describe a number of factors associated with rural practice which are relevant to selection processes – a range of which will be described with some comments on how these can be adapted to improve rural access. A case study from one rurally-oriented medical school, James Cook University in North Queensland, Australia will be discussed. Finally, the concept of the rural pipeline will be further explored.

The principles described in this paper may be useful for those choosing to develop rurally-oriented medical programmes, or pathways for a smaller cohort.

What's the evidence?

A number of factors relevant to recruitment and retention of medical students are described in the North American, European and growing Australian literature on rural medical workforce. These include:

rural background;
(positive) rural placements during training;
rurally oriented curricula and teachers;

rural role models;
postgraduate training opportunities; and
professional and personal issues such as professional isolation, partner's background and employment options, and children's education.

Both recruitment and retention include professional factors such as workload and job satisfaction, access to support, specialty services, continuing education, training opportunities and remuneration. Personal issues to be considered include family needs, children's education, partner's career and employment opportunities, and recreation and cultural opportunities.

Addressing under-representation of rural students

The literature suggests that all stakeholders – medical schools, governments, communities and rural interest groups – need to ensure health careers are promoted to rural-origin students with initiatives to promote a career in medicine. Strategies include: rural doctors as mentors; increasing exposure to science curricula; promotional activities such as career promotion workshops, audiovisual material, and other programmes; use of rural alumni; and examination help and other assistance with the application process and support in the early part of the course. Similar approaches are described to facilitate the entry of Indigenous students into medicine.

Many schools in North America have identified that rural students are under-represented in medical schools. Some describe a 'pre-selection bias' with admissions criteria biased against students from rural and under-served areas.

A number of medical schools have reformed assessment practices and institutional culture to facilitate the entry of rural students into medicine. Strategies include: separate rural admission stream; selective recruitment policies and ensuring rural input into the design and implementation of selection processes; availability of programmes in regional (non-metropolitan) locations; and enhancing the attractiveness of a programme to rural applicants by marketing, rural placements, curricular options in decentralised sites, rural staff and rural role models.

In addition, characteristics of students who would be more likely to practice rural medicine have also been identified. Apart from rural background these include growing up in an underserved area, interest in rural medicine and in family medicine (general practice).

Methods of selection into medical school

A variety of methods are used to select applicants into medical school, which can be modified in the light of the evidence above.

Academic achievement

Medical schools typically use measures of academic achievement and intellectual ability - including variations of the Medical College Admissions Test, final year of high school results and university grade point average. While some studies have found such tests have limited predictive ability for academic performance in medical school, especially after year one (1), it could be argued that such performance is due to a student's exertion rather than ability, and the important outcome is completing course requirements and graduating. Rurally-oriented schools need to consider if they are prepared in their selection processes to adjust the weighting of academic scores to favour applicants more likely to succeed in their programme, and what minimum academic score they are prepared to accept.

Written applications

Written applications take several formats and may require applicants to answer structured questions, unstructured questions, address scenarios and answer questions that show aspects of their personality. Some may also involve a portfolio where information is collected in multiple domains including academic performance, rural, social or cultural background, research and work experience, sporting, music, church and other leadership opportunities.

There is limited literature specifically on this topic and conflicting views on the reliability and validity of written applications as selection tools. Advantages of written applications include their reproducibility, ability to gain insight into a student's professionalism and personal statements (2). Disadvantages of written selection includes conflicting evidence about the reliability of a written statement as a predictor of performance, difficulty assessing subjective attributes, failure to judge interpersonal skills, difficulty establishing reliability of written references, lack of evidence about the reliability of personal written statements, inability to prove authorship of applications and subjectivity of marking (3).

Written applications are more cost effective than interviews, as fewer staff are required to assess and less time and logistical management are involved, especially if online processes are utilised. There is also less variation if panels of markers are trained.

While written applications may give valuable information about rural interests and background, concerns remain that it is not possible to ensure applications are true and accurate representations of the person and they do not necessarily allow for personal values, beliefs and communication skills to show through.

Interviews

Interviews are widely used as a component of both undergraduate and postgraduate medical student selection and postgraduate training programme selection (especially into general practice). Interview panels usually comprise two or three interviewers from a variety of backgrounds including a clinical, education and a community representative.

Rurally-oriented schools may want to utilise strategies such as emphasising the rural focus of the topics explored at interview, ensuring interview panels have one or more members with a rural background or interest, and maximising the pool of rurally interested applicants who are interviewed.

Applicants are typically asked six to eight questions requiring that they answer questions and respond to scenarios, in interviews which last between 30 and 60 minutes. Questions are structured with pre-determined criteria and usually focus on non-cognitive aspects and past experiences. Interviews are more likely to be reliable and predictive when interviewers are experienced and trained to focus on objectives and the use of structured questions (4,5).

Interviews may have a number of advantages: an aggregated score is calculated which reduces the effect of interviewer bias; interviewers can probe or follow up on information in the application; there is more opportunity to identify applicants whose personality may not fit with elements of the course e.g. rural placements; and they provide an opportunity for applicants to self-select out when they realise the questions and their responses do not match their expectations (6).

However, interviews are time consuming, labour intensive and logistically challenging.

Questions

Questions to ask on written applications and in interviews might encompass the following themes:

background experiences, including rural exposure
substantial and meaningful exposure to medicine
type of practice they want to work in
affinity for medical lifestyle
sense of social responsibility and social justice
prestige in the community
financial and other rewards
career pathway
family issues e.g. spouse's needs, children's needs, proximity to family.

Combination – written application and Interview

Such approaches typically see students scored on both a written application and an interview. Their written application is scored by two or three independent judges and they are then interviewed on a set of predetermined questions. Ranking is on the basis of their face-to-face performance score combined with their written application score.

Multiple mini-interview (MMI)

The MMI involves a series of interview stations in an OSCE (Objective Structured Clinical Examination) format and was developed at McMaster University (7). Applicants are asked one or two questions with one (or two) interviewers before moving on to the next station. The interview typically requires completion of a two-hour circuit comprising ten ten-minute interview stations. At each station applicants are presented with a scenario or question testing their knowledge and attitudes related to issues concerning ethics, professionalism, communication skills, reliability, responsibility, collegiality, teamwork, social issues, altruism etc. Applicants may have to answer a question or respond to an interaction with an actor.

MMI tests non-cognitive aspects and aims to dilute the influence and bias of any one interviewer. The MMI has been used by universities to select medical students and has been found to be more effective than previous multi-member panel interviews (8, 9, 10). Again, rurally-oriented schools using the MMI could choose to review the content, mix of interviewers or pool of applicants.

Referee reports

Referee reports are used as a selection criterion and are usually a component of the written application. These reports may involve asking structured questions or for statements regarding an applicant's personal traits. There is uncertainty as to the accuracy of such reports and who may have written them, and there is little evidence as to their usefulness (11).

Team-based exercises

In team-based exercises, applicants are placed in groups comprising four to ten people with whom they are required to solve a number of problems or address scenarios as a group. Observations are made which are useful for assessing communication skills, performance under a time limit, and teamwork / collaborating with others (12). These exercises are often run by an external human resource organisation so selection bias is reduced – although there is significant expense associated with these activities.

Psychometric tests

Specific questionnaires evaluating personality, motivation, intellectual ability or manual dexterity may be used for selection. Psychometric tests such as the Five Factor Model, Myers-Briggs Type Indicator, California Personality Inventory and 16PF have been used to predict career outcomes for doctors. The California Personality Inventory and Five Factor Model have been used regularly, with the most common predictors of success in medical training being dominance, tolerance, sociability, self-acceptance, well-being, responsibility, and achievement (13).

Psychometric tests are time consuming to administer, applicants may fake 'good' responses and may not value the questions asked as being relevant to medicine.

Inventories have been used with medical students to investigate dysfunctional tendencies and coping behaviours for rural medicine. The Hogan Development Survey has been used as a predictor of dysfunctional personality characteristics that inhibit good working relationships and communication with others and teamwork. It is able to discriminate negative personal characteristics that are not detected during the medical student selection interview (14). Early research using the Temperament and Character Inventory has been able to identify differences in temperament and character traits between students with medium and low interest in practising rural medicine (15). While these research findings do not appear sufficiently robust to be adopted by rurally-oriented schools, there is some promising work in this area that is worthy of further exploration.

Lottery

In the Netherlands selection into medical school is by a lottery, with higher academic scores contributing more lottery tickets i.e. more chances to be selected. In a review of four lottery selection studies, three out of four did not reflect improved grades when compared with conventional selection (16). Such selection procedures are inexpensive, equitable and students believe they are fair; however lottery-selected students have a higher dropout rate than those who undertake a selection process (17).

Overview

Many schools choose to combine a number of these methods, although outcomes are not always clear. A recent study identified no significant association between a combination of four different medical school selection techniques for selecting students who had a positive attitude towards serving the underserved. Medical test entrance score, interview score, written portfolio and positive attitude to serving underserved populations were associated with academic performance however none was significantly associated with a positive attitude to working with underserved populations after one year in medical school (18). Further evaluations are needed, particularly focusing on outcomes such as choice of career and location.

Case study: James Cook University

In Australia, a number of medical schools have developed ways to facilitate the entry of rural students into medicine using a variety of selection methods as described above. For example, the James Cook University (JCU) programme, which had its first enrolment in 2000, selects students using a combination of school– leaving score, written application and semi-structured interview. The school-leaving score is adjusted for rural-origin candidates, using a formula which accounts for rurality as measured by the Accessibility/Remoteness Index of Australia (ARIA) score across the 12 years of schooling. The School has consistently exceeded its target of 30% rural entry, with approximately 66% of graduates being from designated rural centres across the whole of Australia, based on the Australian Standard Geographical Classification Remoteness Area (ASGC-RA) index (19).

Having an evidence-based selection process aligned with the School's mission helped manage any perceptions of discrimination. It was acceptable for a rurally-oriented School to explicitly favour rural candidates and the literature strongly supported this as an important way to help the School achieve its mission.

The environment in which the selection process of this School operated was important. Specific rural workforce initiatives in Australia were supported by the Rural Incentives Programme (RIP) established in 1992. Multidisciplinary rural health clubs were established, promoting careers in rural health to their members and through rural high school visits (5).

Subsequent government initiatives including Rural Undergraduate Support and Co-ordination (RUSC), university departments of rural health, and rural clinical schools have seen an explosion in rural academic activity, research and teaching in rural areas, and in rural placements for medical students from all medical schools. In addition a range of rural scholarships, both bonded and non-bonded, were introduced for Australian medical students. These factors strengthened the rural pipeline and ensured that the rurally-focused selection processes were occurring in an environment supportive of a rural career.

Tracking the first seven years of JCU graduates (536 doctors) indicates a positive uptake of rural and regional internships. Two-thirds of graduates have elected to undertake their internship outside of major cities compared to one in six other graduates (Odds Ratio=10) and half in outer-regional or remote areas as against 1 in 20 from elsewhere (Odds Ratio =17). The pattern of rural work destination seems to be maintained in the second postgraduate year and beyond (19).

JCU data shows that 48% of the first four graduating cohorts (postgraduate year 4+) have completed or are undertaking general practice training, one third of whom are rural generalist/ACRRM trainees (20). Nine out of 10 JCU graduates intend to practice outside capital cities compared to one in three who graduated from other medical schools (odds ratio=17). Half would prefer to work in a remote, rural or smaller regional centre (population < 100,000) compared to one in six from elsewhere (Odds Ratio =5) (19).

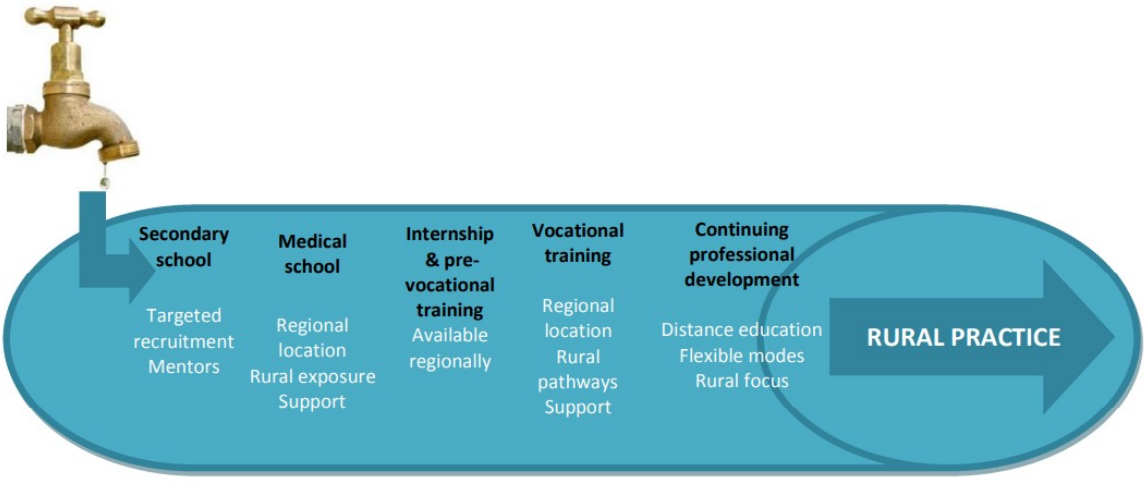
The School has contributed to a doubling of the numbers of resident medical staff in the region within five years of the first graduation.

The rural pipeline

> 'The key seems to be the creation of a pipeline that reaches out to rural communities to encourage the selection and success of rural students, gives them opportunities throughout medical school and residency to work in rural settings, and supports them in practice after they do settle in rural areas' (21).

The components of the pipeline can be summarised as:

- Secondary school (or possibly upper primary school) – targeted recruitment;
- Medical school – located in regional settings, rural exposure and support;
- Internship and pre-vocational training – available regionally;
- Vocational training – available regionally, with rural training pathways;
- Continuing professional development – by distance education and/or tailored to rural practice.



The transitions between each component of this pipeline are critical, for example, from school to university or from medical school to internship. 'Leakage' at any transition, or 'pressure points' in any of the individual components, can significantly weaken the pipeline. 'Vertical integration' is the term commonly used to describe this combination of one or more components – and it often has shared staff, resources and facilities, which typically integrate across the student – junior doctor – vocational training continuum.

The WWAMI programme in the north-west of the USA is a well-known example of a vertically integrated pipeline, developing regionally based medical education for the states of Washington, Wyoming, Alaska, Montana and Idaho (WWAMI). The medical school at Tromsø in northern Norway is another well-established programme, with many graduates now serving on the faculty[1], which is verification of the pipeline concept.

One Australian study (22) summarises positive and negative influences on the pipeline. Features that are likely to have a positive impact on choice of a rural career include:

- extended, collegiate and well co-ordinated rural clinical placements for students;
- internships in regional hospitals or regional hospital term rotations for metropolitan interns;
- students' and interns' perception of supportive supervisors and teaching staff as graduates take on increased responsibilities;
- opportunities for medical students and interns to interact with local health professionals during rural placements; and
- postgraduate opportunities for pursuing careers in general practice or other specialist training in rural or regional settings.

Factors that appear to have a negative impact on the pipeline include:

- students' and interns' perception of lack of support from supervisors and/or teaching staff (e.g. due to workforce pressures);
- perceived professional and personal tensions between health professionals in rural workplaces;

1 'Faculty' is another term for members of academic staff.

a belief that rural placements limit career options;
preference for a metropolitan lifestyle and perceived isolation from metropolitan-based family and friends; and
a partner who is not committed or able to work in a rural site and/or is committed to a metropolitan lifestyle.

Practice pearls

What to do

Selection of students is critical.
Rural origin/background appears to be the most important variable in predicting rural practice.
Think of selection as an integral part of the rural pipeline continuum.

What not to do

Don't focus on just one strategy or element of the pipeline.
Don't forget to evaluate outcomes of your programme.

Broader applicability and conclusion

Rurally-oriented programmes need to consider carefully the applicants to be targeted for selection given that selection appears to be the most important variable for recruitment into rural medicine (22). As such, the selection process should pay attention to the following aspects:

Do applicants know about the medical school?
Is the medical school attractive to potential applicants?
Are the academic standards of those in the pool of applicants adequate?
Is any pre-selection bias managed?
Are sufficient supports - such as mentoring and scholarships - in place to encourage students to apply, to succeed and to progress in the early years of the programme?

Other components of the pipeline must also be considered including positive rural placements and curricular time, support throughout training and postgraduate opportunities. Push and pull factors must be recognised and managed and any weaknesses in the pipeline must be addressed.

While many of these strategies are well established as contributing to rural placements, educators should also remember that all applicants to medical school may potentially practice rurally, so will benefit from all rural experiences during their time at medical school.

The James Cook University case study highlights the importance of considering the 'outcomes of interest' in selecting medical students. Recent reports highlight methodological problems, with most studies considering outcomes that are readily counted – academic achievement and intern performance rating – rather than 'the likelihood of a doctor applying the considerable privilege of a medical education towards social good rather than individual enrichment' (23).

Selection processes should focus on how best to meet the needs of the communities the School serves by defining desired candidate profiles and harnessing the best available evidence to achieve this, using academic and non-academic measures.

Acknowledgement

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.3.1

MODELS FOR UNDERGRADUATE RURAL HEALTH PLACEMENTS

Jane Doherty
University of the Witwatersrand, South Africa

Introduction

This chapter provides an overview of different models for rural placements for undergraduate medical or other health science students and identifies some of the common – and distinguishing – features of these models.

A 'rural placement' is defined as one in which students stay overnight (usually for a few weeks or more) at a location away from the main campus of their health sciences faculty[1]. In addition, the intention of the placement includes exposure to the complex circumstances of health care provision in rural, remote and often disadvantaged communities, even when students are accommodated in towns.

Sources of evidence

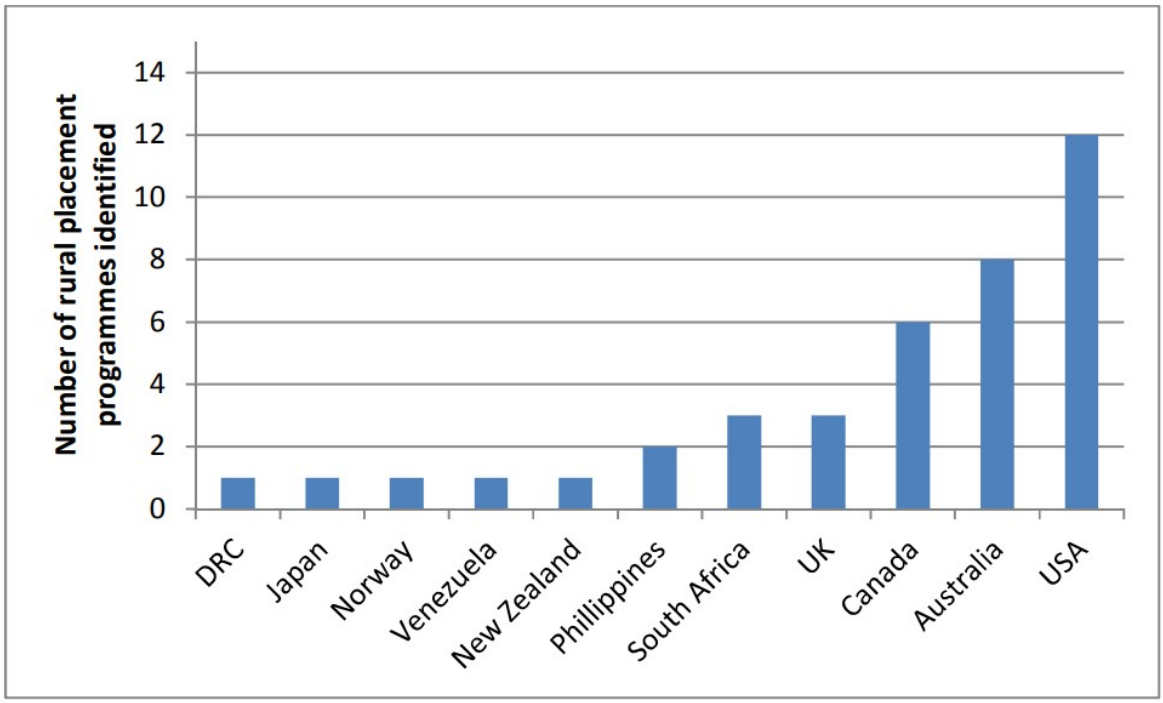
This chapter is based on a 2011 rapid review of the international literature using PubMed, Google Scholar, and health sciences faculty websites to identify peer-reviewed as well as 'grey' literature. (The full set of documents referred to is given in the article identified in reference (1) at the end of this chapter.) Review articles were prioritised for reading, as were articles or reports that described the structure of specific programmes that included rural placements. The majority of programmes had been evaluated favourably with respect to their impact on student performance and rural retention of doctors, although some more recent programmes had not yet undergone evaluation.

1 Here 'faculty' is the term for the organisational unit within a university comprising a number of departments.

Thirty-nine different programmes were identified. The majority of these came from Australia and North America, as shown in Figure 1. These continents are notable for having to deliver health care across vast spaces and developing strong alliances of stakeholders to promote rural health. They have also had several decades of experience, with some programmes dating back to the 1970s.

However, there are other continents – such as Central and South-East Asia, as well as Latin America – that are likely to have had considerably more experience than the review was able to tap, because of time constraints and language barriers, or because not all successful programmes have published information in electronically accessible formats. Thus, for example, there are apparently 40 rural medical schools in China (2) but no information on these could be sourced.

Figure 1:
Number of undergraduate rural placement programmes identified, by country



Key: DRC (Democratic Republic of Congo), UK (United Kingdom), USA (United States of America)

Various models for rural placements

The literature neither differentiates explicitly between various models for undergraduate rural placements nor does it debate the relative strengths and weaknesses of each. Different health sciences faculties seem to have opted for more or less intensive rural exposure for students (as illustrated in Table 1), depending on differing circumstances but with the overall objective of providing a high quality educational and clinical experience. It is the more intensive programmes – which have early, repeated and lengthy exposure to rural conditions - that have resulted in a larger proportion of students choosing a future career in rural practice. As discussed later, this is a result of a combination of faculty strategies, although intensive rural placements play an important role.

Table 1:
Extremes of the continuum of rural exposure during medical training

Most intensive exposure	Least intensive exposure
Students are introduced early to rural environments	Rural placement happens towards the end of the programme
Rural placements occur at periodic moments throughout the programme	There is only one rural placement
The main rural placement is long (six months or more)	The rural placement is short (a few weeks)
Students are attached to individual health professionals who act as mentors	Students are not assigned rural mentors

There appear to be five main models for rural placements that fall along the continuum appearing in Table 1. These are described below, starting with the most intensive option. Illustrative examples from actual programmes are given in each case, having been selected because information on the programme was readily available rather than on the basis of relative merit.

It should be remembered that most programmes evolve over time in response to changing circumstances, and that some faculties employ a variety of models. The categorisation below is a necessary over-simplification of what can be a very complex and constantly shifting educational process.

Model 1:
Rural placements as part of a comprehensive rural programme

These are programmes whose primary goal is to increase the supply of rural health professionals. In some cases, health sciences faculties were set up with a specific rural training mission and are located in, or near, rural areas. In other cases, faculties have re-oriented their entire curricula towards rural issues as part of a re-visioning exercise. In general, the rural programme is the only programme offered and is compulsory for all students to attend.

A number of strategies are employed throughout the curriculum to make students aware of the particular clinical and public health issues relevant to rural communities, encourage students to contemplate a career in rural practice and deal with the realities of working and living in a rural community. An intensive and extended rural placement (of six months or more) is but one of these.

Comprehensive rural programmes specifically seek out students with a rural background and sometimes require them to commit to returning to rural practice for a period following qualification. Where rural students have been disadvantaged in terms of the quality of secondary schooling that they received, educational and other support is provided, especially during the early years of the programme. Efforts are made to ensure that rural placements are near the students' place of origin to maintain and strengthen links between students and their home communities.

Communities and community-based organisations tend to be integrally involved in the governance of these programmes, including identifying potential students and participating in their selection. Communities may also be involved directly in training activities and accommodating students.

The programmes rely heavily for training capabilities on rural health facilities and health professionals (including private general practitioners running rural family practices). These tend to be part of formal network agreements with the faculty. Rural trainers often have academic status and receive training and support from the faculty. Sometimes rural training is supported through long-distance education methods.

Illustrative example: Model 1 (3,4,5)

Ateneo de Zamboanga School of Medicine in the Philippines is a remote medical school that has a strong social accountability mission founded on the principles of community partnership and community-based education. It has an approach similar to the Northern Ontario School of Medicine in Canada but operates within a context of far fewer resources. The course is a five-year combined medical degree and Masters in Public Health, with public health concepts well-integrated with clinical experience. Fifteen to 25 students are accepted each year and, from their first year, students are exposed to patients in clinics and communities. About eighteen months of the first four years are spent studying and working in remote rural communities; the fifth year is an internship. Before entering these communities, students are trained in rural emergencies. They return to the same communities over the length of the programme.

Model 2: Rural placements as part of a continuous dedicated rural track in a traditional programme

These programmes allow selected students to focus on rural issues by joining a rural track within a traditional, urban-based programme. Students on the track are expected to meet the same educational and clinical competencies as other students but, for a large part of the curriculum, do so through different avenues, including extended rural placements (often over one year). Joining the rural track does not imply an additional workload for the students.

These programmes are voluntary in that not all students are required to experience the rural track, although participation in the rural track may be compulsory for those students who have gained admission by virtue of their rural background and intention to focus on rural health care.

Clinical experience is often longitudinal and integrated (in contrast to urban clerkships[2] where students rotate through different disciplines). The focus tends to be on family medicine but may include other disciplines.
For those students taking the rural track, the experience may have similarities to that of students who are part of a comprehensive rural programme (Model 1), in that communities may be involved in governance and selection; there may be frequent and extensive rural placements embedded within a curriculum strongly oriented towards rural issues; rural facilities and health professionals may be integrally involved in training and mentorship; and faculties may employ a variety of strategies to support an interest in rural health care.

However, the fact that the faculty as a whole is not focused on rural health care may lead to some dilution of the impact of rural tracks on final career choice, or even the quality or relevance of rural training. For this reason, rural tracks emphasise the importance of carefully supporting students who have chosen the track, through interventions such as 'rural clubs' that allow them to share their experience and attract students with urban backgrounds into the track.

Illustrative example: Model 2 (6)

The Greater Murray Clinical School is one of five clinical schools at the University of New South Wales in Australia. Unlike the other schools, it is based in a rural area and offers a community-based, longitudinal rural curriculum. Students on this rural track attend the School for the final three years of their medical degree, following an initial three years participating in a traditional, urban-based curriculum. Twenty-four students per year are based in each of two rural campuses (that is, eight in each of the three final years).

2 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

Model 3:
Rural placements as part of an abbreviated rural track in a traditional programme

This is a variation on the above approach. As with Model 2, some students join up for a rural track but this track is less substantial and less well integrated into the overall life of the medical programme, while the rural placements are generally shorter (for example, one year or less). One could also group within this category faculties that allow selected students to combine a few of their clerkship rotations in rural practice - although typically these placements are relatively short (for example, three months). However, the distinguishing feature of this model is not so much the length of the rural placement as the fact that rural exposure is less intensive.

Illustrative example: Model 3 (7,8,9)

In the United States, the Upstate Medical University (part of the State University of New York) has a Rural Medical Education Programme, which requires nine third-year medical students to live and work in small communities for nine consecutive months. Most training occurs concurrently and longitudinally, mainly under the guidance of a preceptor[3]. Training is mainly in family medicine but also includes other disciplines such as surgery, anaesthetics and radiology.

Model 4:
Rural placements in supplementary rural tracks

These programmes allow selected students to engage in activities additional to the traditional programme, including a rural placement. This results in an extra workload for the students, although the faculty may provide support to help students through this experience. Apart from the additional workload, this approach differs from integrated rural tracks (Models 2 and 3) as the taught component of the curriculum is not suffused with a rural perspective and rural placements are less frequent and long.

3 A preceptor - or clinical instructor/adjunct faculty – is a clinician (person with core clinical skills) who offers clinical teaching at a distant (rural) site.

Illustrative example: Model 4 (10)

At the School of Medicine at the University of Colorado in the United States, students can join a rural track. This is a set of voluntary extra-curricular activities that extend through multiple semesters and three or more years of medical school on a longitudinal basis. During the first two years, seminars with a rural focus are held twice a month and students participate in additional skills labs. In the summer between the first two years, students participate in a four-week rural placement. During the third and fourth years, students meet in the intervals between clinical clerkships when all students are back on the main campus. Students also have to undertake a research project.

Model 5:

Rural placements offered within a traditional programme

In this model, all students experience a brief rural placement of a few weeks (typically a clerkship). The rural placement is compulsory for all students but the rest of the programme does not have a specifically rural focus, although it may attempt to introduce students to rural perspectives at some points. The aim of these rural placements tends to be more about improving the clinical competence of students (especially in the primary care setting) rather than influencing them to return to rural practice.

Illustrative example: Model 5 (11)

The University of the Witwatersrand in South Africa has a four-year Graduate Entry Medical Programme. In their third year, all 180 medical students rotate through a two-week public health block in a remote rural area. In their final year, they rotate through a six-week Integrated Primary Care block in primary care centres and district hospitals in ten rural and disadvantaged areas.

Common features of the different models

Despite their differences, most successful rural placement models tend to
re-orient training towards primary care and family medicine, integrate clinical and public health concerns,
use problem-solving and community-based teaching methods, and acknowledge the importance of adapting training to the context of the teaching site, including local health priorities and the culture of the local community.

Integration of different sub-disciplines and longitudinal exposure to communities and patients are recognised as key to achieving high educational and clinical standards. Rural exposure early in the curriculum is also encouraged and there is an emerging interest in inter-professional training.

These features help to expand the aim of rural placements beyond simply providing students with high quality educational and clinical opportunities (whether or not they intend to practice in rural areas) to also producing graduates who are more responsive to the needs of rural communities, able to function well in a rural environment and adapted to living in rural communities.

Key learning points

There are five main models for rural placements that differ according to the intensity of students' exposure to rural environments. The dimensions of intensity include how early in the curriculum students are exposed to rural settings, how frequently they work in rural settings and for how long.

In general, the more intensive the students' exposure, the better qualified they become for rural practice and the more likely they are to work in rural areas once they have graduated.

To be truly effective, rural placements need to be part of a comprehensive approach to rural medical education that extends to other parts of the curriculum.

A faculty's choice of model depends partly on contextual issues, such as resource and logistical constraints, but also on its level of commitment to rural medical education.

Conclusion

Setting up, or expanding, a rural placement is complex. At the very least, it includes identifying collaborating teaching hospitals, clinics and communities as well as preceptors, partnering with community-based organisations (including rural health professional associations), developing a tailor-made curriculum and integrating the programme into existing faculty curriculum commitments. The type of model a medical school chooses depends on its vision and commitment, as well as practical considerations around logistics and resources. Whatever model is chosen, it needs to be accompanied by an implementation plan that builds on the strengths of rural medical education approaches whilst overcoming the many challenges of training students in far-flung locations.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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4.3.2

SHORT-TERM RURAL PLACEMENTS FOR MEDICAL STUDENTS

Ian Couper
University of Witwatersrand, South Africa

Introduction

Medical students frequently derive substantial educational value from well-supervised rural clinical rotations (1). While the optimum duration of the rural exposure during undergraduate studies is not known, short-term placements vary from four weeks up to 16 weeks - longer than this would then probably be defined as a longitudinal placement.

Placements may be compulsory or elective. The availability of locally-based mentors and supervisors is a critical component of such rotations (2) – particularly if they are passionate and dedicated.

Short-term placements fall somewhere along the continuum of rural medical education measures. While they may represent an example of the least intense exposure on this continuum (see Table 1 below), their influence on students' attitudes towards rural health and rural practice can be increased if they are integrated with a number of other interventions. Where they stand alone, and represent a small percentage of the overall curriculum, they are unlikely to have an impact on student behaviour and career outcomes, but may still have an important role to play in terms of educational objectives, because rural placements often provide enhanced clinical and professional training opportunities.

Successful programmes are usually orientated towards teaching primary care/general practice/family medicine. They integrate clinical and public health concerns, use problem-solving and community-based teaching methods, and acknowledge the importance of adapting teaching to the context of the learning site, including local health priorities and the culture of the local community (2, 4). Regardless of the contents, most programmes have an objective of providing a high quality educational and clinical experience.

Table 1:
The two extremes of the rural placement continuum
(taken from Doherty (3))

Most intense exposure	Least intense exposure
Students are introduced early to rural environments	Rural placement happens towards end of programme
Rural placements occur at periodic moments throughout the programme	Only one rural placement
The main rural placement is long (six months or more)	Rural placement is short (a few weeks)
Students are attached to individual health professionals who act as mentors	Students are not assigned rural mentors

One of the most significant aspects of rural placements for most students is the opportunity to learn and/or practice procedures. They often have the chance to do more than they would in an urban setting, for a variety of reasons. It is thus important to ensure that good practice is being demonstrated, and, especially in under-resourced settings, that equipment and supply shortages do not impact negatively on the procedures done, both in terms of quantity and quality. Academic institutions may even consider supporting the purchase of basic supplies for students to use, such as gloves or protective wear, in order to enhance their experience and not place a burden on the rural site.

As rural areas are, in most cases, resource-poor and thus often under-staffed, the programmes must include ways to ensure buy-in from local staff and to enhance the motivations of health professionals and management so that they continue to welcome the students and, where possible, to share their personal and professional lives with them. The personal touch is something students always appreciate in rural placements.

What's the evidence?

There is no clear evidence about what length of placement makes a difference. However, there is evidence that education is a critical factor in recruitment and retention, and much of this evidence is based on placements as short as four to six weeks (5). Certainly, a case-control study in South Africa provided evidence that rural exposure influences the choice of practice site by doctors, in a developing country context, but the precise curricular elements that have the most effect need further research (6). These results are similar to those found in Australia (7). In contrast, however, a study in Canada (8) found no significant difference between physicians[1] exposed to rural practice during undergraduate training and those who were not, in respect of their choice of a rural practice location.

The major question, then, is really the purpose of the rotation: whether it is educational (to improve the competencies of medical students) or occupational (to increase the possibility of future rural practice amongst students).

It is clear however that rural placements can drive students away from rural practice, particularly if the placement is not well organised and there is poor clinical and personal support for students (9, 10). Creating a good environment is frequently cited as being important, with good accommodation being a priority (11, 12), but also including adequate teaching spaces (13), group tutorials and internet access (14). Reimbursement of travel costs, and accommodation costs if this is not provided, help to encourage positive attitudes towards rural placements and mitigate the impact on students' financial well-being (15).

An illustrative anecdote

When I started in my position as Professor of Rural Health at the University of the Witwatersrand, I become very involved in the development and rollout of a new four-year Graduate Entry Medical Programme (GEMP) curriculum. When the decision was made to have a two-week elective at the end of GEMP 1, I was not interested in getting involved as I felt two weeks was not worth my effort and the students did not know enough at that stage.

1 A 'physician' here (and in North America generally) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

In 2003 five students approached me to do rural electives and I agreed to be their 'internal supervisor'. Reading their reports changed my attitude to the elective. For all of them the two weeks not only provided critical exposure to rural health care, but it also provided them with an opportunity to put into practice what they had learned through the year, and renewed their inspiration for medicine as a career. As a result I decided to become actively involved in the elective process.

By 2010, an average of 60 students per year were signing up for rural electives. Reviewing their reports showed that these same themes arise consistently in their experiences. To quote from a few of these reports:

> "My visit to [a hospital] really taught me more than factual knowledge. It exposed me to the lives of my future patients and the context in which they live. Seeing it for myself provided a valuable foundation when understanding patients in the South African context … I was exposed to such a wide range of medical and social knowledge and was able to put the theory I have learned into practice."
>
> "I feel I have experienced situations that have enriched me as a person, provided me with valuable insight for the future. I now partially understand the elation and despair that doctors in such a setting experience from day to day… After this rural experience I am excited at the thought of possibly being able to do my community service in a similar setting… The experience for me has been an eye opener and one that I will never forget."

This short-term placement – an elective one – has shown me that, given the right students with the right motivation and positive experience, even a brief encounter can be beneficial. However, without other reinforcing factors, it is recognised this is unlikely to impact on their future careers. (Many of these same students often 'go rural' during a second elective in GEMP 3 and a compulsory six-week primary care rotation in GEMP 4.)

Broader applicability

Short-term undergraduate placements provide an important opportunity to expose students to different situations and role models. They also may be an encouragement to local health professionals and health facilities.

To have broader impact both educationally and in terms of career outcomes, they need to be part of a range of interventions.

Practice pearls

If the rural exposure is very short (one to two weeks), limit the objectives; aim for depth of experience and exposure to rurality, rather than breadth.
Offer short-term exposure early on in the curriculum, as an appetizer for later practice; longer placements (four weeks or more) should occur when students are more clinically skilled.
Aim for ensuring some rural exposure for all students, and longer and/or repeated exposure for selected students.
Ensure the exposure is as hands-on and clinical as possible: this is what most medical students are interested in.
Allow them to contribute – and feel they are contributing – as part of the team, according to their level of experience; even junior medical students can be involved in well-baby clinics, doing screening or giving immunisations, or in health promotion activities, etc.
Students must be given adequate space to work in and to see patients, and not feel that they are taking someone else's place to do so.
Ensure good site orientation.
Offer choice as much as possible.
Offer a variety of elective opportunities.
Good accommodation is always a major positive factor.
Whatever you do, make sure that the students have a good time, so that they leave feeling warm and fuzzy about rural health!

What not to do

Avoid burnt-out supervisors or settings where there are particularly intractable problems. Don't turn students off rural health!
Do not force students who are set against rural practice to go for anything longer than two weeks: it seldom changes their minds, and they become a burden to the local health facility.
Avoid cycling students too quickly and too often through rural sites, which increases the chances of site fatigue i.e. local supervisors and other health professionals becoming tired of hosting students.
Avoid tourism i.e. avoid letting students feel they are simply there to look around and observe what is going on. Ensure they get hands-on involvement in local activities and/or practice.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.3.3

THE COMMUNITY-ORIENTED CLINICAL CLERKSHIP: SHORT-TERM STUDENT PLACEMENTS IN RURAL PRIMARY HEALTH CARE

Theodoros Vasilopoulos
University of Crete, Greece

Introduction

In recent years the need for community-oriented training of undergraduate medical students has been recognised worldwide. Thus, despite the variation of the curricula across medical schools, there is a growing recognition of the need to focus on education in primary care. This promotion of a more generalist approach entails shifting the objective of education to providing effective medical care to patients while taking account of their family and social environments as well as other factors that affect their daily lives and consequently, their health (1).

The Community Oriented Primary Care (COPC) model of primary health care links clinical medical care with the broader community level factors that influence population and public health, and offers the possibility of recognising the environmental and social epidemiological determinants of health (1).

Primary health care fieldwork training

The medical faculty of the University of Crete was the first in Greece to introduce a training programme in primary health care, namely Primary Health Care Fieldwork Training. Started in 1990, the course and content were developed by professors Lionis and Philalithis with collaboration from others in the Department of Social Medicine, as well as with the participation and co-operation of primary care practitioners, from several rural health centres in Crete (2).

Structure and aims of the Rural Primary Health Care clerkship

The course takes four weeks and is offered to final year undergraduates. Structured as a clinical clerkship,[1] it provides strong clinical orientation, and combines training in both general practice and public health. Students are allocated to one of the 11 primary care centres in rural Crete and the course involves local doctors and community leaders (3). Students are provided with a detailed guide, access to the students' website, guidelines and educational documents, and they also take part in interactive sessions in a virtual medical lab (4).

The aims of this course are to provide students with education and training in a real life primary care context; to better prepare them for service in rural health centres after graduation; and to improve their scientific and social development through acquainting them with the range of activities of primary health care, as well as the specialty of general practice (5). They participate in various activities that can be divided into two categories: those related to prevention and treatment of disease; and in addition, conducting epidemiological investigations in co-operation with the Department of Social Medicine, while developing proposals to improve primary health care services for the patients' benefit.
(See The community-oriented clinical clerkship in rural Crete/http://www.med.uoc.gr or http://pfy-epeaek.med.uoc.gr)

Content and approach

Students are exposed to situations which help them develop the knowledge, skills and attitudes to be able to provide primary health care in rural areas. They participate in health promotion activities, become familiar with the effect of social circumstances on the health of individuals, families and communities, and address the living conditions of the population. They also learn to recognise the epidemiological-population perspective on health problems of the community and become aware of disease prevention and health promotion through contact with the whole range of relevant services and programmes.

1 A clerkship – or rotation or block – is a structured clinical learning opportunity which forms part of academic requirements that have to be met.

They develop an understanding of the scope of scientific and operational characteristics of health care in the community, which includes health promotion, disease prevention, diagnosis, treatment, rehabilitation, and social integration (6). They present their findings on disease prevention and health promotion activities, as well as the diagnosis, treatment, and rehabilitation of unselected patients, to staff in the health centres.

Outcomes of the clerkship

As a result of this rurally-based clerkship, students learn to distinguish between different levels in the health services and operational factors at the interface between primary and secondary/tertiary health care. They start gaining a better understanding of the relationship between biological, psychological and social factors of a disease, as well as the expectations people have of their general practitioner for diagnosis, treatment and management of problems, regardless of age, ethnicity, and gender.

They learn about the value and logistics of screening the population for various diseases and health problems. They accompany staff who provide home care to those unable to attend health centres and thus become familiar with medical practices and services provided at home without special equipment. Students also learn to recognise and manage the social, family and psychological factors that affect the health of patients and communities in rural settings.

The four weeks training in health centres gives the students the opportunity to come into contact with the range of acute and chronic diseases occurring in the community. They learn about the different ways in which a disease may present initially when it is undifferentiated, and they gain direct experience in treating a wide variety of health problems. A very important gain is the student's ability to monitor the progress of a disease from its first appearance until the final outcome, through the holistic approach to both the person and the illness which primary health care provides (7). Working at the health centers also exposes them to dealing with emergencies, and they learn to act promptly and effectively according to the guidelines, in order to save lives. They learn how to stabilise and transfer a patient to a referral hospital, with maximum efficiency, to ensure the optimal clinical outcome.

During this clinical clerkship, students are also expected to assist with epidemiological studies and surveys on aspects of primary health care, using survey tools appropriate to the topic being assessed.[2] These studies highlight and elaborate on common social and other problems as well as diseases within the population. They assess the health needs of the community in order to enhance the health status of the population. They are required to present their results and share experiences and knowledge gained in rural primary care settings and make suggestions for improvement.

Some of the topics addressed have included accidents involving children; children's metabolic syndrome; psychogenic asthma in children; the prevalence of irritable bowel syndrome; the presence of COPD[3] stage I in smokers aged 35-45years old; domestic violence in a rural area; the causes of death in the population; the prevalence of and screening for osteoporosis; assessment of the quality of life and peripheral neuropathy in diabetic patients; and the causes of admission to the health centre.

Breadth of curriculum

Undergraduate students are required to consolidate and assimilate a wide breadth of knowledge, clinical experience and practical techniques. There is thus a need to review current approaches and use new and appropriate methods of education, to ensure that they makes a significant contribution to the training of clinical level medical students (8).

In planning a curriculum, medical educators must consider the following:

What level and content of knowledge is required
How students can develop appropriate competence in medical science
How to model appropriate behaviours towards the patient, colleague, and the health care team

2 These include the AUDIT questionnaire, the Mini-Nutritional Assessment, the ROME II for IBS criteria, St Vincent's' criteria for DM, the ATP III classification, the Geriatric Depression Scale, EQ-15D, *FAGERSTROM* Scale, *MNSI,* TUG (Time get Up & Go) test, MMPI-2, EPQ, SCL-90, OCDS Scale, etc.

3 COPD = Chronic Obstructive Pulmonary Disease.

The roles of a rural educator

Capable teachers, essential to educating undergraduate medical students, are characterised by their excellent subject knowledge, by their effective and communicative teaching methods and their ability to familiarise students with the content of the curriculum. A balanced constitution and pleasant personality are also assets! Teachers are also required to undertake co-ordinating roles, and to encourage students to participate in all activities of primary health care clinics in order to ensure they are educated about the full range of scientific and operational characteristics of health care in the community.

Good teachers have the following characteristics:

- They tend to have an easy approach and dedicate time to their students, despite other demands on them
- They have the capacity to properly assess the students' performance and capabilities and, to guide the course of their learning.
- They help to build the students' confidence through a range of experiences and knowledge so the students know what to do when they are confronted with a range of health problems and differing circumstances.
- They should determine the level of facilities required, so that students are able to manage the health problems of a patient, as well as develop the skills needed to resolve the problem.
- They provide constructive criticism and feedback to ensure that the educational objectives are met.

Teachers must know the principles of epidemiology that govern the operation of the health services, so that they can guide undergraduate students in collecting suitable data in order to address the health problems of communities. They need to teach students how to evaluate various factors (psychological, social, economic, cultural), which are likely to contribute to common health problems and ultimately how to address these.

This first contact undergraduate medical students have with a general practitioner educator can be very influential and may inform their later professional development. Part of the teacher's role is to demonstrate the skills and techniques of a general practitioner. This may include various specialities, thus showing students

that the role of the general practitioner is multi-dimensional and embraces several fields (9). These educators should strive to create an image of generalist medicine as an exciting and appealing field of practice providing student doctors with new horizons and new options by displaying attitudes and behaviours that provide role models which the impressionable undergraduate students should ideally adopt for life.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 4.3.4

PARALLEL CONSULTING IN RURAL MEDICAL EDUCATION

Lucie Walters
Flinders University, Australia

Introduction

Providing medical students with meaningful clinical experiences which bring students into 'close and active relation with the patient' is essential for them to develop clinical competence (1). The medical profession has a collective responsibility to ensure students are prepared to contribute meaningfully to their community's health care needs through the provision of primary and ambulatory care services (2). In recent times many medical schools have recognised this priority and sought opportunities to increase community-based medical education placements to provide students with more experiences in managing patients with undifferentiated illnesses and chronic diseases (3). Parallel consulting has become a familiar way of managing students within these clinical contexts.

Parallel consulting involves providing students with an opportunity to consult with patients in parallel with their experienced clinician supervisors. Routinely this involves students having their own consulting room or other clinical space where they can start the consultation with the patient before being joined by their supervising clinician who continues, provides quality assurance and concludes the interaction with the patient.

This chapter seeks to summarise the current evidence around parallel consulting, and draws on case scenarios to provide a practical approach to parallel consulting in community-based medical education, in a rural private general practice environment.

While parallel consulting can happen in many different environments, rural general practitioners are likely to find it a valuable approach to use for clinical supervision of students.

What's the evidence?

Time

In the Australian rural General Practice (GP) context, patients tend to be booked with a GP every ten to 15 minutes. A recent study (4) found that the average time a GP spends with the patient was 13½ minutes. In this context, where a medical student had access to their own consulting room to see patients before being joined by the GP, there was no increase in the time the GP spent with the patient (4).

In this study the time the GP spent with the patient in a teaching consultation was not affected by: GPs' previous experience (after one year of precepting experience); their reported interest in clinical teaching; nor the student's opinion of the effectiveness of the clinical teaching they received. Student teaching occurred mainly with the patient in the room, and the GP rarely spent time between consultations providing additional clinical teaching to the student. Time-motion study results of the non- consulting time spent by doctors in this study found that non-consulting time during a half-day session was not significantly different (p=0.093) with solo consulting sessions having estimated marginal mean non- consulting time[1] of 36 minutes 43 seconds (95% CI = 28min 41sec to 44min 44sec) and parallel consulting sessions having estimated marginal mean non-consulting time of 41 minutes 55 seconds (95% CI = 33min 54sec to 49min 57sec) (5). The time the patient spent within the clinic was usually doubled, however, as they had a part-consultation with the medical student, usually followed immediately by a joint teaching consultation with their student and the GP.

Although parallel consulting has been shown to be time efficient, many doctors describe that it takes more work. The activities which supervising doctors engage in, when they participate in parallel consultations were different in a recent study (6). Exploring the patient's history took a longer process (average additional 39 seconds p=0.002) as the doctor compared and contrasted the student report with the patient story. Once student competence with basic clinical examination skills was established, physical examination time could be reduced (average 37 seconds less,

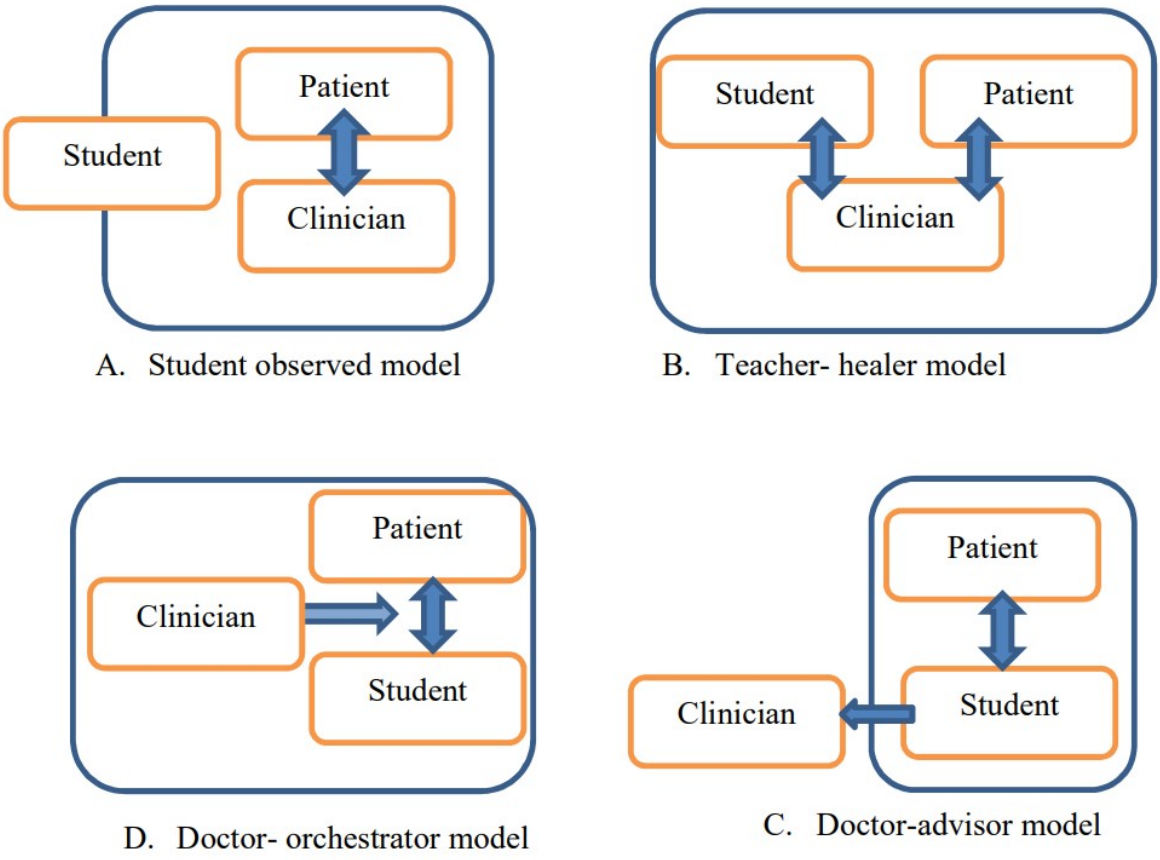
1 The 'estimated marginal mean non-consulting time' is the time a GP spends on teaching students outside of the consultation during a particular period (in this case, a half-day session), estimated using a calculation of marginal means.

p=0.001) as the experienced clinician sought to confirm key physical findings only, rather than repeating the entire patient examination. Reduced time spent performing patient management (average 41 seconds less, p=0.007) and clerical duties (average is 1 minute 31 seconds less, p=<0.001) was possible by delegating tasks to the student or occasionally deferring activities such as referral letters to another time. This provided additional time (average 1 minute 8 seconds, p=<0.001) which is used for direct student teaching and indirect patient education (6).

Dynamics

In a study which looked at the interactions between student, patient and clinician in parallel consulting, it was clear that student competence, and supervisor familiarity with the student resulted in different dynamics within the teaching consultation. These dynamics were fluid, changing from moment to moment within a single consultation, and included the student-observer model, the teacher-healer model, the doctor- orchestrator model and, very occasionally, the doctor-advisor model (Figure 1) (7).

Figure 1:
Models of dynamics within parallel consulting



Patients

Most clinics seek to manage the logistics of having students engaged in parallel consulting by ensuring patients are prepared for, and provide consent for, the parallel consulting experience. This involves highlighting sessions where clinicians will be parallel consulting, so that appointments are made explicitly. Figure 2 details the appointment scheduling and patient consent processes utilised in one clinic.

Figure 2:

Case scenario 1:
Reception staff role in patient bookings and consent

As she walked past the front desk of the clinic Dr Marie overheard her receptionist on the phone to her patient, Mrs Liu.
"Hello Mrs Liu, who do you wish to make an appointment with?" …..
"Ok, Dr Marie is booked up for 3 weeks, but if you are happy to consult with the medical student Albert before Dr Marie joins the consultation, I can offer you an appointment at nine thirty on Thursday. You will need to allow half an hour for the appointment"

The patient's appointment is then entered onto the booking system:

Wednesday: Dr Marie Solo consulting session			Thursday: Dr Marie Parallel consulting session with Arthur	
0900	F Summers		0900	J Boyd
0915	T Joyce		0901: student	D Ross
0930	N McNaughton		0930	S Nobes
0945	B Shahi		**0931: student**	**S Liu**
1000	F Jones		1000	L Heaven

On Thursday Dr Marie again overheard her receptionist
"Good morning Mrs Liu. If you take a seat our medical student Albert will see you

Space

When planning for parallel consulting, it is recommended that clinic personnel work to provide students with access to an equipped consulting room. Consulting room space can be created through rostering of sessions to maximise utilisation of consulting rooms in each half-day period. Medical students also require access to student study space in order that they do not interfere with the patient care activities of other clinic staff, or impact on patient flow (8). Infrastructure investment may be required if parallel consulting is planned as a routine part of clinic activity.

Parallel consulting can be arranged in different ways, in order to balance the needs of student learning, patient flow and the doctor's cognitive load. Some doctors have the physical space and supervision expertise to supervise two students at the same time in what is known as a 'wave schedule' (9), while other doctors adapt their programme to see their own patients (see Figure 3).

Discussion

Social learning theory frames parallel consulting as allowing students to take on a legitimate peripheral role in patient care which progresses to a more central role in the clinical team as their knowledge and skills develop (10).

The RIME (Reporter-Interpreter-Manager-Educator) framework proposes that students move through different competency levels as they develop their clinical competence: from reporter, to interpreter, to manager, to educator (11).

When students need to progress beyond simply reporting a patient's personal story to interpreting this into the language and schema that is symbolic of Western medical clinical diagnoses, it is helpful for them to observe an experienced clinician to develop an understanding of what information is required from the patient and how to collect it. Students should be encouraged to actively observe by focussing their attention on specific skills, and providing them with an opportunity to report and reflect on what they saw (9). The teacher-healer model can then be used to provide students with an opportunity to interpret patient stories, and receive critique and feedback regarding their interpretations. This is particularly important in ensuring students are not blinded by one well-formed clinical schema, and fail to consider alternate diagnoses in interpreting their findings.

Figure 3: Case scenario 2: Adaptations of parallel consulting appointment schedule

Dr James has agreed to take on some additional teaching, however clinical space is at a premium, so he plans to utilise 2 consulting rooms with two students and move between the rooms. He will be consulting on Tuesday with two proficient students Melody and Susan.
The reception staff arrange his Tuesday appointments

Tuesday Consulting room 1: Dr James Parallel consulting session with Melody			Tuesday Consulting room 2: Dr James Parallel consulting session with Susan	
0900	Patient 1 consults with Melody		0900	First appointment for the session is left unbooked
0915	Patient 1 consults with Melody and Dr James		0915:	Patient 2 consults with Susan
0930	Patient 3 consults with Melody		0930	Patient 2 consults with Susan and Dr James
1000	Patient 3 consults with Melody and Dr James		0945:	Patient 4 consults with Susan
1015	Last appointment for the session is left unbooked		1000	Patient 4 consults with Susan and Dr James

At the beginning of the next semester Dr James is asked to take two less experienced students. Clinical space is more available and he has access to three consulting rooms at this time.

The reception staff arrange his appointments two months in advance to prepare for this time

Student 1 booking schedule (consulting room 1)		Dr James booking schedule (consulting room 2)		Student 2 booking schedule (consulting room 3)	
0900	Patient B	0900	Patient A	0900	Preparation or sit in with Dr
0915	Patient B	0915:	Patient B (join student)	0915:	Patient C
0930	Write notes	0930	Patient C (join student)	0930	Patient C
0945	Patient E	0945:	Patient D	0945:	Write notes
1000	Patient E	1000	Patient E (join student)	1000	Patient F
1015	Write notes	1015	Patient F (join student)	1015	Patient F
1030	Finish or sit in with Dr James	1030	Patient G	1030	Write notes

As students move from the interpreter phase of clinical reasoning to the manager phase, doctors are able to step back to an orchestrator role, with their primary purpose being one of quality assurance rather than having the primary therapeutic relationship with the patient. Experienced supervisors will feel confident to entrust professional activities to the student - such as history, examination or patient education - while ensuring patient comfort and safety (12). Some doctors report finding it difficult to allow the doctor-orchestrator consultation to take a slightly different course to the one they would have taken. If they are able to overcome the urge to intervene, however, doctors report that this phase of parallel consulting is perceived as less work and takes no more time that consulting alone.

Broader applicability and implementation

Recent studies have demonstrated that clinical placements allow students gradually to develop identities as novice members of specific interest groups within the medical profession (10, 13). Year-long rural community placements influence students' future career choices towards rural practice (14). Also the opportunity for career variation through clinical teaching in community practice has been demonstrated to be an effective retention tool for rural primary care physicians (15).

Practice pearls

Parallel consulting requires infrastructure investment so students have access to clinical space.
Parallel consulting enhances learning by allowing students to take an active role in clinical care with responsibility graded to their level of development of clinical reasoning.
Students can progress from sitting in on a consultation, to being allocated appropriate patients by their clinical supervisors, to taking the next patient on the list.
Parallel consulting does not take more time for the supervising clinician, but it can mean more work.
Parallel consulting requires clinicians to understand where students are on their learning journey and manage the student-patient-supervisor triangular relationship accordingly.

Conclusion

Parallel consulting can be an effective method of actively involving medical students in authentic clinical activities. Preparation for parallel consulting must include consideration of infrastructure resources, and appointment timing to ensure smooth patient flow.

Experienced clinicians describe finding parallel consulting enjoyable, educational and financially and logistically feasible.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 5.1.1

'TRAINING IN PLACE': THE EVIDENCE FOR EFFECTIVE REMOTE CLINICAL SUPERVISION

Ewen McPhee[1] and David Farlow[2]
University of Queensland and James Cook University, Australia

Introduction

Australia has some of the most distributed and remote communities in the world, creating significant challenges to the provision of high quality medical care. As a result, equitable access to care consistent with modern expectations can be challenging, with poorer health outcomes being well recognised, especially in Indigenous communities and remote areas.

'Training in place' is a concept that describes placing learners in regional, rural and remote locations to gain experience of the unique opportunities and challenges of isolated health service delivery. There is strong evidence that supported placements of learners at all levels improves their commitment to a career serving rural or remote communities.

Australian General Practice Training (AGPT) has led the way in demonstrating how well-structured remote supervision and training can lead to long-term retention in these areas, and the Australian College of Rural and Remote Medicine (ACRRM) has a singular focus on providing excellent training for rural generalist clinicians.

While medical training in Australia was initially completely centralised in England, over time there has been a shift to a partially decentralised model – with Melbourne, Sydney and then Brisbane becoming "acceptable" to produce high quality medical practitioners. In the 1990s, there was further decentralisation to major regional centres, but this was still mostly dependent on rotations from major to regional centres. Every step in this historical decentralisation model has been challenged by governing bodies resistant to change.

The purpose of this chapter is to explore remote education of regional clinicians (at various levels of their training) including educational content delivery, clinical supervision on site, and the development of professionalism in the trainees' chosen disciplines.

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1 Assoc Prof Ewen McPhee is Senior Academic Clinician at the Rural Clinical School, Faculty of Medicine, University of Queensland.

2 Dr David Farlow is the Executive Director: Research & Innovation and Associate Professor/ Clinical Dean, James Cook University.

Clinical supervision

Kilminster and Jolly[2] define clinical supervision as

> *"the provision of monitoring, guidance and feedback of matters of personal, professional and educational development in the context of the doctor's care of patients. This would include the ability to anticipate a doctor's strengths and weaknesses in certain clinical situations in order to maximize patient safety".*

They further suggest that supervision of medical trainees should "have ground rules, be uninterrupted, be flexible, have learning objectives, include record keeping and liaison with the program director".[2] The supervisor's role extends beyond just clinical management, teaching and research to include the personal and professional development of the learner as a competent professional in their discipline.

The quality of the supervisory relationship is also highlighted by Kilminster and Jolly[2] who write that it is "probably the single most important factor in the effectiveness of supervision, more important than the supervisory method used". Insufficient access to clinical supervision, training and professional support often limits opportunities for enhancing professional practice which might enable the pursuit of careers in regional medical practice. In addition, while clinical supervisors may have protected time to provide high quality, comprehensive and safe support for trainees, they may also be limited by their own clinical service obligations and the needs of the Regional Health Service.

Wearne[1] describes the risk that increasing expectations of clinicians to train learners may reduce patient care and training quality. Further she describes the risk of poor health outcomes which might arise from there being insufficient infrastructure and funding to support the training and availability of local regional supervisors. She also suggests that trainees may limit their questions and instances of seeking advice, in the face of time-limited clinical supervisors. Cameron, Ray and Sabesan[3] add that the lack of supervision on site, higher levels of responsibility for decision making, and greater workloads create emotional stress for trainees.

Other negative aspects of regional clinical training include the impacts of isolation from peers, limited access to contextually specific education (college training programmes and curriculum specific training), and governance issues such as orientation to clinical practice and community. These issues often leave the trainee unprepared for professional and personal practice in regional centres.

Technological and geographical challenges to supervision

'Training in place' requires consideration of technology in enabling quality connectivity – be it through email, telephone or video – as the trainees must be able to access their supervisor as needed. Although systematic reviews by Chipps, Brysiewicz and Mars[4] and Tomlinson et al[5] provide support for the contention that tele-learning is comparable to face-to-face learning methods, the evidence is not rigorous given the paucity of robust studies. Martin, Kumar and Lizarondo[6] describe tele-supervision as a useful tool in any context, but none more than the regional and remote context where local supervision may be limited.

The health care sector has been slow in taking up the offerings of the digital revolution, however. As a result, the major players in global health care (Alphabet/ Apple/ Walmart/ Amazon) have recently started to supply devices and/or software related to the delivery of health care. The knowledge that can be provided in this way can be of benefit to patients, as well as provide evidence-based instant data to support regional, rural and remote training of clinicians.

Through providing virtual connectivity between metropolitan and regional/rural centres, the various digital platforms can further enhance clinical training by providing an opportunity for medical colleges and medical training governance organisations to consider innovative ways to maximise the delivery of training in regional, rural and remote communities.

In Australia, the technology underpinning available options for clinical education are extensive and largely web-based in real time – and are limited only by specific network security issues across health services and by bandwidth quality. The methods used for training clinicians range from didactic PowerPoint-based lectures with minimal end user interaction, to distributed networks of learners discussing contextually relevant cases with a remote medical educator.

The quality of content and its contextual relevance can vary, especially where the frame of reference of the content author differs from that of a remote audience. As most professional colleges are based in metropolitan areas and serve the needs of tertiary hospitals, educators are more likely to be familiar with high population areas, which means there is a risk that their curriculum and content is framed in that context. Ducat, Martin, Kumar, Burge and Abernathy[7] and Young, Peel, O'Sullivan and Reeve[8] underscore the importance of focusing explicitly on context in building capacity for rural and regional practice.

In Australia, there is a plethora of opportunities for education and knowledge acquisition which exert pressure on the trainee's available time outside of their clinical responsibilities. There are perhaps too many providers delivering education opportunities that are poorly co-ordinated with learners' needs, and with the curriculum requirements of the respective colleges to which the learners are linked.

The character of supervisors and their learners

Kilminster and Jolly[2], Wearne[1] and Cameron et al[3] refer to the importance of the relationship that is developed between supervisor and learner – with Wearne underscoring the importance of choosing both supervisors and learners who are suited to remote supervision.

The twelve tips on how to set up postgraduate training via remote clinical supervision outlined by Wearne, Dornan, Teunissen, & Skinner[9] are summarised in Table 1.

Table 1:
Twelve tips on how to set up postgraduate training via remote clinical supervision

	Tip	Comments
1	Educational organisations oversee remote placements.	Trainees, supervisors and locations are well matched.
2	Choose registrars [trainees] suited to remote supervision.	Trainees have foundational clinical skills and competencies and are self-motivated.
3	Choose supervisors suited to remote supervision.	Supervisors are familiar with the clinical aspects of the trainees' work and are approachable.
4	Choose volunteers.	Remote supervision is not compulsory.
5	Promote good working relationships and establish roles early and clearly.	Roles are clearly outlined and face-to-face contact is promoted where possible.
6	Clinicians should inform their medical indemnity organisations and patients.	In some countries, supervisors are liable for the actions of their remote trainees, and need to be made aware of this. Patients to be informed of the trainee's status.
7	Encourage registrars [trainees] to establish personal, professional and information support networks.	Trainees to be orientated re referral pathways and to have access to online information and support. Trainees are encouraged to develop personal support networks, both locally and online.
8	Establish how information will be shared.	Ways to share information ethically regarding clinical oversight and trainee performance are developed.

	Tip	Comments
9	Host clinical placement responsibilities extend beyond having a fully qualified clinician.	Practices and health services with remotely supervised trainees need dedicated mechanisms for clinical oversight and support. Provision is made for trainees' attendance at educational events.
10	Promote monitoring and feedback to registrars [trainees].	Pastoral care, feedback and progress assessment remain critical to trainees' development and require alternative methods to traditional teaching.
11	Use and maintain appropriate information technology and resources.	Various forms of suitable information technology are available and maintained.
12	Have contingency and exit plans.	Safe exit of trainees due to unforeseen issues or events needs to be planned.

(Developed from Wearne, Dornan, Teunissen, & Skinner[9])

If regional medical training is to be successful, it is critical that trainees who agree to receive remote supervision have some experience of this role and are comfortable with autonomous clinical decision making. They must also have insights into their own abilities, strengths and weakness and be able to function as self-directed learners, including the capacity to "self-correct".

Supervisors undertaking remote clinical supervision must be able to develop rapport and have good communication skills;[3] they must be able to provide holistic support for trainees, including aspects of pastoral care, and should also monitor their wellbeing.[9]

Assessment

Assessment of trainees is a key aspect of the clinical responsibilities of a supervisor. Poorly performing trainees with limited insight and impaired ability to self-assess require periods of direct observation which can present a significant challenge for remote supervisors;[1] this needs to be anticipated and planned for.

Clinical supervision case studies

Some specialist colleges in Australia have used communications technology to support clinical supervision; for instance, the ACRRM – through its Independent Pathway to Fellowship – and the Rural College of Physicians. In Australia, expertise in the use of telemedicine for providing training and supervision has evolved alongside the evolution of 'training in place'.

Queensland Health

Queensland Health has invested in the expansion of telemedicine and supported innovation in the delivery of remote clinical services; it has one of the largest distributed telehealth backbones in the world. This has led to greater utilisation of remote specialists to enhance the scope of practice of local clinicians and reduce the challenges of travel for rural patients. Recent innovations are reaching into the homes of patients with complex and chronic diseases, using high fidelity home monitoring tools.

The backbone provides extended virtual care networks, enabling clinical consultation, after hours and emergency support, as well as store and forward consultation (off-line use of email and clinical photographs) for dermatology, medical imaging and burns cases. The Telemedicine Emergency Support Unit (TEMSU) provides 24-hour access to a nurse with the opportunity to escalate case management to an appropriate regional supervisor, driving contextually appropriate clinical support from known providers.

Remote supervision by centrally located supervisors can support empowering local trainees and qualified clinicians to practice at the top of their skill set. Case examples across the state include remote antenatal ultrasound skills training and a tele-stress testing model for rural nurses.

The Remote Vocation Training Scheme

There are not enough clinicians in rural Australia. By working in rural areas, medical practitioners from other countries can enter clinical practice, bypassing the usual supports and standards required of Australian General Practice Training Program candidates. While recent Department of Health policy changes will deliver greater alignment with college-led programmes, there remains the risk that isolation brings for clinicians, their communities and their supervisors, in the delivery of appropriate high-quality care.

The Remote Vocational Training Scheme (RVTS) has effectively trained and supervised geographically isolated clinicians through Fellowships of the ACRRM or Royal Australian College of General Practitioners (RACGP) using a model of remote supervision, video-conference learning, peer support and block learning releases. Discussing the consolidation of the principles of distance supervision within the RVTS program, Wearne[1] describes a model in which a consultant on-call GP (general practitioner) supervisor who is supervising GP registrars at a distance, is responsible for the co-ordination of the education and training within a practice team. Key to this model is freeing up the remote supervisor from their own clinical load.

In their analysis of the RVTS programme, Wearne, Giddings, McLaren and Gargan[12] found that it delivered high levels of rural retention of graduated Fellows. In their

feedback, graduates valued the support and social networking provided by the scheme, coupled with a focus on extended skills relevant to emergency and remote medicine.

The Australian Antarctic Division

The Chief Medical Officer of the Australian Antarctic Division, Dr Jeff Ayton, describes a process of deliberate design in the development of austere environment supervision of learners. This includes an intensive process of evaluation and training being undertaken prior to deployment, as learner failure in this environment is often irretrievable.

Three to four months are spent providing the learner with the knowledge and skills required by a polar medicine doctor, such as wilderness survival, intensive care and retrieval medicine. While knowledge is important, Dr Ayton believes that the development of rapport and a complete understanding of the learner's skill set and competencies is critical to appropriate deployment. The Polar Medicine Unit continues to provide ongoing around-the-clock case management of presentations, in support of the learner.

The need to train and support education in austere environments has led to the creation of the Centre for Antarctic, Remote and Maritime Medicine as a center of excellence in the delivery of remote clinical supervision and education.[10]

Townsville Tele-oncology Model for remote supervision

The Townsville Tele-oncology Model for remote supervision is a process for delivering contextually specific and high quality training for interns and junior doctors in the management of complex oncology cases in a remote context.[3]

Cameron et al[3] identify a range of factors that contribute to successful models – and which can reduce feelings of isolation and motivate self-directed learning. These include

- the supervisor's personal attributes and communication styles;
- regular clinical contact;
- the supervisor's commitment to clinical teaching;
- the supervisor's validation of junior clinicians' decisions in a supportive team environment;

- thorough orientation;
- the availability of a local clinical team – inclusive of rural generalists, general practitioners, nursing and allied health professionals;
- building clinical supervision and training into day-to-day clinical practice;
- consistent time commitments, preparation and goal-focussed learning; and
- technical training on telemedicine, along with appropriate administrative and nursing support.

Interns who were remotely supervised improved their knowledge of patient care, the role of the extended health care team and "validation of their current and future practice management" Cameron et al.[9] These authors also describe a previously unexplored aspect of remote clinical supervision: trainees in remote supervision arrangements appeared to develop greater confidence ('professional edge') than their peers, gained through exposure to, and care of, more complex patients. This finding evolved from working in an environment of relative clinical autonomy while being well supported by senior peers.

The digital future for remote models of supervision

Medical colleges have a range of governance systems for the selection, distribution, training and assessment of trainees. They also differ in their approaches to providing support to solving the maldistribution of medical specialists.

The advent of the 'internet of things', virtual health, and the globalisation of health care has offered new opportunities to consider steps to decentralise training even further, whilst maintaining standards.

The Mercy Model

The Mercy Virtual Care Centre in the USA is the world's first hospital with doctors, nurses and support staff, but no beds. It provides

- high level monitoring and support of 30 ICUs;
- stroke support for those facilities with no neurologist; and
- hospitalists [generalist clinicians] for virtual patient care at home or in a doctor's rooms for higher level advice, support or training.

This could offer a potential model for regional/rural training.

Examples in Australia

The Telemedicine Emergency Support Unit in Queensland is Australia's first 24/7 co-ordinated care model where rural/remote generalist clinicians can access specialist support for any emergency presentation. For example, the Princess Alexandra Hospital is monitoring blood sugar levels of all patients in Mackay a thousand kilometres away who are on an insulin infusion – and can have an endocrinologist consultation as necessary.

The journey of digital support for better patient care has just begun. While it will have an impact on what the 'clinician of the future' looks like and how they are trained, the siloed functions of specialty colleges increase the risk of a disjointed approach to clinical workforce training. Currently some specialty colleges are still using traditional methods for intake, training and assessment of trainees. They have been slow in considering how digital disruption in training and education can provide alternatives to existing models, particularly for generalist clinicians.

Effects of digitisation on the workforce

The Topol Review should be read by all influencers associated with digital health and workforce production. An excellent report on preparing the British health care workforce for the digital future, it asserts that:

> *"The combination of rapid technological advances and the changing health care needs of the UK will cause a degree of disruption, requiring the workforce to be agile. Roles will become more fluid and role boundaries may blur."* [11]

This will further challenge current training models, as well as governance.

Australia currently has separate strategies for health workforce training, siloed into medical, nursing and allied health. Digital disruption offers opportunities to develop different types of clinicians fit for purpose for the demographic area. Can the 'generalist medical model' be expanded to a 'generalist clinician model'?

The USA are global leaders in the role of the physician assistant model to support patient care. While this model had minimal acceptance in Australia, digital support and training may offer an opportunity to revisit the value of similar models, particularly for rural and remote health service delivery.

Conclusion

This chapter has outlined the contention that remote supervision is relevant, applicable and effective for the development of trainees in the context of regional medical services. Regional and rural remote supervision models are neither of a lower standard, nor less rigorous, than traditional models.

The chapter discusses several cases where remote supervision models have contributed to improved access to education, coupled with service improvements for regional and rural people. These models have delivered good educational outcomes for trainees, and possibly improving retention in the process.

Barriers and enablers include the careful consideration of supervisors, trainees and service development – while the specific context, expectations, infrastructure as well as pastoral care are all important considerations when planning for remote supervision.

The future for remote supervision models is empowered by rapid progress in digital technologies – including knowledge management, information access, delivery tools and the fidelity of remote learning. The perceived primacy of face-to-face, tertiary supervision and training is challenged by these new contexts and the many examples of innovation.

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Wonca Working Party on Rural Practice
World Organisation of Family Doctors (Wonca)
12A-05 Chartered Square Building
152 North Sathon Road
Silom, Bangrak
Bangkok 10500
THAILAND

manager@wonca.net

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Chapter 5.1.2

TRAINING IN FAMILY MEDICINE FOR RURAL PRACTICE IN CANADA

Maureen Topps
Northern Ontario School of Medicine, Canada

Introduction

Distributed medical education i.e. medical education not occurring in tertiary or academic environments, is becoming increasingly mainstreamed such that the term 'distributed' may soon be obsolete. Medical education is moving more rapidly to the widespread adoption of the notion that physicians[1] must be trained in the environments where the majority of their future patients are found – i.e. not only in large urban tertiary environments. That the majority of patients are treated outside of tertiary care environments, was demonstrated in the model of distribution shown initially by White, Williams and Greenburg in 1961 (1) and validated by Green et al in 2001 (2).

Family medicine has truly led the way in this endeavour, with multiple programmes in Canada now embracing the need to engage communities and non-academic institutions in their residency programmes. This notable change in opinion has occurred over a relatively short period of time, certainly less than a decade – and the move to distributed medical education is having a profound impact as students and residents are increasingly trained in environments which provide them with access to the most appropriate clinical conditions and acuity of patients required for their education (3).

Alongside this there is currently a major shift taking place in Canada comprising a new longitudinal curriculum in Family Medicine. Known as the 'Triple C' curriculum, it focuses on a competency-based model of **c**omprehensive and **c**ontinuing **c**are with a patient-centered approach (4). This model fits very well with what is already in place in Northern Ontario for Family Medicine residency training (5). Further, it

1 A 'physician' here (in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

supports the social accountability framework of medical education as outlined in Boelen's definition of this for medical schools, adopted by the WHO:

> "*the obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region, and/or nation they have a mandate to serve."* (6)

Establishing environments for rural medical education

While it may work on occasion, a medical school cannot simply arrive in a community and hand over residents[2] for training. An emerging culture of commitment, development of shared values and complementary missions; clearly defined roles and relationships; and a social contract with the patient population must be fostered, with the participation of patients, physicians, health care professionals, hospital staff and administrators.

It is critical to not underestimate the time and energy required to arrange for residency training to occur in smaller centres. Communities and physicians have to buy in to the model and understand how relevant it is for them. While it is often easier to convince communities, especially where there is a need for recruitment of health care providers, physicians may be skeptical especially if they perceive a lack of recognition for their efforts, added work for little income and even a potential loss of income. There has to be demonstrable 'value added' – perhaps not immediately, but visible in the near future.

Listening to **community leaders** and engaging them may help to move things forward. Bringing a **physician colleague** from a similar environment and circumstances, who has been successful in moving through the early phases, can help to convince physicians in a new community to try the educational milieu.

Avoid any comparisons between local opportunities and the 'ivory tower' or 'town-and-gown' approaches. Make it as simple and as enjoyable as possible. Above all, persist, visit regularly, communicate frequently and don't give up!!

---

2 A resident – or registrar – is a qualified doctor who is part of a structured specialist training programme, be it vocational or postgraduate.

Medical education requires the involvement of **multiple agencies** - from the medical school to hospitals, clinics, community outreach, government and funding bodies, telehealth, accrediting and licensing authorities. All have specific needs with respect to documentation, reports, funding, agreements and legislative requirements; so attention to detail in this area can pave the way for a smooth transition of the distribution of medical learners from current programme practice environments to rural training.

To facilitate medical education in rural areas, major energy must be expended on communication, a review of available resources, engagement with various agencies' educational programme support and the development of practical tool kits pertinent to the local environment.

A good overview of the complexities inherent in developing the relationships necessary for the promotion of a robust network supporting medical education is found in Lozon's 2002 paper (7).While based on an environment encompassing university hospital networks, many of the discussion points are highly pertinent in any situation where medical education occurs.

Resources

Resource requirements for education are very important. This includes

- space for residents to see patients;
- models on how to make best use of space with limited facilities;
- the availability of staff resources for extra patients;
- hospital call rooms;
- classroom or other educational space; and
- Internet access and library services.

Beyond the work environment, residents require a place to live, transport to and from other required placements, social and family supports.

Support systems need to be clearly thought through. Where will the learners stay? How will they fit into cramped clinical space? What additional resources can be provided to help with clinical and academic requirements? What training will be provided to assist those who have not taught previously? What will I receive for doing all of this? Recognition beyond the financial is often highly regarded and can be as simple as a plaque on the wall. What help is available for encounters with difficult learners or interpersonal clashes? A single adverse encounter can result in the loss of a valued teacher for an extended period of time.

Clearly there must be adequate, sustainable **funding** for physicians, hospitals and clinical environments. Rae identified that funding models must change so that medical education is no longer subsidised by patient care dollars (8). There may need to be capital expenditure to ensure appropriate educational space and the availability of required equipment.

Policies and procedures must be in place to support educational activities; patients must be made aware of the educational environment, and the involvement of residents in their care.

Toolkits, to assist with the development of new learning environments, could include

- educational modules for orientation and faculty development;
- technology support and equipment;
- accommodation and transport options for residents;
- faculty appointment kits;
- templates for policies and procedures to be adapted for local use;
- templates for affiliation agreements and other necessary documents;
- models for communication and media coverage;
- assistance with job descriptions, hiring and performance review of non-clinical staff.

Human resources

Educational support for accredited training - particularly in the form of suitable, qualified personnel - is paramount. There must be clear lines of communication between clinical supervisors and programme directors; clear delineation of roles and responsibilities; orientation, faculty development and continuing education opportunities (9).

The process of faculty appointments required by accrediting bodies require should be as streamlined as possible for clinicians – and the role of clinical faculty must be clearly articulated to the accreditors. A major effort must be made towards communication and provision of information to accreditation surveyors. Few to date have had much experience with a non-university training environment with distinct funding and educational models.

Accreditation requirements

The language found in specialty specific accreditation requirements of the Royal College of Physicians and Surgeons of Canada (RCPSC) (10) reflects the highly university and tertiary environment focus of current training – but begs the questions of why this is important for family medicine?

The increasingly close ties between the RCPSC and the College of Family Physicians of Canada (CFPC) has led to more joint engagements and adoption of increasingly similar accreditation standards. This behooves those involved in distributed environments of medical education to encourage a review of these standards to include language and recognition of the highly variable settings for medical education - particularly for family medicine, but growing in importance for training in Royal College disciplines, led by the postgraduate environment at NOSM. Many Royal College disciplines now recognise the importance of 'community-based' rotations and opportunities - an early first step towards true distribution of training.

Leadership training

The need to encourage the development of the next generation of leaders in medical education if often overlooked. Little attention is given to leadership training or to succession planning for individuals in administrative or educational roles. For family medicine in rural areas, this is a concept that should be closely considered. In smaller communities, physicians are often asked to assume leadership in multiple activities ranging from hospital governance to disaster planning, to local politics. Residency training is an ideal time to develop skills in this area.

Tempering this, however, is the importance of teamwork and interprofessional collaborations, which are of vital importance in family medicine as a discipline generally, but are particularly noticeable in distributed settings. This is an example of another area where rural training shines and inter- and intra-professional partnerships are readily observed.

What's the evidence?

Rural training as rural recruitment

The experience in Northern Ontario clearly demonstrates that individuals trained in rural environments are more likely to remain there in practice. This has been found in other programmes in North America (in the WWAMI[3] programme for instance) and in other parts of the world, noticeably in Australia.

The Northern Ontario School of Medicine (NOSM) is tracking where its graduates end up in practice. A recent review of practice locations of graduates from NOSM and its predecessor organisations over the past five years demonstrated that 74% are in rural or regional areas (11). This confirms work completed earlier by the Northern Ontario Medical Program, one of the organisations amalgamated with NOSM as it developed (12).

Comprehensive practice

In addition, it has been found that family physicians in rural practice have a more comprehensive practice than their highly urban counterparts. A review of the practice patterns of residents in Ontario who completed a PGY3 year in enhanced skills - ranging from Emergency Medicine to Anesthesia to Care of the Elderly - showed that those practicing in Northern Ontario five and ten years later, had a mixed practice including both hospital and clinic settings (13). This was identified using billing data. Individuals who had completed anesthesia training in particular, maintained a comprehensive practice. This evidence was not found in those completing PGY3 training in more urban centres, nor in those whose major practice address was not in Northern Ontario.

Standards

Other medical schools in North America are embracing distributed environments, particularly for clerkship training in undergraduate education and for family medicine training. In Canada, these range from coast to coast (14).

3 Washington, Wyoming, Alaska, Montana and Idaho (USA)

Studies show outcomes on exams at least as good as those of the standard tertiary care university environment (15, 16). The first three years of experience at NOSM with the Medical Council of Canada exams validate this. Part 1 is written at the end of medical school and Part 2 is written in year 2 of residency training. NOSM MD students and NOSM Family Medicine residents have scored at, or close to, the top each year to date.

Practice pearls

What to do

Make the necessary culture shift to
- build relationships and develop shared values
- engage the communities
- engage the doctors and health care professionals
- engage the hospitals
- engage the accrediting bodies - encourage validation of alternative models for implementation e.g. CCC FM curriculum

Attend to the importance of selection

Train in the community environment as people are more likely to remain – particularly if there are enhancement options

Pay attention to human resources
- Ensure there is capacity for training (models that can assist)
- Support staff requirements
- Attend to new staff requirements
- Offer faculty development and continuing education
- Offer orientation and education – all staff
- Undertake performance management (development of leaders)
- Facilitate faculty appointments
- Appoint dedicated liaisons

Ensure there are the necessary physical resources
- Transport
- Accommodation
- Safety
- Educational space
- Call rooms
- Equipment

- Connectivity
    - Address hospital firewall issues
    - Ensure online access for learning resources
    - Identify concerns with cellphone/pager compatabilities

Financial resources – ensure there is adequate sustainable funding for

- physicians
- hospitals
- clinic environments

Ensure there is support for accredited educational activities

- Affiliation agreements
- Patient demographics
- Medical records
- Policies and procedures
- Links between hospitals and medical school
- Vision, mission and value statements

Communicate widely
Visit communities and learners
Visit again…and again
Support and validate communities and learners
Have communities participate in selection processes.

What not to do

Don't underestimate how much time this takes to set up.
Don't focus on the financial. You will never replace clinical income.
Don't forget the importance of learner and teacher satisfaction.
Don't ignore the potential effects of learner isolation.
Don't always rely on technology – in-person works wonders.
Don't make getting a faculty appointment a difficult process.
Don't alienate opinion leaders.
Don't tell… ask instead.
Don't give up…

Conclusion

Training for rural practice in family medicine brings numerous opportunities forward for change in the manner in which medical education is viewed. It is avant-garde and flexible; individuals who train in distributed settings are more likely to remain and work there; the training they receive prepares them for practice in any environment.

As noted at the beginning, a major shift in thinking about how medical education is delivered is underway. Educating family physicians in the environment where patients receive the majority of their care, in interprofessional settings with a team based model, will assist with the crisis of health human resources found in many situations. Looking forward – for the future of our health care system.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 5.1.3

TRAINING IN FAMILY MEDICINE FOR RURAL PRACTICE IN THE USA

David Schmitz
Family Medicine Residency of Idaho, United States of America **Barbara J Doty**
University of Washington Family Medicine Network, United States of America

Introduction

The United States is currently in the midst of a substantial health care delivery transformation. This includes a growing recognition that there is a shortage of rural physicians overall and a new emphasis on access to primary care and emergency services for all persons – and it is at the intersection of these two factors that the rural family medicine physician[1] workforce finds itself. In this context, more attention is being paid to rural family medicine residency[2] training, given the broad and primary care-based skill set developed in this training as well as its recognised success in producing broadly trained primary care physicians and family medicine physicians.

Family medicine residency programmes in rural settings must function within the context of national regulations and, as for all training programmes, must meet both accreditation and financial targets. As these have generally been tied to historical precedent, however, it is necessary to know the historical context in order to understand the key issues as well as the lessons learned in the United States (US) family medicine residency training for rural practice.

1 A 'physician' here (in North America more broadly) is another term for 'doctor' or general practitioner, while in countries like South Africa and Australia, a 'physician' is a specialist in internal medicine.

2 A resident – or registrar - is a qualified doctor who is part of a structured specialist training programme, be it vocational or postgraduate.

The purpose of this chapter is to focus on the current circumstance of postgraduate medical education (i.e. training of residents) as preparation for rural practice in the United States. In so doing, and in emphasising family medicine, this is not intended to diminish the less frequent but important contributions of other specialty physicians to the rural workforce; most notably: general internal medicine, pediatrics, general surgery, general obstetrics and gynecology, emergency medicine, and psychiatry. Similarly, this chapter does not fully address specialties that can expand the availability of services to rural communities, particularly general surgery, which is also a substantial area of study and importance, particularly in more remote community settings.

Practice pearls and evidence

Family physicians' training is broadly applicable for rural practice.

Family physicians may have a varied scope of training in achieving certification. Not all family physicians completing residency training have the same breadth of training or preparation in skills suited for rural practice.

Training for rural practice faces historical challenges and current opportunities.

Historical bias, incentives, and the overall trend toward sub-specialisation and urbanisation of medical care provides significant challenges to rural medical education in the United States.

While rural healthcare issues are frequently recognised as critical, the attention given to rural issues is often diluted or overlooked in overarching funding or policy decision making.

While facing competition for funding, interest has increased in the investigation of successful educational models and replication of best practices specific to rural family physician training.

Opportunities come from the recognition of the importance of primary care, an effort to sustain access to primary and critical health care services across the United States, and the increasing realisation of the workforce shortages to accommodate these goals.

Educational models remain a key strategic component in the recruitment and retention of rural healthcare physician workforce.

There is evidence that supports the link between training in a rural location and rural practice selection, including in the US (1).

Residency funding is traditionally through hospitals, most often in urban areas.

This arises from an historical standardisation of residency education and its linkage to reimbursement mechanisms - at a time when most medical services and education was about the care of hospitalised patients.

Traditionally, urban hospitals receive funding and may elect to pass monies to support the residency programme, providing it is in clinic settings or even other hospitals (including in rural areas). Teaching Health Centers are a new pilot exception to this.

When funding is not transmitted to support training in these rural environments, either additional sources of funding must be found or the programme is not run.

Accreditation standards are more easily accomplished in larger programmes since a key restriction is the geographic requirement for continuity in the clinic.

Continuity clinic geographic requirements include:

Allopathic[3] accreditation requires 24 months in the same place for patient population continuity.

Residency practices are defined clinical training sites, thereby restricting the training settings possible.

Some accreditation standards were predicated on a view that urban located training would produce greater standardisation and opportunities for appropriate postgraduate medical education. Rural Training Tracks (RTT) are a recognised exception to the standard format of accredited programmes as offered by the Accreditation Council for Graduate Medical Education. As such they are an accepted alternative track exception in which the first year is spent in a more urban location and the remaining two years in a more rural location.

Experiential learning for rural practice may not be available to learners in urban settings - either due to availability of a sub-specialised level of care (e.g. treatment of acute myocardial infarction) or a geographic bias against privileging family physicians to perform procedures which are otherwise performed by urban sub-specialists (e.g. a family physician in urban settings being denied the provision of C-section as obstetrician-gynecologists are available).

3 Allopathic as opposed to osteopathic medicine. The difference between the two is addressed on page 8.

Flexibility of curricular innovations and adjustments (such as rural or away rotations) - which may be uniquely adaptive, productive and applicable to training for rural practice - can be hampered by the substantial accreditation and/or financial challenges of complying with current regulations.[4]
Innovation has been encouraged, largely due to workforce demands and the success of piloted rural education programming. Although innovations or recognised exceptions are beginning to be more frequently piloted, examined and considered for replication in the cases of successful models and best practices, significant economic and accreditation barriers remain.

Rural practice settings support the training of rural family physicians, who are in high demand.

A broad scope of practice is necessary in rural settings where family physicians frequently provide both primary care and emergency medical services to patients of all ages. As such, family physicians can provide the most efficient and cost-effective medical staffing, particularly in underserved rural areas.
The shortage of primary care physicians[5] is disproportionately acute in rural settings. While 20% of the US population lives in rural areas, only 9% of physicians do (2).
While rural hospitals and clinics are supported for patients to access care and receive services, these sites are not typically funded for the education of physicians. Despite the workforce challenges, provision of care to rural patients is supported by several recent economic adaptations - such as the Critical Access Hospital Program, Rural Health Clinic Program, and rurally located Federally Qualified Health Centers.
Rural physicians are supported for providing services to patients but not necessarily to become rural educators. Loan repayments and other physician recruitment plans have encouraged physicians' location in rural and underserved areas but training opportunities typically do not match the practice environments.

4 The accreditation regulations are from the Acreditation Council on Graduate Medical Education and the American Board of Family Medicine while the financial regulations are governed by CMS (Centers for Medicare and Medicaid Services).

5 This study was of primary care physicians, of whom the majority would have been family physicians but could have also included some pediatricians and internal medicine physicians.

Medical education in rural settings is effective in producing a rural workforce.

Rural Training Track (RTT) family medicine residency programmes - in the one-year urban and two-year rural location format - produce two to three times the proportion of graduates entering rural practice compared with family medicine residency programmes which are not in this alternative format. At least half of RTT graduates were located in rural areas after graduation (3,4).

RTTs produces a high proportion of graduates serving in shortage areas and in safety-net facilities (3).

While the number of RTTs in the US is small (less than 30 programmes) they are increasing in number and size (5,6).

RTTs face economic challenges that require innovation as well as a recognition of their value.

The value of educating physicians in care environments can promote

the education of all involved in the programme with the development of an educational culture;

teaching as a fulfilling experience can retain and energise physicians and staff; and

improved quality of care in teaching organisations.

The local recruitment of physician trainees and graduates to the practice of the residency location can have a positive economic impact, given the associated substantial saving in recruiting costs and contribution to the local economy. (A tool has been developed for estimating the economic impact of recruiting a family physician in US (7).)

Expanding medical and inter-professional education to funded rural patient care models through Critical Access Hospitals and Community Health Centers may provide opportunities for the education of physicians and other medical providers in rural locations.

Meeting the accreditation requirements of rural training – an historical perspective.

From one view, the current effort is a retrofitting of physician training and education funding. While innovations have been achieved on a limited scale, this is only with diverse adaptations to specific circumstances. Widely implementable, intentional postgraduate medical education models have yet to be implemented to full scale to meet patient care access and physician recruitment strategies.

The Flexner report (8) facilitated the standardisation of medical education, with a trend toward urbanisation. This resulted in accredited rurally-located medical education being less available and more difficult to achieve. Funding of postgraduate medical education became hospital-based and more often associated with urban hospitals. The flow of public funding being predominately to urban hospitals persists today.

Sub-specialisation by physicians is increasingly common and incentivised; and there is increasingly a separation of primary care from specialty care, and ambulatory care from hospital-based care.

There is a new emphasis on outpatient patient care and physician training. An example of a pilot innovation for physician graduate education funding is seen in the Teaching Health Center pilot (9).

Two accreditation systems presently exist independently in the US: allopathic and osteopathic. While they are presently governed separately, they may become combined in the future – and some innovations in accreditation of rural training programmes are being allowed in the US.

1. Allopathic accreditation[6] (M.D. or Doctor of Medicine)

   The RTT is as an allowed exception (10). This innovation allows for the first year of training in a more urban place with a second and third year of training in a more rural-focused training environment. These '1-2 models' (1 year urban and 2 years rural) contain the required 24 months of continuity for family medicine clinic training. Specifically, these programmes are allowed to be accredited with less residents in the latter years than the typical requirement, which is otherwise four residents per class minimum.

   The RTTs have achieved federal recognition and support, including funding of projects and studies related to RTT residency programmes. RTTs produce a higher proportion of graduates entering rural practice as well as graduates likely to serve in physician shortage areas (3).

6 This is the first possible accreditation of postgraduate physician education in the USA. It is regulated by the Accreditation Council on Graduate Medical Education.

Urban strategies for rural training include:

away rural rotations (which can emphasize a curricular area such as emergency medicine or be general for rural exposure);

curricular elements in an urban setting (e.g. additional obstetrics training in an urban location);

rural rotations away from the urban programme which can fill in rural curricular gaps.

Funding rules can be restrictive of away rotations, however, due to postgraduate funding being tied to time in the urban hospitals.

Rural fellowships following residency training provide graduates of three-year programmes with an opportunity to gain rural skills or experience before beginning rural practice. While they are non-accredited, they are widely recognised by physicians and employers as having value.

Some are urban located and procedure-based. While they allow high volume experiences, they are not in a rural context. Obstetrics is a common area of emphasis for additional experience and training.

Some include rural located experiences which allows the physician to learn rural context in practice.

2. Osteopathic accreditation[7] distinct (D.O or Doctor of Osteopathic Medicine)

Here there may be flexibility for rural location and smaller programmes (minimum size of 2 instead of 4 residents per class). Distributive education model with residents traveling to different locations for periods of time is more common and may therefore be more easily adapted to rural and smaller environments in some circumstances.

In summary, currently allopathic and osteopathic educational systems have separate accreditation – although an intention was recently announced to achieve reciprocal standards (11). The possible requirement of a larger minimum number of residents per year for accreditation may have substantial deleterious effects on rural programmes in particular, due to their small size.

7 This is the second possible accreditation of postgraduate medical education in the USA. It is regulated by the American Osteopathic Association.

Lessons learned

Without the advantage of actually training in a rural environment much of the time, urban-located allopathic programmes have taken advantage of rural or procedure-focused rotations away from the urban site to gain the unique procedures and experiences particularly suited to rural practice.
In some circumstances leaving the urban environment may be necessary to accomplish family physician training, given a more restrictive urban privileging environment where such training may be limited to other specialties or sub-specialists.
The amount of time spent away from the urban setting is limited by accreditation standards, particularly in the continuity requirements regarding the geographic location of the family medicine clinic.
Rural setting training can also have significant limiting factors such as numbers of patients of certain sub-types, e.g. paediatrics.
Flexibility of accreditation - such as longitudinal as opposed to block scheduling - can be helpful. Certain exposures such as specific procedural training or specific populations of patients may be best taught during a targeted away rotation.

Future innovations and current research areas

Integrated Rural Training Tracks (IRTT) (12)

IRTTs are distinguished from the aforementioned RTTs in that they are preliminarily defined by non-accrediting bodies but are not officially recognised for the purpose of accreditation. Nonetheless the IRTT is noted in federal statute and could become an important vehicle for future funding.
IRTTs comprise the following:

- during a rural block rotation, the resident is in a rural area for a minimum of four weeks;
- at least four rural block months to include a rural public and community health experience;
- a minimum of three months of obstetrical training or an equivalent longitudinal experience;
- a minimum of four months of paediatric training to include neonatal, ambulatory, inpatient and emergency experiences through rotations or an equivalent longitudinal experience; and
- a minimum of two months of emergency medicine rotations or an equivalent longitudinal experience.

The IRTT model would allow further flexibility of geographic location of training to better suit the resources and challenges of constructing the best programme possible for an existing or newly developing rural programme.

Organisational efforts and grant-funded projects

RTT Technical Assistance Co-operative Agreement (13) comprises federal funding for study and support of the presently accredited 1-2 model Rural Training Tracks.

The RTT Collaborative (14) is a sustaining organisation which will continue to study and advocate for successful models of preparing physicians for rural practice

Putting it all together: A strategy for rural medical education in the US.

Encourage people from rural areas to become medical students.

Promote medical school rural tracks, through admissions, scholarships, and interest groups.

Promote Rural Training Track residency programmes, rural-focused urban programmes, rural fellowship programmes.

Establish rural practice loan repayment programmes and recruitment strategies.

Undertake further research for best programme practices and outcomes.

Re-shape the rural workforce and healthcare delivery through promoting team-based care and learning environments and the utilisation of telemedicine in rural healthcare delivery, for emergency, intensive care, psychiatry etc.

An illustrative case study

The family medicine residency of Idaho is located in a rural state which ranks nearly last regarding physicians per capita, including for primary care. As one of the few states without its own medical school, state agencies and government have collaborated to implement educational strategies, citing residency training in family medicine as the key element to expanding the workforce to meet the diverse needs in this rural state.

Collaboration with the University of Washington has allowed the development of a rural medical student track, in addition to the expansion of postgraduate medical education focused on the training of rural family physicians - in both the urban (with rural rotation) and Rural Training Track models. An additional rural fellowship is also being developed.

Broader applicability/application/implementation

By taking part in collaborative pilot programmes and co-operative efforts, evidence is being gathered on best practices and education innovations. Current examples include a series of studies of both medical school rural tracks and a taxonomy of postgraduate rural training programmes across the United States.

Groups such as the National Rural Health Association, the American Academy of Family Physicians, and the Society of Teachers of Family Medicine are contributing both policy and work to this effort. Information can be found at such sites as the Rural Assistance Center (web site: http://www.raconline.org). Funding for some projects has occurred with the support of the Federal Office of Rural Health Policy, convening key partners in such work. Efforts are being made to connect these studies to facilitate early outcome determinations and possible replication of successful models for rural physician medical education.

Conclusion

The present circumstance of postgraduate medical education (residency training) in preparation for rural practice in the United States has received increased attention in the context of health care delivery transformation and acute workforce shortages. Programmatic innovations and studies are underway in an attempt to meet the healthcare access needs of the people who reside in rural areas. Currently, in the United States, this is occurring within the context of transformation of healthcare delivery and financing.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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secretariat@wonca.net

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Chapter 5.1.4

HEALTH SERVICE MANAGEMENT TRAINING FOR RURAL DOCTORS

Ian Couper
University of the Witwatersrand, South Africa

Introduction

Managing health services is not something that comes naturally to health professionals. Many rural doctors think that they are suited to this task without any additional qualification and training but in reality we need specific skills in management in order to do this competently.

It is thus important that a process of training is offered to doctors and other health professionals who manage health services. This may be incorporated into undergraduate education, postgraduate residency or vocational training, or as specific postgraduate programmes such as certificates or masters degrees. Whichever approach is used, it is critical that this training is not only classroom-based but that theory is applied in practice and that students are given a chance to try out the elements that they are learning.

It is helpful to think of management training as needing to address the following key elements:

- Managing people (the staff of the health service)
- Managing resources (budget, equipment, facilities, etc.)
- Managing clients (patients and/or communities)
- Managing self (the manager him or herself)

The New Zealand Medical Council has defined medical administration as 'utilising the medical and clinical knowledge, skill and judgement of a registered medical practitioner, and capable of affecting the health and safety of the public or any person. This may include administering or managing a hospital or other health service, developing health operational policy, or planning or purchasing health services' (1).

The focus of this chapter is not on hospital management, however, but on doctors managing health services at a community or district level. The exact nature of and name for such positions will differ across the world. However, in some contexts, hospital managers are also responsible for the community served by the hospital, and thus for the health services provided to the population in that area.

There are many books on management and much information is available on the topic. The purpose of this chapter is to give principles for training in the management of rural health services, not to describe the contents of management training per se.

Discussion

Clinicians have a major contribution to make to improve health care service delivery, at an administrative and governance level. Health professionals are already leaders in their own right – and a caring competent leader earns the respect and support of staff. Managers who show by example that they function on the basis of a sound value system and work ethic inspire others (2).

Much has been written about the differences between leaders and managers. Leadership is about articulating a vision and getting people to move with you towards the goals that you have set. Management is about directing people and resources within the existing system, and making sure the day-to-day tasks are carried out. To be effective, clinicians in management positions need to show leadership as well as to be competent as managers.

The focus of management training should thus enable clinicians to be better leaders and thus more successful in their management role. The challenge is to provide training to enable clinical leaders to do that. Teaching and learning about emotional intelligence and team work are useful in this process – so, for example, while managers need to know the details of strategic planning, there is a greater need for them to be inspired by the purpose of strategic planning.

For health professionals it is helpful for them to understand management in the same way as they understand patient care, so that the health service that is being managed is like a patient that is being treated; all the same principles that we use in training health professionals to manage patients more effectively can be used in management training. Just as with managing patients, students/trainees need to understand that managing a health service is a team activity.

As one of the major weaknesses in health systems is failure to use information effectively, training in gathering and using information effectively at a local level is critical. Once information is gathered it needs to be used effectively to develop priorities and solve problems. Skills need to be developed in data analysis, the process of prioritisation, the identification of risks, and different methods of solving problems.

Many tools are available for managers - and ideally they should have a whole box of tools that can be used in different situations and purposes. Any training programme should be introducing them to some of the tools to give them the possibilities.

What is the evidence?

The field of medical management is growing and a number of countries have specialised programmes in this field, the generic principles of which will apply to rural health services, though the contextual issues will often require different responses of managers.

The evidence for the role of doctors in management is limited and often conflicting; it depends on what is measured. Kuntz and Scholtes have shown that, in the hospital environment where clinicians are very involved in management and decision-making, doctor-patient and nurse-patient ratios are better – which means lower efficiency if this is measured from a financial perspective (3). In other words, doctors may improve quality of care at the expense of costs!

A report commissioned by the Royal Australasian College of Medical Administrators (RACMA) on *Factors affecting recruitment and retention of medical managers in Australian hospitals* indicated that a number of common themes could be found in the literature. Among these is that the doctors' sets of values mean that they often respond better to other doctors than to non-medical administrators; doctors need autonomy balanced with accountability to ensure that their clinical perspectives can be incorporated effectively; and changing health needs of communities demand a flexible approach with tailoring of services to health care delivery requirements (4).

There is little literature available on the roles of medical managers, however. Where they exist, roles described include leadership and management of medical staff; strategic development and advising executives; clinical governance, including quality and risk management; and operational functions that benefit from clinical and management skills (5).

RACMA has developed a Medical Leadership and Management framework, based on the seven CanMEDS role competencies – namely medical expert, communicator, advocate, scholar, professional, collaborator and manager - integration of which develops capability in executive management and leadership (6).

One literature review describes dwindling numbers of medical managers, and thus the urgent need to encourage more doctors to go into management and for organisations to employ doctors in key leadership roles 5) - and thus also a need for the education of medical managers. Even in the UK's National Health System (NHS), doctors receive little guidance, training or support for their roles as executives and describe a process of changing professional identity, for which managers need to be prepared (7). There is clearly a need for formal management education.
The RACMA review indicated that in the American and British literature, effective leadership is the key component in training programmes for medical administrators (4).

McAlearney et al describe the process of educating clinician managers as one of cultural adjustment. Where medical culture is largely characterised by autonomous decision making, a reactive approach to problem solving, and a focus on individuals, a managerial culture focuses on building consensus for decisions, attempts to be proactive about problem solving, and maintains a focus on the needs of the overall healthcare system (8). The focus in education should thus be to merge the skills of doctors, which bring a vitally important dimension to management, with newer skills in collaborative team work, vision-orientated planning, and systems thinking.

A case study

Dr Ben Gaunt, working at the remote Zithulele Hospital in the deep rural Eastern Cape in South Africa, describes how they impacted on perinatal outcomes, substantially reducing their mortality rates (9). The success did not come through having more staff, better equipment or more finances; rather it came through developing an organisational culture of focussing on quality improvement, and giving time and attention, with diligence, to the problem, as a team. It is clear that this was only achieved because of leadership; though Dr Gaunt carefully gives credit to the team (a mark of a good leader), it is his vision as the team leader, in his role as the medical manager, that provided the motivation and facilitated the commitment that led to this improvement.

Broader applicability

The approach described above should be applicable to general health service management, to hospital management, to team-based practice management, etc. The approach is to develop a philosophy of and vision for leadership and management, with the understanding that skills in these areas will enable clinicians to develop the administrative and management on skills required. Lifelong learning is as much part of management as it is about medicine.

Practice pearls

Key issues

Health services, and district health services in particular, can be understood with the analogy of a patient (10). When a patient presents with a problem, the first step is to gather information. The second task is to analyse that information; and then, having made an assessment, the third step is to develop a management plan to address the critical issues.

Strategic planning is critical in providing management with vision and direction. Training in strategic management involves facilitating an understanding of oneself as a part of a management team, understanding the health service, and understanding the role of the management team in relation to the health service. It also entails providing tools for identifying the critical problems, and setting objectives, actions and timeframes for the way forward.

Another important task is to develop priorities and solve problems. There are practical tools that can be provided and taught for information gathering and problem solving strategies.

Various tools and checklists are used to assess day-to-day services, which facilitate information gathering in the same way as one would do a clinical assessment and diagnosis.

There is a need for risk identification and management, as well as systems to minimise and prevent risk, which are like the emergency care of acute problems and prevention of illness.

The provision of quality care is critical; quality improvement planning is an integral part of managing health services and must be incorporated in any educational programme.

Lessons learned

Relationships are key. Training health service managers occurs best in the context of a team.

A commitment to the health service and a sense of vision are prerequisites. For specific postgraduate programmes, this could be used for selecting students to such courses, as it is difficult to create these where they do not exist.

Management occurs in a context; understanding the structure and systems of a context as well as the historical ethos and communication systems is critical.

Community involvement is essential for an effective health care service and therefore for management. Training in community engagement needs to be included.

Much time is wasted on ineffective meetings. Efficient and purposeful meetings can be mirrored by the way the training is structured.

Quality improvement processes should underpin everything.

Arrogance is an impediment to good management (11).

What to do

Ensure trainees (clinicians undergoing management training) work in teams in their activities.

Teach about emotional intelligence.

Help trainees to understand the importance of and differences between leadership, management, governance and administration.

Model enthusiasm for effective health service management.

Provide practical skills such as financial planning, budget control, human resource management, chairing meetings, etc.

What not to do

Don't set lengthy tasks and assignments that students can complete without reference to practical reality.

Don't spend lots of time on the theory of management and leadership that is very well covered in many books (but make sure that such books are prescribed and read).

Don't take up lots of time with discussion of non-executive level administrative issues, such as scheduling, development of agendas, ordering, spread sheets, etc. A motivated manager will learn these skills.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 5.1.5

IMPLEMENTING A PROFESSIONAL DEVELOPMENT FRAMEWORK FOR RURAL AND REMOTE DOCTORS

Di Wyatt
Australian College of Rural and Remote Medicine, Australia

Introduction

The development of the Australian College of Rural and Remote Medicine's (ACRRM) Professional Development Programme (PDP) was based on the findings of studies conducted in the mid to late 1990s which identified the educational factors which influenced both the recruitment and retention of doctors in rural and remote practice. These found that two key consistent determinants in doctors leaving rural and remote practice were inadequate and lack of access to appropriate professional development and the inability to maintain advanced skills.

Rural and remote doctors tend to be highly motivated to gain and retain the high level and range of skills required to perform the wide scope of practice implicit in their practice environments. But ACRRM observed a considerable reluctance by rural and remote doctors to take part in the programmes being provided, as they were fundamentally urban based training models and viewed by rural and remote doctors as being out of step with their training needs. These continuing professional development programmes did not recognise the fundamentally different practice patterns associated with rural and remote practice which had been widely recognised in scientific literature, both in Australia and internationally.

Offering suitable professional development

ACRRM is dedicated to rural and remote medicine training designed to cultivate the skills, competencies, behaviours and values that are critical to effective practice across all rural and remote environments. The skill set which reflects the actual nature of the best models of rural and remote practice has provided the base for assessment and credentialing of the College's Professional Development Programme.

A professional development programme which is dedicated to rural and remote medicine is essential

to ensure rural and remote doctors have equity of access to high quality and relevant training;
to respond appropriately to the health requirements of rural and remote communities; and
to produce the best health outcomes in priority areas.

Distance and isolation presents a specific set of challenges for education delivery which requires specific targeted programme design. Capacity to delivery not only relevant educational content but the ability to deliver it at a local level in a timely manner is also essential to the implementation of the professional development framework.

Stakeholders

There are two key groups fundamental to the successful implementation of a professional development programme: the rural and remote doctors who are the participants and the education providers. And there is a third group which holds the education providers to account and ensures their relevance: the membership and board of the organisation in which they are embedded.

Education providers

Education providers invariably comprise teams of people - and while professional educators are expected to know about learning management, design and processes, rural doctors themselves are often ideally placed to offer their expertise through this role. Their participation gives substance to the philosophy that the programme must be designed, developed, implemented, managed and delivered by rural and remote doctors for rural and remote doctors. This is premised on the idea that the most successful teachers are peer teachers. Where this is the case, these medical practitioners should ideally be enabled in this role by learning about educational processes (as well as management and design, where suitable) such that they can contribute optimally to their colleagues' learning.

Important to the successful implementation of any of professional development framework is that the educational providers are delivering the right education in the right modes for the right audience. Education providers have a tendency to provide what they know- and a high proportion of professional development is delivered by external urban-based education organisations.

As rural and remote requirements differ from those of urban practice there is the need to work with providers to provide educational content suitable to the rural and remote context, and to encourage them to develop new products relevant to the audience. This is often achieved through consultation and collaboration in both the design and delivery of the programmes. Many good programmes have been delivered by bringing together resources, skills, knowledge, context and environmental understanding – including the educator-doctors mentioned above. In this and other ways, education providers can be supported in customising their educational programmes to be more relevant to the conditions and diversity found in rural and remote practice.

Organisational location and membership accountability

A third group of stakeholders, however, is the member-based organisation with whom education providers work in order to implement their professional development strategies in ways that are accountable. Organisational governance structures ensure validity and member control while an established authorised group/committee of members:

- retains an overview and review the development of professional standards and policy;
- provides direction and guidance for the implementation of the professional development programme;
- identifies and develops policy to ensure professional development programmes reflects best practice;
- ensures that accountability for the programme is maintained and supported by appropriate systems and controls; and
- ensures that appropriate systems are in place to collect data, which will enable the committee to monitor and evaluate the effectiveness of the programme over time.

In addition and as noted above, it is critical to implementation of the professional development framework that members are empowered to become the teachers as they know the needs and have the skills and knowledge to do it.

In addition there should be structures within the committee that carry out specific tasks on behalf of the group, for example a sub-committee that accredits the educational activities that are endorsed by the organisation.

To ensure that the professional development programme remains appropriate, responsive and relevant in an ever changing environment it is important to establish mechanisms for ongoing consultations with your members. While this can be done in a number of ways - including through annual surveys - the establishment of a mechanism that encourages and supports feedback about educational activities on an ongoing basis is important as it enables the gauging of quality and appropriateness of existing educational activities. It also enables providers to identify gaps in educational opportunities. The people that are in the best position to tell you what you should be doing and what you should be providing are the participants.

Elements of professional development

Getting the framework right

The principles underlining a professional development framework include that it

be relevant and appropriate for rural and remote practice, promoting educational activities based on rural models of care;

be based on standards that provide rural and remote medical practitioners with a framework for educational activities, service delivery, and systematic, continuous quality improvement that in turn supports quality care and patient safety;

clearly defines and supports the knowledge and skills that doctors require to practice safely and competently in the rural and remote environment;

be developed and managed by rural and remote doctors;

be innovative, flexible and supportive;

be accessible;

supports self-directed learning and encourages individual continuing professional development that is relevant to a person's profile of professional practice and performance;

supports peer teaching; and

supports lifelong learning as part of a vertically integrated approach to education and training.

Getting the objectives right

The objectives of professional development for rural and remote medical practitioners should include:

to be relevant and responsive to the individual and developing needs of rural and remote practitioner and the communities they serve;

to recognise and respond to the scope and diversity of rural and remote practice;

to be flexible and inclusive in recognising and weighting elements of the programme in line with anticipated educational and professional values;

to provide an accountable and peer validated method that demonstrates to patients, communities, the profession and authorities that rural and remote medical practitioners are committed to and engage in quality improvement and continuing professional development;

to support members in fulfilling their commitments with other professional bodies and authorities for purposes such as clinical privileging, revalidation and recertification; and

to provide lifelong learning opportunities for all rural and remote doctors.

Resourcing the strategy

Implementation of strategy should be realised through various resources – which should be

supported within the organisational structure ;
cost effective; and
supported by well qualified, efficient and effective staff.

Staying ahead of the game

Innovation

Access to appropriate and cost effective continuing professional development is an issue for many in rural and remote areas. In recognition of these particular circumstances, education providers should be encouraged to find innovative ways of providing high quality education - remembering you may be the education provider! As flexibility and adaptability are key to innovation, education providers will need to invest considerable commitment and a continuing dedicated focus to the specific issues facing rural doctors.

As with all training programmes, education providers must be responsive to changing rural circumstances and educational technologies and must be continually informed by ongoing investigation into the best possible rural models of delivery. Such sustained interest, investment and commitment can be achieved through a dedicated rural and remote medical programme.

Online services

The development of online education means that doctors no longer have to travel to undertake high quality, appropriate and relevant education – but can do so in their own environments and at times that suits them best, thus lessening the cost both in monetary and personal terms. In addition online services provide medical practitioners with the opportunity to assess the nature and requirements of their practice and of community needs and to plan a programme of training and development that supports the attainment and maintenance of relevant skills and knowledge (see 'Content' below).

The development of Rural and Remote Medical Education Online (RRMEO) as ACRRM's online learning platform has been significant in providing opportunities for rural and remote practitioners. For example ACRRM is using Elluminate - an interactive live classroom for teaching both registrars and members engaged in continuing professional development. The use of this new technology has meant the College can deliver a broader range of programmes - for example in mental health and cancer care; but a major benefit identified by members has been their capacity to learn in an interactive peer environment which has limited their isolation.

Innovation in information technology offers increasing ways of providing ongoing professional development for rural and remote practitioners. As it is forever changing, however, committee and staffing structures should encourage investigation and piloting of new technologies for teaching and learning to ensure that educators stay ahead of the game and remain alert to innovation in the use of new technologies.

Content

A professional development framework should include an opportunity for the doctor to develop a learning plan based on their practice profile. In this way they will be able also to identify the required content (skills and knowledge) needed to provide focused patient care in their particular context.

One model for informing this plan is to conduct a periodic review of the epidemiology of the community. This would include its demography, economic or social conditions impacting on health status, local health resources, changing in- patient management and community expectations. A (online) template which would guide the doctor through each of these activities can be really useful. Once the nature and needs of the practice have been established, a resource inventory can be developed that provides access to a range of education and training to meet those requirements should be built into your learning platform.

Committee and staffing structures should also ensure that content is not only up-to-date but adapts to change. For example, in Australia we are increasingly moving to a community-based care model – while we also have an ageing population. These are two factors which can impact on patient profiles and the management and the skills required by the doctor to provide quality care. As such they can inform that doctor's scope of work and identify any gaps – which become the doctor's learning needs.

Review of content must be part of the framework and the ability to develop new content is essential.

Foster exciting career pathways in rural and remote medicine

A well structured professional development framework will facilitate ways in which aspiring rural doctors may select and pursue a career pathway which they find exciting and professionally rewarding. Professional satisfaction remains the principle operative factor in retention of rural doctors and, as such, professional development provides an important mechanism for attracting and retaining the best and brightest doctors to rural and remote medical practice. A professional development programme with a dedicated focus and expertise in the area of rural and remote medical education will ensure a long term pathway for career advancement.

Conclusion

For those of us who have the interests of remote and rural medical practice at heart, it is completely unproductive to try to implement something that is fundamentally flawed – or to implement something that is not going to support and provide continuing improvement to rural and remote practice. And it is not in our interests to implement something that is complex and costly and is not focused on the purpose and needs of rural and remote practitioners.

Well established principles, objectives, structures and innovation are critical factors in successfully implementing a professional development framework - but the most important factor is that it is developed and implemented by rural doctors for rural doctors.

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World Organization of Family Doctors (WONCA)
Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 5.1.6

POSTGRADUATE PATHWAYS TO RURAL MEDICAL PRACTICE

Tarun K Sen Gupta[1]
Andrew McKenzie
James Cook University, Australia

Introduction

Training pathways into rural practice form a major component of the rural pipeline. Pathways evolve over time, responding to changes in the clinical and structural requirements of local rural practice. They vary across regions, from ad hoc, self-directed and self-negotiated training, to formal pathways with defined selection processes, curricula, end points and governance structures. These features will be discussed in the context of Australian rural training and the Queensland Health Rural Generalist Pathway will be used to illustrate a training pathway tailored to a specific context. There will be a brief discussion of international training pathways and future issues and challenges.

Career pathways to rural practice in Australia

Training for rural practice in Australia has changed dramatically in the past quarter-century. The Family Medicine Programme was established in 1973 by the Royal Australian College of General Practitioners (RACGP) as an optional educational programme. It had no mandatory exit examination, nor a formal rural component. With growing recognition of General Practice (GP) as a specialty, however, a competitive selection process was introduced in 1995 comprising a government-set quota of 400 places nationally with the end point being the RACGP Fellowship examination (1).

1 ***Competing interests:*** Tarun Sen Gupta and Andrew McKenzie are both Fellows of the Royal Australian College of General Practitioners (RACGP) and the Australian College of Rural and Remote Medicine (ACRRM) and are involved with assessment processes for both colleges. They have both been co-directors of the Queensland Rural Generalist Pathway.

A rural training stream, introduced in the 1990s, recognised the increasing requirements of rural training, particularly in procedural skills. Rural Health Training Units were established, with advanced rural skills posts providing training to defined standards in specialties such as anaesthetics, surgery and obstetrics and gynaecology. Major concerns within the profession about rural training and the lack of a stand-alone rural fellowship led to a plebiscite conducted by the Rural Doctors Association of Australia. In 1997 the Australian College of Rural and Remote Medicine (ACRRM) was established as an acknowledgment of:

> the importance of rural and remote medicine as a broad but discreet form of general practice;
> the need for well-designed vocational training and continuing medical education for rural doctors; and
> the need to address the shortage of rural and remote doctors in Australia, by providing them with a separate and distinctive professional body (2).

ACRRM developed specific curricula and training pathways for Australian rural practice, and sought Australian Medical Council (AMC) accreditation as a standards body as well as medical education and training provider within the 'specialty of general practice'. The College adopted a broad interpretation of 'general practice', consistent with the history of medical generalism. This definition focused on the community's need for doctors capable of providing comprehensive and continuing care (clinical generalism across the continuum and an ongoing therapeutic relationship) and distinguished between the 'general practitioner' and the 'rural medical generalist' as two professional disciplines working in the general practice domain (3).

ACRRM considered 'rural and remote medicine to be the fullest expression of the specialty of general practice'. In arguing that 'standard GP training does not adequately prepare a doctor for independent rural general practice', they suggested the converse was not true and that doctors trained in rural and remote medicine could function in non-rural general practice. ACRRM concluded 'the discipline of rural and remote medicine therefore encompasses the broad definition of general practice, of which office-based primary care is a subset' (3).

This evolution in the definition, understanding and organisation of rural and remote medicine was accompanied by organisational changes in GP training nationally. In 2001 the regionalised Australian General Practice Training Program (AGPT) was established by General Practice Education and Training (GPET), effectively ending the RACGP's training monopoly. Local consortia comprised of key stakeholders applied for contestable funding as Regional Training Providers (RTPs), based on the principle of using local training opportunities to train GPs to meet local health care needs. The geographic footprints of RTPs varied - e.g. Western Australia formed one RTP, while Victoria hosted five RTPs - demonstrating the range of training environments within a single profession. Following mergers over the following decade, the original 22 RTPs were reduced to 17 RTPs (1).

AGPT registrars[2] initially trained to RACGP standards. However, the AMC interim accreditation in 2007 of ACRRM as a provider of a pathway to the specialty of general practice provided the option of training towards Fellowship of the RACGP or ACRRM, or both.

The Australian General Practice Training Program

Training with AGPT for rural and remote medicine requires a four-year full-time commitment (compared to three years for non-rural trainees) with provision for recognition of prior learning. Training may involve experiences in teaching hospitals, rural and urban practices, extended skills, procedural and academic posts, and in Indigenous health and other under-served populations. Training must be undertaken in ACRRM- or RACGP- accredited training posts with accredited supervisors. Supervision and support is provided within the practices and hospitals and by RTP medical educators. Training includes self-directed learning, face-to-face educational activities and in-practice education (4).

The AGPT rural pathway provides for doctors who wish to undertake the majority of their training in rural and remote locations, as defined by the Australian Standard Geographical Classification – Remoteness Areas system (5). Generous financial incentives are available for rural pathway registrars through the General Practice Rural Incentives Program, with additional reimbursement of student loans for each year of training undertaken in designated rural and remote areas (6)

2 A registrar – or resident – is a qualified doctor who is part of a structured specialist training programme, be it vocational or postgraduate.

Selection

A national selection process is held annually comprising a written application, referees' reports, a paper-based situation judgement test and a mini-multiple interview. The Australian Government entry quota means there is a competitive application process, with 1 000 new positions available in 2012. Doctors who identify as being of Aboriginal and Torres Strait Islander origin may elect to be considered for priority shortlisting for the interviews (4).

Standards

The RACGP and ACRRM have defined the standards required by registrars' training towards their respective Fellowships (7, 8). Rural medical educators with the RTPs support registrars to meet these requirements.

Curriculum and training pathway

Both colleges have a four year (minimum) rural training programme, summarised in Figure 1 below. Both require experience in internal medicine, emergency medicine, surgery and paediatrics, with ACRRM requiring rotations in obstetrics and gynaecology, and anaesthetics. ACRRM and RACGP trainees complete a fourth year of advanced specialised skills (4).

ACRRM's Primary Curriculum outlines the core learning outcomes for graduates to function as safe, confident and independent doctors across a full range of Australian generalist practice, including rural and remote environments (8). The Primary Curriculum provides a definition of rural and remote general practice, and includes 22 curriculum statements organised around seven domains (see Table 1).

The Primary Curriculum underpins extended skills development which is reflected through the Advanced Specialised Training Curricula. As shown in Figure 1, ACRRM requires three spheres of learning and experience:

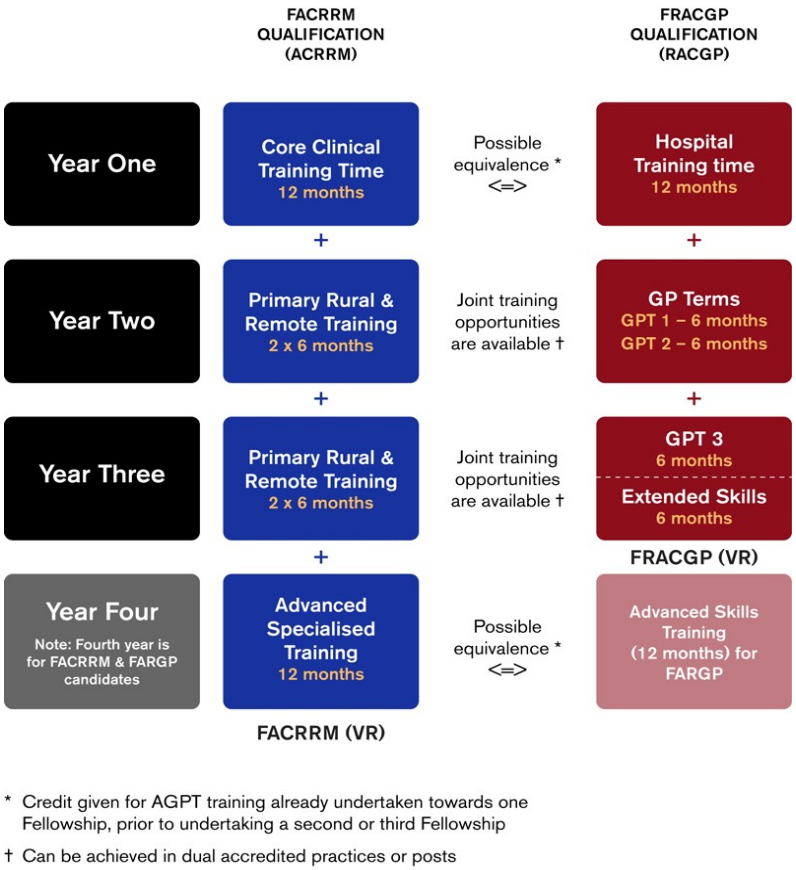
1. Core clinical training (one year);
2. Primary rural and remote training (two years, including six months in a community primary care setting which is not restricted to office-based general practice); and
3. Advanced specialised training (one year).

Through this programme ACRRM aims to provide flexibility in training to suit differing registrar circumstances, profiles and lifestyle choices (8).

Table 1: Curriculum domains

ACRRM Primary Curriculum domains	RACGP domains of General Practice
1. Core clinical knowledge & skills 2. Extended clinical practice 3. Emergency care 4. Population health 5. Aboriginal and Torres Strait Islander health 6. Professional, legal and ethical practice 7. Rural and remote context.	1. Communication skills and the patient-doctor relationship 2. Applied professional knowledge and skills 3. Population health and the context of general practice 4. Professional and ethical role 5. Organisational and legal dimensions

Figure 1:
Australian General Practice Training (AGPT) Program



* Credit given for AGPT training already undertaken towards one Fellowship, prior to undertaking a second or third Fellowship

† Can be achieved in dual accredited practices or posts

The RACGP curriculum for Australian General Practice is structured around five domains of general practice representing the knowledge, skills and attitudes necessary for competent unsupervised general practice (see Table 1 above) (7).

Again as shown in Figure 1, RACGP trainees undertake 12 months of hospital training, 18 months of general practice placements in rural or regional areas and six months of extended skills, in a range of approved placements.

Advanced Skills Training

Advanced Skills Training, usually lasting 12 months, is available for registrars training with both colleges in the following disciplines:

- anaesthetics
- obstetrics
- surgery
- Aboriginal and Torres Strait Islander health
- mental health
- paediatrics emergency
- medicine adult internal
- medicine

In addition, ACRRM registrars can undertake training in population health and remote medicine, and the RACGP offers training in small town general practice and other individually designed programmes - e.g. palliative care and musculoskeletal/sports medicine - subject to approval (4). All advanced training posts have defined curricula and assessments, in some cases negotiated with the respective specialist college.

Exit points and certification

The assessment process for Fellowship of ACRRM (FACRRM) was developed by rural doctors and academics with the aim of allowing candidates to undertake all examination components in or near their home location. The modalities, described in the assessment chapter, include a written paper, in-practice assessment and the innovative videoconferencing-based StAMPS[3] examination (8).

3 StAMPS = Structured Assessment using Multiple Patient Scenarios

RACGP registrars complete the RACGP Fellowship (FRACGP) by sitting two written papers and an OSCE-style clinical exam. They are then eligible for the Fellowship of Australian Rural General Practice (FARGP) but must first complete additional educational requirements including a FARGP portfolio comprising core modules (working in rural general practice and emergency medicine) and elective educational activities, and completion of 12 months Advanced Rural Skills Training (7).

External recognition and credentialing

Both FACRRM and FARGP training pathways are accredited by the AMC and recognised by hospitals for credentialing as a Visiting Medical Officer. Completion of advanced skills training allows credentialing in that procedural skill with a defined scope of practice.

Both Fellowships provide vocational recognition as a general practitioner, enabling work in general practice anywhere in Australia.

Governance

The governance of GP education in Australia has changed from the involvement of two key organisations in the 1970s to six in 2011, moving from a college-focused model to a regionally-focused model. Changing focus, increased complexity and a move from a 'direct' to a 'direct + delegated' decision-making model was accompanied by initial 'confusion and mistrust regarding the demarcation and devolution of governance and decision making roles'. Both models had seen growth in the recognition and support of the specialty of general practice, and growing numbers of registrars and junior doctors training in general practice (9).

Kamien highlights the importance of governance, suggesting, 'the North American model has embraced diversity and led to a cohesion and breadth of educational endeavour while the UK/Australian model continues to foster self interest with its never ending battle for control of vocational training'. While, 'it may improve the quality of education and rural retention by giving ownership to local groups', he also cites a number of concerns. These include 'reform without change and expensive overgovernance', risks that 'competitiveness can also override cooperation', and 'the lack of a collegiate underpinning impedes the development of a much needed sense of general practice community and belonging' (10).

Other authors suggest regionalisation has not sufficiently addressed a social accountability mandate, and is not yet providing a sustainable general practice workforce for rural Australia (11). They highlight the significant impact of GP registrars on rural workforce (11% of the workforce in 2008) and argue that sub-optimal retention rates mean that rural and remote Australia will continue to depend on doctors trained overseas. While the number of registrars trained has increased[4] and this is proportional to growth in the total number of registrars, these increases are insufficient to meet the needs of rural populations given the well-documented gap in the rural workforce.

They make three priority recommendations to maximise the opportunity presented by the growth in Australian medical school graduates:

> AGPT selection processes and policies should be evidence-based, designed to ensure recruitment of doctors with an interest in a rural career.
> The 'rural pipeline' should be strengthened to ensure vocational training programmes are part of a training continuum involving rural-origin medical students, rural medical undergraduate programmes and rural pre-vocational training programmes.
> Current vocational training structures should provide appropriate training pathways that equip graduates with the skills for rural practice, especially 'rural generalist' and procedural practice (11).

Alternative training pathways

The Remote Vocational Training Scheme (RVTS) Pathway is a structured distance-education pathway providing a flexible way for ACRRM and RACGP registrars working in remote communities to train and meet the requirements for vocational registration (12). Both the Vocational Preparation Pathway through AGPT and the RVTS are government funded. ACRRM Independent Pathway is a full-fee pathway delivered by ACRRM offering a flexible pathway towards the FACRRM qualification and vocational registration, suitable for experienced practitioners who prefer self-directed learning (8).

4 In 2003, 19 registrars trained in anaesthetics and/or obstetrics and gynaecology compared to 57 in 2010, and the total registrar numbers training in rural areas increased from 627 in 2003 to 1 237 in 2009.

Case study: The Queensland Health Rural Generalist Pathway

The Rural Generalist Pathway is a fully supported, incentive-based career pathway for junior doctors wishing to pursue a vocationally registered rural generalist medicine career. The programme was established in 2007 in response to concerns about a rapidly declining medical workforce withdrawing critical core procedural skills from rural communities. The pathway provides an opportunity to align rural scholarship holders and those with a desire to practise in a rural environment, with training, certification, credentialing and work-life balance.

The industrial recognition of rural generalist medicine, an attractive remuneration package, quality leadership and support, strong stakeholder engagement and quarantined training positions, now provides Queensland with a succession of highly skilled rural generalists. By 2011, 188 trainees were practising across 48 rural and regional locations, with ten achieving fellowships and 61 having completed or completing advanced specialised training.

The pathway is an example of an innovative, self-sustaining approach to addressing a key workforce problem (13).

International perspectives

International models of training for rural practice vary according to local context. For example, in the United States, family medicine is one of several 'primary care' specialties while other models, commonly seen in the developing world, see general practice as a 'weak, low-status occupation for doctors without specialty training and patients who cannot access specialists'. In areas of extreme workforce shortage - e.g. in sub-Saharan Africa - doctor:patient ratios may mean that personal continuity with individual patients is nearly impossible, so continuity of care relies on protocols established by the primary care team (15).

More rural doctors are needed in all areas with a need to expand approaches beyond traditional apprenticeship or residency programmes in order to meet global demand. More countries are developing formal career pathways to rural practice, for example, the recent development of a six-year Fellowship in Rural Hospital Medicine in New Zealand.

Hays and Morgan summarised key features of the training and governance of selected general practice training systems (Appendix 1) and describe global challenges - including changing population demographics and co-morbidity, increasing costs of technology-based health care, globalisation of health, and workforce shortages (14). Roberts et al suggest that as the organisation, delivery and funding of family medicine changes, so must training, which must acknowledge emergence of primary care health teams using electronic records and funding by blended payment schemes.

Growing interest in socially accountable medical education is leading to interest in recruiting and supporting students and registrars who can meet the needs of underserved populations, and sharing models of international good practice. Training programmes are moving towards being competency-focused rather than time-based, with an expectation that graduates will undergo periodic assessment of their competency.

Practice pearls

What to do

Pathways to rural practice should be responsive to the local health care system, community needs, and scope of 'rural practice'.
Design training pathways as a programme including selection, curriculum, educational activities, assessment, certification and governance.

What not to do

Don't miss opportunities to be innovative or flexible.
Don't compromise education standards or principles in the interests of 'good governance' or short-term workforce solutions.

Conclusion

Career pathways to rural practice have developed significantly in recent years. They need to be responsive to the clinical and structural requirements of rural practice locally. Training pathways should be designed as a programme including selection, curriculum, educational activities, assessment, certification and governance etc.

More work needs to be done in order to meet rural workforce needs globally.

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Appendix 1: Comparison of key features of selected general practice training systems (14)

	TRAINING DETAILS						GOVERNANCE		
	Mandatory	**Entry** PGY = postgraduate year.	**Duration**	**Defined curriculum**	**Formal assessment**	**Regional**	**University affiliation**	**Funding source**	**Assessment independent**
Australia	Yes	PGY 2	3 years	Yes	Yes	Yes	Weak	Government	Yes
New Zealand	Yes	PGY 2	3 years	Yes	Yes	No	Weak	Mixed	Yes
Hong Kong	Varies	PGY2	6 years	Yes	Yes	No	Weak	Self	No
Philippines	No	PGY 1	3 years	Yes	Yes	No	Strong	Self	No
Malaysia	No	PGY 4	2 years	No	Yes	No	Weak	Self	No
Singapore	No	PGY 2	1–6 years	Yes	Yes	No	Strong	Self	No
United Kingdom	Yes	PGY 3	3 years	Yes	Yes	Yes	Weak	Government	Yes
Ireland	Yes	PGY 2	4 years	Yes	Yes	Yes	Weak	Mixed	No
Northern Europe	Yes	PGY 2	3–5 years	Yes	Yes	No	Weak	Government	Varies
Central & southern Europe	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies
Canada	Yes	PGY 1	3 years	Yes	Yes	Yes	Strong	Government	Yes
United States	Yes	PGY 1	3 years	Yes	Yes	Yes	Strong	Government	Yes

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Avenue des Arts 7-8
1210 Brussels
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secretariat@wonca.net

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Chapter 5.1.7

PROFESSIONAL DEVELOPMENT PROGRAMMES FOR RURAL DOCTORS

James Douglas
National Health System Education Scotland, United Kingdom

Introduction

Residency programmes for general practice speciality training in the United Kingdom (UK) train medical graduates to broad national levels of competence to work as family physicians/general practitioners/primary care doctors. While none of these programmes addresses rural issues as a training requirement, they aim to certify graduates as fit for independent professional practice in a broad range of locations, which could include inner city or rural practice.

Rural medical training, recruitment and retention

Worldwide problems of recruitment and retention to remote and rural general medical practice have suggested that extra, specialised training and support is required to encourage enthusiastic doctors to live and work, and remain long enough, in remote and rural locations to make a contribution to rural health (1,2,3,4,5). It is important for this kinds of practice to find doctors who have extra procedural skills (including emergency work) and additional professional skills in order to deal with professional isolation (6, 7) - but this only adds to the difficulties of recruiting and retaining practitioners in these areas.

Recruitment and training policies should recognise that the pathways into remote and rural practice might include young doctors fresh from professional training schemes as well as mature doctors wanting a change of professional practice and location at the mid-point or end of their family doctor careers (6). Thus any professional development programme needs to be flexible, individualised and relevant to a range of professional competence and maturity.

Needs assessments and planning the curriculum

In the case of an experienced urban GP planning a new, mid-life rural career, an educational needs assessment might comprise a simple peer discussion with an experienced rural doctor. This might help to reduce any anxiety s/he might feel as well as result in their agreeing to attend a pre-hospital emergency care course. In the case of the younger doctor who has less experience, however, their confidence in pre-hospital care and obstetric emergencies needs to be considered as well as more subtle learning needs about planning for professional isolation and developing clinical and professional support networks.

Any professional development programme for remote and rural practice must consider the educational framework according to the country's prevailing methods. Thus a curriculum mapped out for general practice/family doctor residency training with assessments and exams becomes the starting point to consider any further rural professional development programme.

Curriculum planning needs to consider the differences between the country's remote and rural practice and the basic level of training under the existing framework. This means that professional bodies and doctors in training can recognise a common thread and logic to the professional development programme which builds on previous curricula and professional confidence (8).[1]

A professional development programme curriculum for remote or rural practice has to address the breadth of the scope of work needed in such practices - which reflects the very problem it is trying to solve. In remote practice the focus may be much more on professional and social isolation whereas in rural practice the focus may be more on community hospital skills which provide simple emergency care and rehabilitation for chronic illness. Thus a professional development programme should attempt to include experience and competence across both remote and rural family practice.

1 See http://www.rcgp.org.uk/gp-training-and-exams/gp-curriculum-overview.aspx.

The learning context

Most professional development programmes will aim to provide rural experience and training to young doctors, without needing them to make a long-term commitment to being a rural practice. Experiencing geographical and professional isolation with mentoring and supervision at a distance becomes an important learning experience and opportunity for reflection and discussion with the educational supervisor. Educational mentoring is best provided both within the clinical environment as well as separate from it, through an academic framework of supervision (7).

While individual appraisal, feedback and mentoring remain the formal cornerstone of any professional development programme, informal opportunities can be just as important. These can be accessed through groups of trainees within a region through establishing a peer network both in residential workshops as well as through networking electronically. This became a template for their future careers to deal with geographical isolation.

Content

Skills training

Skills training courses in pre-hospital emergency care, obstetrics, major incident response, advanced life support and advanced paediatric life support will give clinical confidence for future remote practitioners Rural trainers also need to take account of the differences between initial skill acquisition and skill decay, and the educational methodology of 'clinical fire drills' (6) [2].

Psycho-social and occupational health

Rural training has to consider and reflect upon the psychological impacts of big events in small communities in advance of their occurrence. A rural road accident which includes fatalities of young local teenagers may devastate small communities where there are complex networks and relationships. Industrial accidents on farms or fishing boats may take the young fit men from a small community with far reaching consequences. Mutilated or missing bodies may

2 The term 'clinical fire drills' has been suggested (6) to cover the planning, training and organisation of emergency skills courses for rural practice. The concept of fire drills in a building to prevent loss of life requires regular practice, co-ordination, organisation and reflection for a rare event which everybody hopes will never happen. When an event does happen, everyone must behave calmly, methodically and on autopilot in order to save lives. Thus the same concepts can be applied to rare clinical emergencies in rural practice.

cause abnormal grief or post traumatic stress disorder. There might also be cases of suicide and substance abuse. How does the local doctor respond in these circumstances and what are their wider networks for support and help? One form of assistance would be to have rural training include mental health issues (8).

Knowing about occupational health – about related clinical knowledge, health promotion and prevention of an illness - is important in farming and rural communities. Doctors need to clearly understand the diagnosis and clinical management of local zoonotic and infectious illnesses (9).

All professional development programmes for rural practice must include consideration of health care and support for the doctor, their families and support staff. In addition issues around emergency responses and confidential help and advice for health matters will always be important considerations in advance of settling into a rural job.

Clinical governance

Clinical governance can be a challenge in remote and rural practice with smaller numbers of patients and less practice-based peer support and appraisal. Existing remote and rural practices can be enhanced if regional training programmes are used as a mechanism to do so – for example through visiting trainees conducting audit projects or significant event analysis as project work. Prescribing projects, referral projects and reviewing clinical guidelines can be powerful ways of adding value and of encouraging governance activity in smaller practices within a region.

The professional development programme aims to produce clinically confident generalists who understand their strengths, weaknesses and limitations. Managed clinical networks with secondary care specialists can be an important way of providing good care locally in rural environments.

Funding

Regional and state funding agencies may fund professional development programmes as a solution to recruitment and retention issues in remote and rural practice. A well organised programme which adds value across a region by enhancing clinical governance has clear attraction to a regional funding board.

Capital

When considering the place of the individual doctor or practice within a rural community it is useful to consider the concepts of *personal, social, community and educational capital*. Most general practitioners will recognise the concept of monetary capital and business assets. They will often be investing *personal capital* in their business and generating *social capital* by goodwill and understanding within their community. So, for example a wise medical business might not charge for everything in a small community and in so doing will generate a lot of social capital at the expense of a small amount of *financial capital.* Business aspects may include dispensing and the management of small rural practice teams.

Reliable health care is part of the glue and fabric of any small rural community as it is essential for its wellbeing and *economic capital*.

A rural practice which is also a training site generates *educational capital* with networks of grateful and inspired students. A practice might invest educational capital in university departments thus generating *personal and professional capital* for the rural doctor and their business. Time taken to teach and letting trainees practice on patients may risk losing social capital in a small community unless the community is an understanding co-partner in the enterprise.

Evidence

The evidence base for rural education has been clearly defined in the undergraduate training for rural practice with rural streams and education (3). However there is very limited evidence regarding the value of professional development programmes at postgraduate level in rural practice.

Broader applicability

Training programmes for rural physicians, rural surgeons, rural dentists and other professions all have similar challenges and solutions.

The smaller numbers of rural participants present some difficulty for such programmes as the hospital accreditation systems requires a minimum number of procedures in order to be able to declare competency. So, for example, schemes which encourage rural GPs to provide anaesthetic support to visiting surgical teams may come under threat as national bodies demand minimum numbers of anaesthetics per year to maintain competencies.

Thus those doctors who wish to provide services in primary and secondary care to patients in remote and rural areas may need to collaborate to retain, preserve and develop these services – especially as this may be in opposition to politically powerful urban professional bodies whose rules and regulations which preserve professional boundaries in urban practice seek to undermine rural practice.

Practice pearls

What to do

Have a curriculum.
Encourage the principles of adult learning.
Allocate a rural educational mentor.
Provide 'taster' rural experience without long term commitments.
Promote a sense of rural identity.
Promote electronic networking.
Encourage experience across a network of rural locations to add value to the learners and the network of practices.

What not to do

Don't provide experience without mentoring and reflection from outwith the clinical setting.

Conclusion

Rural clinical generalism is a challenge for urban health care professional systems.
Increasing specialisation and requirements to evidence technical competence in the urban environment proved a direct challenge to rural training, service delivery and recruitment/retention.
In the rural context, numbers are smaller and geographical distance will always be a barrier. Modern communication technologies and transport systems may mitigate some of these effects. However, paradoxically, rural health care is the educational opportunity for urban health care. The urban systems desperately need generalism to solve their service delivery problems in frail elderly care and multi-morbidity. Rural practice has the unique educational asset of easy visibility and understanding in medical training. The learner can see the whole patient, their journey of health care and social support networks with ease.

Rural health care education needs urban health help but in many ways the modern urban world of health needs rural health care more!
Rural health is an important new speciality for all doctors to experience and understand if they wish to improve patient care, understanding and safety.

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Avenue des Arts 7-8
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Belgium

secretariat@wonca.net

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Chapter 5.1.8

CREDENTIALING AND RE-CERTIFICATION OF RURAL DOCTORS

Jane Greacen
Monash University, Australia

Introduction

Regulatory bodies, medical colleges, medical registration boards and employers in Australia are becoming increasingly stringent and focussed in their attempts to ensure that doctors are who they say they are, and that they have the skills they say they have , to ensure the safe provision of clinical care.

In the recent past, doctors in Australia could work in their specialty with minimal monitoring or review of their skills and qualifications. Hospitals and medical practices relied on the medical registration boards to check that the doctors' qualifications were authentic.

International medical graduates

Doctors who were trained and have work experience in Australia have often relied on word of mouth to have the quality of their clinical skills endorsed; and the state Medical Boards have access to their original qualifications. This is not so for doctors who were trained in other countries, however. Appropriate references are harder to obtain and qualifications may be from universities that are not recognised as delivering equivalent medical training to those in Australia.

International medical graduates (IMGs) face many hurdles to be able to practice medicine in Australia. They must work under supervision until they have achieved qualifications accepted by the relevant Australian college. While the supervision and assessment requirements for general practice (family medicine) are not as stringent as those for other specialities such as surgery, obstetrics, paediatrics etc, many doctors trained in these specialties end up working in general practice in rural Australia. IMGs are required to work in rural and remote areas (and some outer urban areas) when they come to Australia to contribute to programmes created specifically to address medical workforce shortages in these areas.

It took a disaster (see page 4 below) to change the policy environment , such that workforce shortages in rural areas was no longer justification for uncritically accepting doctors whose training, qualifications, experience and background may not be able to be verified.

Summary

In parallel with making the medical registration system more controlled, some states in Australia introduced more stringent credentialing and performance appraisal processes for doctors appointed to provide clinical services in hospitals and aged care facilities, and the national standards for hospitals were tightened substantially. Re-certification has not been introduced in Australia at this time (1).

Discussion

Communities expect their doctors to be the best, and to be able to treat their illnesses and injuries, save their lives, and provide high quality comprehensive care. They generally do not have the depth of knowledge to assess the competence of their doctors and must trust the systems established to do this for them.

Access to medical services is not equitable either within or between countries, and the reasons for this may include insufficient medical training facilities; skewed distribution of doctors (generally fewer in rural and remote areas and areas of lower socioeconomic status); and affordability of services.

The lack of availability of doctors to provide services can exert pressure on governments, hospitals and other medical service providers to accept doctors who may not meet the standards of the colleges or standards set by other professional bodies.

Medical colleges may or may not recognise the quality of training or the scope of skills required by medical colleges in other countries.

In Australia, more than 50% of doctors in rural areas are trained in other countries (2). The fact that Australian medical colleges may not accept a doctor's experience or qualifications does not necessarily mean that the doctor is not a competent and safe practitioner. Most IMGs provide excellent medical services to their communities particularly if they are given support and supervision until they are familiar with the regulatory environment and practice norms, and can meet the quality of clinical service expectations of their adopted country.

However, there are some doctors in some circumstances who provide poor quality, uncaring, and unsafe medical practice. There needs to be a way to protect the community from this, and so it is reasonable to expect the standards set by our medical colleges to be adhered to, and for doctors who fail to do so, to be able to be identified and remedial action taken.

Patterns and remediation

There is evidence that doctors who are disciplined by medical boards are more likely to be associated with previous unprofessional behaviour in medical school. 'Students with the strongest association were those who were described as irresponsible or as having diminished ability to improve their behaviour' (3). There is also evidence that doctors who have complaints made against them to medical boards or to Health Commissioners more than once, are very likely to have more complaints made against them in the future (4).

While university medical schools may have remediation programmes for students who lack competence in certain areas, and/or whose personalities mitigate against their providing caring medical service in the future, they may not fail them nor divert them into what may be more appropriate careers. Similarly, junior doctors and doctors in training who work under supervision may receive advice about their performance, but are unlikely to be restricted in their scope of practice unless there have been serious incidents or misdemeanours.

The medical registration boards have remediation processes for doctors who have health concerns, or issues with conduct or competence, and are able to require those doctors to work under supervision or stop them from providing clinical services.

There is strong evidence that a small number of doctors account for a large proportion of complaints and that previous complaints and claims are an important predictor of future events (4). An assessment of formal complaints made against doctors in Australia over ten years, showed that fewer than 500 doctors accounted for a quarter of all complaints. This same research showed that doctors who had a third complaint made against them had 'a 38% chance of being the subject of a further complaint within a year, and a 57% probability of being complained against again within 2 years' (4). It is reasonable to surmise that current remedial actions by medical boards may not be effective, and that substantial harm continues to happen to patients.

It is clear that a stringent review of doctors' skills, experience and qualifications is justified whether they are trained in their homeland, or in another country, and that doctors should receive ongoing support to maintain and strengthen their skills during their careers.

The doctor at the centre of the disaster mentioned above was charged with manslaughter and accused of gross incompetence. He was already being investigated in the USA before he came to Australia, and neither the medical board nor the hospital that employed him had ascertained this fact (5).

Case Study: *Surgeon applying to work in a small rural hospital*

Australia has nationalised the medical registration boards, and as noted above, introduced more stringent medical appointment procedures.

This scenario is about a small rural hospital that has been recruiting a general surgeon. The hospital has two theatres that are quite well equipped, and nursing staff who are well trained and competent. The hospital has no intensive care unit, and is two hours' drive from a larger hospital that has those facilities. General anaesthesia is provided by competent procedural general practitioners (family physicians), who have appropriate qualifications and experience, but who are not specialist anaesthetists. The hospital has determined the range and complexity of surgery that it believes can be performed safely in its theatres and safe post-operative care provided in its wards.

It receives an application from a surgeon who is keen to work there and to relocate and live in the town. Without the process outlined below, the doctor was allowed to practice beyond the capabilities of the hospital, and possibly beyond his/her capabilities, as a result of which significant harm was inflicted on many patients.

Steps to assess the application:

1. The doctor is requested to provide comprehensive information and documentation including:
    a. Verified qualifications, a curriculum vitae, medical registration details, references (from credible surgeons in his/her field), a copy of their medical indemnity, and a statement about any claims made against them.
    b. The scope of surgery they wish to undertake.
2. Reference checks are completed independently by a medical practitioner on behalf of the hospital, and an internet search is undertaken to see if there is any negative press about the doctor.
3. The doctor is interviewed and his/her understanding of the implications of working in a small rural hospital is ascertained:
    a. They must understand the potential for them to work in relative professional isolation, and take responsibility for their patient before, during and after surgery in partnership with the general practitioners who provide in-patient care.
    b. They must understand the implications of not having access to an intensive care unit or perhaps of a specialist physician.
4. The doctor's commitment to his/her ongoing professional development, involvement with the hospital's quality and safety programmes, and the hospital's risk management programmes, is assessed and determined.
5. If the doctor does not have full registration, then supervision needs to be arranged, and the level of supervision will depend on the requirements of the relevant college.
6. If the doctor is an IMG whose qualifications are not recognised as equivalent, then arrangements will be made to support the doctor to engage in a pathway to qualification; this needs to be supported by the hospital.
7. The scope of practice needs to be considered to ensure that the doctor is aware of the range and complexity of surgery that he/she would be permitted to perform.

8. The above information is submitted to the hospital's Credentialing Committee (or regional equivalent) for consideration, with recommendations made about the doctor's appointment to the hospital, the scope of practice permitted, and the level of supervision required and how it is to be provided (if necessary).
9. Every 12 months, a performance review is undertaken, which includes an interview with the doctor if there is any concern about performance, and ensuring that medical registration, indemnity and professional development are up to date. Feedback from the doctor is also requested.
10. The hospital's requirements to meet mandatory national standards (6) state:
    '*The credentialling system to confirm the formal qualifications, training, experience and clinical competence of clinicians, which is consistent with national standards and guidelines, and with organisational policy, is evaluated, and improved as required'.*

Practice pearls

All doctors appointed to provide medical services to hospitals and public aged care facilities undergo a comprehensive credentialing process; their scope of practice is defined and adhered to throughout their appointment.

The credentialing process includes ensuring the doctor's medical registration is current; qualifications have been verified; there is no legal or medical registration board action pending or taken against them anywhere in the world; their reputation and integrity is unremarkable, and they are committed to maintaining their clinical skills.

A full re-credentialing is conducted every three to five years to ensure the doctor is maintaining their skills and qualifications and there have been no significant misdemeanours. A performance review is conducted every year in line with best practice standards for human resource management in any industry. This performance review is to be linked to the full credentialing system.

The professional development required by the relevant medical college or other relevant authority is currently the benchmark for skills maintenance.

Scope of practice is defined in detail and applies specifically to each hospital. Approval to perform a particular procedure is given if it is within the capacity of the hospital (size, staff, skills of nursing staff, equipment), and the doctor. The doctor's skills for the procedure and scope of practice need to be verified by an expert in the field, and recognised by the relevant authority.

Conclusion

Credentialing and ongoing performance review of practising doctors is now considered to be an essential part of quality and safety management for the community being served.

This process should have a significant impact on reducing adverse outcomes associated with inpatient and ambulatory care. As audit and risk management activities in health services become better embedded in daily practice and feedback systems improve, peer review will provide medical practitioners with a supportive reflective learning environment.

In addition, the frustration experienced by doctors who are obliged to do more and more paperwork that does not relate to the clinical care of their patients, needs to be assuaged by access to clinical audit and review environments that are stimulating and supportive, and that have positive behavioural change outcomes.

There are obvious gaps that need further consideration before there is certainty that everything is being done to ensure safe medical practice; these have been highlighted by the work of Marie M Bismark et al in their paper on 'Identification of doctors at risk of recurrent complaints' (4). In Australia, for example, employers and health services do not have access to information held by Health Commissioners or medical boards, and so are dependent on self-disclosure from the doctors they are interviewing. Similarly, medical colleges do not have access to this information to enable proper scrutiny and requirement for further training or other actions. Currently, medical colleges in Australia rely on self-reporting by the practitioner.

It is becoming clear that there needs to be further discussion amongst the medical profession about issues of performance during training as well as performance as medical practitioners, and how information that is held about doctors with more than two complaints against them, is managed.

Ideally the profession should lead this process as part of the increased focus on quality and safety in health care. Doctors are more likely comply with and support a process led by their peers than a framework imposed by government administrative bodies.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 5.2.1

SUPPORTING RURAL PROCEDURAL PRACTICE

Alan Bruce Chater
University of Queensland, Australia

Introduction

Rural people need services as close to their community as possible. Many have argued, especially in developed countries, that centralised services and transport are an alternative. This is doable and necessary with advanced specialised surgery but for more common conditions of less complexity and higher frequency, the need for local delivery of services increases.

In striving for elusive perfection, all service can be lost from all but 'centres of excellence'. When a mother is about to deliver a baby in a rural area, the presence of an obstetric service 300km away is not much comfort. What is required is a local well-trained generalist service.

A number of studies have shown the efficacy of rural procedural practice. Many factors influence the availability of rural procedural services, however, including infrastructure; workforce; funding; and skills (training and maintenance).

This chapter will touch on skills maintenance and the funding aspects of this.

What's the evidence? Do we really need procedural practice?

In the hospital sector, a Norwegian study reviewed the effectiveness of hospitals staffed by GPs (1). They examined the admissions to 15 of these hospitals and compared them to alternative care, based on municipality and hospital accounts and standard charges for patient transport. Their study concluded that GP care in hospitals incurs the lowest costs to society.

A number of studies have reviewed obstetric services in generalist staffed hospitals. Nesbitt (2) studied 33 rural hospital service areas in Washington State, in the United States, and categorised them by the extent to which patients left their obstetric services. Women with fewer obstetric providers in proportion to the number of births

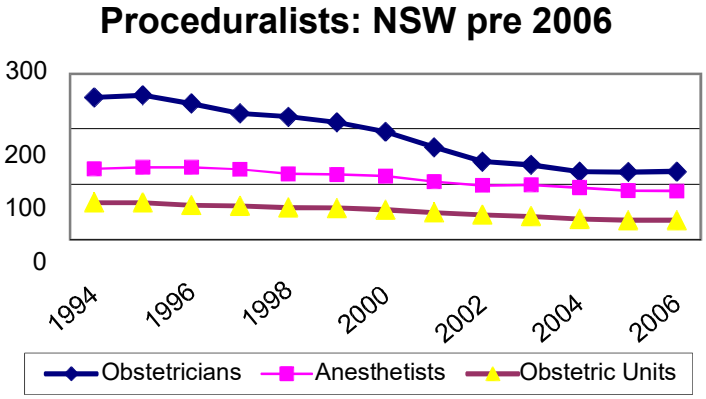
were less likely to deliver in their local communities. Women from these high outflow communities 'had a greater proportion of complicated deliveries, higher rates of prematurity and higher costs of neonatal care than women from communities where most patients delivered in the local hospital'. One would have to conclude that, with better outcomes and the lowered travel costs, this would, *ipso facto*, lead to cost savings for the patients and communities.

Similarly in Australia, Tracey et al (3) in a population based study using the National Perinatal Data collection, showed that for low risk primiparous and multiparous women in hospitals with less than 100 births per annum, there were lower rates of induction of labour, intrathecal analgesia/anaesthesia, instrumental birth, caesarean section after labour and admission to a neonatal unit.

In a study of maternity policy in Iowa, USA, Hein concluded that, while arguments were put forward for consolidation of existing obstetric facilities to reduce medical care cost via economies of scale, 'available evidence is to the contrary, since small hospitals offer obstetric and newborn care that are less expensive than larger communities' (4).

Recent reviews of rural generalist models of practice have been very positive (5, 6). In Australia recent positive evaluations (7) of training programmes for this model of care, have resulted in a Health Workforce Australia review with a view to implementation of a national framework.

Figure 1:
An illustrative anecdote - What are the barriers?



Source NSW RDA 2006

Decline in procedural practice

In the early 1990s, it was clearly identified that especially the procedural areas of obstetrics, anaesthetic and surgery were in decline. By 2002, Australia was at the height of an indemnity crisis and the proceduralists were in steeper decline. Steps were taken to address this.

In response to this, a study into the barriers to procedural practice was undertaken by the Australian College of Rural and Remote Medicine (ACRRM) in collaboration with a number of other organisations. (8). The other factors that might be responsible for the decline in procedural practice were explored and solutions proposed.

Of the 87 doctors polled, including procedural doctors, 65% responded – and were interviewed in focus groups. Among the barriers to the maintenance of procedural skills, the top two barriers at the time were, predictably, insurance costs and litigation. The next six were

1. maintenance of multiple standards, benchmarks and qualifications;
2. costs of upskilling vs income recovery;
3. general undervaluing of the procedural GP;
4. pressures of maintaining a broad range of skills;
5. ability to take leave for training opportunities - time constraints, professional limitations; and
6. access to appropriate skills programmes - type locality and cost.

Turning the decline around: the Rural Procedural Grants Programme

With these data, a concerted campaign was launched to overcome these issues and in the budget of 2003, two measures were introduced: one a financial incentive for rural procedural practice and the other a training incentive. The latter will be discussed in more detail.

Following the budget announcement, ACRRM met with the bureaucracy to ensure that the budget announcement was able to achieve the government's aims. From these discussions the key elements of the scheme were developed:

1. Ensure minimal red tape.
2. Provide an incentive, not reimbursement to help achieve this.
3. Have a high entry standard of credentialied practice with on-call commitment to ensure that doctors were providing the needed service.
4. Ensure key areas of need - including obstetrics, anaesthetics and surgery - were targeted.
5. Promote peer assessment of appropriateness of professional development activities.
6. Provide funding directly to the doctors.

The initial payment was $1 500 per day for a max of 10 days. This was subsequently increased to $2 000 per day. The original payments were for obstetrics, major surgery and general anaesthesia. An emergency medicine component of three days was subsequently added.

The now titled Rural Procedural Grants Programme (RPGP) is administered by the Australian College of Rural and Remote Medicine (ACRRM) and the Royal Australian College of General Practitioners. This collaboration comprises a representative from each discipline - obstetrics, anaesthetics, surgery and emergency medicine for each college.

Uptake

The RPGP does regular surveys of those utilising the programme. In the last survey, the majority of respondents (57%) were registered in the procedural medicine component, with most practising obstetrics (26%), followed closely by anaesthetics (24%). Surgery is the least subscribed discipline, practised by only 7% of respondents. A little less than half of the respondents are registered under the emergency medicine component.

Most respondents are multi-credentialed to practice both obstetrics and emergency medicine (40%), with an almost equal number of respondents engaged in both anaesthetics and emergency medicine (39%).

The programme was popular for a number of reasons most of which addressed the original findings of the ACRRM research (Table 1).

Table 1:
Top rated reasons for participation

Financial incentive/compensation allows time away from usual practice	55%
Update/increase skills and knowledge	47%
Relieve cost of accessing training activities	34%
Meet professional responsibility for ongoing education	29%
Increase knowledge and skills in a specific area	23%
Relieve cost of travel & accommodation	22%
Maintain skills/knowledge	20%
CPD[1] points & vocational registration purposes	18%
To remain a rural GP proceduralist	15%
To meet challenges of rural practice	9%
Relieve cost of locums	8%

Participants regarded the strengths of the programme as, not unexpectedly, the financial support, the ability to upskill and the simple low red tape process. Significantly the programme, by putting the money in the hands of the doctors, has encouraged a marketplace of courses with increasing number and quality of these (Table 2).

Table 2: Strengths of the RPGP

Financial support to undertake CPD	62%
Encourages rural proceduralists to up-skill	33%
Lack of 'red tape'	20%
Variety of accredited courses	18%
Flexible, self-directed programme	17%
Competent administration	15%
Incentive to remain in rural procedural practice	12%
Recognition of rural procedural GPs	10%
Increases confidence to perform procedural medicine	9%
Improves health outcomes of rural communities	5%
Fosters collegial support	4%

1 CPD = continuing professional development

Sixty-nine percent of respondents, registered only in the procedural medicine (obstetrics, anaesthetist and surgery) component, reported that their participation in the programme had positively influenced their intent to remain in rural and remote practice - while 30% of respondents reported no impact on their intention to remain in rural practice. The programme now has the most comprehensive database of doctors practicing in rural and remote practice due to the rigorous criteria (9) and the high participation due to the financial incentive.

The RPGP both popular and effective as evidenced by the suggestions for improvement (Tables 3 & 4).

Table 3:
Suggestions for improvement

Increase emergency medicine grant	27%
No changes required	21%
Increase number of funded training days	12%
Wider range of courses	11%
More courses in rural areas	11%
Assistance in finding/paying locums	10%
Increase grant remuneration with CPI[2]	9%
Offer grants for other disciplines (e.g. palliative care and mental health)	8%
Travel time to be grant funded	8%
More grant funding for multi-credentialed proceduralists	8%
Scaled grant funding according to remoteness	6%
Electronic registration/payments process	6%
Give grants for GPs to up-skill in procedural medicine	6%
Grant funding offered over triennium rather than financial year	3%
Easy access to records (i.e. how many days used; how many days remaining)	3%
Grant funding for team training	2%

2 CPI = consumer price index

Table 4:
Additional comments

Excellent programme	43%
Keep the programme going	36%
Excellent support for rural proceduralists	30%
Keeps me in rural procedural practice	11%
Makes ongoing training affordable	7%
Encourages ongoing training	6%
Excellent administration	6%
More emergency medicine days needed	5%
User-friendly programme	5%
Financial support should increase	4%
Allows me to meet MOPS[3] requirements	4%
Would cease to perform procedural practice without RPGP	3%
Programme increases confidence to perform procedural medicine	1%
Programme should permit GPs to up-skill in procedural medicine	1%
More locum relief is needed	1%
End of year statement would be good	1%

The programme has also been effective at increasing the number of proceduralists, although the number of multiple proceduralists continues to slowly decline (Table 5).

3 MOPS = Maintenance of Professional Standards

Table 5:
RPGP registration by discipline component

	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Anaesthetics	116	127	134	141	140
Surgery	20	19	18	20	19
Emergency	1 252	1 425	1 529	1 813	1 855
Obstetrics	11	126	124	126	129
Anaesthetics & Emergency	184	195	222	250	262
Anaesthetics & Obstetrics	42	41	36	33	33
Anaesthetics & Surgery	4	4	2	2	2
Obstetrics & Emergency	230	240	257	284	287
Surgery & Emergency	36	42	45	46	48
Obstetrics & Surgery	15	16	13	12	12
Anaesthetics & Emergency & Obstetrics	196	228	237	245	243
Anaesthetics & Surgery & Emergency	17	18	22	25	22
Anaesthetics & Surgery & Obstetrics	18	19	18	17	18
Emergency & Obstetrics & Surgery	76	83	87	87	87
Anaesthetics & Emergency & Obstetrics & Surgery	105	111	110	105	103
Total	**2,427**	**2,694**	**2,937**	**3206**	**3260**

The programme has meant the re-entry of older proceduralists to practice, the entry of younger proceduralists and a proportionately larger recruitment of female doctors although form a smaller base (Table 6).

Table 6:
RPGP registration by age and gender

	2008-09	2009-10	2010-11	2011-12	2012-13
Gender: Female					
<30	16	26	21	28	31
30-39	163	172	188	189	198
40-49	218	254	275	309	315
50-59	149	168	204	231	232
60-69	29	42	48	69	68
70-79	1	1	1	1	1
Total	**578**	**665**	**737**	**827**	**845**
Gender: Male					
<30	19	20	19	19	21
30-39	281	287	297	301	317
40-49	642	669	682	721	730
50-59	618	701	767	813	822
60-	229	281	353	420	421
70-79	39	47	57	77	76
Total	**1,849**	**2,029**	**2175**	**2351**	**2387**
Age (female and male)					
<30	35	46	40	47	52
30-39	444	459	485	490	515
40-49	860	923	958	1031	1046
50-59	767	869	971	1044	1054
60-69	258	323	401	490	490
70-79	40	48	58	78	77
Total	**2,427**	**2,694**	**2,913**	**3180**	**3234**

***The small number who whose status was undetermined have been omitted for this table.**

Broader applicability

In Australia, as in many countries, the infrastructure to support procedural practice has continued to decline and the procedural training programmes are only just beginning. The procedural education incentive programme is just one of the strategies for ensuring the promotion and development of rural procedural practice. Despite the hostile environment, this programme seems to have stemmed the decline in rural proceduralists – and the positive response from the participants suggests that its simple format has been well accepted.

The cost of the programme in comparison to other funding programmes in this area has been reasonably modest and the benefit to rural communities significant. It would seem feasible for other countries to provide proportional support for their procedural doctors and assist in training and retaining their rural procedural workforce.

Practice pearls

What to do

Concentrate incentives on the skills that are needed.
Use entry criteria to select for the skills that are needed.
Allow participants the freedom to choose the appropriate education for them.
Keep paperwork low, but maintain rigour.
Concentrate on education needs.
Provide funding to the doctors.
Allow this to develop a marketplace.

What not to do

Don’t create perverse incentives.
Don’t reimburse; it wastes money on administration. Incentivise instead.
Don’t fund the providers directly; let the doctors decide.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 5.2.2

MAINTENANCE OF EMERGENCY SKILLS IN RURAL PRACTICE

David Campbell
Monash University, Australia

Introduction

You are an experienced rural doctor in a town of 3 200 people. You and two colleagues provide comprehensive care for the community, including 24-hour emergency care in your local 20-bed hospital. It is a continual challenge to find time and locum replacements to enable you and your colleagues to undertake any continuing professional development.

Your practice is a teaching practice, and you recently engaged a senior GP registrar[1] who will be working in your practice for the next 12 months. While you are looking forward to this doctor joining your on-call roster, the registrar expresses some nervousness about dealing with emergencies, and apart from an emergency department rotation in his first postgraduate year, his only formal training in emergency care was an early management of severe trauma (EMST) course two years ago.

How will you deal with this situation? How will you assess this doctor's ability to manage emergencies presenting when he is on-call? What education programme will you put in place for him? How will you conduct this programme? What are your own educational needs regarding emergency skills?

In this chapter we will explore some answers to these questions, as well as present evidence from the literature about the desirable frequency and nature of educational interventions to maintain emergency skills. We will also explore some of the attitudes to such activity amongst practicing clinicians.

1 A registrar – or resident – is a qualified doctor who is part of a structured specialist training programme, be it vocational or postgraduate.

Discussion

It is well-understood, and repeated many times in this guidebook, that rural medical practice is characterised by relative professional isolation compared to metropolitan practice; by an almost unavoidable involvement in after-hours and emergency care; by a greater likelihood of involvement in hospital practice; by a relative lack of technology and infrastructure to deal with all clinical presentations; and by a reliance on emergency skills (1,2).

In 1999 Tolhurst et al found that 'rural doctors need the opportunity to access emergency medicine training that provides upskilling, not only in the management of clinical problems, but also in practical procedures' (3). This is true of any rural and remote clinical environment, regardless of the level of infrastructure and technological support. Management of emergencies in remote clinical practice brings its own spectrum of challenges, and the approach to emergency care in such environments has been carefully studied and documented (4).

A team-based approach to emergency presentations has been shown to improve clinical outcomes (5). Ideally, this approach should be taken to rehearsal and education for emergency care, with members of the team understanding the structured approach to resuscitation and stabilisation and being aware of the roles and responsibilities of other members of the team.

Clinicians vary in their perceptions and attitudes regarding the frequency of re-training and rehearsal of emergency skills (6). An increasing focus on quality and safety amongst professional and regulatory bodies is also having an impact on skills maintenance and requirements for demonstration of continued clinical competence.

Retention of knowledge and skills and impact on clinical practice

It is instructive to examine the current evidence regarding the frequency of revision of skills needed to maintain clinical competence, as well as the degree of retention of skills after an educational intervention. Over the past 25 years there has been a moderate number of articles in the literature on this topic (7-10) - which report a variable rate of knowledge and skills retention after an educational activity. They also highlight the difficulty of evaluating the impact of procedural skills education, in particular, however, and very few studies have measured the impact on *clinical practice* after such education programmes or courses. Generally however, studies

assessing skills retention, by whatever measure, report a significant decline in basic and advanced life support skills over a period of 6-18 months (10).

This is examined in significant detail in a meta-analysis of the literature conducted in 2007 by Marinopoulos et al (11) – which was commissioned by the Agency for Healthcare Research and Quality, US Department of Health and Human Services, and carried out by the Evidence-based Practice Centre at John Hopkins University.

As part of this study, the question applied to the analysis of the available literature was 'Do changes in knowledge, attitudes, skills, practice behaviour, or clinical practice outcomes produced by continuing medical education (CME) persist over time (greater than or equal to 30 days)?'. In summary, they found the following:

- The majority of systematic reviews that reported skills outcomes involved cognitive skills, with only a small number involving psychomotor skills.
- 'Little can be said about the effectiveness of CME for psychomotor skills given the paucity of data in this area.'
- 'Given the limited number of studies ……it is difficult to draw conclusions about the education techniques that have the greatest short- and long-term effects on skills.'
- 'Most of the studies that met their skills objectives had multiple exposures to the CME activity as did most of the studies that evaluated the long-term effects on skills.' (11)

It is clear, therefore, that the current literature is inadequate with respect to informing us of the most appropriate educational modalities for learning and maintaining emergency skills, as well as the ideal frequency of revision of these skills. It seems likely that cognitive skills can be retained for some time, and that multiple exposures to the learning activity are likely to embed these cognitive skills over the longer term. There is insufficient data on retention of psychomotor skills.

One study that did assess retention of a psychomotor skill was conducted in 2003 by Vertongen et al from Dunedin (10). This study compared the use of the laryngeal mask and the oesophageal-tracheal Combitube to successfully ventilate a mannequin. Subjects were taught to ventilate a mannequin using both devices, and their ability was tested immediately and seven months later. The study found that the ability to successfully ventilate is better maintained with the laryngeal mask (85%) than the Combitube (77%) after seven months.

Simulation

Marinopoulos also examined the evidence from systematic reviews regarding the effectiveness of simulation methods in undergraduate and postgraduate medical education (excluding continued medical education)(11). The simulation methods included in these studies were computer-based methods, virtual reality, standardised patients, and mannequins.

This analysis showed that the overall evidence pointed to the effectiveness of simulation training, especially in psychomotor skills (i.e. procedures or physical examination techniques) and communication skills. However, 'the strength of the evidence was considered low, due to the small number of appropriate studies, the scarcity of quantitative data, and a number of study limitations' (11).

Nestel et al have also examined the current state of 'best evidence' in the use of simulation for learning procedural and operative skills (12). They found that trainees and instructors express high levels of satisfaction with simulation as an educational method. Simulation usually results in improved knowledge and skills, but most studies have focussed on short-term gains in knowledge and skills, with outcomes usually tested in simulation rather than in clinical practice. In the few studies that have evaluated the impact of learning on clinical practice, the evidence is positive.

'Simulation not only supports learning but retention and revalidation of procedural skills. We need to understand more about the complex relationships of timing and duration of procedural skills training, frequency of use of the skill, initial competence and skill decay' (12).

Relevance to rural practice

How does this evidence from the literature relate to the context of rural practice and rural medical education?

As discussed previously, severe emergencies occur frequently in rural practice and involve a wide range of diagnoses, the most common being medical problems such as cardiovascular disease. 'Rural doctors require adequate facilities and special skills in emergency medicine to treat these people' (13).

Short courses in emergency medicine have become increasingly available over the past two decades. Courses such as Early Management of Severe Trauma (EMST), Advanced Life Support (ALS), Advanced Paediatric Life Support (APLS), and Pre-hospital Trauma Life Support (PHTLS) are now part of the medical education landscape internationally. In Australia, rural doctors have developed a two-day course Rural Emergency Skills Training course (REST) specifically designed for the small rural hospital and pre-hospital context (14). This course has also been modified for other contexts and is now being delivered in rural areas of South Africa. All of these courses employ simulation techniques, and impart knowledge and skills via a combination of written text (course manual), lectures, skills stations and simulated clinical scenarios. Assessment and feedback is included in these courses, based on principles of adult learning (15).

In designing such courses, there is a need to find a balance between the extent of knowledge and skills taught and the need for efficient learning outcomes. Psychomotor skills such as basic and advanced airway management, intravenous access, defibrillation, cervical spine immobilisation and needle thoracentesis are regarded as essential inclusions in such courses. Other less-commonly used skills such as surgical airway, intraosseous access and chest drain insertion are also included in some courses. The rationale for mastery of these latter skills, even though rarely if ever used, is that the rural doctor may be called on to undertake such a procedure to save a life, and is likely to be the only member of the local care team expected to do so.

In planning and delivery of emergency skills education, the complexity of the skill must also be taken into consideration. Clinicians report a spectrum of mastery of individual skills based on the complexity of the procedure (6). Regarding maintenance of skills in rural practice, the more complex skills such as endotracheal intubation, and the context of the use of the skill (e.g. possible need for rapid sequence induction of anaesthesia) will need to be rehearsed more frequently (if not being performed regularly in clinical practice), than other more straightforward skills.

Assisting registrars

Given these issues, how does the experienced rural practitioner assist the newly-arrived registrar introduced at the start of this chapter?

As this is an issue of both confidence and competence, some effort needs to be made in assisting the registrar to develop a learning plan to undertake during the placement. Adverse outcomes in emergency care, if perceived to be the result of inadequate knowledge and skills, can have a lasting detrimental effect on a junior doctor, perhaps directing them towards a 'safer' and less isolated clinical practice environment.

On the other hand, a structured and well-planned learning pathway, in a supportive environment relevant to the local clinical context, can be a powerful experience in building the skills and confidence of the learner. This also presents the opportunity for the experienced practitioner to rehearse and revalidate their own skills.

The first step in this process is to identify which commonly-used emergency skills the learner is comfortable with. A short initial simulated activity to practice these skills may be useful. The next step is to explore the structured approach to emergency care, as an opportunity to reinforce the physiological aspects of resuscitation and stabilisation. This will also re-introduce the concept of dealing with life-threatening conditions as they arise, such as obstructed airway, severe respiratory distress or profound circulatory shock. It is here that specific psychomotor skills can be identified, and a specific program to rehearse these skills within an achievable time can be instituted. Some of this learning may occur outside the local learning environment, for example through a specific course such as those mentioned above.

In this example, it is also important to ensure that the registrar has appropriate supervision and support when 'on-call', until he feels more comfortable as the learning process unfolds. Appropriate feedback in both the clinical practice and simulated learning environments is an essential element of this process, and is dealt with in other chapters in this guidebook.

Practice pearls

A structured approach to clinical emergencies, based on resuscitation and stabilisation of airway, breathing and circulation, is now the mainstay of emergency skills education programmes.

Rehearsal and repetition of this approach, by way of simulation-based education programmes, has been shown to improve both competence and confidence of practicing clinicians. These programmes should incorporate a team-based approach to emergency care.

Individual emergency procedural skills can be taught and maintained in a variety of ways; by frequent clinical practice (e.g. airway maintenance by a practicing anaesthetist), under supervision in clinical practice, or by planned or opportunistic simulation-based teaching.

The challenges of rurally-based education for emergency skills are similar to those of rural practice generally; i.e. time, resources, professional isolation and the expectations of the local community.

Summary

Management of emergencies is an unavoidable aspect of rural clinical practice. Available evidence shows that regular rehearsal of both the cognitive and psychomotor aspects of emergency skills, within a structured framework of care based on managing physiological responses to severe illness or trauma, is likely to achieve optimal patient outcomes.

The educational approach to teaching and learning the principles and practice of emergency care must include a structured and supportive environment, with use of a range of education modalities, and appropriate learner feedback. Teaching opportunities may arise in the clinical situation, but given the unpredictable nature of emergency presentations, approaches such as simulation- based education are increasingly being used to learn and maintain emergency skills, and have been shown to have a positive educational impact.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 5.2.3

ADVANCED CLINICAL SKILLS: THE USE OF SIMULATION FOR THE DEVELOPMENT AND MAINTENANCE OF SKILLS FOR RURAL PRACTITIONERS

Debra Nestel *Monash University, Australia* **Leanne Rogers**
Flinders University, Australia
Kirsty Freeman
Western Australia Country Health Service, Australia
Kathy Brotchie *Monash University, Australia* **Marcus O Watson**
University of Queensland, Australia

Introduction

This chapter describes the use of simulation to support the acquisition and maintenance of advanced clinical skills in rural and remote medicine, with a particular focus on general practice (family medicine) practitioners. We adopt Gaba's (2004) definition of simulation as 'a technique to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate aspects of the real world in an interactive fashion' (1).

Simulation provides the opportunity for practitioners to rehearse the management of low frequency, high severity events, giving local teams the opportunity to analyse and develop their own performance together (2). We identify factors important for effective health care simulation and consider the importance of co-ordinated approaches to investment in human and physical resources. We draw on our experiences in Australia and use case studies to illustrate nuanced differences in advanced clinical skills programmes.

Rural medical practice and education

Although there is no single way to characterise rural medical practice and education, there are some elements that create specific challenges. The 'tyranny of distance' offers opportunities and challenges and these are well documented (3,4,5). Patient populations and hospital presentations vary greatly in regional areas of Australia, and health care services including the composition of health care teams are often vastly different to those in metropolitan areas.

A recent survey of the procedural skills of doctors in a regional area of rural Victoria showed fascinating insights into the scope of practice, perceived confidence and competence in skills (6). There was significant correlation between the frequency of certain skills and confidence with maintenance of these skills. The more complex the skill, the more likely respondents were to report a need for frequent rehearsal. Simulation was seen to be more appropriate than observation and other methods for maintaining skills. Nearly half of all doctors surveyed maintained competence in airway skills through practice in simulation, and two-thirds thought that these skills should be practiced in simulation at least every year (6).

Health care simulation education

Health care simulation education is driven by ethical imperatives prompted largely by a safety agenda, reduced working times and pressure on clinical placements (7). Additionally, there is growing evidence of the educational benefits of simulation for diverse clinical skills (2, 8-10). Although the case studies in this chapter draw on task trainers, manikins, simulated patients (SPs) and hybrid simulations (task trainers aligned with SPs), there are also electronic modalities (e.g. virtual environments, serious games and augmented reality) that are likely to have increasing prominence in offering repetitive practice and being available when and where required. Simulation has also emerged as an essential method for supporting interprofessional and team-based practice (11-18). Although there are many benefits to simulation, effectiveness is shown to depend on the quality of faculty[1] (19).

1 'Faculty' is another term for members of academic staff.

Strategic approaches to health care simulation

National, state and regional strategic approaches to planning and delivering health care simulation have been described for Australia (7) and have been facilitated by significant government investment in human and physical resources (20). To address initial simulation educator development, a national programme, NHET-Sim (21), has been funded with a mandate that 10% of the programme be offered in rural and remote areas. Simulation resources are often used suboptimally because faculty has not been supported in using them to promote effective learning.

An integrated approach at the CSDS

At a state level, the Queensland Health Clinical Skills Development Service (CSDS) (22) provides an integrated approach. The metropolitan facility includes extensive physical resources, a range of online programmes, and databases that manage over 1 500 simulators.

As an educational service hub, the CSDS provides and supports the delivery of standardised clinical courses for health care staff across the state – centrally and in hospital-based simulation centres. The latter are often contextualised for local needs especially in remote settings, with faculty receiving ongoing professional development. Mobile simulations and/or simulations embedded in clinical facilities are offered to assist transfer of learning. Facilities are locally owned and staffed, with the term 'pocket' simulation site used to describe the CSDS resources offered (simulation skills training, curriculum, simulators and audiovisual).

The CSDS model of delivery is designed to optimise economies of scale. The focus is on developing the support processes, governance and technologies to distribute instructional programmes, while reducing overhead and duplications (7).

Health care simulation for advanced clinical skills in rural settings

Effective simulation education identifies characteristics of best practice (Box 1). Using virtual environments before and after locally offered simulations, primes learners and offers repetition to assist with the application of newly learned skills.

Box 1:
Elements of effective simulation (19)

1.	Feedback
2.	Deliberate practice
3.	Curriculum integration
4.	Outcome measurement
5.	Simulation fidelity
6.	Skill acquisition and maintenance
7.	Mastery learning
8.	Transfer to practice
9.	Team training
10.	High-stakes testing
11.	Instructor training
12.	Educational and professional context

Source: McGaghie W C, Issenberg SB, Petrusa ER & Scalese RJ (2010)

An additional consideration in offering health care simulation to doctors working in rural settings is blended approaches - that is, multiple learning methods in the same programme. The CSDS have produced scenarios with decision tree algorithms for Criteria Led Discharge; Basic Life Support and Advanced Life Support; while Ambulance Victoria has produced the EMDM Triage Game©. However, developing virtual environments is expensive and requires highly specialised skills. Collaboration with developers of serious games is likely to lead to best outcomes.

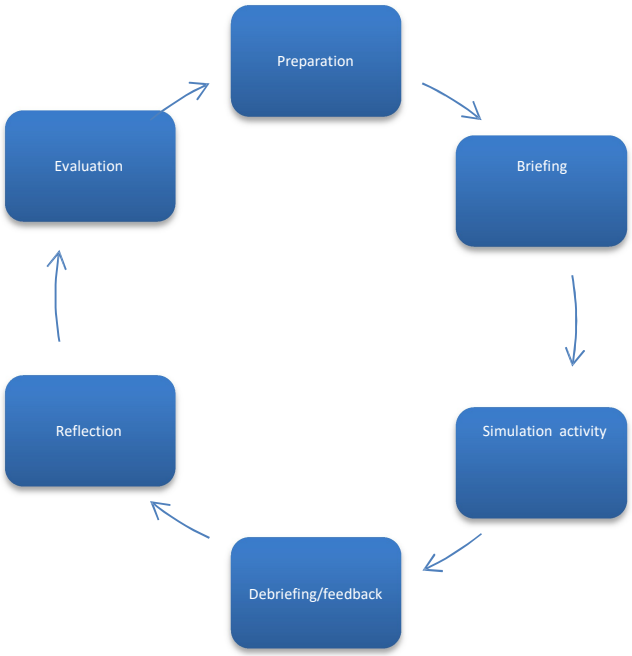
Although mobile simulation approaches (e.g. cars, vans, buses) have benefits by increasing access to simulators, programmes and faculty, these also have limitations. Programmes almost always need local contextualisation while co-facilitation is likely to increase engagement and build capability. Further, the more specialised the mobile unit, the more expensive it is to run – and there are limitations with the mobility of some simulators and technology. Examples of mobile simulation have been documented for surgical training (23, 24) and for other clinicians (25).

Where doctors are brought from multiple sites to a central location this may help to maximise peer exchanges.

Simulation programme design

Any educational programme requires careful design. After a needs analysis, it is important to make learning objectives explicit, consider human and physical resources (e.g. faculty, simulators, learning environments etc) and availability of learners. Systematically working through phases for simulation-based education assists planning (Figure 1)(26). The phases acknowledge features of simulation and contribute to the effectiveness of the educational experience.

Figure 1:
Phases in simulation based educational activities [26]



Source: Jolly B and Nestel D (2012)

During preparation, learning objectives are established and scenarios developed. Careful preparation and briefing is key to making sure that simulations run to plan, while the debriefing/feedback phase is critical to establishing the lessons to be learned. While the reflection phase is essential for participants to internalise these messages, for the faculty, the evaluation phase is critical to identifying what could be done to improve the simulation prior to its next deployment. There are several theories which inform simulation practice and are increasingly profiled in the literature - but this is beyond the scope of this chapter (8, 27-29).

Case study 1: Rural Emergency Skills Training in Gippsland, Victoria

The Rural Emergency Skills Training (REST) programme was developed in 2002 by prominent rural general practitioners (GPs) led by David Campbell, funded by the Royal Australian College of General Practitioners (30). Initially run under the auspices of Rural Workforce Agency Victoria, the Australian College of Rural and Remote Medicine now delivers REST as a national programme.

It is common practice for rural GPs to stabilise and then transfer a critically ill patient using skills, knowledge and resource limitations, as reflected in the REST course. The aim of the programme is to enhance skills in initial management of medical emergencies in rural areas (Table 1). It was designed to bridge the gap between courses such as the Emergency Management of Severe Trauma and the Advanced Paediatric Life Support and the reality of rural general practice.

Key to REST is recruitment of rural doctors to teach their peers. Based on the understanding that the approach to emergency presentations differs from that of other clinical presentations, a structured approach following the ABCDE paradigm is followed, with an emphasis on assessment and immediate intervention when life-threatening conditions are identified.

Scenarios

Scenarios are either medical or trauma and address either children or adults. They are based at local rural hospitals and usually adapted to reflect local facilities (and times).

Scenarios commence with a description of the scene where the illness or accident occurred, information about mode of transportation to the clinic (usually not by ambulance) and basic information about age and initial assessment observations. The participant is allowed time to prepare (calculate weight, fluid requirements etc.) prior to commencing the simulation.

There are some guidelines about how the scene will play out, depending on certain management requirements. For example, the patient will deteriorate if oxygen and fluids are not commenced promptly, whether there is a requirement for a chest tube, intubation or other interventions to treat the injured patient. Remaining information is provided by the faculty in response to the likely observations of the patient given the treatment provided by the participant.

Table 1:
Summary of characteristics of simulation phases for case studies

	Case study 1: **The REST Program, Gippsland, Victoria**	**Case study 2:** **Interprofessional simulation based education, Riverland and Mt Gambier, South Australia**
Learning objectives	Participants will be able to: 1. Improve their knowledge of emergency situations 2. Learn manual skills applicable to the management of emergency situations. 3. Rehearse the critical thinking required for the structured approach to the critically ill or injured patient 4. Have increased confidence in dealing with emergency situations by themselves. 5. Bring about a change in their attitude and approach to emergency situations in their practice. 6. Identify ways they can continue to practice and prepare for future emergency situations. *From REST Instructor Manual ACRRM February 2011*	Participants will be able to: 1. Manage commonly presenting emergencies in rural practice using best practice protocols when available 2. Demonstrate good quality Basic Life Support and Advanced Life Support 3. Demonstrate effective communication within the local team and with METSTAR retrieval services 4. Effectively use leadership skills and a healthcare team to manage an emergency.
Target participants	Two groups of doctors: Established rural doctors who require emergency medicine training Doctors new to rural practice o International medical graduates o General practice registrars o Urban doctors planning on working in rural settings e.g. providing locum relief for remote practices Preferred ratio is 4 participants to 1 instructor Groups usually have 18 to 25 participants	General Practice registrars Registered Nurses and/or Enrolled Nurses Preferred ratio is 4 participants to 1 instructor Groups usually have 8 to 12 participants

	Case study 1: The REST Program, Gippsland, Victoria	**Case study 2: Interprofessional simulation based education, Riverland and Mt Gambier, South Australia**
Setting	Any facility with sufficient rooms to allow five small groups to participate in skills training, use of wall dividers is acceptable in some larger rooms. One room to fit the whole group with lecture, presentation facilities and a table for demonstration scenarios	Simulation facility that has; Clinical skills training room Simulation room Control room with and audiovisual capture Debriefing room with audiovisual review
Programme length	2 full consecutive days	2 full days separated by 4-6 weeks
Faculty	5 faculty with one designated lead; All are experienced rural general practitioners (occasional exceptions – other Rural Doctors, paramedic)	3 faculty ideally interprofessional; All are experienced medical and simulation educators 1 admin support
Equipment/ Simulators	2 adult manikins; 2 pediatric manikins; 1 child manikin; 1 intravenous torso; 1 cricothyroidotomy head or animal carcass alternative (sheep or kangaroo carcass); defibrillator; heart simulator; some manikins must have advanced life support capability for endotracheal intubation; CPR capable manikins are required for the basic life support assessment	BLS/ALS manikins, Resusci Anne Simulator or SimMan; 1-2 simulated patients; clothing and wigs; moulage; resuscitation trolley; defibrillator capable of pacing, medications, airway equipment, intravenous equipment and fluids; oxygen and CPAP machine; chest drain & needle decompression trainer; difficult airway equipment including; cricothyroidotomy equipment and trainer; protocols/flow charts/Australian Medicines Handbook
Preparation	Standard equipment including cervical collars, oxygen masks and tubing, cannulae, syringes, chest tube kit, cricothyroidotomy kit and fluids with tubing are located in each simulation room; Either 4 or 5 rooms with participants moving between with scenarios repeated for each group in any room	Set up skills stations, manikins and scenario props: Train SP(s); Update program and scenarios as needed, distribute to faculty; Participants have pre-reading; Ensure all equipment working (Audiovisual, manikins)
Briefing	Participants are advised about the scenarios – 1 medical patient and 1 trauma patient; Demonstration scenarios performed by instructors and increases participants understanding of their roles in the simulation and expectations of the course	Communicate with participants running of day (scenario and de-brief); Orientate all participants to simulation room and equipment; Organise teams for each scenario (Leader and other roles); Confederate to give ISBAR handover to first nurse

	Case study 1: **The REST Program, Gippsland, Victoria**	**Case study 2: Interprofessional simulation based education, Riverland and Mt Gambier, South Australia**
Simulation activity	Skills stations - enable practice of basic airway management, advance airway management, surgical airway, defibrillation, ECG recognition, interosseous and central line venous access and chest tube insertion Scenarios - feedback on signs and observations provided by the instructor; emphasis on assessment and treatment of airway breathing and circulation, intubation dependent on scenario and manikin specifications, cannulae not inserted into manikins during scenario but response to effect of fluids provided obtained by asking about current observations using structured approach ABCD etc.	Ice-breaker scenario Skills stations - resuscitation, simple and complex airway management, CPAP, cardiac pacing Scenario with 3 participants and other participants active observers in de-brief room using AV equipment
Debriefing/ feedback	Feedback is provided to participants throughout the course using positive and constructive detailed oral feedback Following the course, written feedback on skills station Formal mentoring arrangements	Each scenario is de-briefed using a variety of techniques but always participant led, non-judgmental and focus on positives. Use of video review Discussion on clinical and professional skills (communication, leadership and teamwork)
Evaluation	Pre- and post-program MCQ tests; Basic life support skills station, satisfactory participation in skills stations such as defibrillation and cervical spine immobilization, lead for two simulation scenarios during the course and Final assessment scenario; Post program evaluation forms are completed by participants and faculty	Pre- and post-program MCQ test; Post-program evaluation forms are completed by all participants and faculty
Frequency of offering	2-3 courses are held most months of the year throughout Australia	All GP registrars complete one, 2 day workshop in the first year of their training

Strengths and limitations

This course has created a network for rural doctors to improve and maintain their own skills in emergency medicine and gain teaching experience in simulation and providing feedback.

Many former REST faculty now populate universities and regional vocational training providers. The ability to instill confidence into the migrant medical workforce facing the management of rural emergencies is a benefit enhanced by the provision of rural education services for students and general practice registrars by educators trained through the delivery of REST.

While there is clearly a limit to the depth and number of emergency scenarios available per participant in a two-day course, the degree of improvement in confidence and skills observed in many participants over a weekend is considerable. Retention of newly acquired skills and knowledge is likely to be an issue, however, unless the participant is given opportunities to undertake further courses within a few months or is in a supported workplace with easy access to multiple emergencies both medical and trauma.

The programme, now offered nationally, requires transportation of manikins across Australia in heavy boxes that do not always fit into the lifts of older style venues.

Case study 2: Interprofessional simulation based education in Riverland and Mt Gambier, South Australia

The Sturt Fleurieu General Practice Education Training is designed for trainee GPs and aims to prepare participants for managing common emergency presentations. The programme was developed in 2002 in Adelaide at Flinders University. However, it was recognised that offering the programme rurally, where a proportion of participants were located, would be cost effective by reducing days away from practice, transport, accommodation and backfill costs.

Since 2007, experienced medical and simulation educators now support participants rurally in offering the two-day emergency simulation component of the programme. The challenges of working in a rural environment are shared and scenarios contextualised. This includes managing emergencies with smaller health care teams often working with less sophisticated equipment and, learning when and how to engage a retrieval team to transfer the patient for tertiary care (Table 1).

The facilitators are three local health care professionals. As the numbers of participants are relatively small, there was an opportunity to invite nurses as participants too. The programme aims to have equal numbers of doctors and nurses.

Scenarios

The workshop uses blended learning with preparatory reading, clinical skills stations and complex scenarios that replicate common accident and emergency presentations - cardiac emergencies, respiratory emergencies and major trauma. One scenario involves a simulated plane with a passenger, 'Annie' (manikin), who becomes unresponsive.

The learning outcomes include interpretation of the Good Samaritan Act and resuscitation in a confined space. Scenarios are delivered through manikins and hybrid simulations (task trainer and an SP). In one scenario, the SP has an anaphylactic reaction which forces a high level of communication and as the patient progressively deteriorates, if initial management is unsuccessful, the scenario moves onto a manikin to allow invasive procedures to be demonstrated.

Strengths and limitations

The two-day workshop uses a distributed model with four to six weeks between workshop days – which allows consolidation of skills, further reading and reflection on learning. This is also useful for general practices as it reduces the number of days out and caters for participants who learn at different rates.

Success of the programme includes the focus on creating a safe learning environment through non-threatening educational methods, investing time in introductions, paying attention to briefing for tasks, and facilitating interprofessional teams working together. From the first session, those involved could see the benefits of having a realistic rural team dealing with the emergency simulated scenario. It is now standard practice that all workshops are interprofessional and participants value the method (31-33).

Assessment is limited to knowledge of emergencies but does not assess any human factors, a focus of the scenarios. Retention of knowledge and clinical skills competency is outside the scope of the programme but is a first step for other advanced skills programmes.

The learning experience is always rated very highly and consistent themes include teamwork, leadership, communication and implementing a structured management approach.

Albeit a passionate faculty, the pool is small and there has been limited succession planning. Each rural site only delivers the programme once or twice annually, limiting opportunities to train more faculty. Sustainability is a challenge as the programme is resource intensive and therefore expensive, requiring faculty, SP, equipment wear and administration costs.

Broader applicability/implementation

These case studies demonstrate the complexity of setting up effective simulation programmes of advanced clinical skills in rural settings. They also draw on many of the elements in Box 1.

Although the programmes have similarities, there are also differences. In the first case study, the faculty are not necessarily local and are almost always medical while in the second case study, local interprofessional faculty offer the programme to interprofessional participants. In the first case study, simulators are transported nationally while in the second, local simulators are used. Both programmes offer some form of assessment. The programmes could benefit from pre- and post-programme virtual simulations.

Although neither programme documented needs analysis as part of their specific preparation, the REST programme was developed in response to generically identified needs and implemented nationally while the second programme is tailored for local needs.

Practice pearls

As for most educational activities, it is important to conduct a needs analysis prior to the delivery of simulation-based educational programmes.

Seek the experiences of others in simulation-based educational programmes and build on their successes.

Consider the factors known to lead to effective outcomes for simulation-based education.

Use a systematic approach to programme design to maximise the educational benefits.

Ensure faculty is well supported in using simulation as an educational method.

Develop a plan for sustaining programme delivery.

Conclusion

Simulations programmes need to target areas of need, with sustainable solutions that provide access and exposure to develop and maintain clinical knowledge and skills. A needs analysis prior to implementing simulation-based education is valuable. Aim for simplicity in simulations that target the learning objectives, and consider ways of adopting blended learning with priming and follow-up online resources.

As 'buy in' from faculty and participants is critical to sustainability, establishing programmes around local issues will increase success. Sustainability of simulation-based programmes involves strategic approaches to simulation educators, simulators and programme design. When deciding on the extent to which an existing programme meets the needs versus a newly tailored programme, ensure you document why an existing programmes does not meet needs, and assess how your changes have improved local outcomes.

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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Chapter 5.2.4

ADVANCED SKILLS TRAINING FOR RURAL DOCTORS

James Douglas
National Health System Education Scotland, United Kingdom

Introduction

The growth of emergency training courses has fulfilled a need for doctors who are worried about the unexpected.

Difficulties in recruiting and retaining doctors for remote and rural general practice have made employers nervous about expecting exacting standards and up-to-date certification – and urban doctors who wish to make a career in rural practice may feel nervous about being clinically exposed to road accidents, paediatric emergencies or medical collapse. In addition some rural doctors report losing clinical confidence regarding emergency skills and procedures which were familiar to them as young doctors. This may be due to lack of practice, a more realistic awareness of what can go wrong, or a feeling that the drugs and technical issues have changed significantly.

Locum cover and funding are long-standing barriers to postgraduate training for rural doctors, however, and many professional organisations can paradoxically undermine pragmatic clinical self-confidence with guidelines and procedures which are written by specialists working in urban units with big teams and large numbers. They may have little understanding or experience of being a single-handed clinician in a rural leadership role.

Learning principles and approaches

The term 'clinical fire drills' has been suggested (1) to cover the planning, training and organisation of emergency skills courses for rural practice. This is based on the concept of fire drills in buildings where, to prevent loss of life, regular practice, co-ordination, organisation and reflection is undertaken in anticipation of a rare event which everybody hopes will never happen. When an event does happen, everyone must behave calmly, methodically and on autopilot in order to save lives. The same concepts can be applied to rare clinical emergencies in rural practice. Rural doctors require self-confidence and a calm inner demeanor which communicates to those around them that they can cope with anything that is presented to them.

The principle of learning together, and from each other, is important in clinical team learning. For example, a tertiary specialist could present a clinical case or a procedure to a primary generalist team, and the learning could be triangulated with practical scenarios. Thus, the tertiary specialist can understand the issues relevant to the rural generalist and the rural generalists can swap personal experiences in front of the tertiary specialist. This is best illustrated with helicopter retrieval teams who come out to train rural generalists. In these cases, the sessions are moderated and facilitated by a local generalist team leader; roles are demonstrated and practised and mutual professional respect encouraged.

It is important to develop a shared educational language between trainers and trainees. The learning clinicians need insight into their own learning processes during fire drill courses; medical jargon such as 'brain stem knowledge' and 'brain stem response', as a metaphor between anatomy, education and their own reflex response in an emergency, may help doctors understand themselves. An analysis concept such as learning to ride a bike or drive a car can give the learner insight into skill acquisition, skill decay and requirements for re-testing with such complex skills. Considerable resource allocation is needed to train and maintain confidence in clinical safety. With so many complex variables with which to predict skill decay, easy methods of self-diagnosis and reinforcement need to be developed.

Formative educational needs assessment processes and professional appraisal processes may need to recognise that people who frequent attend skills courses may be the 'worried educationally well' who, in analogous patient circumstances, would be attracted to health screening programmes. The Inverse Care Law is just as likely to apply in this educational analogy of needs – namely that those that need the educational intervention most, may be the least likely to attend, just like a health promotion initiative.

The educational term 'fidelity' is used to describe the closeness of the representation to a real clinical situation (2). Thus in immediate care training outside the classroom at the roadside with crash simulation, cues such as noise, smell and team work all aid the retrieval of Airway Breathing Circulation principals.

'Over-learning' refers to training beyond that required for initial proficiency; repetition reinforces learning to increase confidence and decrease stress. Over-learning is the single most important factor with which to mitigate against skill decay.

Skill acquisition and retention

Skill decay is defined as the loss - or 'decay' - of a trained or acquired skill (or knowledge) after periods of non-use.

Skill retention depends upon how the information was encoded and the cues present for retrieval. Task factors, learning factors and time all influence skill acquisition, retention and decay (3). 'Close loop tasks' - such as pre-flight checks and other fixed sequence tasks with a definite beginning and end - decay more slowly than 'open loop tasks' - such as tracking and problem solving in aircraft on human factors analysis review. Physical tasks decay more slowly than mental tasks. Community studies of cardio-pulmonary resuscitation training have shown a significant decline in skill retention over the six months (4). Ergonomic evidence suggests that after 365 days of non-use, skill decay has reduced to the level of competence of 92% of what it was on the original day of practice.

E-learning offers considerable potential to develop subsequent quick tests and picture reminders of key points at six weeks and six months after the practical skills course but lacks an evidence base for efficacy in reduction of skill decay. Re-accredidation of neonatal resuscitation drills has been successfully performed over video links to remote clinicians who have previously attended central skills courses (5). The potential reduction in travel and locum cost to certify re-accredidation for governance targets is considerable.

Illustrative anecdotes

There are many examples of rural doctors coming across road traffic accidents or having to deal with cardiac arrests in their waiting rooms. In such scenarios the doctors will report considerable confidence if they have recently attended a clinical 'fire drill' style course. Course attendees at emergency skills training courses will report a warm educational glow of confidence for three to six months after attending the course. The ergonomic evidence suggests that an opportunity to use the skill in a real situation within three months of attending a course greatly enhanced the learning and subsequent skill acquisition. This effect is borne out by anecdotes but is very difficult to prove objectively.

Broad applicability

Clinical fire drills are required to plan for unexpected clinical emergencies with the potential for loss of life or serious morbidity. These events are relatively rare but cannot be predicted in advance despite health prevention and a chronic disease management. The remote and rural clinical generalist has to maintain skills during long periods of non-use compared to clinical specialists who deal with many cases in an urban setting. Practical emergency skills training should include obstetrics, paediatrics, pre-hospital trauma care and pre-hospital life support.

Major incident planning in large urban settings is centred around train crashes, plane crashes, terrorism or natural disasters. Major incidents are called when the emergency services become overwhelmed. Compound major incidents occur when the normal infrastructure such as roads and telephone systems are also damaged as a result of natural disasters. A motor crash involving a mini bus may be a weekly occurrence to an urban pre-hospital trauma care team and not require a major incident response. However in a remote and rural location a car crash with three or four seriously injured people may quickly overwhelm the local generalist team with numbers and geography. Thus Advanced Clinical Skills Training is an essential part of continued professional development for rural health teams.

Arran Resilience is an award winning island network of emergency services who train on location and network electronically (6). Fire, police, ambulance, lifeboat, mountain rescue, civil authority and health service bring added value to remote island major incident responses by inter-team collaboration, personal relationships and leadership.

What is the evidence?

There is a lack of educational research about emergency skills training for doctors. The setting and frequency of training courses has no evidence base to inform educational needs assessment – and there is no theoretical medical education model on the acquisition and retention of skills that can be applied to enhance course design and delivery for trainers and learners on emergency skills training courses. As such, a pragmatic approach has to be adopted.

Practice pearls

What to do

Take the training to the learner.
Learn in multi-professional teams.
Undertake scenario-based learning.
Plan high fidelity skills teaching with over-learning and repetition.
Hold residential courses over a weekend in a hotel.
Ensure a mixture of national and local teaching faculty.
Play a long game - with repeat attendance at basic and advanced level courses.
Explain the learning theory of 'clinical fire drills' on every course.
Join the local emergency teams together for major incident training.
Network the local teams with a website and forum.

What not to do

Don't start with a new requirement to pass an exam at the end of the course.
Don't allow teachers who are destructive.
Don't allow point scoring and posturing teachers.

Conclusion

Advanced skills training saves lives and aids recruitment and retention of remote and rural health professionals. Clinical 'fire drills' keep health professionals ready for unexpected emergencies and matter a great deal to rural doctors and patients when the unexpected does actually happen.

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secretariat@wonca.net

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Chapter 5.2.5

THE MAKING OF A RURAL GENERAL SURGEON

G William N Fitzgerald
Charles S Curtis Memorial Hospital, Canada

"The value of experience is not in seeing much, but in seeing wisely."
Sir William Osler (1849 – 1919)

My experience as a general surgeon, hard won a case at a time over a lifetime of service in a small rural hospital, has certainly shaped my thinking. Whether my opinions convey wisdom I leave to the reader to judge.

Background

I was in fact born, raised and educated in Toronto and am a proud graduate of the Gallie Surgical Training Program. As a medical student I had the opportunity and good fortune to spend the summer months between 3rd and 4th years at The Charles S Curtis Memorial Hospital in St Anthony, Newfoundland (Figure 1).

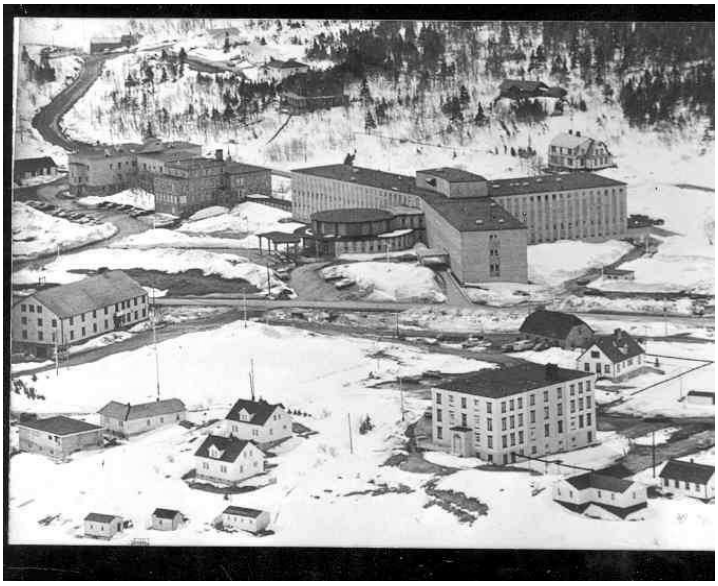


Figure 1:
The Charles S Curtis Memorial Hospital in St Anthony, Newfoundland

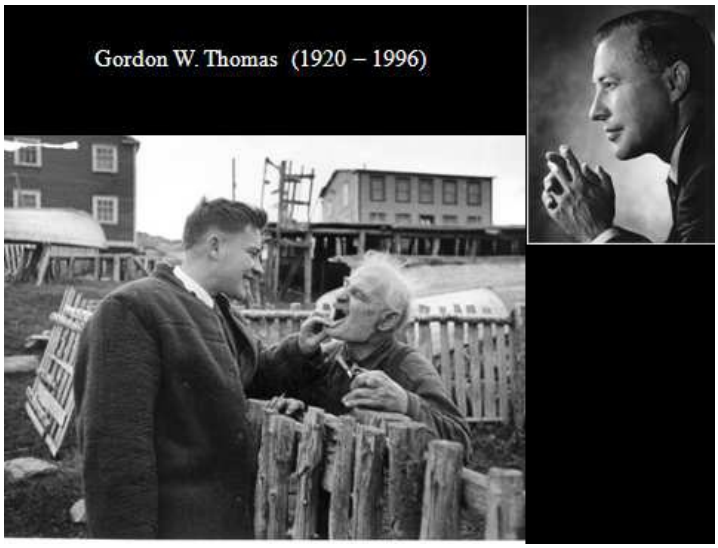


Figure 2:
Dr Gordon W Thomas – an impromptu consultation

There I met and was immensely influenced by Dr Gordon W Thomas, master surgeon who became my mentor and, in time, my colleague and friend (Figure 2).

I was that summer introduced to a demanding and eclectic surgical practice in a sub-arctic environment serving a population living in small communities scattered over a vast area the north-south extent of which is equivalent to the distance between Toronto and Quebec City.

Origins

The Grenfell Mission, as it was then called, was founded by a young London (England) trained doctor, Wilfred Grenfell. In 1892 Grenfell, a dynamic, charismatic muscular Christian of the Victorian era, was sponsored by the Royal National Mission to Deep Sea Fishermen to bring medical aid and spiritual succour and, I might add, tobacco(but not the demon rum) to the seasonal fishing fleet plying the waters off Northern Newfoundland and The Labrador (Figure 3).



Figure 3: Northern Newfoundland and The Labrador

Grenfell had been a 'dresser', as residents were then called, to the famous Sir Frederick Treves of the London Hospital who, on the eve of Edward the Prince of Wales' coronation in 1902 had the temerity, when such operations were not fashionable, to operate on the future King for acute appendicitis thereby delaying the ceremony but probably saving his life. Much to the chagrin of my own students, I am reminded of the Treves / Grenfell connection every time I do an appendectomy and encounter the *ileocolic fold of Treves*.



Grenfell administering open drop ether anaesthesia on a kitchen table

It was never intended that the seasonal fishermen would over-winter on the Coast of Newfoundland and Labrador. Many chose to do so, however, preferring these deprived circumstances with all their uncertainty to the certain hardship of the British slums (Figure 4). It was the plight of these settlers and the indigenous peoples of The Labrador that prompted Grenfell to return the following year and to establish the first hospital on the coast at Battle Harbour on The Labrador.

From this modest beginning grew a system of hospitals and nursing stations providing comprehensive, integrated, interdisciplinary health care and social services. These included schools and orphanages, a dry dock, a fishermen's co-operative, and an industrial / handicraft department (roughly equivalent to occupational therapy) where the injured and other challenged individuals could learn skills that translated into a means of making a living. Attempts to introduce similar regional integrated comprehensive care elsewhere in Canada today often are met with considerable resistance, largely based on protection of 'turf'. This is unfortunate given the stresses on the system.

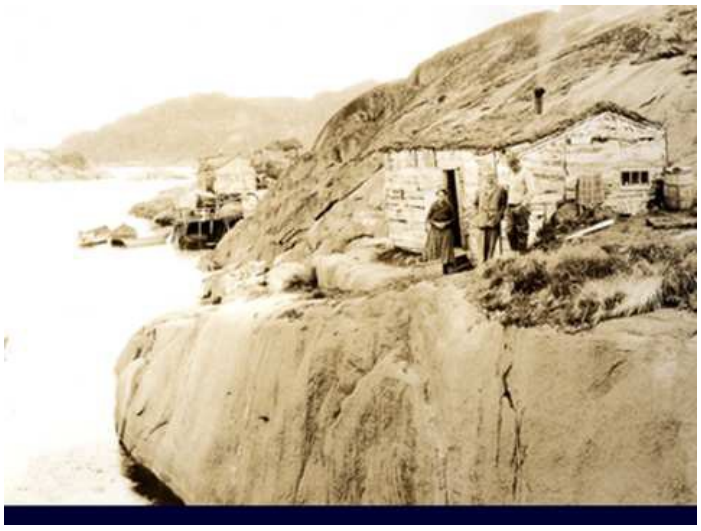


Figure 4:
A fisherman's dwelling on the coast of Labrador, early 1900s

The medical records of the Mission which now span more than a century are a rich source of social commentary. The following are entries from the early 1900s:

> Father died of gangrene following a wound to the leg.
> Father drowned.
> Father died of paralysis having been struck by a ship's boom.
> Mother died during childbirth.
> Has five brothers and five sisters three of whom died in infancy of whooping cough.
> Mother died of a gathering in the bowels, an abscess or tumour with foul suppurative discharge, following a blow received from the horns of a cow.
> Mother paralysed for six years, has cough and spits blood all the time.
> Father is crippled in the knee with 'rheumatism'. One brother and one sister died of consumption.

Although in the early days every doctor was expected to turn his hand to surgery as circumstances required, Dr John Mason Little was the first surgeon to arrive on the coast. Little was trained at the Massachusetts General Hospital and subsequently toured the clinics of Europe as was then fashionable. He spent ten years in St Anthony from 1907 – 1917. In January 1909 he was confronted by a teenaged girl with Jacksonian epilepsy. Her seizures began as an *aching queer feeling in the right index finger* and progressed in time to full blown generalised convulsions. She had experienced episodes of status epilepticus lasting up to 28 hours. *Owing to the increasing severity and frequency of the attacks and their localising character operation was strongly advised and accepted.* (A stellar example of *informed consent*!)

Little went on to perform a craniectomy under chloroform and local anaesthesia and attempted, unsuccessfully, to identify the epileptogenic focus by stimulation of the surface of the brain. He nonetheless removed a divit of motor cortex. The patient recovered *uneventfully* and when seen up to two years later had had no further seizures. All this is meticulously documented in the chart complete with a diagram of the home made electrode (Figure 5). Two other similar cases are on record. These probably represent the first such cases ever attempted in what is now Canada.

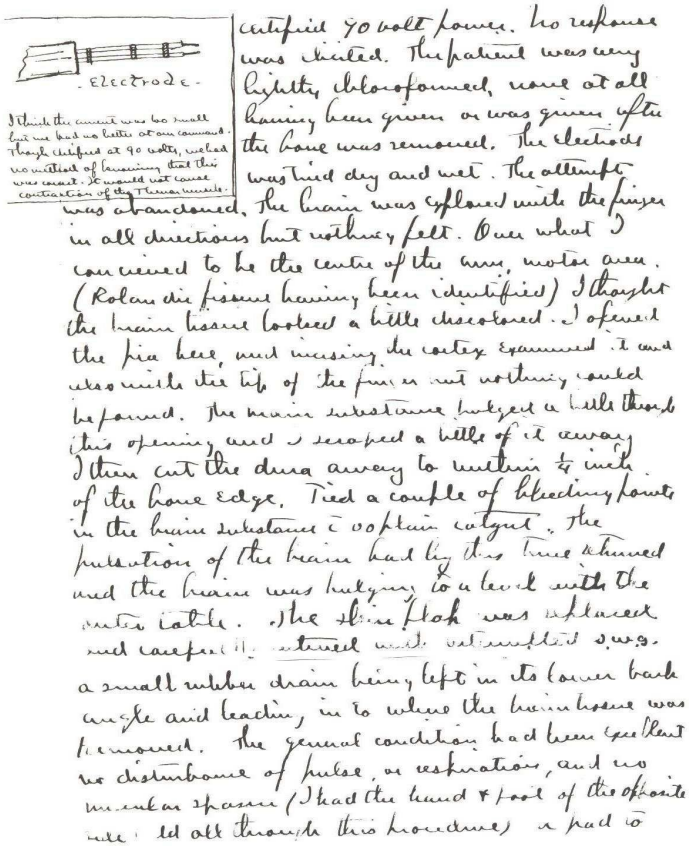


Figure 5:
Dr John M Little's Operative note, 1909

Recent history

By the time of my arrival in St Anthony in the late 1960s, TB was on the wane and the pattern of disease was beginning to reflect that seen elsewhere in Canada. What was emerging was an astounding number of, often young, patients with chronically infected draining ears. Occasional visits from ENT[1] surgeons were not satisfactorily addressing the problem. Typically the specialist would arrive, see a hundred patients, operate on a dozen of them and disappear at the end of the week leaving me holding the bag – itinerant surgery at its worst. At the completion of my general surgery training I would have recognised blood behind the drum in a trauma victim but knew precious little else about the ear!

1 ENT = ear, nose and throat (surgeons)

Fortunately the hospital had a very enlightened sabbatical programme which allowed one to reflect, refresh and renew and acquire new skills provided one was prepared to return for at least one year. Accordingly I spent a year studying ENT surgery with Dr Jim Baxter and colleagues at McGill in Montreal. They were at that time providing ENT services to the Baffin Zone and were familiar with the problems we were confronting. I have passed many fascinating hours doing mastoidectomies and other ear surgery. Fortunately this problem figures less prominently as living conditions on the coast improve and residents enjoy the benefits of safe warm houses with running water and less overcrowding.

Other sabbaticals have been spent in Toronto and Halifax and in Nigeria and Uganda. The African experience was an education in every sense of the word and I highly recommend it. You learn far more than you teach – often about yourself - and that, sometimes, not very flattering! I went for altruistic motives but also because an increasing number of students and young doctors coming through our facility intended doing overseas work and I wanted to learn first hand what they most needed to know.

I beg the reader's indulgence in the foregoing reflections for I believe they illustrate several important issues.

General surgery in rural areas

Definition: General Surgery

The definition of 'general surgery' is itself contentious. Some facetiously suggest 'general surgery' is what remains after all the lucrative bits have been lopped off! To be sure a generalist in any field must be broadly skilled and exhibit a demeanor that revels in variety and the unraveling of the patient with undifferentiated problems.

Generalism is simply a patient-centred philosophy of care with an undertaking that the patient's problems will be identified and addressed**.** In many cases the generalist will take on an advocacy role, collaborating with other health care professionals in the management of the case. It does little for the patient or the system if I, as a general surgeon, operate on the ingrown toenail ignoring the fact that this diabetic patient has blood sugars wildly out of control, has a serum creatinine of 500 μmol/L , is a paranoid schizophrenic with substance abuse problems and is about to be evicted from her boarding house!

Exposure

When it comes to the production of surgeons willing and able to work in rural Canada the system has largely failed. We have in fact been training in the same way for years, hoping for different results. That is Einstein's definition of insanity! Not surprisingly residents trained mainly in tertiary teaching centres and mentored mainly by sub-specialists turn out to be, mainly, sub-specialists who feel comfortable working only in tertiary teaching centres! And, not surprisingly we now have graduates of Canadian programmes who cannot find a job.

To some degree this is symptomatic of a system that has evolved to convenience the profession. To be sure it is more efficient to deal with a large number of like patients within a narrow field. One becomes very comfortable and expert within these parameters but one soon finds oneself decidedly uncomfortable if confronted by patients with problems outside one's usual practice - even if they present with problems that would traditionally be dealt with by general surgeons and are included in the training objectives for our residency programmes. Had I not been exposed to the challenges and rewards of remote surgical practice in my formative years, my career would have taken a completely different course. I had intended to pursue neurosurgery – and as it happens, lumbar disc disease and spinal stenosis constitute a significant part of my practice. I do not crack heads except in extreme emergencies but believe every well trained community surgeon should be prepared to deal with the acute, life threatening haematoma.

I believe it important that students and junior residents be exposed to rural settings early in their training. It is also important that senior residents receive training in the rural setting where they may be expected to return to practice. This gives them a realistic idea of the demands of that community, allowing them to tailor their training to meet the same. It also allows the senior trainee to take a major role in the surgery and care of the case, building both competence and confidence.

Community surgery requires expertise in related specialties such as orthopaedics, urology, minor plastic surgery, obstetrics and gynaecology and interventional radiology. These basic skills must be offered during residency training. It is unreasonable to expect individuals to pursue postgraduate fellowships to acquire them. If we cannot turn out a surgeon safe to be let loose on the unsuspecting public after five or six years (or more) of residency training, that same tax paying public has the right to ask why not?

Other developed countries including the USA, Australia and Great Britain face similar challenges. Many, including Canada, resort to poaching surgeons from less wealthy nations to provide the required services in rural and remote locales. To me this is unconscionable. Canada, a rich western nation should be a net exporter of health care professionals.

Is there a role for the general practitioner surgeon?

I believe there is a role for the general practitioner with added surgical skills. I believe, however, they should be trained and mentored by general surgeons and, though expected to work independently within their scope of practice, they should have ready, reliable access to general surgical backup, mentoring, advice and timely referral.

Mentoring surgeons

I have related how Treves promoted Grenfell, who recruited Little, who passed the baton to another Bostonian, Charles Curtis (after whom our hospital is named) and who himself mentored Thomas, who so influenced me. One may find a mentor anywhere – indeed sometimes in the most unlikely of places – but only if one visits that place and does so with an open mind.

"If I have seen further it is by standing on the shoulders of giants"

Sir Isaac Newton (1642 – 1727)

This quotation is very apropos. Surgery is a profession in which apprenticeship continues to play a very significant role. We all have our mentors and with this advantage comes the responsibility to mentor others. Indeed the very word 'doctor' means 'teacher'. We teach our students, our colleagues, our patients, ourselves, our communities. We teach, often formally, but we teach for better or worse, by example.

Medical or surgical expertise and operative technique are certainly important but it is the soft competencies of the CanMEDS daisy that are hardest to mentor. Unethical behaviour, the squandering of resources, lack of professionalism, inability to communicate with patients and colleagues or to collaborate in a team, unwillingness to advocate on behalf of a patient are the issues that often come back to bite us in court and lead to dysfunctional relationships with patients and

colleagues. Our example is more apparent in a smaller community where our identity is well known and our influence may therefore be relatively greater. This is particularly true when it comes to lifestyle and the issues that influence the true determinants of health.

My own introduction to St Anthony was as a student - and over the years, literally hundreds of students and young doctors from Canada and around the world have rotated through our facility. Our affiliation with Memorial University ensures this experience is formally recognised. I would not be practicing in St Anthony today were it not for my continuing interaction with the bright young inquiring minds of our students and residents. There are physicians and surgeons across Canada and indeed around the world who cut their teeth in St Anthony . This is a great source of satisfaction and, when they have become my teacher, the greatest compliment. There are many community surgeons who would feel similarly. They are a valuable but underutilised teaching resource.

Research / academia

Academia is more a state of mind than a place of residence.

Research in the community or rural setting is likely, however, to be case-based and to focus on local problems rather than basic science or bench research.

In St Anthony we have an interest in Hereditary Non Polyposis Colon Cancer (HNPCC) going back more than thirty years. The journey from clinical recognition of the phenomenon to collaboration with the molecular biologists at Memorial in the application of increasingly sophisticated genetic testing has been a fascinating one that has benefited literally hundreds of patients and their families. There are some 35 families in the region who fulfill the Amsterdam Criteria for HNPCC and many other families of clinical concern. Some 1 000 patients participate in our HNPCC Screening Programme which includes a two-yearly colonoscopy and endometrial aspiration biopsy and other investigations depending on family history and clinical circumstances. This is an example of collaboration between a community hospital and a university centre at its best.

Sabbatical leave is most often associated with the ivory towers. I have demonstrated how the concept was used to advantage in my practice and suggest, with the emphasis of upcoming generations on balanced lifestyle (and rightly so) that sabbatical time will increasingly figure in contract negotiations. This I applaud.

Professional associations

Professional bodies such as The Canadian Association of General Surgeons and The Royal College of Physicians and Surgeons of Canada strive to represent members working in all locales. They can speak to the concerns of community surgeons only insofar as this constituency is represented and active in the life of these organisations.

My own experience in this sphere on the executive of The Canadian Association of General Surgeons and of the Royal College have been immensely rewarding personally and professionally. I have made contacts and fast friends with individuals across this country whom I otherwise would never have met. To have had a hand in the success of the now established and growing Canadian Surgery FORUM and to have attended the birth of the Canadian Association of General Surgeons Residents' Association has been greatly satisfying.

History

At the outset I spent some considerable time detailing the history of the hospital in which I work. Contrary to oft touted opinion, Canada is rich in history. Every hospital and every community in this country has a history worth knowing. Making that history your own gives you ownership of that place and deepens your appreciation of your role in its unfolding story.

Lifestyle

In a small community, striking a balanced lifestyle is not always easy, and limiting clinical demands on one's time requires collaboration with colleagues on whose judgment one can depend. Just as in larger centres, operating room (OR) time is an issue. In my case, however it's how to get out of the OR!

In a smaller hospital one often has more influence when it comes to getting things done.

Schooling for the children and employment and / or fulfillment for your spouse are important considerations. The internet has made a tremendous difference in lessening the isolation of rural practice. Professionals in the periphery still require enhanced access to on-line textbooks and full text journals. This is a project I would dearly love to see the Royal College and National Specialty Societies tackle together on behalf of all specialists.

There are countless advantages to rural life that are beyond monetary value. Our living room window overlooks the harbour and catches the sunrise over the Atlantic. Within minutes we can be on a wilderness hike or on the cross country ski trails. We have no smog alerts, no traffic jams, no parking meters.

On returning from sabbatical in Montreal in 1980 I asked my four children – then still in early grade school – whether they would prefer to live in St Anthony or move to a larger centre. Unanimously and without hesitation they chose St Anthony. Why? Because St Anthony offered so much more freedom! Wisdom from the mouths of babes!

Indeed the extremes of weather we are increasingly experiencing as a result of climate change I suspect will encourage many people to move from our large, vulnerable, increasingly crime-ridden metropolitan centres to the relative security of rural Canada thereby increasing the demand for capable, broadly trained community surgeons. The same is true as the citizens of this country force governments to move from a resource-based economy with profit as the bottom line to sustainable development including security of food supply, reliable infrastructure, safe drinking water, housing and health care and equal opportunity for all Canadians.

The future of community general surgery

The patient with the undifferentiated surgical problem presents equally to hospitals of every description - from the large downtown teaching tertiary care facilities to small ‘cottage’ hospitals, and everything in between. The growth of sub- specialty interests in our teaching centres has been at the expense of generalists and community general surgery such that, reportedly, in some instances it may be difficult to find a surgeon in tertiary centres willing and able to take on such cases.

Certainly students and residents have few generalist role models to which to relate in our teaching centres. I would submit, the capable, enthusiastic generalist is best suited to interface with students in their formative years who are, after all, the life blood of the specialty. Furthermore, the university-based generalist is well placed to liaise with colleagues in smaller centres, including rural and remote facilities, breaking down the barriers that exist between town and gown, thereby promoting collegiality and facilitating collaborative practice, teaching and research – truly 'The University Without Walls'.

The tenets of generalism and community general surgery have a place in our teaching centres. These are just as necessary and just as legitimate as that of any sub-specialty in fulfilling our obligations to society under the social contract which confers on us the right to practice as a (largely) self governing profession in return for a guarantee that the medical needs of society will be met. That contract places a direct responsibility on the profession to organise to meet those needs. Failure to do so puts our status as professionals in jeopardy.

In the past I have resisted the idea of dividing our training programmes into 'Academic' and 'Community Surgery' streams for fear of creating two classes of general surgeon. In this day of competency-based education, I have been persuaded otherwise, however. Certainly we are today not meeting the reasonable expectations of the public when it comes to accessible community surgical care.

Community surgeons must possess the skills requisite to their communities of their choice. They must be open to learning from colleagues on-the-job and have access to ongoing traineeships and sabbaticals. Governments must commit to support well equipped and funded rural / community hospitals with sufficient personnel to permit a reasonable lifestyle.

Preserving rural surgical care – a modest proposal

> Establish a division of generalist general surgeons that bridge tertiary, community and rural hospitals intended to legitimise those who are broadly trained in all aspects of general surgery as currently understood. These services should be mandated to adopt a proactive 'Can do' philosophy.
> (Generalist surgical care certainly requires sub-specialty back-up, but can never be replaced by the same. On the other hand any hospital that purports to provide highly sub-specialised care (e.g. orthopaedics, neuro, cardiac) can not do so safely without strong general surgical backup.)

Include in the scope of practice of practitioners on such units that they deal with abdominal emergencies of every variety, trauma, surgical infection and participate in the surgical ICU.
In multiple trauma and other complex cases, trainees should have the opportunity to participate/collaborate with consultants in other disciplines (neuro, ortho, plastics, thoracic, vascular etc.) in case management.
Ensure that opportunities equally should exist for formal rotations on services (such as the above) – with elective/ emergent cases representing the spectrum of general surgery forming the foundation of such a service. Continuity of care should be central to its organisation.
As appropriate, encourage colleagues to participate in general call such that skills, judgement and confidence do not diminish with time.
Foster mentoring relationships intended to accompany the trainee into practice.
Develop imaginative, equitable, alternate funding plans that recognise case volume, on-call commitment, clinical teaching and research, length of service, continuity of care and include provision for sabbatical leave and other CME opportunities.
Seek to increase exposure of residents in senior years to the challenges and rewards of community, rural and remote practice.
Explore programmes designed specifically for family physicians with The Canadian Association of General Surgeons, The Royal College of Physicians and Surgeons of Canada and the College of Family Practice of Canada and The Society of Rural Physicians of Canada surgical training. Support the practice of graduates of such programmes.
Actively promote collaborative outreach projects with rotations of staff and residents to and from developing countries.

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small wages, bitter cold, long months of darkness, unrelenting call, broad responsibilities, return (to sanity) doubtful, honour, satisfaction and the gratitude of those you serve in successful cases.

In closing

Both literally and figuratively I hope soon to sail off into the sunset. I do so with some misgivings, uncertain that current training programmes are producing individuals with the right mix of courage, judgement, attitudes and skills to meet the challenges of community surgery. For me it has been the trip of a lifetime, a journey filled with surprise, satisfaction and infinite reward. Who, in future, will dare to follow on the path less travelled?

Further reading

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Avenue des Arts 7-8
1210 Brussels
Belgium

secretariat@wonca.net

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