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.

References

1. Miflin B, Price D. Rural Doctors are naturally effective teachers. *Aust JRH* 2;1:21-28. 1993.
2. Wronski I. Chairs and senior administrators for the Integrated Regional Clinical Training Networks, Health Workforce Australia. Adelaide, 2013.
3. Strasser R, Strasser S. *Distributed community engaged learning: Medical education in the 21st Century.* 13th Ottawa International Conference on Clinical Competence. Melbourne 2008.
4. Couper I. *Community of learners.* Closing address at ICEMEN (International Conference: Community Engaged Medical Education in the North) conference in Thunder Bay, 8–14 June 2008.
5. Worley P. *The immediate academic impact on medical students of basing an entire clinical year in rural general practice*. PhD Thesis; 2003.
6. Strasser R, et al Transforming health professional education through social accountability: Canada's Northern Ontario School of Medicine. *Medical Teacher* 2013; 35: 490–496.
7. Strasser R, Mulligan K. *Curriculum development for rural medical education* (poster & presentation). Biennial Australian Rural and Remote Scientific Health Conference, Toowoomba. 1994.
8. Hart G. Monash University Centre for Rural Health Seminar. Invited presentation at Centre for Rural Health, Moe, Australia.1996.
9. Byrnes PD. 'The curriculum walks through the door'. *Aust Fam Physician* 1996 Sept; 25 (9) 625-8.
10. Byrnes PD. 'Are they safe in there?' *Aust Fam Physician* 2012 Jan-Feb;41(1-2):26-9.

This article is a chapter from the ***WONCA Rural Medical Education Guidebook***.
It is available from www.globalfamilydoctor.com.

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

manager@wonca.net

Suggested citation: Strasser S. Undergraduate medical teaching in rural and remote settings. In Chater AB, Rourke J, Couper ID, Strasser RP, Reid S (eds.) *WONCA Rural Medical Education Guidebook.* World Organization of Family Doctors (WONCA): WONCA Working Party on Rural Practice, 2014. www.globalfamilyldoctor.com (accessed [date]).