Chapter 2.1.3

DEVELOPING A NEW RURAL MEDICAL SCHOOL IN NORTH AMERICA

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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.

[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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