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).

References

1. Trickett P, Titulaer I, Bhatia K. Rural, remote and metropolitan area health differentials: A summary of preliminary findings. *Australian Health Review* 1997; 20(4):128-37.
2. Wise A, Hays RB, Adkins P, Craig M, Mahoney P, Sheehan M, Siskind V, Nichols A. Training for rural general practice. *Medical Journal of Australia* 1994; 161: 314-8.
3. Commonwealth Department of Health and Family Services. *The current state of undergraduate medical education for rural practice. Report of the mid-term review of the General Practice Rural Incentives Program's rural undergraduate component.* Canberra: Australian Government Publishing Service; 1998.
4. Kamien M, Buttfield IR. Some solutions to the shortage of general practitioners in rural Australia. Part 1: Medical school selection. *Medical Journal of Australia* 1990;153:105-12.
5. Pathman DE, Konrad TR, Ricketts TC. The comparative retention of National Health Service Corps and other rural physicians. *Journal of the American Medical Association* 1992; 268:1552-8.
6. Rabinowitz HK. Recruitment, retention and follow-up of graduates to a program to increase the number of family physicians in rural and underserved areas. *New England Journal of Medicine* 1993; 328: 934-9.
7. Mudge P. A clinical school for North Queensland. *Medical Journal of Australia* 1993;158:501.
8. Strasser RP, Hays RB, Kamien M, Carson D. Is Australian rural practice changing? *Australian Journal of Rural Health* 2000; 8: 222-6.
9. Karmel P. *Expansion of medical education. Report of the Committee on Medical Schools to the Australian Universities Commission*. Canberra: Australian Government Publishing Service; 1973.
10. Hays RB. A new medical school for regional Australia. *Medical Journal of Australia* 2000; 172(8): 362-3.
11. Hays RB. Ruralising medical education curricula: The importance of context in problem design. *Australian Journal of Rural Health* 2003;11(1):15-7.
12. Hays RB. A practical guide to curriculum design: Problem-based, case-based or traditional? *The Clinical Teacher* 2008; 5: 73-7.
13. Hays RB, Stokes J, Veitch J. A new socially responsible medical school for regional Australia. *Education for Health* 2003; 16: 14-21.
14. Hays RB, Bower A. Modifying academic ranking of rural and remote medical school applicants. *Medical Journal of Australia* 2001; 174: 371-2.

15. Hays RB. Guiding principles for the successful innovation in regional medical education. *Rural and Remote Health* 6 2006; 516. www.rrh.org.au (accessed 16 January 2014).

16. Tesson G, Curran V, Pong RW, Strasser R. Advances in rural medical education in three countries: Canada, the United States and Australia. *Rural and Remote Health* 2005; 5(4):397.

17. Strasser RP, Lanphear JH, McCready WG, Topps MH, Hunt DD, Matte MC. Canada's new medical school: The Northern Ontario School of Medicine: Social accountability through distributed community engaged learning. *Academic Medicine* 2009; 84: 1459-64.

18. Bartlett M, Wynn Jones J, Hays RB, McKinley RK. A rural undergraduate campus in England: Virtue from opportunity and necessity. Remote and Rural Health 11 2011; 1841. www.rrh.org.au (accessed 16 January 2014).

19. Hays RB. Rural initiatives at the JCU School of Medicine. *Australian Journal of Rural Health* 2001; 9: S2-S5.

20. Sen Gupta TK, Hays RB, Kelly G, Buttner P. Are medical student results affected by allocation to different sites in a dispersed rural medical school? *Rural and Remote Health* 11 2011; 1511. www.rrh.org.au (accessed 16 January 2014).

21. Veitch C, Underhill A, Hays RB. The career aspirations and location intentions of James Cook University's first cohort of medical students: A longitudinal study at course entry and graduation. *Rural and Remote Health* 6 (Online) 2006: 537. www.rrh.org.au (accessed 16 January 2014).

22. Sen Gupta TK, Murray R, Hays RB, Woolley T. James Cook University MBBS graduate intentions and intern destinations: A comparative study with other Queensland and Australian medical schools. *Rural and Remote Health* 13 (Online) 2013: 2313. www.rrh.org.au (accessed 16 January 2014).

23. Murray RB, Wronski I. When the tide goes out: Health workforce in rural remote and indigenous communities. *Medical Journal of Australia* 2006, 185: 37-8.

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 Hays R. Developing a rural medical school in Australia.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]).