Chapter 11
Rural clinical practice: a population health approach

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Learning objectives

- Describe how different health workers can use available resources and expertise to form service networks for optimal rural health care.
- Understand and describe the impact of distance on rural clinical practice.
- Describe how electronic data systems allow health workers to share information and improve client safety.
- Identify the processes that rural health workers use to access evidence for decision making.

Introduction

While clinicians strive for holistic health care by considering the client in the context of their community, a community or population focus is particularly evident in rural situations because the community is outwardly quite visible. A rural community will usually have a discrete population defined by the borders of a town or a geographic region. Rural community social networks will be influenced by the distances that people have to travel and topographic barriers, such as rivers and mountains, and these geographic features, combined with smaller population size, mean that local people are more likely to know each other socially and professionally. In an urban environment the physical boundaries of a community are indistinct. People in larger and more densely populated communities can travel to a range of different locations for school, work and shopping and so lead more anonymous and less socially connected lives (Putnam 2000). These differences may be superficial; what might appear on the surface as one rural community may reveal considerable differences underneath, particularly in occupational and cultural norms.

While rural populations may live in more visible communities, rural workforce and infrastructure shortages can jeopardise a population focus in health care servicing by the

simple need to react to the problems of today as individual clients come through the door. In this chapter, we will cover four points that are relevant to the provision of high quality rural health care. These points provide a basis for determining a clinician's role in a population health model, where health care:

- occurs through a network approach using the available human resources and expertise, both from within and from outside the local area
- takes account of the impact of distance and workforce shortages on rural clinical practice
- is guided by the application of clinical decision making, informed by the best available evidence
- is mindful of the antecedents, duration and aftermath of the health care issue rather than just the presenting symptoms.

The following case studies illustrate the impact of the rural environment on the population focus of rural health care.

Case study 11.1 Complementary workloads: sustainable obstetric services through sharing procedural expertise

Mercy is 28 weeks pregnant with her third child when she hears from one of the midwives that the local hospital is considering closing their maternity unit due to workforce shortages. She arrives to discuss her options. The unit delivers around 120 babies each year, but last year one of the two GP obstetricians retired and now Dr Ahmed is feeling the strain of being continuously on-call.

Mercy's first two pregnancies were uneventful, although her youngest child was born after only two hours labour. The next nearest hospital is 245 km away which means she wouldn't be able to wait until the onset of labour to start driving. She has no family in the next town and can't afford to stay in a hotel until the birth, so she might need to consider living in a caravan park with her two preschool children for the last four weeks of her pregnancy. The baby is due in the middle of harvest season, so her husband won't be able to stay with her, nor will he be able to drive to be with her in time for the birth.

Discussion

Health care has always relied on a range of health professionals from different disciplines making their respective contributions. In a rural environment where specialist and procedural resources tend to be scarce, there is a great imperative to work as a team with flexible role boundaries.

Antenatal care is usually provided by GPs, many of whom do not deliver obstetric services but 'share care' with midwives and GP obstetricians in neighbouring centres. Midwives will often be highly experienced registered nurses with qualifications in both general and midwifery nursing, often also with emergency and paediatric training. This

allows them to work in other sections of the hospital if not required in the maternity unit. They will call the GP obstetrician for supervision and for management of complications, such as those that require caesarean section or forceps delivery. The GP obstetricians (and GP anaesthetists and paediatricians) often work as generalists on their normal shifts, and out-of-hours may provide procedural cover for a wider region than their own general practice. Several towns with GP obstetric services may, in turn, rely on the backup of a regionally-based specialist who provides local or outreach services, or on retrieval services to transfer clients to more distant specialist units when needed. The outcome hinges on good communication between all clinicians, with a clear understanding of when and how transfer of care should occur. Quality assurance means the team must share data, monitor outcomes with regular audit of results and reviews of protocols and transfer processes, and be involved in continuing professional development.

Challenges for the learner and teacher

1. When examining case–matched data, do rural obstetric units meet expected quality and safety outcomes? (Hint: read the article by Tracy et al 2006)
2. How might the closure of a procedural unit also impact on recruitment and retention of general health workforce to a region? (Schofield et al 2006)
3. Might the closure of local birthing units have special significance for Indigenous women? What might be some unintended consequences for accessing antenatal care?
4. How do retrieval systems like the NSW Newborn & Paediatric Emergency Transport Service (NETS) operate?
5. If the unit is unable to attract medical workforce, what alternatives might be possible in a rural setting? How might clinical teams that are geographically disparate maintain the good communication and shared standards that are essential for service quality?

Case study 11.2 Impact of distance on rural clinical practice

Katanya is a 53-year-old Indigenous woman living in a small community about one hour from Basser, a town of 7000. The Basser Aboriginal Medical Service provides an outreach service two days a week, which Katanya attends irregularly for her chronic renal failure, secondary to poorly controlled diabetes and hypertension.

She has been recently hospitalised with pneumonia, having presented with a two-day history of acute shortness of breath with fever and cough. X-rays had revealed almost complete white-out of one lung. During her first 24 hours in the local hospital, she rapidly deteriorated and required intubation and transfer to the intensive care unit at the base hospital four hours away. She remained ventilated for three days before making a slow recovery.

The entire family were very anxious during the admission and Katanya was distressed to be so far from home. She now attends your practice with her daughter, wanting your advice on how to avoid readmission.

Discussion

Rural populations will generate a varied case mix of acute and chronic conditions that require a wide range of 'round the clock' specialist medical, nursing, and allied health services. Yet, many rural towns are too small to create sufficient work to occupy the number of health providers and clinicians needed to meet their diverse needs. Some clinical skills may be too highly specialised to offer an efficient service in a rural setting, or there may be structural limits including the cost of equipment (such as dialysis machines or ventilators). A key feature of rural practice therefore is the need for multiskilling, and for mechanisms that allow team members to be geographically dispersed, but able to combine efforts to meet the community needs.

While some transfers to a tertiary hospital can be planned in advance, there will always be events where acute stabilisation and treatment within the 'golden hour' must occur in the local setting. This is particularly true in regions too remote for timely road transfer, and where air transfer may be limited by access to a suitable landing strip (with lighting after dark), by the distance a helicopter can travel before refuelling, prevailing weather conditions, or by the client's clinical condition (such as pneumothorax following chest trauma).

Primary health care initiatives over recent times have led to funding and staff arrangements to address some of these structural factors. For instance the Enhanced Primary Care (EPC) program now pays GPs through a Medicare item number to jointly develop health care plans and attend case conferences with other health professionals. Evaluation of the early years of the EPC program showed that there was a steady uptake of these funds by GPs, although more for the writing of the GP management plans and health assessments than for case conferences and team care arrangements. This may in part be due to the difficulties of having several clinicians able to dedicate time simultaneously (Wilkinson et al 2002). However, clear and timely referral and feedback letters have also been found to support effective health care planning between health professionals (Fuller at al 2004). The Australian Government-funded More Allied Health Services (MAHS) enables Divisions of General Practice to target particular regional allied health professional shortages and employ staff to work alongside GPs, while the Home Medicine Review program facilitates the involvement of the community pharmacist.

Challenges for the learner and teacher

1. What clinical features did Katanya have that are likely to have triggered her transfer to a larger setting?
2. What types of professionals might now need to be involved in Katanya's care? Which ones are likely to be located in a town like Basser?
3. Assuming her care is provided by a number of different health professionals across multiple sites, how will the team determine their roles and responsibilities? What aspects might need to be considered to promote good working dynamics?

Case study 11.3 Electronic clinical data systems

A successful general practice was best known for the care of all generations within each family and the procedural skills of the traditional rural GP. A young doctor is recruited to the practice to help with the workload as the partners get closer to retirement. He encourages the office staff to buy a computer for the receptionists to manage the practice billing more efficiently. Initially the staff are overawed by the amount they need to learn to use the computer, but they soon appreciate the impact that it has on their work. Next, the typist wants a computer on her desk so she can change from typing letters from dictation to listening to audiotapes, and word-processing letters, and the receptionist uses the computer for appointments.

At a staff meeting, the idea of computers on the GPs desks is raised. They can see their appointment list on the screen and could now move to printed prescriptions which would automatically generate the correct pack size and number of repeats. Having invested in computers on each desk, they could start typing their own medical record during the consultation. One of the older GPs resists this change and continues to write everything on paper records. Some of the clients say '… the doctor is looking at the computer more than at me'.

Gradually changes happen and the medical practice records all its medical and administrative data in a network of computers. Referral letters are generated directly from the consultation notes and the clients take them to their specialist appointments. Imaging and pathology orders are printed onto specific stationery during the consultation, but reports are received electronically into the medical record. The GPs cover out-of-hours emergency in a shared roster with the only other practice in town. The practice medical record now makes it so easy to store and retrieve information that the GPs dislike the paperwork in hospital accident and emergency departments. The practice staff have become very quick at using the scanner as paper replies from other health professionals arrive every day that need to be stored electronically in the record.

What are the next progressions in the paperless medical practice?

Discussion

Clinicians who work in rural settings generally do so in individual private business or hospital, community health services or Indigenous medical services, often without standardised application of information systems. Government incentives for small medical practices to change to electronic data systems arose because of the advantages in client safety through linking prescribing histories to known adverse events and disease interactions.

Electronic client records now include history, examination, diagnosis and management. Systems include electronic receipt of pathology and radiology results. X-rays are recorded, viewed and reported electronically by radiologists, and reports arrive as email and are checked and stored electronically. This means that for receiving information, distance from the laboratory (such as for a rural clinician) is no longer an issue.

Computerised prescribing is time-efficient, because it allows multiple regular medications to be printed simultaneously, while still allowing doses or brands to be changed. Medications will be automatically sorted on the screen into 'regular' medications (eg perindopril) and 'once only' medications (eg amoxycillin). Restrictions on medications, such as authority requirements, are automatically listed with each prescription, while links to medication guidelines (such as for antibiotics) reduce inappropriate use. Client use of medication can be monitored through compliance checks against prescription timing, allowing early intervention for chronic conditions, such as diabetes, where treatment regimes must be closely matched to diet and lifestyle changes.

For clients or health professionals who travel between practices, there is still the problem of transferring information between clinicians in a timely and confidential fashion. Some health services resort to printing out a paper summary that can be carried by the client or posted. Increasingly, information is electronically transferred via encrypted files or virtual private networks between members of an interprofessional team, and between hospital and community settings. The benefit of centralising client clinical information through one electronic record is improved accuracy in sharing this information. This will be valuable for people who need to travel between health care services (rural people) and for people who have difficulty accessing regular follow-up, such as those with mental illness and the homeless. Systems linking multiple data sources are working effectively now, but could be improved. A patient-held electronic 'smart card' record, to which all health providers are able to read and write, is technically possible but still only in trial.

In addition to improved client safety, electronic data systems enable collation of de-identified health service data at a clinic, town or regional level. This means that more informed decision making can be made about what sort of health education and support programs are required. For instance, by recognising a change in the proportion of clients presenting with chronic diseases, such as diabetes and mental health, instead of acute physical conditions, a clinician can identify the need for expanded primary health care teams and the importance of an interprofessional response to complex presentations. The opportunities and limitations of using GP practice records for service planning and research are discussed in Chapter 14, eHealth, eLearning and eResearch for rural health practice.

Challenges for the learner and teacher

1. The practice staff seem happy with the new technology but a lot of energy is going into training, backup and fixing daily problems. What are the gains and losses for both the staff of the practice and the clients as the traditional practice adopts computerisation?
2. What are some of the potential issues that would arise if a patient-centred practice also wanted to contribute to and use statistical data on local health service use?
3. Would you recommend implementing a patient-held smart card medical record for a community? If so, why and if not, why not?

Case study 11.4 Access to evidence for decision making in the rural environment

Sunshine is a rural town of 13 000 people in a pastoral district located 800 km from the state capital city. Data from the Australian Bureau of Statistics show that 13.3% of the population are aged over 65, which is just a little higher than the national average of 12.6%. The proportion of Indigenous people in the town is twice the national average (4.8% compared to 2.2%).

Bronwyn is a physiotherapist at the Sunshine Community Health Centre. Mrs Wilson has been referred to her for a health assessment following a fall yesterday. Mrs Wilson is a 72-year-old Indigenous woman who lives alone. She suffered considerable bruising to her hip as a result of the fall, but no other injuries. Bronwyn recently heard about hip protectors and wants to find out more about them to see if they will be suitable for Mrs Wilson.

Discussion

The increased use of technology and the proximity of academic departments of rural health are making rural clinicians less isolated from timely information and support. Textbooks and journals are available online, and web links to clinical guidelines and decision-making software allow evidence-based approaches to be used within a client consultation. For instance, unfamiliar minor procedures can be reviewed using tools in either paper or electronic format, or can be web-streamed, while computerised clinical tools range from simple diagrams to depression and dementia rating scales. Client information handouts, self-help sheets and support group resource lists are now also common features of standard clinical software.

Increased access to these information technologies, as well as assistance to search for and synthesise evidence, has been strengthened in the last decade in Australia by the development of an academic infrastructure in rural health. By providing evidence-based skills training as well as joint clinical and academic appointments in research and education, the University Departments of Rural Health and Rural Clinical Schools have increased local capacity to use and apply evidence. In addition to these rural academic departments, the health profession colleges and associations provide resources such as specialised library and database access tailored to the evidence needs of their members.

To establish the risks to Mrs Wilson of further falls and subsequent injury and to incorporate best practice into Mrs Wilson's care, Bronwyn and her colleagues at the Sunshine Community Health Centre have access to a range of resources. The most widely known, comprehensive and trusted database on evidence in health care is the Cochrane Library, which is freely available to Australian users. Searching on this database will provide (in less than 15 minutes) a summary of the best evidence on the effectiveness of hip protectors as well as other evidence on falls and falls injury prevention strategies. The Royal College of Nursing Australia has a web-based (members only) and CD-ROM Falls Prevention and Assessment Education Program available. Additionally, the Royal Australian College of General Practitioners has access to a library that will conduct literature searches for members. There are also evidence-based databases for allied

health, such as for physiotherapists (PEDro) and occupational therapists (OTSeeker). Specific falls risk assessment software developed by academic departments are available online. One such application is the Falls Risk Assessment and Management System (FRAMS) available at http://www.falls.unimelb.edu.au (Liaw et al 2003).

Challenges for the learner and teacher

1. Access the Cochrane Library and establish what information Bronwyn may be able to gather about the use of hip protectors for Mrs Wilson.

   Clue: Search the Cochrane Library on Reviews by Topic 'Bone, Joint and Muscle Trauma', 'Hip Fracture', 'Prevention'.

2. What are the established extrinsic risk factors for falls and falls injury in community-dwelling older adults? Based on this evidence, what other health workers aside from Bronwyn would you recommend be involved in a plan of care to reduce Mrs Wilson's risk?

3. Using the three headings 'using evidence', 'available workforce' and 'cultural issues', brainstorm a list of factors that you think might positively and negatively influence the capacity of Bronwyn to organise best practice team care for Mrs Wilson.

Population preferences to improve health care services

If clinician's work with individuals who want treatment is conducted in an empathic and perceptive way, then the closeness of one-to-one contact can provide insight into the wider health issues experienced by that individual in their community. Taken collectively across all client contacts, the clinician will have considerable knowledge about many of the health care needs in the local population (Baum et al 1998).

While there are various schematic representations that scope population health work, two early and clear descriptions applicable to clinicians are the Ottawa Charter for Health Promotion (WHO 1986) and the Community Development Continuum (Jackson et al 1989). Both are used in Table 11.1 (below) to illustrate a response to the mental health of farmers and the scope of population health work in which a clinician can engage.

Table 11.1 Schema to promote a population health focus for clinical practice

Community development continuum	Ottawa Charter for Health Promotion	Mental health
Developmental casework	Develop personal skills	The GP in Sunshine provides medication management and cognitive behaviour therapy counselling to a middle-aged male farmer experiencing depression as a result of continued farm financial problems because of the drought.
Mutual support	Create supportive environments	The GP approaches the social worker at the local community health centre to see if a forum could be established for drought-affected farmers to meet for mutual support. Together with the rural financial counsellor, the social worker commences bi-monthly farm family gatherings.
Issues identification	Strengthen community action	Through meeting at the gatherings, the local representative of the State Branch of the Farmers Federation (with the social worker and the rural financial counsellor) recognises a large unmet need amongst male farmers, who may be suffering depression, that goes undiagnosed and untreated. The social worker reviews the literature to find that the suicide rate among male farmers in Australia is relatively high. The literature review reveals that the mental health first aid program is a proven community-based intervention that improves lay people's ability to recognise mental disorder (see Case study 5.1).
Participation and control of health services	Re-orient health services	With the support of the GP and the rural financial counsellor, the social worker makes representation to the managers of the regional mental health service, the local community health centre and the regional office of the Department of Primary Industry. This is to support the provision of mental health first aid training for a range of front-line staff in farm support roles. The aim is to develop skills for these farm support staff in recognising depression and other mental disorders and also in basic responding and referral skills.
Social movements	Build health public policy	The GP raises the mental issue of farmers facing the drought as an issue of concern through the state branch of the Rural Doctors Association of Australia (RDAA). A Farmers Mental Health Blueprint is developed under a coalition auspiced by the State Branch of the Farmers Federation and including the RDAA. The Blueprint sets out a range of factors, from economic policy through to direct service access, that impact on farmers mental health and needs. Across this range of factors the role of different groups, from the advocacy role of the Farmers Federation to the service delivery role of the GP, is outlined.

Key points

- In rural locations, where there is not a full range of specialist services, health care practitioners need to work as a team, for example GPs and midwives, with backup from regionally-based specialist services. Where distance and workforce shortages occur, the rural practitioner needs to be multiskilled and be able to work between teams that will be geographically dispersed.
- Electronic clinical data systems enable convenient and systematic client management, quick access to distant specialist diagnostic services and clinical support, as well as capacity to share clinical information between different practitioners. With electronic systems, aggregation of individual clinical data up to the level of the clinic population can add a population focus to the clinician's work. Access to information technologies, including databases of health evidence, have made it easier for the rural practitioner to access evidence for clinical decision making.
- Rural practitioners can see their work within a population framework, where work with individual clients can be the genesis for teamwork at the community level. This work can develop local support (such as self-help), through to health advocacy by the practitioner at a national level as a member of a professional association.

Recommended readings and resources

- Baum F, Kalucy E, Lawless A, Barton S and Steven I (1998). Health promotion in different medical settings: women's health, community health and private practice. *Australian and New Zealand Journal of Public Health* 22(2):200–205.

This paper describes the health promotion role of doctors in women's and community health centres and fee-for-service practice. The findings are based on interviews with medical practitioners who had worked in these centres and a questionnaire survey of GPs in private practice.

- Fuller J, Harvey P and Misan G (2004). Is client centred care planning for chronic disease sustainable? Experience from rural South Australia. *Health and Social Care in the Community* 12(4):318–326.

A qualitative evaluation of a chronic disease self-management project in rural South Australia found that a client centred approach was valued because clients were better able to accept and deal with the long-term management of their condition. This required that health care planning should deal with a wider range of issues than just medical management, and so care planning takes longer than conventional consultations.

- Jackson T, Mitchell S and Wright M (1989). The community development continuum. *Community Health Studies* 13(1):66–73.

A landmark paper that argued against the early 1980s idea that, in community health centres, community development work that sought to empower people, was seen as distinctly separate from casework, which was seen to maintain the health worker as a powerful expert. The authors drew on their experience at a community health centre in Fitzroy to conceptualise a way of working; first with individuals on the presenting problems, but then continuing to work on these problems at broader social and policy levels.

- Tracy SK, Sullivan E, Dahlen H, Black D, Wang YA and Tracy MB (2006). Does size matter? A population-based study of birth in lower volume maternity hospitals for low risk women. *BJOG: An International Journal of Obstetrics and Gynaecology* 113(1):86–96.

A population study of the association between volume of hospital births per year and birth outcome for low-risk women. The researchers investigated whether unit size (defined by volume) was an independent risk factor for each outcome factor, using public hospitals with greater than 2000 births per year as a reference point. Neonatal death was less likely in hospitals with less than 2000 births per year, regardless of parity.

- The Cochrane Library
  http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME

The Cochrane Library contains high-quality, independent evidence to inform health care decision making. It includes reliable evidence from Cochrane and other systematic reviews and clinical trials. Cochrane reviews combine results of the world's best medical research studies, and are recognised as the gold standard in evidence-based health care.

- HealthInsite
  http://www.healthinsite.gov.au

An Australian Government site for the general public on a range of up-to-date and quality-assessed information on important health topics such as diabetes, cancer, mental health and asthma.

Learning activities

1. Find a health issue in your community and research it on the Cochrane library.
2. We have completed the first two cells of a population response to falls prevention, targeted to older community dwelling adults; your task is to complete the other three cells using the questions provided.

Community development continuum	Ottawa Charter for Health Promotion	Falls prevention
Developmental casework	Develop personal skills	Bronwyn, the physiotherapist, reviews the bruising to Mrs Wilson's hip, sustained after a fall in her home. In the conduct of the health assessment, the physiotherapist begins to educate Mrs Wilson about the risks as they are identified. This visit to the physiotherapist is supported under the Australian Government Enhanced Primary Care Program.
Mutual support	Create supportive environments	The physiotherapist explores options for Mrs Wilson to attend a local exercise program. With the Indigenous and Torres Strait Islander Health Worker from the Aboriginal Medical Service and a Tai Chi instructor from the community, a Tai Chi class is started at the Aboriginal Medical Service, to which other local health practitioners can refer Indigenous clients. In addition to providing evidence-based exercise for falls prevention, the class is a venue for Mrs Wilson to meet others like her at risk of a falls injury.
Issues identification	Strengthen community action	What strategies could you suggest for strengthening community action? Which people and organisations would you approach to implement these strategies?
Participation and control of health services	Re-orient health services	Identify some strategies for participation and control of health services. What strategies could be put into place to reorient health services?
Social movements	Build health public policy	Can you identify strategies that would develop social movements and build health public policy?