Learning objectives

• Describe contemporary approaches to public and population health research.
• Describe key public and population health research methods.
• Define and describe the program logic model approach to program evaluation.
• Describe common health-related quality of life measuring tools.

Introduction

In Chapter 5 we described the health of rural populations. This chapter focuses on the research and development required to define the health status and its associated and causative factors. Through research we are better able to understand the determinants of health, and to describe and measure the relationships among them. Research also allows us to compare urban and rural contexts and quantify rural-urban differentials. The questions that a public or population researcher or someone applying a clinical perspective to health and disease might ask include:

• How do we best measure prevalence and incidence of disease or ill health and the impact of factors that influence health and wellness?
• How frequent are specific health and patient outcomes?
• How are they distributed around the country and what are the factors that determine their occurrence?
• What, at the individual and population levels, can we do about these factors?
• How do we interpret associations?
• How do we establish cause and effect?
• What might be the interplay between our genetic make-up, our environment or our behaviours and lifestyle?

These and similar questions, together with the investigative techniques used, form the basis of epidemiology (Hennekens 1987).

Public and population health research methods

Public health research methods are becoming increasingly diverse and increasingly relevant to health professionals working in rural and remote areas of Australia. Public health research demands collaborative, interprofessional and multi-method approaches. This includes collaboration between quantitative researchers and social scientists, applying qualitative and quantitative methods, and incorporating reflective and participatory action methods into the research process.

Epidemiological approach

Epidemiology has been called the basic science of public health. As well as being an analytical tool for describing and explaining the pattern of disease, it is also used to inform public health policy and decision making, and to help develop and evaluate responses to public health problems. Historically, epidemiology has been the preferred methodology for the study of diseases in populations and the factors that influence or determine this distribution. Epidemiology involves studying the distribution and risk factors of health-related states or events in specified populations, and using these factors to control health problems (NCCDPHP 2004).

Epidemiological studies can be descriptive, analytical or experimental. Descriptive studies provide information about the frequency of disease occurrence in a population and trends over time. Routinely available data sources are often used, including death certificates, cancer registries, and population census data. Common measures include mortality rates, disease incidence and disease prevalence. Descriptive studies help to identify the risk of disease in populations or subgroups and provide the basis for analytical studies that investigate causes. Analytical studies aim to identify the specific factors that increase or decrease the risk of disease and to quantify the associated risk. Analytical studies include cross-sectional studies, longitudinal or prospective cohort studies and case–control studies. In experimental studies, epidemiologists determine the effects of particular interventions on disease. Experimental studies include randomised controlled trials and community trials.
Case study 6.1 Distribution and risk factors for heart attacks in rural New South Wales

One way of thinking at a population level is to look at how disease frequency varies between regions. For example, knowing which regions have most cases of heart attack can help service providers decide where best to place hospitals and other facilities.

However, one region may have a population of 50,000, while another may only have a population of 10,000, and one population may be much older than the other. These underlying trends will influence the number of heart attacks in each region. But do they explain all the difference? To answer that question, we need to look at what the rates of disease in each region would be if they had the same underlying population. Epidemiologists do this by adjusting or ‘standardising’ for population, age and gender.

Figure 6.1 shows standardised rates of deaths from heart attacks by postal area for New South Wales between 1996 and 2002. The distribution of heart attack deaths is not distributed uniformly across the state, even after accounting for each region’s population, age distribution and the proportion of males and females.

Figure 6.1 Map of heart attack deaths in New South Wales 1996–2002 by postal area, after adjusting for spatiotemporal effects

Living in a rural area is one factor that might influence distribution patterns. For example, rural people may have less access to services and therefore face a higher death rate from heart attacks. However, the map shows that heart attack rates vary just as much between rural areas as between rural and metropolitan regions.

Since Indigenous people are known to have higher rates of heart attack than the general community, another explanation might be the variation in the proportion of each region’s population that is of Indigenous background. However, the map does not show an association between the proportion of Indigenous people within a population and increased rates of heart attacks.

Another factor that might influence this distribution of heart attack deaths is socioeconomic status, which is associated with heart attack. Figure 6.2 is a map of socioeconomic status for New South Wales over the same period.


**Figure 6.2 Map of index of relative social disadvantage by postal area**

Interestingly, Figures 6.1 and 6.2 are almost mirror images. In other words, where a region has a high level of socioeconomic disadvantage, it is also likely to have a high rate of heart attack deaths. Beard et al (2006), in Lismore, New South Wales, analysed all heart attack-related deaths, hospital admissions and revascularisation procedures across time and postal area for New South Wales from 1996 to 2002 inclusive. They particularly looked at the influence of subjects’ place of residence, including socioeconomic disadvantage, proportion of the population identified as Indigenous, remoteness and whether the population was metropolitan or rural. They found that, using multivariate analysis, both increasing disadvantage and the proportion of the population identified as Indigenous were significantly associated with increased admission and mortality rates for acute myocardial infarction (AMI). After accounting for increased admission rates, the association of disadvantage with mortality decreased, but generally remained significant. Those living in socioeconomically disadvantaged postal areas were associated with lower intervention rates for AMI-related procedures such as cardiac catheterisations, coronary artery bypass grafts and stents. These findings demonstrated a direct relationship of ischaemic heart disease with socioeconomic disadvantage and Indigenicity. In some regions, this disparity appeared to worsen rather than improve over the study period.
Discussion

Beard et al (2006) found that socioeconomic disadvantage both increased the risk of developing heart disease and heart-attack related admission rates. In addition, Indigenous status conferred increased risk beyond the effects of general socioeconomic disadvantage, while rurality appeared to play a protective role in the development of heart attacks, but was associated with less use of newer interventions. This data mining study poses as many questions as answers. For example, what are the specific aspects of socioeconomic disadvantage that might influence mortality and are they amenable to change? Beard and colleagues are now trying to investigate these questions in more detail by following individuals from diagnosis to treatment or care in much smaller regions.

Taking a population perspective like this can dramatically change the way we deal with health and disease. For example, the influence of disadvantage seemed to have an impact on increased risk of AMI and worse outcomes (ie people are more likely to die). The implication is that measures taken to address socioeconomic disadvantage can have positive effects on health.

Qualitative methods

As described previously, the health of populations is shaped by social, ecological, environmental, economic, cultural, political and other influences. Qualitative methods are well suited to exploring naturalistic, complex systems including economic, political and cultural factors influencing health and disease, how people perceive and interpret health, and why people persist in risky behaviours despite evidence of harm (Baum 1998). The key qualitative research methods used in public health are case studies, participant observation, in-depth interviews and focus groups. The different methods may be used to supplement or validate data collected by quantitative or other qualitative means in a process called triangulation.
Case study 6.2  Problems for Indigenous people travelling away from country and family for medical treatment

The following case study, based on a study by Stamp et al (2006), illustrates a qualitative approach to understanding issues for Indigenous people who need to travel away from home to seek medical treatment. It involved semi-structured in-depth interviews with a range of informants and sought to understand issues arising from the experiences of people travelling from rural to metropolitan centres to seek medical treatment. The case study also exemplifies culturally appropriate approaches to research involving Indigenous people.

There is little information published about what happens to people from rural areas, particularly when travelling away from their families and primary health care provider to receive hospital care. For Indigenous people the experience can be particularly distressing because of the family dislocation, long distances involved, unfamiliar environment and lack of family and culturally sensitive support. Understanding the experiences of Indigenous people may help to improve transition arrangements. While quantitative studies assist in understanding demand for health services they do not address the question of what happens to people at the social and emotional level when seeking care outside their communities. Qualitative methods help us better understand personal experiences and (in this case study) how people feel when they need to travel long distances from home to seek medical treatment.

The discussion was guided by three questions:

1. What are the issues in transfer to and from the city hospital?
2. What special problems exist for the Indigenous people you are involved with?
3. What improvements and/or systems changes would you suggest?

Findings

Disadvantaged families, most on low incomes, are placed under huge financial pressure when travelling for medical care is required. Despite the existence of Patients Assistance Transport Scheme (PATS), which requires a co-payment in some states, the associated expenses for a trip to the city can amount to hundreds of dollars. Emergency financial assistance is critical but not always available. One health worker commented:

… a lot of them go from here and they have to go to Centrelink [social security service] to ask for an advance on their pensions or whatever, and they give them a $50 advance or whatever, so they have a little bit of money to buy food when they get there. Some of them have to use that to pay for taxis.

For health workers, claiming back costs can be time consuming and PATS processes are complex. In addition, the local hospital was seen to have advantages for PATS not shared by the Aboriginal Community Controlled Health Services:

Our health service isn’t funded for PATS, we use our grant money or generated income to assist Aboriginal people to go to the city. Now, the hospital over here actually gets funded by the government, through the PATS system, but they won’t help Aboriginal people. They send them all to us, and our organisation is responsible to treat them and foot the bill.
Discussion

The type of information described above is not generally available from surveys, questionnaires or public or other databases. For example, quantitative data would show that PATS claims are being processed, people are attending appointments, using...
accommodation and Aboriginal Liaison Officers are meeting with clients during office hours, but would not include the problems described above. The personal, social and emotional dimensions that affect the health and wellbeing of the client, as well as others involved, are not captured in service statistics. If they are not identified, they will not be addressed. This is one of the key advantages of qualitative research: the ability to draw together information from the stories people tell about their experiences. Through these stories we can better understand the issues of concern to individuals that otherwise remain hidden by statistics. This type of information can inform policy, together with health service planners and providers, to further improve circumstances for disadvantaged groups.

Evaluating population health programs

The preceding case studies show that quantitative and qualitative research methods each have different strengths and that both have important and complementary roles in public health research. However, methods and programs need to be evaluated so that service providers, funding bodies, communities and policy makers know whether these programs have achieved their intended outcomes.

Evaluation studies generally take two forms: formative or process evaluation, and summative or outcome evaluation.

The goal of formative evaluation is to provide information that helps to develop an intervention program. Formative evaluation investigates ‘process’, and explores how the intervention is being delivered, whether delivery is occurring as intended, and how well the program is being implemented. Barriers, enablers, strengths, weaknesses and lessons learned are assessed and results are used to inform decision-making about the program management, implementation, improvement or change.

Summative or outcome evaluation provides information about program efficiency, effectiveness, appropriateness or ethics, such as whether the program reached its intended target group and whether it achieved its intended outcomes, on time and within budget. Results from summative evaluation usually inform decisions about program funding, continuation, expansion, reduction or cessation (O’Leary 2004, Murray 2007).

Evaluation research is often multi-method and driven by the objective of the evaluation. Formative research often uses a ‘case study’ approach, which might involve a document review, interviews with key stakeholders, surveys or focus groups or service observation. Similarly, a number of different methods may be used in a summative evaluation. Because the question often is whether particular project objectives were achieved, a review of key documents (eg financial statements), surveys or interviews may be required. Correlation or effectiveness of the intended outcomes may be assessed by comparing baseline data (if available) with post-intervention data. When measurements are made at successive time intervals, often corresponding to before, during and after an intervention, time–series analysis can be done to explain the data or predict trends. Demonstration of cause and effect may involve a randomised controlled trial or case–
control study design, where the effect of the program on an intervention group is compared with a closely matched control group that was not offered the program.

**Program logic models for planning and evaluation**

Program logic models are simple visual representations that show how a program is intended to work and the inputs and mechanisms required to achieve the intended outputs and outcomes for participants and/or the community. They illustrate the key components of a program, or service or activity, and the associations or relationships between those components. In its simplest form, the key dimensions of the program logic model are inputs, outputs and impacts/outcomes. Logic models can be used in a variety of situations, including strategic planning, service planning, information dissemination, funding proposals, evaluation planning and continuous improvement program planning. Figure 6.3 is an example of a program logic model for planning and evaluation.

![Program logic model for planning and evaluation](image)

Source: Misan

**Figure 6.3   Program logic model for planning and evaluation**

There is no single template for developing a program logic model, but several useful websites provide guides and tools. Models generally have similar characteristics and usually describe the following components (University of Wisconsin 2003, Harvard Family Research 2006):

- program objective(s) or intended outcome(s), which may include short, medium and long-term outcomes
- partners, stakeholders or target groups
- strategies to achieve the objective
- key tasks or activities associated with the strategies
• performance indicators and performance measures for those activities or tasks.

The visual ‘map’, a basic tool in the program logic model, enables the project team to identify project inputs and resources and clearly identifies tasks, stakeholders and short, medium and long-term outcomes, and the relationships between them. Program logic models outline the domains to which resources and efforts are directed, and provide a map that guides the definition of required inputs, outputs and outcomes, needs assessments, consultation targets, strategies and tasks, what to review, what to measure, and how to measure it.

The program logic model entails a number of approaches and methods, particularly when the model is used as the basis for program evaluation. As an example, the following program logic approach guided the planning and evaluation of the Australian MediConnect Internet-based medication record (Liaw and Tomlins 2005).

• Inputs: cost structure of direct and indirect costs of consultation, communication, development, implementation, participation, evaluation, infrastructure, training and support, and so on.
• Outputs: a system that meets all technical requirements for data integrity, security, privacy and timeliness; acceptable protocols for data privacy and quality; an effective communication strategy.
• Impacts: access to medication information, workflow implications, satisfaction with the MediConnect system.
• Outcomes: incidence of drug-drug interactions, drug-disease interactions and hospital admissions due to therapeutic misadventure.

The MediConnect Field Test was an integral part of the development of the MediConnect system. Its evaluation was formative, guided by the program logic model for the overall evaluation of MediConnect (DoHA 2005).

**Process mapping**

Process mapping or flowcharting is increasingly being used to analyse health services and health services delivery, and to improve services. Process mapping is used as a component of quality improvement cycles, where, once opportunities for improvement are identified, changes are made, their effect is monitored (ie the service goal reassessed), and further changes are made as required.

A process can be thought of as a series of connected steps directed to an outcome. Although occurring in all sectors and industries, all processes have common characteristics: a starting point and an end point; an objective or purpose; standards governing inputs, outputs and outcomes; and links (usually) to other processes.
Mapping a patient journey through a health service is a common way of identifying system problems and inefficiencies, but any ‘process’ can be mapped. The patient journey example could be used to determine:

- how many steps there are for a patient throughout a treatment
- how many people a patient has to interact with
- how many places a patient has to go
- how many times a patient provides the same information
- how long each step takes and how long the whole process takes
- what the problems are for the patient and for the staff.

From this ‘map’, questions such as ‘Is the patient getting the most appropriate care?’; ‘Is the most appropriate person providing the care?’ and ‘Is the care being given in the right place or the right time?’ arise. When these questions are considered, and the root causes of problems or delays are identified, systems can be redesigned and changes implemented and monitored (UK Department of Health 2005).

The following case study provides an example of using process mapping to evaluate the efficiency and effectiveness of clients’ journeys through health services.

### Case study 6.3 Process mapping services in a rural Indigenous community

A small Indigenous community of approximately 150 permanent residents with a small community health centre (with few resources) was keen to identify opportunities to improve the services it offered to the local community and visitors. The health centre provides a range of resident services (eg youth, diabetics), and hosts visiting services for a large range of client types (eg drug users, mental health). The range of client entry points includes: self referral, provider referral, referral from agencies like Centrelink or the court, referral through family and friends, presenting at the clinic by appointment or without an appointment, or referral as part of a social or health promotion activity, or through a support group.

As part of a wider review of barriers to access Indigenous health services in the region, the health service agreed to use a process mapping exercise to identify strengths and weaknesses of the service to assist service planning and delivery. A meeting was convened with 12 personnel from the health service as well as from the Indigenous health service. Participants included the service chief executive officer, several Aboriginal and Torres Strait Islander Health Workers (AHW), administration staff, a registered nurse and a local GP. The session was facilitated by an independent expert familiar with the conduct of strategic planning workshops and process mapping techniques.

The group ‘mapped’ the expected journey of a typical client through the health service and identified areas where this journey might be interrupted or delayed. The group also explored general issues for the service and areas where the service might want to review operations.
They did this by drawing boxes and arrows on a whiteboard depicting the typical journey of a client through the service. For example:

- how they got there
- who they saw
- what assessments were done
- whom they were referred to
- how appointments were made
- how long they waited
- how they got home
- how and where all this information was recorded.

Problems were prioritised and agreement was reached about timeframes for resolution. The process map looked similar to that shown in Figure 6.4.

Source: Misan

**Figure 6.4** Example of a process map that ‘maps’ or illustrates a ‘notional’ journey of a client through a health system

Some problems described by staff included:

- clients not being ‘home’ when a driver calls to collect them
- clients missing appointments
- clients not understanding key concepts or directions for care
Discussion

This process gave service staff and external providers a chance to see, perhaps for the first time, the ‘big picture’, rather than just their part of it. They saw how complicated things were for clients and for staff. Importantly, they were able to see for themselves that the ‘system’ was not working as well as it should have been and that lack of coordination, communication and planning was getting in the way of service provision. Much of the work the service was doing was not adding value to the client’s consultation and treatment, and in some circumstances was counterproductive. Some simple strategies were suggested to address some of the key issues; for example, establishing reminder systems and arranging a regular community transport service that catered for social needs as well as medical needs.

The benefits of undertaking process mapping in a interprofessional setting (clinicians, drivers, allied health workers, administration staff and others) is that the participants get to see the big picture, comment on their part in it and come up with ideas to improve the system(s) as well as work out how to better communicate and engage with the community they serve.

Participatory action research

Participatory action research (PAR) is an increasingly common research approach that seeks to actively involve participants in the research process, not just as ‘guinea pigs’! PAR seeks to engage participants in guiding the research, developing the research questions, advising on ethics, selecting research methods, promoting the research to the community, recruitment, conducting the research or assisting in data collection, analysing data and disseminating research findings.

In the Whyalla Quality Use of Medicines (QUM) Project, community members actively participated in a translational research project to address QUM in the community. A local project advisory group with broad intersectoral representation, chaired by a member of the community with support from the project secretariat, was established. The group

- suboptimal communication
- not operating as a team
- lack of clarity of the core business of the organisation
- inconsistent approach to protocols because of lack of protocols or lack of training, or awareness or unwillingness of some staff to follow protocols
- no formal transport service, so health workers are often used as a ‘taxi service’
- mismatch between community expectations and what the service was able to provide
- lack of separate men’s health and women’s health services
- inadequate health promotion, screening and early intervention programs
- inadequate family involvement in education and management of chronic conditions
- suboptimal record keeping with lost records or information.
defined the stakeholders to be consulted about QUM issues and research questions, identified the composition of focus groups to review and prioritise identified needs and issues, and propose strategies; confirmed the priorities, refined the strategies and proposed a framework and timeline for the strategies; and convened planning groups with the support of the project secretariat to implement these projects. A respected community member was employed as a research assistant and assisted with the community consultation process as well as with data entry and analysis.

Strategies proposed included a community health and medicines information resource centre, public awareness strategy (radio, print and electronic media) co-ordinated with other health calendar activities, interprofessional and cross-sector strategy to combat unnecessary use of benzodiazepines, and a medicines disposal program.

The advisory group has since evolved into an incorporated body and has successfully secured funding from a range of sources to support the many ongoing activities of the resource centre. The community-wide education and awareness strategy, coordinated by the local community health service, is ongoing. A fortnightly health column in the local newspaper and a fortnightly half-hour radio show called *Talking Health* continues to this day.

This example demonstrates how communities can play an important role in the research process, given appropriate opportunity and support. Community members, while lacking training in formal research methods, know about their community and its function. PAR allows researchers and community members to bring together complementary knowledge that builds community ownership, mutual capacity, understanding and respect. This can result in significant community development as well as community research and teaching and learning networks.

**Measuring health-related quality of life**

Over the last 20 years the assessment of health-related quality of life (HRQoL) in individuals or groups undergoing different interventions has become commonplace. HRQoL is about measuring how people feel, in particular the change in aspects of life that people rather than clinicians value. HRQoL is usually measured by questionnaire, which may be self or investigator-administered. HRQoL questionnaires typically include questions that ask clients about how they are feeling, what symptoms they have, or whether they have functional or other limitations. Responses are elicited as logical responses (yes–no) or using visual-analogue or Likert-scales. Responses are aggregated into domains or dimensions (eg symptom score, physical function, emotional wellbeing) and an overall score or index value produced (Guyatt et al 2001).

The choice of which instrument to use will depend on the circumstances and what is important to measure. The primary interest may be a reduction of symptoms for which only a limited assessment (disease-specific, organ-specific, function-specific, problem-specific) is required. If assessments of symptoms, pain, physical function, emotional or social limitation are required, then a more comprehensive instrument is necessary. In addition, when interested in comparing the impact of treatments on HRQoL
across a range of diseases or conditions, an instrument that includes generic measures covering most or all HRQoL domains is required. The minimum accepted domains for HRQoL assessment include physical, mental and social health and somatic sensations. Other dimensions may include physical senses, independence or self-care, vitality, and sexual function (Hawthorn and Richardson 2001).

Health profiles yield scores for all HRQoL domains. A number of instruments, including the Sickness Impact Profile and the short forms of the instruments used in the Medical Outcomes Study, are available. These are simple to use, are self-administered, take less than half an hour to complete and cover most HRQoL domains. However, they have been criticised for limited responsiveness (ie ability to detect change) over time because they cover the domains of interest somewhat superficially when compared to disease-specific instruments.

There are a large number of HRQoL instruments available — both generic and disease-specific as well as function and organ-specific — to suit almost every domain of interest (Hawthorn and Richardson 2001). Many are available at no cost, providing registration, permission and acknowledgment conditions are fulfilled. A common generic instrument in use, and for which there is normative data for the Australian population, is the Medical Outcomes Study Short Form 36 (SF36) health survey, which measures physical functioning, bodily pain, mental health, role-emotional, social functioning, vitality, and general health perceptions. Several adaptations of this instrument include SF36, SF20 and SF12 (ACQOL 2005). Other commonly used instruments include the ComQoL (Comprehensive Quality of Life scale, Deakin University), WHOQoL (World Health Organization Quality of Life instrument), and WHOQoL-BREF (brief version).
Central obesity, combined with low high-density lipoprotein (HDL) cholesterol levels and elevated blood pressure, triglyceride levels and fasting blood glucose levels, are the cardinal signs of metabolic syndrome. People with this syndrome, also called ‘Syndrome X’, have an increased risk of early progression to diabetes and cardiovascular disease. Although it is known that improvements in diet and physical activity can reduce overweight and obesity, there is no consensus on the best approach to sustainable fat or weight loss in the community and in a regional setting in particular.

The Whyalla study ‘Shape up for Life’ was conducted to investigate the efficacy and sustainability of combined lifestyle changes (increased physical activity and dietary modification without energy restriction) in improving metabolic fitness in a regional community setting. ‘Shape up for Life’ was a randomised controlled trial involving about 150 people (control and two intervention groups), conducted over two years (Pettman 2006). The program did not restrict calories but encouraged consumption of low-GI (glycaemic index) and low-fat foods, as well as foods rich in fish oils and other nutrients shown to help burn fat when combined with exercise.

The study end points were strength and fitness, blood glucose and lipid levels, and reductions in total fat, abdominal fat, waist and hip circumference. Assessments were done at baseline, 4 months and 12 months. The investigators were also interested to know what impact the intervention and the outcomes had on participant quality of life.

While these study end points measure the impact of the diet and exercise program on a range of anthropometric and biological markers, they don’t tell us whether people felt better or whether the program improved any other aspects of their lives. For this the investigators asked participants to complete the WHOQoL-BREF at each assessment.

The WHOQoL-BREF was developed by the University of Melbourne from the more comprehensive WHOQoL-100, a 100-question ‘generic’ instrument that assesses individuals’ perception of their position in life in the context of the culture and value systems in which they live. The WHOQoL-BREF is an abbreviated 26-item instrument that measures overall perception of QoL and health and is more convenient for the conduct of large research studies or clinical trials. WHOQoL-BREF assesses four domains: physical, psychological, social relationships and environment. Each domain has a different number of questions and generates different possible scores. Two global questions ask participants to rate their overall quality of life and their satisfaction with their health. Raw scores are transformed into a 0–100 scale and analysed using a computer algorithm (Hawthorne 2003).

Discussion

Using this instrument, investigators were able to assess the impact of the study on participants’ self-reported overall quality of life and health as well as changes in any pain, concentration, energy, bodily appearance, leisure activities, sleep, general mobility, work, personal relationships, social support and mood. Looking at correlations between these dimensions and other study endpoints helps investigators better understand the
relationship between objective changes in physical and metabolic fitness and how people feel.

**Multi-attribute utility measures**

More recently there has been interest in using HRQoL instruments to assist in assessing the economic impact of interventions. A number of multi-attribute utility (MAU) measures have been developed for this purpose. Based on the health profiles described above, MAU instruments ask clients to express their preferences for particular health states; these preferences are then aggregated into a single index value. MAU instruments can be used in outcome evaluation as well as cost-utility analysis. MAU relate health states to standardised anchors of death and full health. In contrast to health profiles, MAU are preference or value-weighted and provide a single index value that aggregates all HRQoL measures. Typically, MAU use a scale from 0 (death) to 1.0 (full health) to summarise HRQoL. Results are often expressed in terms of quality–adjusted life years and are used to aid cost–benefit analysis and cost–utility analysis, which in turn assist in integrating cost into policy decisions (Guyatt et al 2001, Hawthorn and Richardson 2001).

MAU instruments are not as common as generic and disease-specific HRQoL instruments, because of the exacting conditions required for their development, weighting of preferences and validation. Six MAU instruments are in current common use: the Australian, Assessment of Quality of Life (AQoL); the Finnish 15D; the Canadian Health Utilities Index (HUI3); the American quality of wellbeing scale, the SF6D-2, which draws on items from the Short Form 36 (SF36); and the EQ5D (the European Quality of Life instrument, formerly called the EUROQoL), developed by a team representing seven European countries. Each has its own strengths and limitations but the AQoL and HUI3 instruments are the most methodologically robust (Hawthorn 2001).

### Key points

- Epidemiology involves studying the distribution and risk factors of health-related states or events in specified populations, and using these factors to control health problems. Epidemiological studies can be descriptive, analytical or experimental.
- Qualitative methods are better suited to exploring naturalistic, complex systems, including economic, political and cultural factors influencing health and disease.
- Quantitative and qualitative methods have important and complementary roles in public and population health research and evaluation. The multi-method approach (methodological pluralism) is very relevant and important in determining the causes of various health problems in primary care and health services research.
- Process mapping is a management tool that can be used to analyse whether health systems are delivering the services they think they are delivering. They can be used
to plot the ‘journey of a client’ through the system and identify bottlenecks and other opportunities for improvement.

- Participatory action research (PAR) seeks to actively involve participants in the research process as partners rather than subjects of the research.
- Program logic models and a combination of quantitative and qualitative methods (multi-methods approach) are useful in evaluating health services and population health programs.
- Measuring health-related quality of life (HRQoL) in individuals or groups is becoming increasingly important.

**Recommended readings and resources**

- Australian Centre on Quality of Life
  

  A useful website which facilitates research into health related quality of life.

  

  A landmark report from the Australian Institute of Health and Welfare that specifically targets rural populations. It describes the many health disadvantages experienced by people living in non-metropolitan Australia, including Aboriginal and Torres Strait Islander populations, and compares the health and health determinants of people living in rural and remote areas with their metropolitan counterparts.


  A useful text that describes the social, historical, political and geographical context of the health of people living in rural and remote Australia. It describes rural–metropolitan health differentials, Indigenous health, health service differentials and challenges of health services delivery. It also describes issues facing rural health professionals and opportunities for practice and teaching.

- Hawthorne G (2003). *About the Australian WHOQoL-Bréf*, the Australian Centre for Posttraumatic Health, University of Melbourne.
  

  For researchers considering using this quality-of-life instrument.

Provides information about transport issues for Indigenous Australians.

• MediConnect Field Test Evaluation Findings, Final Report (2005), online document. 

**Learning activities**

1. Case study 6.2 outlines some of the issues arising from the experiences of Indigenous people travelling from rural to metropolitan centres to seek medical treatment. Think about the travel and accommodation arrangements where you are working/studying. Are there any beneficial changes you could make?

2. Case study 6.3 is set in an Indigenous community. Research the specific issues that need to be considered when carrying out research in Indigenous communities.

3. Consider a health promotion program is in your area. How would you evaluate it?

4. What do you consider is important about collecting information on health-related quality of life?

5. Why is the AQoL (and/or HU13) considered more methodologically robust than other instruments available in the field?