Dabbling With Data: Morbidity And Mortality In Rural Australia
Part I

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What Do You Know?

This is a common Australian greeting which often invites an inane response. When you think about it, what you “know” depends very much on your own experience and how you interpret that experience.

For those of us who are health professionals in rural and remote areas we know the morbidity and mortality patterns in our own locality from clinical experience. We can think back over the last few years and say “we only see a couple of cases of pneumonia per year; or, ear infections are less frequent than they used to be; or maybe, this has been a bad year for asthma”.

Some clinical practitioners have gone a step further and have systematically recorded their observations, documenting changes and attempting to interpret the patterns of morbidity in their practice. One notable Australian example is Charles Bridges-Webb who as a rural general practitioner in Traralgon, Victoria, recorded morbidity patterns in his own practice. Subsequently he became Professor of General Practice at the University of Sydney and has undertaken national morbidity and treatment surveys. An international example is the work of Edward Jenner whose observations on cow-pox formed the basis of modern immunisation.

That is the experience of practitioners in the field. On the other hand, if we turn to health service planners, some have lived in the country, some visit from time to time but many are city dwellers who have little or no personal experience of what life, health and health services are like in rural and remote areas. Often, like many city dwellers, they see the country as “a nice place for a holiday, but I would not want to live there”. Generally their experience of health organisation and delivery is in the city. Consequently these health services planners’ main perspective on rural and remote area health is drawn from the data which then is interpreted from a city viewpoint.

What Do The Data Show?

So what do we know from the data? Australia is relatively well served with a range of health statistics from a number of different sources. Many data collections which provide health statistics are actually a product of administrative processes such as hospital in-patient collections. In addition special purpose collections are constructed to monitor other aspects of health and its contributing factors. Health data are commonly collected at the State or Territory level and may later be collated into national collections.
This slide shows some of the national collections: others include Australian Bureau of Statistics mortality data, State and Territory communicable diseases notifications, occupational health and safety data, the National Dental Health data and Disability and Handicapped data. Looking specifically at rural health data, it is clear that the widely held view that “country living is healthy living” is generally false. For example the recently published report on “Health Differentials Among Adult Australians Aged 25 to 64 Years” from the Australian Institute of Health and Welfare shows that the rate of avoidable deaths is on average 40% higher in the country than in the capital cities. For men the figure is 47% higher and for women 30% higher.

This slide shows examples of some specific morbidities. For pneumonia or influenza the rate is 94% higher amongst non-metropolitan women, whereas for traffic accidents for men in country areas it is 59% higher ...... and so it goes on. In contrast, non-metropolitan women have significantly lower death rates from breast cancer and suicide. Other sources of data tend to confirm this picture. Humphreys and Rolley’s review of the literature in 1991 found that respiratory problems including asthma and bronchitis appear to be more common in rural areas, as are allergies and skin cancers. In addition there are a number of diseases which are peculiar to farming and living in farming areas such as zoonoses like leptospirosis and hydatids.

Work-related injuries are more common and more severe and the injuries sustained from motor vehicle accidents also tend to be more severe. The nature of work-related injuries is affected by dangers inherent in rural pursuits like farming, timber work, and mining and also by the mindset of the workers. Hegney comments that “farmers have a high acceptance of occupational injury and disease, often wishing to be seen as “hardy”. This “hardiness” may be a result of the necessity to keep working which is particularly an issue for farmers.”

To some extent the farming outlook permeates through others in rural communities including those living in the towns. This “too tough to care” attitude probably, at least in part, explains higher rates of serious injuries. Lifestyle-related illnesses are more common in rural areas. These are associated with significant levels of stress, higher alcohol and tobacco consumption, and poor nutrition. The effects of recession in rural areas are often severe placing extreme pressure on rural communities. Generally counselling, support groups and other mental health services are limited, if available at all.

Looking specifically at Aboriginal and Torres Strait Islander health, the life expectancy of our indigenous peoples is twenty years less than that for the general population. In Victoria the mortality rates for Aboriginal people are more than double those which might be expected for the whole community. Turning to hospital admissions in Victoria, the rates of admissions of Aboriginal people are markedly higher except in the older aged groups where the Koories have died at a younger age than the population in general.

So that gives you a brief overview of what the data show regarding morbidity and mortality in rural and remote areas. I might say that the news is not all bad. The Health Differentials document also reports that, on average, country people are 40% less likely to report that they are unhappy.
How Are The Data Used?

Before exploring some of the difficulties with current data collection, I think it is worth reflecting for a moment on how data tends to be used in today’s real world. In the field, I would suggest that busy health professionals and administrators tend to deal with problems as they arise, making decisions without specific reference to the data. Also particularly at the level of individual health services, the data that is collected tends to be specifically to justify continuation of funding.

On the other hand at the policy or planning level, from time to time data are collected and presented to support specific proposals, but this brings no response until there is a change in the direction of the political wind. Also I would suggest that there is a tendency for policy and planning decisions to be made and then data sought to justify these decisions.

Can The Data Be Trusted?

So, we have had a quick look at what the data show regarding rural and remote areas and reflected on the current political and social reality of data collection and utilisation; but can the data be trusted? When looking at data from a rural perspective there are significant limitations which seriously affect interpretation. There are a number of collection biases which influence the validity and reliability of the data.

While Australian mortality data collections are very close to complete for purposes of enumeration, data quality issues apply. For instance, mortality data drawn from death certificates are affected by sensitivity to social and cultural factors such as unacceptable causes of death and, in rural and remote areas, logistic considerations in relation to post mortems. For the doctor completing the death certificate it is a document required by the undertaker which later may become the source of difficult questions from grieving relatives.

Looking at morbidity data collections they also may be relatively complete but often are collected for other purposes which affect interpretation. For example the Canadian Medicare system requires a diagnosis when claiming a rebate. This has led to the phenomenon of the “billing diagnosis”. There is some suggestion of similar developments with the introduction of Casemix funding for hospitals within Australia. In fact, the main purpose of many health data collections in this country is to justify funding of the health service.

On the other hand, collections of data which are not associated with financial or other imperatives are subject to compliance biases. For example notifications of communicable diseases are not complete due to difficulties of enforcement.
Despite the provisions in a number of data bases identification of Aboriginal and Torres Strait Islander status is not guaranteed, nor does it occur consistently. An additional issue for the validity of Aboriginal and Torres Strait Islander data is one of sampling. For example the 1989/90 National Health Survey provided for the identification of Aboriginal and Torres Strait Islanders, but sampling procedures may have been inadequate to provide detailed information.

The 1994/95 survey will address this issue by increasing the Aboriginal and Torres Strait Islander sample. Anecdotal and other evidence suggests that census and other data collected on a door to door basis may underestimate the Aboriginal and Torres Strait Islander populations as a result of collectors’ reluctance to enter these communities, or as a result of the communities being reluctant to communicate with “outsiders”. A Victorian study found that the best estimate of the Victorian Aboriginal population was almost double that of the census, and that this underestimation was most marked in rural areas.

Logistic difficulties also affect both data collection and interpretation. Particularly in remote areas, there is a relatively small number of health service staff whose primary task is to provide a clinical service and not data collection. For instance, remote area nurses in small isolated communities tend to be fully occupied meeting the health service needs of their community so that systematic data collection is a significant additional burden. Also the relatively small populations in remote areas create statistical limitations when it comes to analysis of the data.

Another limitation of the data is the variation between States and Territories of data collection and analysis processes such as the range of data collected, specific terminology used, and analysis criteria. This makes comparison of data collections across States difficult and impairs any attempt to develop a complete national picture.

Even within States and Territories data analysis may present an incomplete or distorted picture. Two years ago, the Victorian Department of Health and Community Services published a document entitled “The State of Victoria’s Health”. This report included population distribution by region but no further analysis by geographic location. It was as if rural Victoria did not exist or that it was an extension of Melbourne. Even analysis by State Health Department Region is flawed, in that these regions include large provincial centres, small remote communities and everything in between. A compounding factor in comparative interpretation is the inconsistency in boundaries used by other State and Commonwealth Departments such as Education.

Putting this all together it is very difficult at this time to develop a national picture of variations in rural and remote area morbidity and mortality because of the differences between State and Territory data sets.
Generally, analysis of data by geographic distribution has been severely hampered by the sampling frame of data collection applied. One example is the 1989/90 National Health Survey which only permitted distinction between capital city residents and other residents. The Health Differentials Report which I quoted earlier is drawn from this data set which means that the comparisons I quoted are between capital city residents and other residents. Another example is the National Heart Foundation Risk Prevalence Study which is conducted at regular intervals but occurs only in capital cities.

Drawing these various limitations of the data together, I think it is fair to say that the short answer to the question “can the data be trusted” is....... no!

How Can The Data Be Improved?

Having outlined the various problems and difficulties with current rural and remote area information, the next question is how could data collection and analysis be improved?

First, there is a need for consistent and accurate definitions which are used uniformly across all States and Territories. For instance, how do you define ‘rural’? And what about ‘remote’? I guess these vexed questions are well known to most of you.

One useful approach is the classification developed by the Commonwealth Health Department known as RaRA which stands for Rural and Remote Areas. The RaRA classification is being used by more and more researchers and administrators in data collection and analysis. It works reasonably well although the detail still requires adaptation in different parts of the country. For instance, in the study which I did of rural general practice in Victoria there emerged a clear distinction between towns with a population of greater than 20,000 and smaller rural communities. Also, like many current data collection frameworks, RaRA is centrally determined and does not incorporate local communities’ perceptions of “rurality” or “remoteness”.

A key issue in definitions and use of terminology is the reality that the same words mean different things to different people. The word “hospital” is an important example. In the city, a hospital is a large, monolithic, depersonalising, intimidating institution; whereas in the country a “hospital” is a small friendly “home away from home” for people in rural communities. Also many rural hospitals have traditionally provided a wide range of health services to their communities including nursing home type care, community health and domiciliary services which today might be defined as “multi-purpose services”.

My next suggestion for improvement in data collection and analysis is linkages. First, there needs to be linkage between public, private and not-for-profit health services. For example, analysing health services only using the Medicare data set, which sometimes happens now, virtually excludes remote areas whose health services are generally funded differently. The other linkage which is needed is between primary, secondary and tertiary levels of care. Currently it is not possible to tell whether cases of specific illnesses documented at one level and of another of the system refer to the same or different individuals. This problem would be overcome by the use of a single patient identifier throughout the system.
Also it would be advantageous to record which health professionals provide which services so as to more accurately reflect patterns of service delivery. For example, rural general practitioners provide hospital services which in the city are provided by specialists, whilst in many rural and remote area communities, registered nurses provide services which in other areas are provided by doctors. Implementation of these suggestions would facilitate mapping of both differing morbidity patterns and health service delivery in rural and remote areas.

To be truly comprehensive, data sets need to incorporate health information which currently tends not to be measured and other information relevant to health status such as socio-economic, occupational, health service availability, health professional workforce and transportation trends. There are many health care services which either are not recorded or are misrecorded because they fall outside the scope of conventional morbidity collections. The most prominent example is psycho-social problems managed by individual or group counselling or by personal support. In terms of classification this is at the interface between health and welfare.

Inclusion of this wider range of data would facilitate development of model health plans as recommended in the National Rural Health Strategy.

My next recommendation for improvement to the data is implementation of collection systems and sampling methods which permit analysis by geographic location such as using the RaRA classification. Until sampling frames at least provide sufficient information for analysis by RaRA it will not be possible to distinguish effectively patterns in health status, morbidity and mortality across rural and remote areas. In remote areas, over-sampling is required to permit robust statistical analysis.

Most current data sets have been centrally determined and, more often than not, developed to meet administrative needs. What is required is data collection developed from the “ground up” which balances the current “top down” emphasis. Development of “ground up” data collection frameworks requires active involvement of health care consumers and health service providers in rural and remote areas. Having been involved in developing the data collection framework, health professionals and consumers are well placed to participate in more appropriate specific data gathering. For example, rural surgeons in Victoria have developed a system for collecting information themselves to evaluate the standards of rural surgical care.
How Should The Data Be Used?

This brings me back to my initial theme of “what we know” and “how that knowledge is used”. With improved rural and remote health data, it ought to be possible to develop health services and allocate resources based on that information. This will require acknowledgment by city based health service planners and administrators that they “do not know it all” and a genuine recognition of and respect for the perspectives of people living in rural and remote areas.

In addition the decision-making process will require a balanced mix of locally derived information and national data collections.

To conclude this presentation I shall hand over to Trish Buckley, Director of the Australian Rural Health Research Institute. Trish will briefly introduce you to the Institute and describe how the Institute is working towards improving information on a whole range of rural and remote health issues.