

# Access to health services in densely populated rural regions

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## PURPOSE

Governments use geographic classifications such as Accessibility/Remoteness Index of Australia (ARIA) or Rural, Remote and Metropolitan Areas (RRMA) classification to allocate health program funds, determine program eligibility criteria for rural and remote locations, and administer a range of government programs including rural general practice programs.

This paper argues that geographic classifications such as ARIA alone do not necessarily reflect rural health service need, particularly in locations with relatively high population density such as Victoria. This paper proposes the development of a National Index of Health Care Access that takes into account a range of other measures such as service availability, population, socio-economic characteristics, and health status in addition to geographic measures, to better target government programs.

## BACKGROUND

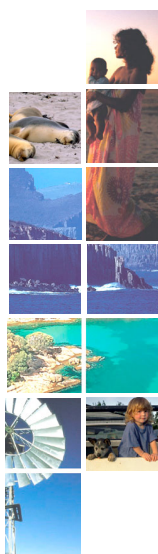
The Rural Workforce Agency Victoria (RWAV) supports the recruitment and retention of general practitioners (GPs) in rural Victoria and is seeking improved access and equity in the supply of health services to rural areas.

Like other parts of rural Australia, rural Victorians experience higher mortality and morbidity rates, greater socio-economic disadvantage and more significant shortages in the general practice, nursing, and allied health workforces than their metropolitan counterparts (A. RWAV 2002).

For example, recently published data (Heinrichs 2002) showed eight of the ten Divisions of General Practice with the greatest GP shortages in Victoria were rural divisions. The top three are Mallee Division (GP: Population ratio of 1:1460), Westgate Division in Melbourne's West (1:1364), and the Yarra Ranges Division, a fringe rural division with a GP to population ratio of 1:1350.

GP shortages indicate restricted access to GP services yet current measures of "accessibility" used to determine funding priorities, do not take into account availability of services when measuring need.

RWAV is concerned that they also do not reflect the level of community disadvantage that is measured in health status, morbidity and mortality data, and the socio-economic status of rural Victorians.



As a result, RWAV conducted two forums, a rurality forum in 2000 and a forum on access to services in densely populated areas in 2002, to further explore the issues of rurality and access. Detailed proceedings from these forums are available on the RWAV website at [www.rwav.com.au](http://www.rwav.com.au). This paper draws on findings from these forums.

## Using geographical classifications to measure access

Currently, geographical classifications such as Rural Remote and Metropolitan Areas classification (RRMA) and Accessibility/Remoteness Index of Australia (ARIA) are used to determine government funding and program priorities.

In broad terms, distance from service centres is considered a determining factor in measuring access to services, with the more remote locations perceived to have the highest need and the lowest levels of service accessibility.

As a result, geographical classifications have become the principle measure of access in the application of government rural health programs.

In rural and remote general practice programs, RRMA is still widely used. For example, rural loading funds for divisions of general practice are currently based on RRMA as are the Rural Locum Relief Program and More Allied Health Services program.

RRMA classifies localities based on population size and distance from a major urban centre. Localities are ranked on a scale from 1 to 7 and classified as metropolitan, rural or remote centres (Department of Industry and Energy & Department of Human Services and Health 1994, p 4).

Federal and State/Territory Governments are, however, increasingly using ARIA, with the Commonwealth Department of Health and Ageing nominating ARIA as its preferred classification (A. Commonwealth Department of Health and Aged Care 2001, p 24).

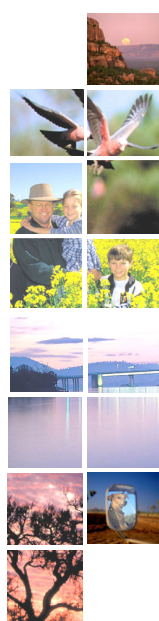
The National Key Centre for Social Applications of Geographic Information Systems (GISCA) at the University of Adelaide was commissioned in 1998 by the Department of Health and Ageing to develop ARIA.

Using Geographic Information System (GIS) technology, ARIA determines remoteness by measuring the road distance between populated localities and service centres which have a population greater than 5,000 (based on the 1996 census).

ARIA is based on the assumption that,

remoteness can be interpreted as accessibility to a range of services, some of which are available in smaller and others only in larger centres; the remoteness of a location can thus be measured in terms of how far one has to travel to centres of various size (Information and Research Branch, Commonwealth Department of Health and Aged Care and the National Key Centre for Social Applications of Geographical Information Systems 2001, p 11).

ARIA divides service centres into four categories depending on population and services available. A continuous score of remoteness from 0 to 12 is generated for any location in Australia (A. Commonwealth Department of Health and Aged Care 2001, Appendix C).



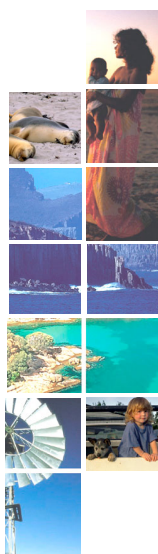
Localities are divided into five categories: Highly Accessible, Accessible, Moderately Accessible, Remote and Very Remote based on accessibility to goods and services and opportunities for social interaction (A. Commonwealth Department of Health and Aged Care 2001, Appendix A p 22).

Most recently, GISCA has undertaken a further development of ARIA known as ARIA+. The major differences between ARIA and ARIA+ are in changes to methodology in the categories in service centres, adjustments for Tasmania increasing its remoteness score, and road distances being calculated from the perimeter of the service centre rather than the middle of the service centre.

ARIA has been used in a wide range of programs including aged care funding and the Medical Specialists Outreach Assistance Program. GPARIA was also developed for use in the provision of retention grants for rural GPs and PH ARIA was developed for use in retention grants for rural pharmacists.

ARIA is also now applied by other agencies. The Australian Bureau of Statistics (ABS) uses ARIA+ in developing the Australian Standard Geographic Classification (ASGC), used in ABS data and publications. The ABS has, however, redefined the ARIA categories into different geographic categories of major cities, inner regional, outer regional, remote Australia and very remote Australia, removing any reference to accessibility (A. ABS 2001).

As a result ARIA+ will likely become the de-facto standard approach to determining remoteness and the Commonwealth Department of Health and Ageing believes that over time many users of ARIA within the Department will move to using ARIA+ (Information and Research Branch, Commonwealth Department of Health and Aged Care and the National Key Centre for Social Applications of Geographical Information Systems (GISCA) 2001, p 25).



## ISSUES

### Impact of using ARIA+ to allocate funding for rural health services

The application of ARIA as a measure of accessibility has significant problems, particularly when applied to relatively densely populated rural communities such as in rural Victoria or Tasmania. This is exacerbated further when one considers the impact on funding of rural health programs caused by a shift in the use of RRMA to ARIA.

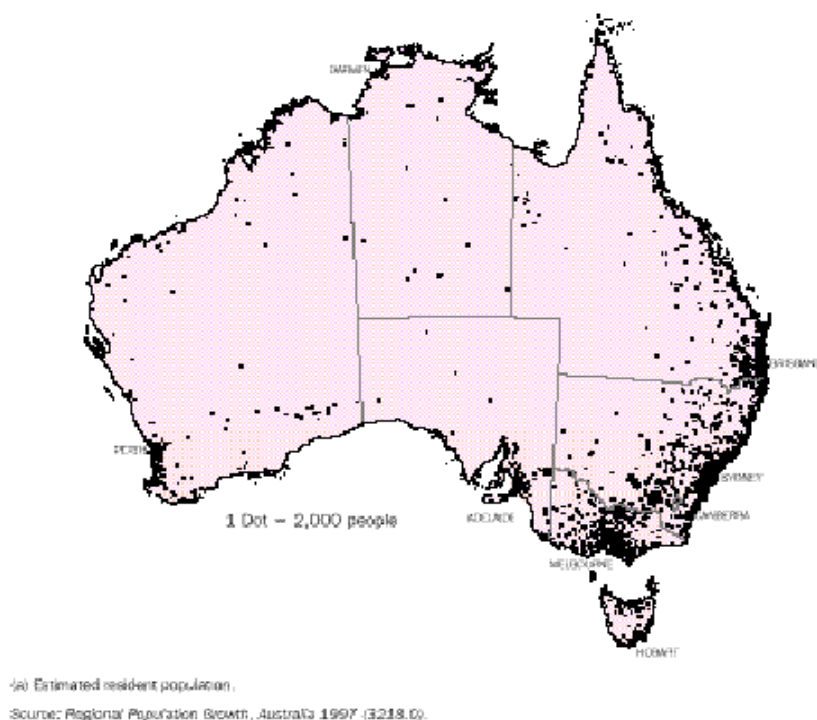
Australia's population is heavily concentrated on the coastal fringe. The ABS notes that:

Most of Australia's population is concentrated in two widely separated coastal regions. By far the largest of these, in terms of area and population, lies in the southeast and east. The smaller of the two regions is in the southwest of the continent. In both coastal regions the population is concentrated into urban centres, particularly the State and Territory capital cities. Half the area of the continent contains only 0.3% of the population, and the most densely populated 1% of the continent contains 84% of the population (B. ABS 2002)

The distribution of Australia's population is shown in the map below.

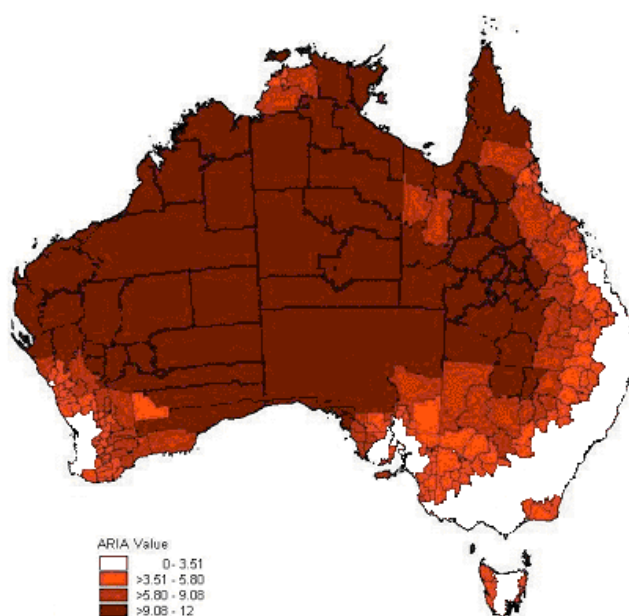
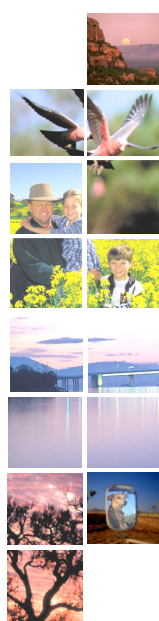


Figure 1 Population distribution – Australia, 1997



The following ARIA classification map mirrors Australia’s population density, with the white areas being those categorised as “Highly Accessible” and “Accessible”.

Figure 2 Map of Australia by ARIA



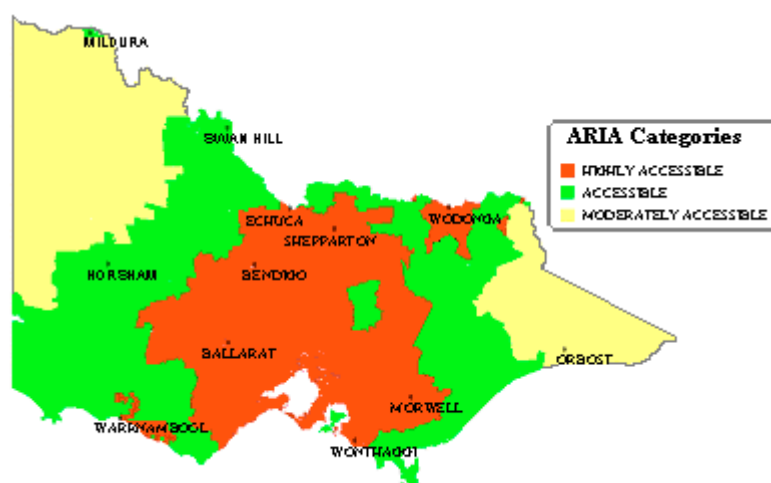
ARIA is based on distance to service centres. Victoria has the second highest population (4.6 million) (B. ABS 2001) in the second smallest landmass (227 420 sq. km,

3.1% of Australia's landmass) (A. ABS 2002). As a result, compared to the larger states and territories with vast areas of unpopulated outback, Victoria's rural communities are more likely to be classified as "Highly Accessible" or "Accessible".

Currently 91% of rural Victoria is classified as RRMA 4-7, becoming eligible for a range of programs and rural funding. Conversely under ARIA, 87% of rural Victoria is re-classified as "Accessible" or "Highly Accessible". "Highly Accessible" locations in Victoria include Melbourne and a large ring as far north as the border, ranking virtually all of central and northern Victoria in the same category as metropolitan Melbourne.

This means that a small community such as Rochester in Victoria, for example, which has a town population of 2552, is located 84kms from Bendigo, 309kms from Melbourne and has two GPs is considered "Highly Accessible", the same category as metropolitan Melbourne. These GPs support the local hospital and aged care services. The loss of a GP in this community would significantly affect the capacity of the community to access services.

Figure 3 Map of Victoria, by ARIA



The Commonwealth Government has flagged a shift in the rural loading funding from RRMA to ARIA as part of the review of divisions of general practice.

In 2002, the Commonwealth allocated \$6.06 million dollars to Victoria's rural divisions. Whilst the calculations of the funding components are not publicly available, based on 1996 population data, the divisions' funding formula, and eligible RRMA categories, RWAV estimated Victoria's rural loading at \$871 544.

The Commonwealth has made no indication as to what the cut-off points would be under ARIA, however, if population statistics were applied that did not include the "Highly Accessible" or "Moderately Accessible" categories, then it is estimated that Victoria's rural loading will be reduced to \$129 359 (RWAV submission to Divisions Review 2002, unpublished).

RWAV's submission to the Divisions Review argues that the Commonwealth needs to seriously consider the impact of a shift from RRMA to ARIA on rural health funding.

## The need to consider factors other than geography in measuring access

In his keynote address to the 5th National Rural Health Conference in 1999, John Humphreys said:

One critical research problem is the link between geographical location and the “fundamental social causes” which underpin rural health problems. While geographical location and the tyranny of distance continue to impact on health problems, “rurality” and “remoteness” need to be considered alongside a wide range of other determinants, which impact on the health status of rural and remote Australians (B. Commonwealth Department of Health and Aged Care 2001, p 3).

There has been much discussion about the need for a measure of access that relates geographical measures with other determinants of access. This is particularly important, as current measures are largely defined on the basis of geography or remoteness alone.

A relatively short distance to health service centres does not necessarily mean better access. There are significant problems of equity, disadvantage, and health service access and need in rural communities with higher population density.

Due to the limited focus on geographic distance the ABS recommends that ARIA not be used as a stand-alone measure of accessibility.

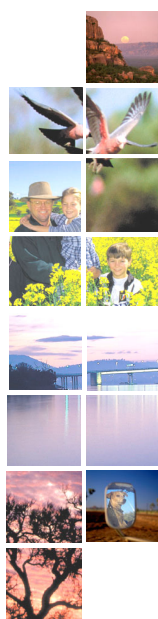
The ABS recognises that the, “existence alone of infrastructure does not mean that the services provided by the infrastructure can be efficiently accessed by the population (Malaeb 2001, p 1).”

The ABS argues that there are two different approaches to measuring accessibility of services to a community:

The first is a geographical approach, which defines accessibility in terms of environmental/spatial parameters influencing access, and focuses on the distance separating a community from nodes of activity. By definition, accessibility is the same for all members of a community under this approach. The second is a sociological approach, which concentrates on how perceptual, behavioural and socio-economic characteristics of individuals within an area can impinge upon accessibility to services. This approach recognises that different individuals within a community may have different levels of accessibility. However, it still makes sense to recognise that communities as a whole may find services less accessible because of sociological factors (Malaeb 2001, p 3).

The ABS suggests a number of factors that contribute to accessibility of services and are not taken into account by ARIA, including:

- travel time to key services eg mode of travel, road type and condition, and mobility
- socio-economic barriers including ability to communicate; access to transport; affordability and personal mobility
- degrees of access to services including equitable access, waiting times, range and quality of services, choice of service and perceptions of accessibility (Malaeb 2001, p 3).



By focusing on distance to population centres ARIA fails to reflect what Dr Dennis Griffith describes as the “real world” experience of communities (Griffith 2002, p 2). Griffith argues that:

[geographical classifications that do not define what they are measuring access to and from] will reveal nothing about the relative access disadvantage experienced in population centres, the cost of providing services to them, nor will it provide any meaningful demographic or outcomes data on the populations within them (Griffith 2002, p 2).

Griffith outlines the severe impact the use of ARIA indices can have:

[ARIA] produces outcomes that have the potential to significantly and negatively impact upon the wellbeing and life chances of many of the inhabitants of rural and remote Australia. It does this by inaccurately quantifying the extent of their needs and their capacity to access services vital to their own and their children’s futures (Griffith 2002, p 19).

The reliance on RRMA and in the future ARIA, affects an area’s ability to provide for their community. Current indices are failing to measure the reality of many rural and remote areas. One such example is the town of Morwell.

### Morwell case study

Morwell is a town of 13 000 people in central Gippsland in the Latrobe Shire.

Morwell is classified under RRMA as RRMA 4 but under ARIA as “Highly Accessible” (1.08). Morwell is part of the Latrobe Valley, which is the centre of Victoria’s power industry. Major nearby towns include Traralgon (19 000 people) and Moe (15 000 people).

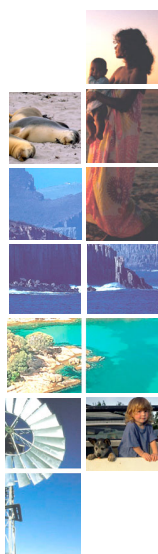
Based on demand indicators, Morwell is significantly in need. Using data from the *Social Health Atlas of Australia*, Vol 3, 1999, Morwell is ranked in the top 20% of the state for indicators including the highest unemployment rate, disability adjusted disease rates, proportion of female sole parents, socio-economic status according to Socio Economic Indexes For Areas (SEIFA), and families with no motor vehicle. It is rated in the second quintile for death from all causes of diseases for men and women and for proportion of low-income families in Victoria.

There is a regional hospital based at Traralgon, however like many other rural hospitals Traralgon has staff shortages and there are waiting lists for urgent, semi-urgent and non urgent treatment.

There are seven practices located in Morwell. One GP, Doctor A, has been practicing in Morwell for 24 years. Over time he has observed the progressive loss of very experienced GPs in the community and the recruitment of staff is a major issue.

Dr A’s practice employs seven and a half GPs at five full time equivalents and has been recruiting over many years.

A current crisis in this practice has been caused by the recent retirement of the GP next door who has been practicing in the area for 27 years. In closing his practice, the GP next door referred his patients to Dr A’s practice. This led to a flood of patients with practice staff having to turn away more than 40 patients per day and dealing with many irate patients.



To meet this demand, the GP applied to have a position approved as District of Workforce Shortage to recruit an experienced Overseas Trained Doctor Rural Recruitment Scheme participant. The Department has rejected the doctor's application repeatedly on the basis that Morwell has a higher GP to population ratio than the benchmark of 78 per 100 000 population. This is a universal benchmark used on a national basis for all RRMA 4-7 locations. The basis for the decision is not publicly available, however Health Insurance Commission data and local information is used in the decision making process.

Dr A recently had a serious illness requiring almost one year off work and he needs to reduce his workload but under current circumstances is unable to do so. The GP and the practice are overwhelmed by workload and circumstances. The solutions are frustratingly complex and slow in responsiveness. The GP rightly questions what can be done about this situation.

The difficulties experienced by Dr A's practice in recruiting staff will worsen under ARIA, as Morwell will be regarded as "Highly Accessible". An index that takes into account the need present in the town rather than just the distance to services and population benchmarks, is required so that a satisfactory and equitable level of health services is accessible to the community.

## INDEX OF HEALTH CARE ACCESS

In July 2000, RWAV conducted the first of a series of strategic forums on rurality classifications and their impact on rural Victoria. The forum involved a wide range of rural GP stakeholders and considered a range of rurality classifications currently in use including RRMA, ARIA and GP ARIA and the application of the classifications in the Victorian context (RWAV 2000).

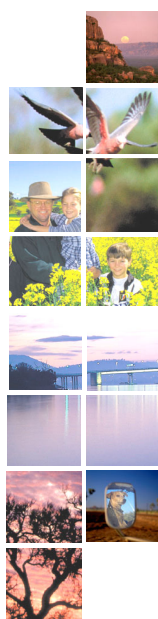
The forum concluded with the recommendation:

That, as a consequence of the generally agreed inadequacy of the General Practice Accessibility/Remoteness Index of Australia (GPARIA) as an accurate measure of rurality and the level of, need for, and access to GP services in any given location in the Victorian context, an index be developed which reflects the following factors:

- the health status of a community, including data relevant to morbidity as well as mortality
- the level of socio-economic disadvantage in a community
- locally identified factors that contribute to "area of need" including those characteristics unique to RRMA 3 locations
- full recognition and weighting of those issues specific to the urban/rural interface (fringe areas); and
- the needs of Indigenous populations and other special interest groups.

The index needs to be properly validated and be seen as a credible measure by the relevant communities, agencies and professional groups (RWAV 2000).

The requirement for an Index of Health Care Access was discussed further at a second forum titled "Access to Rural Health Services in Densely Populated Rural Regions," held in July 2002.



This forum examined:

- health access issues and the impact of high-density rural populations where there is a clustering of rural centres within a relatively small geographic area in Victoria
- indicators and issues of morbidity, mortality, disadvantage and access to health services in these rural areas.

The forum was well attended and very productive with 41 people from a range of government, non-government, academic, and health organisations, and with expertise in the fields of population health, regional development, economics, health infrastructure and service delivery, and workforce planning, including representatives from NSW and Victoria.

The range of speakers included Mr Andrew McCallum, Australian Council of Social Services, Prof Bob Birrell, Monash University, Mr Gordon Calcino, formerly Commonwealth Department of Health and Ageing and Health Insurance Commission, Dr Zahid Ansari, Victorian Department of Human Services, and Dr John Togno.

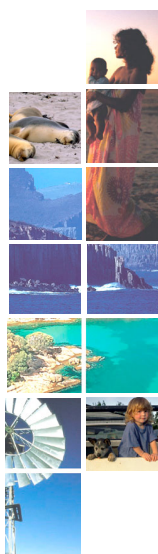
Victorian data was presented on a range of possible measures that could be considered in an Index of Access including:

- locations within one hour travel time to hospitals with specialist services
- morbidity and mortality measures by Local Government Area (LGA) including Disability Adjusted Life Years and male and female life expectancy
- socio-economic status by LGA including unemployment rates, proportion of single parent households, education levels and Aboriginality.

Dr Ansari, Victorian Department of Human Services, presented the work he has been developing in relation to Ambulatory Care Sensitive Conditions (ACSC) which measure on a local area basis, conditions which are thought to be avoidable if preventative care and early disease management are applied (Ansari, Carson, Serraglio, Barbetti & Cicuttini 2001).

The forum developed a series of recommendations including:

- that a National Index of Primary Health Care Access be developed
- the forum outlined a series of principles for the development of the Index. This included that the indicators be national but have the capacity to apply to small areas and comprise a small group of indicators that reflect a range of access dimensions including medical need.
- the forum also considered the model for the Index, likening it to the Consumer Price Index (CPI) that could be developed on an incremental basis and developed with consumer and community input. It was proposed that the model be developed by an independent body such as the Australian Institute of Health and Welfare and could be piloted and trialed in a range of communities from urban to remote.



- the purpose of the National Index of Primary Health Care Access is to:
  - maximise the health and well-being for people in particular areas, regardless of where
  - apply to a range of primary, secondary and tertiary services
  - support resource allocation
  - be used for reporting purposes (B. RWAV 2002).

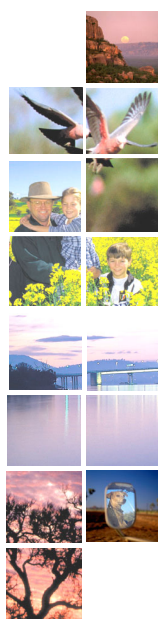
The Health Access Index Working Party established by the Forum meets regularly and has endorsed a proposal for a submission to scope the development of the Index. This Working Party continues to collect data and generate support for its recommendations.

The recommendations from the Forum have been subsequently endorsed by a number of national organisations including member organisations of Better Access for Rural Communities (BARC) consisting of, Australian Divisions of General Practice, Rural Doctors Association of Australia, Australian College of Rural and Remote Medicine and Australian Rural and Remote Workforce Agencies Group. BARC agreed to support the recommendations of the Forum and proposed the title of National Index of Health Care Access, which was subsequently adopted by RWAV.

At the 11th Biennial Conference of the Australian Population Association, Griffith argued that a service access classification must:

- define precisely what is being measured
- quantify on a nationally comparable basis access to a specific service or level of service
- define what type of service is required as the accepted norm or benchmark to determine whether a population centre has the required level of service
- acknowledge service access centres that provide services to other centres in that locality
- represent the real world, accommodating extremes
- involve a method of calculation that is objective and uses accepted, transparent and verifiable mathematical techniques, that withstands independent validation (Griffith 2002, p 2-4).

He notes that, “if the level of service is not available in a population centre, no matter what its size, it must have some degree of service access disadvantage to that service” (Griffith 2002, p 2).



## CONCLUSION

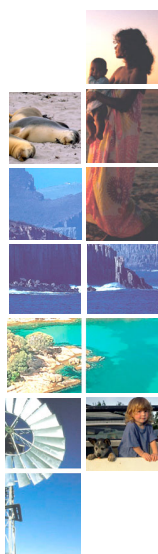
There is considerable evidence that a national measure of access is needed that takes into account a range of factors in addition to geography, such as:

- travel time to key services such as hospitals with specialist support
- morbidity and mortality measures
- socio-economic issues such as access to transport, ability to communicate, affordability, personal mobility as identified through unemployment rates, proportion of single parent households, education levels and Aboriginality.
- service shortages, availability, quality and choice.

This development requires comprehensive preliminary research to understand and define the components and determine the most appropriate model.

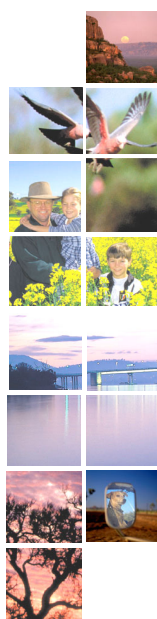
## Recommendations for the Conference

1. That the Conference support development of a National Index of Health Care Access that will:
  - maximise the health and well-being for people in particular areas, regardless of where
  - apply to the range of primary, secondary and tertiary services
  - support resource allocation
  - be used for reporting purposes.
2. That the Conference support the proposal to seek government funding to conduct a scoping study on the development of a National Index of Health Care Access that will:
  - examine similar indexes in Australia and overseas and identify key findings and work undertaken on health access in or indicators in Australia.
  - consult and gain stakeholder input on the framework and parameters
  - develop an agreed project definition document that will outline the proposed framework and parameters for the National Index of Health Care Access.
  - develop a data definition document that would address the technical data issues
  - prepare a final proposal and recommendations including costing options for the
  - construction of the Index and the trialing of the Index.



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## PRESENTER

**Sharon Kosmina** is the Workforce Policy Manager at the Rural Workforce Agency of Victoria. Sharon has worked with RWAV since its inception in 1998 and is responsible for RWAV's strategic planning, database development, workforce planning and research functions.

Sharon has a background in health and employment services consulting and business services and in Government agencies.

She has a keen interest in health and workforce policy issues and the development of a health access index.

