Rural, regional and remote health

Indicators of health

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Paul Roche, DoHA Communicable Diseases and Environmental Health Branch (advice and review of the notifiable diseases indicator).

Professor Fiona Judd, Monash University (mental health indicators).

Josie Barac ABS Health Section (National Health Survey data and review).

Tim Carlton, ABS Health Section (National Health Survey data).

Paul Atyeo, ABS Health Section (National Health Survey data).

Ken Black, ABS Disability, Ageing and Carers Section (disability data).

Margaret Sherley ABS Disability, Ageing and Carers Section (disability data).

Ros Madden, AIHW Disability Unit (disability data and advice).

Gill McPadden, ABS client services (Census data).

Kathie Whiting, ABS client services (Census data).

Tenniel Guiver, ABS Statistical Consulting (Census data).

Geoff Izzard, Statistics Unit DEST (progression from school to university, high school retention, students of tertiary health courses).

Helen Johnstone, AIHW Children, Youth and Families Unit (advice regarding community safety indicator).

Fadwa Al-Yaman, AIHW Children, Youth and Families Unit (advice regarding community safety indicator).

Mark Cooper-Stanbury, AIHW Population Health Data and Information Services Unit (data, advice and review pertaining to perception of risk, smoking, drinking and illicit drugs).

Anne Jenkins, AIHW Ageing and Aged Care Unit (method for crowding in households)

Anne-Marie Waters, AIHW Cardiovascular disease, diabetes and risk factor monitoring unit (method for crowding in households).

Alan Price, Informed Sources Pty Ltd (petrol price data).

Steve Whennan, ABS Consumer Price Index Section (food price data).

Tim Armstrong, AIHW Cardiovascular Disease, Diabetes and Risk Factor Monitoring Unit (advice pertaining to physical activity and inactivity).

Bonnie Field, AIHW Cardiovascular Disease, Diabetes and Risk Factor Monitoring Unit (nutrition).

Jennifer Mayhew-Larsen, HIC Health Information Section (immunisation data).

Jenny Hargreaves, AIHW Hospitals and Mental Health Services Unit (data and advice pertaining to hospital data, review of findings).

Peter Marlton, DoHA PBS Pharmaceutical Access and Quality Branch, (PBS data).

Maxine Robinson, DoHA PBS Pharmaceutical Evaluation/Pharmaceutical Benefits Branch (advice pertaining to PBS data).

This document is the fifth in a series of AIHW rural health reports developed and written by Andrew Phillips. He was assisted by Brendan Brady. The work was conducted under the editorial guidance of Glenice Taylor and Ken Tallis.

Abbreviations

ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
AGPS	Australian Government Publishing Service
AIHW	Australian Institute of Health and Welfare
ANZSIC	Australian and New Zealand Standard Industrial Classification
ARIA	Accessibility/Remoteness Index of Australia
ASGC	Australian Standard Geographical Classification
ATSI	Aboriginal and Torres Strait Islander
BEACH	Bettering the Evaluation and Care of Health
CD	Census collectors district
COPD	Chronic obstructive pulmonary disease
CPI	Consumer price index
DEST	Department of Education, Science and Training
DoHA	Department of Health and Ageing
DPIE	Department of Primary Industries and Energy
DVA	Department of Veterans' Affairs
EquIP	Evaluation and Quality Improvement Program
GIS	Geographic Information Systems
GISCA	National Key Centre for the Social Applications of GIS
GP	General Practitioner
HIC	Health Insurance Commission
ICD-10	International Classification of Diseases, 10th revision
ICD-9	International Classification of Diseases, 9th revision
IHD	Ischaemic heart disease
MBS	Medical Benefits Scheme
MVA	Motor vehicle accidents
NDSHS	National Drug Strategy Household Survey
NHMRC	National Health and Medical Research Council
NHS	National Health Survey
NPSU	National Perinatal Statistics Unit
OATSIH	Office for Aboriginal and Torres Strait Islander Health, DoHA
ORH	Office of Rural Health, DoHA
PBS	Pharmaceutical Benefits Scheme
RHD	Rheumatic heart disease
RHIAC	Rural Health Information Advisory Committee

RRMA	Rural, Remote and Metropolitan Areas (Classification)
SEIFA	Socioeconomic Indexes for Areas
SLA	Statistical Local Area
SMHW	Survey of Mental Health and Wellbeing of Adults
SMR	Standardised mortality ratio
STI	Sexually transmitted infection
TAFE	Technical and Further Education (College of)
WHO	World Health Organization

Abbreviations of places

ACT	Australian Capital Territory
Aust	Australia
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia

ASGC Remoteness Area categories

MC	Major Cities
IR	Inner Regional
OR	Outer Regional
R	Remote
VR	Very Remote

Symbols used in the tables and figures

–	nil or rounded to zero
. .	not applicable
n.a.	not available
n.p.	not published in this report
n.e.d.	not elsewhere described

Introduction

In 2003, the Australian Institute of Health and Welfare (AIHW) released *Rural, Regional and Remote Health: Information Framework and Indicators, Version 1* (the Framework) (AIHW 2003b). That report aimed to identify all the important issues affecting rural health, to assess available data sources and to describe methods for analysing and presenting regional comparisons for each issue. The report was referred to as 'Version 1' in recognition of the fact that the methods and data sets were untested, that the availability and quality of data would change over time, and that further issues relating to rural health may be identified and added to the Framework.

This report—*Rural, Regional and Remote Health: Indicators of Health*—uses data from administrative data collections and surveys to describe as many as possible of the indicators listed in the Framework. Indicators are organised according to the three tiers of the Framework (see page 311): health status, determinants of health, and health system performance. Another previous AIHW report, *Rural, Regional and Remote Health: a Study on Mortality* (AIHW 2003a), described mortality patterns in regional and remote areas in depth.

However, this is the first systematic report of a comprehensive range of rural health issues, including descriptions of the social setting in which people live, the prevalence of risk factors such as smoking, aspects of the health of people living in Major Cities and in regional and remote areas, and the health services available to these people. As was done for the first time in the mortality report, analyses of regional and remote data attempt to disentangle the effects of remoteness from the effects of poorer overall Aboriginal and Torres Strait Islander (referred to hereafter for brevity as 'Indigenous') health on the populations in different areas.

Other analyses have attempted to consider the possible effects of the migration of the frail aged towards less remote areas, potentially reducing the apparent size of inter-regional health differentials.

Where the data support it, and where differences have been apparent, details have been reported separately for males and females, and by age group.

Although measures of health status in this report describe average health status for the population living in each area, they do not predict an individual's health status, nor is the health status of an area 'adopted' by an individual after moving there. Similarly, migration of people into and out of areas means that any historical influence of the area's environment on health status statistics will be diluted by the influence of other areas from which people migrated.

This report is based on analyses of national data sets, many of them administrative data sets (for example, Health Insurance Commission and hospital morbidity data). It is not based on interviews with people living or working in regional and remote areas. Summary statistics derived from analyses of the large national data sets are useful because they are objective. However, they are rarely, if ever, capable of describing the subjective experience of living in regional or remote areas. This is both a strength and a weakness.

Readers should be aware that the Framework on which this report is based is not perfect, the available data sources are not complete, and the data are subject to a number of shortcomings. However, on a wide range of issues, the report provides useful detailed statistics with which to inform the development and evaluation of rural health policy.

For example, the report contains much information on health status (such as rates of chronic disease, mental health, birth outcomes, disability and mortality); determinants of health (such as fluoridated water, educational status, income, household crowding, cost of living, smoking, overweight and nutrition); and health system performance (such as immunisation, specialist consultations, bulk-billing rates, general practitioner (GP) consultations, supply of specific health professionals, and student commencements in a range of health courses).

Comparisons between areas can be affected by complex issues. For example, comparisons of numbers of GPs in each area are affected by issues such as the possibly different per-capita need for GP services in regional and remote areas from that in Major Cities.

Some indicators are not yet able to be quantified for a number of reasons:

- the data do not exist
- the data exist, but they are considered to be inaccurate
- the data are available for some states, but not nationally
- the data do not contain a geographic identifier (e.g. postcode) with which to allocate a remoteness category
- the data describe only part of the picture (e.g. Medical Benefits Scheme—Medicare (MBS) and Pharmaceutical Benefits Scheme (PBS) provide a large volume of services but lack data on other services).

A number of specific indicators proposed in the earlier Framework publication (AIHW 2003b) have not been presented; these include:

- aged care and the rate of GP consultation for specific conditions—compiling these indicators was thought to be technically too difficult in the time available
- hospital separations—the usefulness of the inter-regional comparisons was unclear, given the differences in precautionary admission practices, health need, function and capacity of hospitals in each area and other factors
- prescription—the only available data source was PBS data; because prescription drugs are available from other sources (and availability may vary between the remoteness areas), inter-regional comparisons of PBS data, in the absence of a clear understanding of the contribution of the other sources, may be misleading
- surgical and medical misadventure—the findings from this indicator were thought to be ambiguous and the data require further examination and improvement.

The indicators in this publication are a selection of those that could be reported against the Framework. They may in the future be augmented by additional analyses as data become available. In particular, data describing:

- referred specialist out-of-hospital consultation
- bulk billing rates
- primary care medical consultation
- care planning and case conferencing

could be derived from the Medical Benefits Scheme database.

Auxiliary data such as these could be included in future editions of this report or as a supplement to this publication via internet release.

Wherever possible, analysis has attempted to describe changes over time, except where data from different years were not comparable because of differences in the method of collection or in the classifications used or where data were available only for a limited number of years.

An important aim of rural health information is to be able to differentiate between the effects of ‘living in a remote area’ and the effects of ‘being Indigenous’. For many ‘rural health’ issues, it is becoming increasingly clear that they have more to do with Indigenous status than with rurality or remoteness. For other issues, however, remoteness per se plays a substantial part independent of Indigenous status. For this reason, and where possible, the results of regional analyses have been presented for Indigenous people and non-Indigenous people as well as for the overall population.

Analysis in this report differentiates between Indigenous and regional/remote effects except where:

- the Indigenous identifier was missing or considered to be inaccurate
- the small number of available records meant that inter-regional estimates would be particularly unreliable.

Regional Indigenous analysis has been conducted using Australian Bureau of Statistics (ABS) census data because:

- the census data were considered to be largely accurate for the variables of intent
- any errors in the numerators and denominators of rates were likely to be compensating (i.e. the inter-regional comparisons were not invalidated by the inconsistent levels of accuracy between the numerator and denominator data sets)
- there were sufficient records in the areas with the smallest populations to support inter-regional comparisons.

Where regional Indigenous analysis has not been possible, results for the national or ‘total’ Indigenous population have been presented. The aim is, wherever possible, to present the rural health statistics taking into account patterns observable in Indigenous health statistics.

In a number of cases, data were available for regional areas, but not for remote areas. This was particularly the case for surveys, such as the ABS National Health Survey. Consequently, several indicators lack data for remote areas.

In writing the report, it became obvious that simply reporting some indicators in the Framework might result in readers drawing misleading conclusions about health patterns unless those indicators were accompanied by additional details or analyses. For example:

- Inter-regional comparisons of health patterns for people older than 65 years were at odds with those for younger people, potentially as a result of the migration of older people who required access to services not available in the more remote centres. Consequently, comparisons have also been made for the population younger than 65 years.
- Differentials may have been affected by Indigenous issues rather than issues of remoteness per se, and consequently inter-regional comparisons have also been made, where the data allow, for Indigenous and non-Indigenous populations.
- While one sex might show better health outcomes in a particular area, the other may show worse outcomes. In these cases, inter-regional comparisons have been provided for each sex.
- Although indirect age-standardised rates identified areas with significantly better or worse outcomes than others, they did not indicate the magnitude of the issue. In cases such as these, the magnitude of the issue has been described using counts (for example, number of deaths or number of deaths in excess of what would be expected if Major Cities rates had applied in each area).

This work reports the results of statistical analysis of a range of census data, administrative data sets and surveys. The report does not enter into interpretations or policy conclusions, but it is hoped it will be a useful resource for those who design and evaluate policy, for researchers and for the broader community.

Data sources for this report include:

- ABS Census of Population and Housing conducted each 5 years
- national surveys such as the National Health Survey, the Survey of Mental Health and Wellbeing of Adults, the National Nutrition Survey, Child Dental Health Survey
- administrative data sets such as Medicare, Pharmaceutical Benefits Scheme, Hospital Morbidity and Hospital Establishments data, ABS Mortality data set
- other censuses such as the National Health Labour Force surveys that collect details when health professionals re-register
- some data from the private sector such as that pertaining to petrol prices.

Reporting against these indicators has tested the validity and practicality of the Framework (AIHW 2003b). Experience reporting against the indicators has provided information that will guide future enhancements of the Framework and the indicators suite.

As discussed earlier, there are many gaps in the report resulting from a range of data availability and quality issues. Moreover, it suffers from 'painting the Sydney Harbour Bridge' syndrome. The diversity of data sources consulted, the choice of geographic classification, demanding work priorities of many of the data suppliers and the sheer magnitude of the work means that by the time it is all completed, some parts are 'out of date'. Future reports of this type may include updates of subsets of the data (e.g. reports based on the most recent census or National Health Survey, or the latest mortality or hospital data).

Statistical analysis

The major statistical issues pertinent to this report relate to age standardisation and to statistical significance.

Age standardisation

In several situations, crude rates, simple percentages and means have been used to provide descriptive statistics. However, most comparisons have involved age standardisation.

Each population has its own demographic characteristics. For example, Indigenous populations tend to have proportionally larger numbers of children and smaller numbers of older people than non-Indigenous populations. Similarly, there are differences between the age structure and the proportions of males and females living in metropolitan, rural and remote populations (see page 160). Comparison of crude rates, percentages and means may simply reflect the different age and sex structures of populations rather than any difference in the underlying likelihoods of death, illness or consulting with a GP.

Age standardisation is a technique that can be used to take into account such differences. It is discussed further on page 302.

Statistical significance

Because of the influence of chance and natural variation, calculated rates will vary a little from year to year, regardless of whether the rates are based on census or survey data, although the latter may show greater variability. Where possible, so as to help determine whether calculated rates are meaningfully different from one area to another, confidence intervals have been calculated, and significant differences highlighted.

To simplify the text, two rates, percentages or means that are statistically significantly different at the 95% level of confidence are described simply as 'significantly different'. The words 'significantly' and 'significant' have been used only in this way in this report.

Frequently, differences in the underlying condition of the population are not statistically significant. This can be due to the fact that there is in fact little difference, or because the numbers of cases or observations are so small as to make it difficult to discern any real statistically significant difference.

In tables presented in this report, estimates significantly different from those in Major Cities are in bold print and accompanied by an asterisk. This indicates that the difference is likely to be a real difference that would be reflected in analyses of data from other years unless underlying conditions change over time.

In a number of places, estimates that appear to show a difference, but are *not* significantly different from those in Major Cities have been included (and identified as not significant) in tables. However, all such non-significant differences should be treated cautiously. These estimates have been included for completeness and because, taken together, they may point to a pattern or a trend.

Statistical significance is discussed further on page 302.

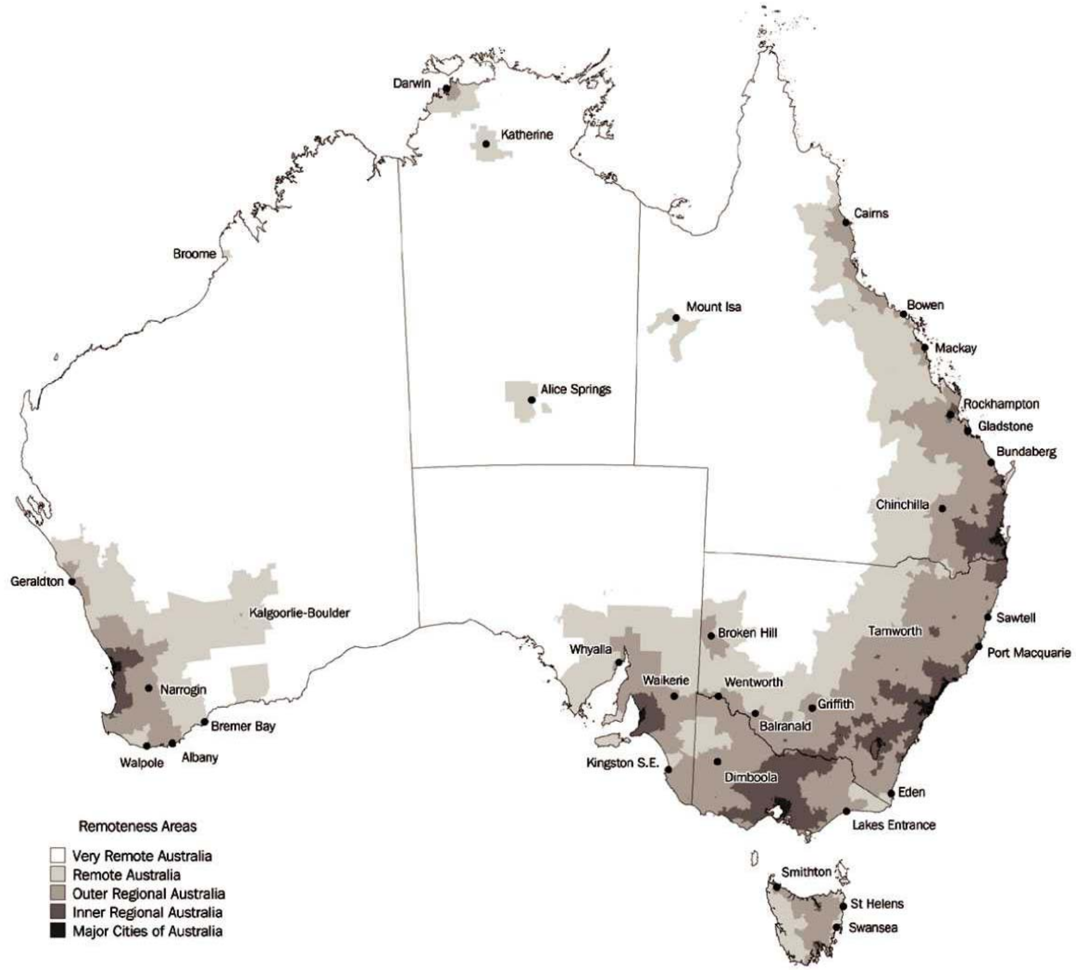
Geographical classification

The ABS Australian Standard Geographical Classification (ASGC) Remoteness Areas classification (see Figure A) was selected in preference to the Accessibility/Remoteness Index of Australia (ARIA) and Rural, Remote and Metropolitan Areas (RRMA) classification as the geographic basis for reporting for a range of reasons outlined in an earlier report in this series, *Rural, Regional and Remote Health: a Guide to Remoteness Classifications* (AIHW 2004a).

The ASGC Remoteness Areas classification was developed by the ABS and was based on ARIA+, which was developed earlier by the National Key Centre for the Social Applications of Geographical Information Systems (GISCA) (ABS 2001).

In figures and tables throughout this report, Major Cities, Inner Regional, Outer Regional, Remote and Very Remote categories have been abbreviated as MC, IR, OR, R and VR.

For more information on the various remoteness classifications please refer to the AIHW publication *Rural, Regional and Remote Health: A Guide to Remoteness Classifications* (AIHW 2004a).



Source: ABS.

Figure A: ASGC Remoteness Areas of Australia

Notes on data presentation

1. Percentages or numbers in tables may not add to 100 or other totals due to rounding.
2. Standardisation has been indirect where possible using Major Cities rates for males and females, typically those in the most recent year for which data is presented—details are provided with each analysis.
3. Where necessary, standardisation has been by the direct method. Where possible, direct age standardisation has used the 2001 Australian population as the standard.
4. Ninety-five percent confidence intervals have been calculated and used to identify statistically significant differences. Sometimes, when data were provided in summary form by another agency, there was insufficient information with which to calculate confidence intervals. Confidence intervals were not calculated for census data.
5. Statistical methods are described from page 302.
6. In this report, names of specific areas defined by the Australian Standard Geographical Classification have been capitalised (e.g. Inner Regional, Remote, Very Remote). Where reference has been made to generic 'regional' or 'remote' areas (respectively, Inner plus Outer Regional areas, Remote plus Very Remote areas), the terms have been left un-capitalised (e.g. regional, remote).
7. 'Excess' deaths are calculated by subtracting the expected number of deaths from the number observed. Expected deaths are the number of deaths expected annually if death rates found in Major Cities are applied to the populations living in each of the other areas. 'Excess' deaths provide an indication of the extra burden of mortality in each area.
8. Where there were fewer deaths than expected, this report states, for example, either 5 fewer deaths than expected annually or –5 'excess' deaths annually; both expressions mean the same thing.
9. All statements about rates in this report are based on the ratio of observed to expected events or observations. If there are twice as many events (e.g. deaths) as expected, then the rate (e.g. of death) can be assumed to be twice that of the comparison population.
10. Where rates are statistically significantly different from one another, they are referred to in the text as 'significantly different'; if rates are not statistically significantly different, they are not said to be significantly different. Statistical significance is at the 95% level.
11. In some situations, differences that just fail to be statistically significant at the 95% level, in contexts that suggest that real differences exist, have been described as 'apparent' rather than 'significant' differences; alternatively, the difference is stated as being statistically significant at 'a lower level of confidence'.
12. Statistically significant figures are indicated in tables in bold and with an asterisk.
13. To improve readability, where reference is made to 'Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas', the term 'the five areas' has been used. Where there is reference to 'Inner Regional, Outer Regional, Remote and Very Remote areas', the term 'the four areas outside Major Cities' has been used.

Summary

This summary is intended to give an overview only: it merely skims the surface of the information to be found in the body of the report. More detailed summaries can be found at the beginning of each indicator throughout the report.

This summary briefly outlines the major findings for each indicator, and is organised sequentially by the three Framework tiers and in the order that indicators are described in the report.

Tier 1 Health status

Chronic diseases

There was a degree of consistency in the apparent prevalence of a range of chronic diseases. However, because the data are from a survey, differences were often not statistically significant.

The chronic health conditions are self-reported. Inter-regional differences may reflect different levels of awareness as well as different levels of disease prevalence.

- Overall there was no significant difference between the prevalence of self-reported 'all chronic diseases' in regional areas and Major Cities. However, the prevalence among 15–64-year-old regional females was about 1.1 times as high as for their counterparts in Major Cities.
- The prevalence of self-reported diabetes in regional areas was 0.9 times that (i.e. lower than) in Major Cities. This is influenced by regional prevalences that were 0.7 times as high for males and indistinguishable for females, as for their counterparts in Major Cities. This pattern of self-reported diabetes prevalence is at odds with higher rates of diabetes-related mortality in regional areas.

  In 2001, people in Major Cities were 1.25 times as likely, respectively, to self-report diabetes as in 1995. Males in regional areas were about as likely to self-report diabetes as in 1995, whereas females in regional areas were 1.44 times as likely to self-report diabetes as in 1995.
- For males, the prevalence of self-reported asthma in 1995 was 1.1 times as high in regional areas as in Major Cities, but in 2001 it was 0.9 times as high. For females, the patterns in both years were similar (i.e. a significant 1.06 times as high in regional areas in 1995, and an apparent 1.06 times as high in regional areas in 2001). In 2001, people in Major Cities were 1.1 times as likely to self-report asthma as in 1995, and in regional areas, males and females were, respectively, 0.85 and 1.1 times as likely to self-report asthma as in 1995.
- There was no significant difference between the prevalence of self-reported bronchitis and emphysema in Major Cities and regional areas as a whole, although prevalence tended to be lower in regional areas (significantly lower for females in Outer Regional areas). In 1995, regional prevalence was 0.92 times that in Major Cities (0.78 times as high in Outer Regional areas). In 2001, people in all areas were about 0.85 times as likely

to self-report bronchitis or emphysema as they had been in 1995. The inter-regional pattern for self-reported prevalence conflicts with death rates from this condition, which were about 1.2-1.4 times as high for males in regional areas, and about 1.05–1.1 times as high for females in regional areas, as those in Major Cities.

- There were about as many males and females in regional areas as expected who self-reported ischaemic heart disease (IHD) (although there were half as many 45–64-year-old regional males as expected). This is at odds with regional death rates for males and females, which were, respectively, about 1.10 and 1.05 times as high as in Major Cities. However, interpretation of this apparent contradiction is hampered by relatively wide confidence intervals for the prevalence data.

Injury

Compared with their counterparts in Major Cities:

- people from regional areas were 1.2 times as likely to self-report a recent injury
- males and females from regional areas were 1.24 and 1.12 times as likely, respectively, to self-report a long-term condition due to injury.

Mental health

People in regional areas were about as likely to report psychological distress, and affective, anxiety or substance abuse disorders as those in Major Cities. The data suggest, however, that compared with counterparts in Major Cities:

- depression was 1.4 times as prevalent for 45–64-year-olds from Inner Regional areas, and 0.4 times as prevalent among those 65 years and over from Outer Regional areas
- males in Outer Regional areas were 0.73 times as likely to report anxiety
- substance abuse disorder in 18–24-year-old women from regional areas was twice as prevalent, but 0.35 times as prevalent among men aged 65 years and over from regional areas.

Dental health

Children aged 6 years and 12 years in regional/remote areas had, respectively, about 1.3 and 1.2 times as many decayed, missing or filled teeth as their counterparts in Major Cities. This could be partly explained by the lower proportion of adequately fluoridated reticulated water systems in regional and remote areas than in Major Cities (see page 120). It may also be linked to fewer dentists in these areas (see page 267).

Communicable diseases

Rates of communicable disease notification tended to increase with remoteness.

Compared with Major Cities in 2001, rates of notification for the following diseases in Inner Regional, Outer Regional and remote areas respectively were:

- salmonellosis—1.3, 2.1 and 4.3 times as high
- campylobacteriosis—the same in all areas

- Ross River virus—3.1, 4.9 and 8.7 times as high
- pertussis—1.3, 1.9 and 1.9 times as high
- syphilis—0.5, 1.4 and 12.5 times as high
- chlamydia—0.9, 1.7 and 4.1 times as high.

High rates of notification for syphilis, chlamydia and salmonella in regional and especially remote areas probably reflect high average rates in the Indigenous population, and the greater representation of Indigenous people in the populations of those areas.

High rates of Ross River virus in these regional and remote areas probably reflect higher overall rates of exposure to disease vectors such as mosquitoes. Ross River virus notifications were less common for Indigenous people than they were for non-Indigenous people.

Rates of pertussis are high in regional and remote areas even though they tend to be low overall for Indigenous people. Whatever the reason for higher rates of pertussis notification outside Major Cities, it is unlikely to be due to high rates in regional and remote area Indigenous populations (as appears to be the case for some of the other communicable diseases described here).

Birthweight

Compared with their counterparts in Major Cities:

- very low birthweight babies were about as prevalent in regional areas (1.2–1.4% of births) and slightly more prevalent in remote areas (1.5–1.8% of births); 2.2% of Indigenous newborns were of very low birthweight, probably influencing percentages in remote areas
- non-Indigenous newborns from regional and remote areas were about as likely to be of very low birthweight and tended to be slightly heavier on average.

Disability

Compared with their counterparts in Major Cities:

- males in regional areas were 1.2–1.3 times as likely to have a disability, and 1.2–1.4 times as likely to have a severe/profound disability
- females in regional areas were 1.05 times as likely to have a disability, and 1.05–1.09 times as likely to have a severe/profound disability.

Reduced activity because of illness

The average number of days of reduced activity was greater in regional areas (3–4% higher in Inner Regional areas, and 10% higher for males in Outer Regional areas) than for their counterparts from Major Cities. The difference was slightly greater for non-Indigenous people in Outer Regional areas.

Statistical significance was not calculated, so the results should be interpreted with caution.

Life expectancy

Life expectancies were highest in Major Cities and lowest in Very Remote areas, dropping from 78 years to 72 years for males, and from 84 years to 79 years for females.

These comparisons are likely to be strongly affected by much lower Indigenous life expectancy and by the potential migration of the frail aged to less remote areas.

Indigenous males and females had life expectancies of 56 and 63 years, respectively, compared with 77 and 82 years, respectively, for all Australian males and females.

Life expectancies for non-Indigenous people in regional areas were similar to those for the total population, but were greater in remote areas than in Major Cities (potentially affected by migration of the frail aged to less remote areas).

The probability of non-Indigenous people living to 65 years of age was slightly greater in Major Cities than in the other four areas (dropping from 85% to 82% for males and from 91% to 89% for females).

Self-assessed health status

Compared with their counterparts in Major Cities:

- males in regional areas (particularly those aged 25–44 years) were less likely to self-report good health; females were about as likely to self-report good health
- people in regional areas were about as likely to report poor health (except for those aged 25–44 years in regional areas who were about 1.3 times as likely to self-report poor health as their Major Cities counterparts).

In 2001, people in Major Cities and regional areas were about 0.95 times as likely to self-report good health, and about 1.07 times as likely to report poor health as in 1995.

Indigenous people were less likely to self-report good health (34%) and more likely to self-report poor health (34%) than their non-Indigenous counterparts (52% and 18%, respectively).

'Happiness'

Although some results are unclear, it appears that people in regional areas were as likely or less likely to feel delighted about life as those in Major Cities, and more likely to feel that life was terrible. To place this in context, about 12% of Australians felt delighted, and about 1% felt terrible about life.

The inter-regional pattern for non-Indigenous people was similar to that described above for the total population. Comparable data for Indigenous versus non-Indigenous people is not available.

Overall mortality

Compared with their counterparts in Major Cities:

- males and females from regional, and especially remote, areas had higher rates of death
- death rates rose with increasing remoteness. For males, they rose from 1.1 times the Major Cities rates in regional areas to 1.5 times in Very Remote areas. For females, they rose from 1.05 times to 1.5 times.

High rates in remote areas, especially, were influenced by high overall death rates for Indigenous people—rates were 3 times those for their non-Indigenous counterparts from Major Cities.

Rates for non-Indigenous people were roughly similar in all areas but tended to be lower in remote areas—potentially a consequence of the migration of the frail aged.

Rates for non-Indigenous people younger than 65 years in regional and remote areas were 1.1 to 1.2 times those in Major Cities.

Perinatal mortality

Compared with their counterparts in Major Cities:

- rates of foetal and neonatal death were higher in regional and especially remote areas
- foetal death rates were 1.1, 1.2, 1.4 and 2.2 times as high in the four areas outside Major Cities (Inner and Outer Regional, Remote and Very Remote areas)
- neonatal death rates were 1.2, 1.3, 1.5 and 2.9 times as high in the four areas.

Compared with non-Indigenous babies, Indigenous babies were 1.9 times as likely to be stillborn and 2.6 times as likely to die within 28 days of birth.

Data accuracy issues prevent disentanglement of Indigenous and regional/remote effects. It is clear, however, that overall high rates of Indigenous perinatal mortality have a substantial effect in remote areas.

Causes of death

The leading causes of the higher death rates experienced in regional and remote areas are mainly circulatory diseases (42% of the 'excess' deaths) and injury (24%), with respiratory disease and cancers contributing about 10% of the 'excess' each.

Coronary heart disease (23%), 'other' cardiovascular disease (16%), chronic obstructive pulmonary disease (11%), motor vehicle accidents (11%), diabetes (6%), suicide (6%) and 'other' injuries (6%) were the main contributors to the 'excess' deaths that elevate regional and remote area mortality above levels experienced in Major Cities. Prostate, colorectal and lung cancers together contributed another 10% of the 'excess' deaths.

Tier 2 Determinants of health

Fluoridated water

Over 80% of localities in Major Cities had reticulated water supplies that were adequately fluoridated, compared with 30–40% of those in regional and Remote areas, and 25% of those in Very Remote areas.

These findings are indicative only.

Educational status

Secondary education

Adults living in regional and remote areas were less likely to have completed secondary school than those from Major Cities. About 48% of adults living in Major Cities had finished school at Year 12 or equivalent, compared with about 30–32% of adults in regional and Remote areas, and 26% of adults from Very Remote areas.

These figures are influenced by rates for Indigenous adults who were less likely than non-Indigenous people to have finished Year 12 or equivalent:

- 27%, 20%, 14% and 9% of Indigenous adults in Major Cities, regional, Remote and Very Remote areas had finished Year 12 or equivalent
- 48%, 32%, 31%, 33% and 36% of non-Indigenous adults from Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas had finished Year 12 or equivalent.

Tertiary qualifications

Adults from regional and especially remote areas were less likely to have tertiary qualifications (including TAFE qualifications) than adults from Major Cities. Indigenous adults in all areas were less likely than non-Indigenous adults to have tertiary qualifications.

- 19%, 11%, 9%, 9% and 8% of all adults from the five areas (Major Cities, Inner and Outer Regional, Remote and Very Remote areas) had a bachelor's degree or higher
- 71%, 76%, 82%, 86% and 94% of Indigenous adults in the five areas had no tertiary qualifications
- 55%, 61%, 65%, 64% and 61% of non-Indigenous adults in the five areas had no tertiary qualifications (the inter-regional difference is less than for the total population).

High school retention

High school retention decreased with increasing remoteness, and Indigenous 17-year-olds were less likely to be still attending high school than non-Indigenous 17-year-olds.

Compared with their 17-year-old counterparts in Major Cities:

- 17-year-olds living in the four areas were 0.84, 0.72, 0.44 and 0.23 times as likely to be attending high school
- non-Indigenous 17-year-olds living in the four areas were 0.85, 0.73, 0.45 and 0.33 times as likely to still be attending high school.

Indigenous 17-year-olds living in the five areas were, respectively, 0.72, 0.65, 0.54, 0.33 and 0.18 times as likely to still be attending high school as non-Indigenous 17-year-olds living in Major Cities.

Progression to university

Young people from regional and remote areas were substantially less likely to commence tertiary (university or TAFE) studies than were their counterparts from Major Cities.

Compared with their counterparts from Major Cities:

- young people from the four areas were 0.68, 0.60, 0.38 and 0.25 times as likely to commence tertiary education
- young non-Indigenous people from the four areas were, 0.69, 0.61, 0.33 and 0.53 times as likely to commence tertiary education.
- young Indigenous people were 0.3 times as likely to commence tertiary education as young non-Indigenous people.

Employment

In 2001:

- 7% of the adult population in Major Cities were unemployed, compared with 8–9% in regional areas and 5–6% in remote areas.
- 73% of the adult population in Major Cities were working or looking for work (i.e. participating in the labour force), compared with 71–72% in regional areas, 75% in Remote areas and 68% in Very Remote areas.

Unemployment rates for Indigenous people were 17%, 22%, 21%, 18% and 8% in the five areas.

Unemployment rates for non-Indigenous people were 7%, 8%, 8%, 5% and 4% in the five areas.

Participation rates for Indigenous people were 58%, 53%, 52%, 52% and 48% in the five areas.

Participation rates for non-Indigenous people were 74%, 72%, 73%, 78% and 82% in the five areas.

Income inequity

Equivalised after-tax household incomes ('income') in regional areas were about 80% those in Major Cities (i.e. they were less).

In 1999, 'income' inequality was greater in Major Cities than in regional areas.

Between 1996 and 1999, 'income' inequality became about 8% greater in the Major Cities and Inner Regional areas, but 7% lower in Outer Regional areas.

Main sources of employment

Agriculture, forestry and fishing industries combined employed 0.4%, 4%, 10%, 15% and 11% of the adult population in the five areas respectively.

Mining employed another 0.3%, 0.5%, 1%, 5% and 5% of adults in these areas.

Manufacturing employed about 8%, 6% and less than 3% of adults in Major Cities, regional and remote areas.

Retail employed 7–9% in all areas except Very Remote areas where it employed 5%.

Education employed 4–5% in each area.

Health and community services employed between 4% and 6% in each area.

Construction employed 3–4% in each area.

Socioeconomic status

For the three indexes of relative socioeconomic disadvantage, economic resources, and education and occupation, outcomes were better in Major Cities than in regional and remote areas. For example:

- 34%, 14%, 8%, 10% and 2% of people in the five areas respectively lived in Australia's least disadvantaged Statistical Local Areas.
- 20%, 28%, 23%, 26% and 53% of people in the five areas lived in Australia's most disadvantaged Statistical Local Areas.

Demography

In 2001, 66%, 21%, 10%, 2% and 1% of the population lived in Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas, respectively.

The percentages of these populations that were Indigenous were, respectively, 1%, 2%, 5%, 13% and 44%.

Females slightly outnumbered males in Major Cities; males outnumbered females in the other areas, substantially so in some age groups in remote areas.

There were substantial differences in the age structure of the populations in each area. Children were proportionally more numerous in regional and especially remote areas; people aged 25–44 years were less numerous in regional areas, but proportionally more numerous in remote areas; and people aged 65 years and over were slightly more numerous in regional areas and substantially less numerous in remote areas.

Between 1996 and 2001, the populations of Major Cities and Inner Regional areas grew by 7%, while the populations in the other areas grew by less than 5%.

Dependency ratios

The childhood dependency ratio was higher in regional and especially remote areas than it was in Major Cities.

The aged dependency ratio was higher in Inner Regional areas than in any of the other areas, and lower in Remote and especially Very Remote areas than it was in Major Cities.

Between 1991 and 2001, childhood dependency ratios decreased in all areas. This decrease was substantially steeper in regional and remote areas than in Major Cities.

In the same period, aged dependency ratios increased in all areas—faster in regional and Remote areas and similar in Very Remote areas compared with Major Cities.

Between 1991 and 2001, total dependency ratios for all areas decreased slightly in Major Cities and regional areas, but there was a larger decrease in remote areas.

Internal migration

Migration has a substantial influence on some populations, especially those from Very Remote areas, the young and the elderly.

Migration between remoteness areas caused adult populations in Major Cities and Inner Regional areas to increase, respectively, by 0.1% and 0.2% each year, and those in Outer

Regional, Remote and Very Remote areas to decrease, respectively, by 0.6%, 0.8% and 2.1% each year.

A lower percentage of the Indigenous populations in each area migrate than was the case for non-Indigenous people. The overall or net trend appears to be for migration towards less remote areas.

There was a very strong trend for non-Indigenous people aged 15–24 years to migrate towards Major Cities.

Net migration of non-Indigenous people in the other age groups tended to be from all other areas (including Major Cities) towards Inner Regional areas. The percentage of the population in each age group moving out of Very Remote areas each year was between 3% and 5%.

Fertility

Birth rates were higher for women in regional and remote areas than for those in Major Cities, and increased with increasing remoteness.

Birth rates for 15–19-year olds were up to twice as high in regional areas, and 3 and 7 times as high in Remote and Very Remote areas as in Major Cities. Particularly high rates in regional and especially remote areas are likely to be influenced by high fertility among young Indigenous women.

Birth rates for 20–29-year-old women in regional and remote areas were about 1.5 times those in Major Cities, and rates for women older than this in these areas were less than those in Major Cities.

Community safety

Homicide death rates have been used as an indicator of the general level of violence in each area.

Homicide death rates were substantially higher in Remote and Very Remote areas than in Major Cities and regional areas (although the actual numbers of deaths were relatively small).

Homicide death rates for Indigenous males and females were, respectively, about 6 and 11 times those for their non-Indigenous counterparts.

Homicide death rates for non-Indigenous people in regional and remote areas were similar to, or lower than, those in Major Cities.

Risk-taking behaviour

Compared with their counterparts in Major Cities:

- Males in regional and remote areas were more likely to engage in personally risky behaviour. The inter-regional differences for females were less consistent, but suggested slightly higher rates in more remote areas.
- Males and females in regional and remote areas appeared to be 1.2–1.4 times as likely to engage in socially risky behaviour.

Tenure over dwellings

About 40% of households in Major Cities, regional and Remote areas were owned by their occupants, compared with about 30% in Very Remote areas.

Just under 30% of dwellings in Major Cities and Inner Regional areas were in the process of being purchased by their occupants, compared with about 20% in Outer Regional and Remote areas and 15% in Very Remote areas.

Between 25% and 30% of households in Major Cities and regional areas were renting, compared with 34% in Remote and 44% in Very Remote areas.

Indigenous households were less likely to own or be purchasing their dwelling and more likely to be renting than non-Indigenous households.

About 40% of non-Indigenous households in each remoteness area owned their own dwelling; the percentage purchasing decreased with remoteness outside Inner Regional areas, and the percentage renting correspondingly increased slightly.

Crowding in households

Households in Very Remote areas were much more likely to be crowded (14%) than those in less remote areas (2–3%).

Indigenous households were much more likely to be crowded, especially in Very Remote areas (40%). There was little difference across the five areas for non-Indigenous households (2–3% in all areas).

Access to motor vehicles

In non-Indigenous households, personal access to motor vehicles was greater for those outside Major Cities than for those inside Major Cities.

In Indigenous households, access to motor vehicles was lower than for non-Indigenous households, and was much lower in remote areas.

Cost of living

Food prices increased with remoteness. Food prices in Very Remote areas were between 14% and 19% higher than in the Australian capital cities.

Fuel prices also increased with remoteness. On average in Very Remote areas, unleaded petrol prices were between 9 and 11 cents per litre higher than in the Australian capital cities, and diesel prices were between 5 and 7 cents per litre higher.

The cost of housing decreased with remoteness. In 2001, rents were 0.75, 0.7 and 0.6 times as high in regional, Remote and Very Remote areas as in Major Cities, and mortgages were 0.8 times as high in regional and Remote areas, and 0.7 times as high in Very Remote areas as in Major Cities in 2001.

Smoking

In 2001, people in regional areas were more likely to smoke than those in Major Cities.

Compared with counterparts in Major Cities:

- males in Inner and Outer Regional areas were 1.0 and 1.2 times as likely to smoke
- females in Inner and Outer Regional areas were 1.15 and 1.25 times as likely to smoke
- younger males in Outer Regional areas and younger females in regional areas were 1.3 times as likely to smoke.

In 2001, people in Major Cities were 0.94 times as likely (i.e. less likely) to smoke as in 1995. However, in regional areas, there was no significant difference between the proportions who smoked in 1995 and 2001 (although there was a possible increase in the proportion of females from regional areas who smoked). The upshot is that the relative difference between Major Cities and regional areas appears to have become greater, particularly for females.

Overall, 51% of Indigenous people smoked in 2001, compared with 24% for all Australians.

Hazardous alcohol consumption

Compared with their counterparts in Major Cities:

- males in regional areas were about 1.3 times as likely to engage in risky alcohol consumption
- females were either about as likely to engage in risky alcohol consumption (ABS National Health Survey), or about 1.25 and 1.15 times as likely (AIHW National Drug Strategy Household Survey).

Males and females in Major Cities and regional areas were substantially (about 30%) more likely to engage in risky alcohol consumption in 2001 than they were in 1995.

Overall, Indigenous people were equally as likely as non-Indigenous people to engage in risky alcohol consumption, but Indigenous males aged between 25 and 55 years appeared to be more likely than their non-Indigenous counterparts to do so. Indigenous people were also more likely than non-Indigenous people to abstain from drinking alcohol.

Illicit drug use

Compared with their counterparts in Major Cities:

- people in Inner and Outer Regional areas appeared to be 1.00 and 1.08 times as likely to have recently used cannabis. The situation for people in remote areas is less clear.
- males in Inner and Outer Regional and remote areas were 0.75, 0.98 and 0.78 times as likely to have recently used other illicit drugs and females were 0.76, 0.90 and 0.85 times as likely.

Physical inactivity

Compared with their counterparts in Major Cities, people in Inner and Outer Regional areas were, respectively, as likely and 1.13 times as likely to be sedentary.

Sedentary is defined here as doing no physical activity for exercise, recreation or fitness. This definition excludes other physical activity (e.g. work or active transport).

This pattern is broadly reflective of the pattern in 1995. The percentage of the Major Cities population who were sedentary decreased from 33% in 1995 to 30% in 2001. This difference was apparent for males in regional areas, but less apparent for females.

Of Indigenous people in non-remote areas, 43% were sedentary, compared with 30% of non-Indigenous people.

Nutrition

Compared with their counterparts in Major Cities:

- males and females in Inner and Outer Regional areas were 1.6 times as likely to eat four or more serves of vegetables per day
- people in Inner Regional areas were about as likely to eat two or more serves of fruit per day , and those in Outer Regional areas were slightly less likely.

Indigenous people overall were slightly less likely than non-Indigenous people to have a medium to high fruit intake, but slightly more likely to have a medium to high vegetable intake.

Overweight

Compared with their counterparts in Major Cities, males and females in regional areas were, respectively, 1.05 and 1.10 times as likely to be overweight or obese.

People in all areas were more likely to be overweight or obese in 2001 than in 1995.

About 60% of Indigenous people were overweight, compared with about 50% of non-Indigenous people.

Tier 3 Health system performance

Immunisation

In the five areas in 2002:

- 91%, 92%, 90%, 89% and 90% of 12–15-month-old children were fully immunised
- 88%, 90%, 90%, 88% and 85% of 24–27-month-old children were fully immunised.

Breast cancer and cervical screening

Compared with their counterparts in Major Cities:

- women in regional areas were 1.10 times as likely to have had a mammogram in the previous 2 years; and
- women in Inner and Outer Regional areas were 1.10 times as likely, and equally as likely, respectively, to have had a Pap smear test within the previous 2 years.

Indigenous women in non-sparsely settled areas were about 0.9 times as likely as other women to have had a mammogram or a Pap smear test. Data were not available for sparsely settled areas.

Female GPs

In 2001, the ratio of female GPs to females in the population was greater in Major Cities (86 per 100,000 females) than in regional (56–58), Remote (54) and Very Remote (73) areas.

Inter-regional comparison of female GP full-time equivalents (FTEs) to females in the population showed a similar pattern, but with higher rates of female GP 'supply' in Very Remote areas because of the longer hours worked by GPs generally in those areas.

Hospital procedures

For all of the hospital procedures reviewed, inter-regional differences in the rate of separation were evident, but the trends were not consistent from procedure to procedure.

Rates of coronary artery bypass graft (CABG) and coronary angioplasty were lower among people from regional and especially remote areas (and at odds with the pattern of death rates due to coronary heart disease).

Compared with residents of Major Cities, rates of:

- diagnostic gastrointestinal endoscopy and myringotomy were also lower for residents of regional and especially remote areas
- appendectomy and lens insertion were higher for residents of regional and remote areas
- cholecystectomy, hip replacement, revision of hip replacement, knee replacement, hysterectomy, tonsillectomy and arthroscopic procedures were typically higher for residents of regional areas and lower for residents of remote areas.

Supply of health workers

Overall, health professionals were less prevalent in regional and especially remote areas than in Major Cities. Prevalence has been calculated variously using the number of professionals and of FTEs as the numerator, and the number of people and the 'expected number of consultations' in each population as the denominator. The range in the value of calculated prevalences reflects this.

Inter-regional comparisons make no allowance for differences in underlying need, fragmentation of populations or other potentially important issues affecting comparisons.

GPs were 0.75–0.85 times as prevalent in regional areas as in Major Cities, 0.65–0.75 times in Remote areas, and 0.7–0.95 times as prevalent in Very Remote areas.

Specialists (as a whole) were substantially less prevalent outside Major Cities, but there was substantial variation between specialties.

Enrolled nurses were substantially more prevalent, and registered nurses less prevalent outside Major Cities.

The prevalence of pharmacists, podiatrists, physiotherapists and occupational therapists decreased sharply with increasing remoteness.

Dental consultations

Males from regional areas consulted a dentist as often, or slightly more often, and females from regional areas consulted a dentist less often than their counterparts in Major Cities.

From the data provided, it is unclear whether these differences are statistically significant.

Students commencing university health courses

With some exceptions, young people from regional and remote areas were generally less likely, or much less likely to commence a health-related degree than young people from Major Cities.

In 1997, young people aged 17–20 years from regional and remote areas were much less likely to commence a degree in medicine as those from Major Cities. By 2002, those from Outer Regional and Remote areas were as likely as those from Major Cities, and those from Inner Regional and Very Remote areas remained much less likely to commence a medical degree.

In general, young people from areas outside Major Cities were much less likely to commence any health degree course (although those from Inner Regional areas were slightly more likely to commence a nursing degree). For example, compared with those from Major Cities, young people from the four areas were:

- 0.7, 0.6, 0.3 and 0.1 times as likely to commence an allied health degree
- 0.1, 0.1, 0.0 and 0.0 times as likely to commence a dentistry degree
- 0.5, 0.6, 0.4 and 0.3 times as likely to commence a pharmacy degree.

Hours worked and age of health workers

Hours worked

It was characteristic of all health workers, broadly, to work longer hours outside Major Cities, especially in remote areas.

- On average, GPs worked 10% longer in regional areas and 26% longer in Very Remote areas than those in Major Cities. Whereas 14% of Major Cities GPs worked 60 hours or more per week, 22–25% of regional GPs and 27–40% of remote area GPs worked these hours.
- Hospital non-specialists worked similar hours in Major Cities and Inner Regional areas, but 4% longer in Outer Regional and Remote areas, and 17% longer in Very Remote areas. The proportions working 60 hours or more were very similar to those for GPs.
- Specialists worked 4% longer in regional areas, and 7–9% longer in remote areas than in Major Cities. Whereas 55% of Major Cities specialists worked 50 hours or more each week, about 60% worked these hours in regional areas, rising to about 70% in remote areas.
- Specialists-in-training in regional and Remote areas worked 10% longer that those in Major Cities, and the very small number in Very Remote areas all worked 60 hours per week or longer.
- Enrolled nurses worked slightly fewer hours per week in regional and Remote areas than those in Major Cities, but slightly more in Very Remote areas.
- Registered nurses, pharmacists, podiatrists and physiotherapists tended to work longer hours in remote areas but occupational therapists worked fewer hours in remote areas than those in Major Cities and regional areas.

Age

The average age of specialists and specialists-in-training did not vary significantly with remoteness, whereas that of GPs decreased with remoteness, and that of hospital non-specialists increased.

The age of enrolled and registered nurses did not vary substantially between areas.

Pharmacists in regional and remote areas were, on average, slightly older than those in Major Cities.

The average age of podiatrists and physiotherapists decreased with increasing remoteness.

Compared with those in Major Cities and Inner Regional areas, the average ages of occupational therapists in Outer Regional and Remote areas were low, and the age of those in Very Remote areas was relatively high.

1 Health status

1.1 Health conditions

1.1.1 Chronic diseases

Summary of findings

The following summary of findings refers to the prevalence of self-reported health conditions, which can be influenced by the awareness of individuals (i.e. if they know they have the condition and are able to name it). The findings are based on Tables 1.1.1.1 to 1.1.1.11 (on pages 34–42).

- *All chronic diseases:* Overall there was no significant difference between regional areas and Major Cities. However, the prevalence among 15–64-year-old regional females was about 10% higher than for their counterparts in Major Cities.
- *Diabetes:* The prevalence of self-reported diabetes in regional areas was 0.9 times that in Major Cities. This is influenced by regional prevalences that were 0.7 times as high for males as for their counterparts in Major Cities and indistinguishable for females. This pattern of self-reported diabetes prevalence is at odds with higher rates of diabetes-related mortality in regional areas.

  In 2001, males and females in Major Cities were 1.26 and 1.27 times as likely, respectively, to self-report diabetes as in 1995. Males in regional areas were about as likely to self-report diabetes as in 1995, and females in regional areas were 1.44 times as likely to self-report diabetes as in 1995.
- *Cerebrovascular disease:* In 2001, males and females in regional areas were, respectively, about 0.7 times and equally as likely to self-report cerebrovascular disease as their counterparts in Major Cities. Substantially lower prevalence rates for males and females over 64 years have influenced this overall pattern. The pattern in 2001 was different from that in 1995, when males in Inner Regional areas were as likely, males in Outer Regional areas were 0.46 times as likely, and females in regional areas were 1.37 times as likely to self-report cerebrovascular disease as their counterparts in Major Cities. Between 1995 and 2001, there appears to have been a decrease in the rate at which people in regional areas self-report cerebrovascular disease, but this was not statistically significant at the 95% level of confidence.
- *Asthma:* For males, the prevalence of self-reported asthma in 1995 was 1.12 times as high in regional areas as in Major Cities, but in 2001 it was 0.89 times as high. For females, the patterns in both years were similar (i.e. a significant 1.06 times as high in regional areas in 1995, and an apparent 1.06 times as high in regional areas in 2001). In 2001, people in Major Cities were 1.10 times as likely to self-report asthma as in 1995, and in regional areas, males and females were, respectively, 0.85 and 1.11 times as likely to self-report asthma as in 1995.

- *Bronchitis/emphysema:* In 2001, there was no significant difference between the prevalence of self-reported bronchitis and emphysema in Major Cities and regional areas as a whole, although prevalence tended to be lower in regional areas (significantly lower for females in Outer Regional areas). In 1995, regional prevalence was 0.92 times as high as in Major Cities (0.78 times as high in Outer Regional areas). In 2001, people in Major Cities and regional areas were, respectively, 0.86 and 0.83 times as likely to self-report bronchitis or emphysema as they had been in 1995. The inter-regional pattern for self–reported prevalence contrasts with death rates from this condition, which were about 1.2–1.4 times as high for males in regional areas, and about 1.05–1.10 times as high for females in regional areas, as those in Major Cities.
- *Arthritis:* The regional self-reported prevalence of arthritis in both 2001 and 1995 was 1.17–1.24 times as high for males, and 1.08–1.13 times as high for females as their counterparts in Major Cities. In 2001, people in Major Cities and regional areas were, respectively, 0.89 and 0.90 times as likely to self-report arthritis as they had been in 1995.
- *Osteoporosis:* Results from both the 1995 and 2001 National Health Surveys indicate regional prevalences about 0.8 times as high as those in Major Cities. In 2001, males and females in Major Cities were, respectively, 1.80 times and equally as likely to self-report osteoporosis as in 1995. The prevalence of self-reported osteoporosis appeared higher in 2001 than it was in 1995, for both regional males and females, but the difference was not statistically significant.
- *Ischaemic heart disease:* There were about as many males and females in regional areas as expected who self-reported ischaemic heart disease (IHD) (although half as many 45–64-year-old regional males as expected). Regional death rates for males and females were about 1.10 and 1.05 times as high as in Major Cities. However, wide confidence intervals for the prevalence data do not support any comparison with death rate patterns.
- *Kidney disease, lung cancer and colorectal disease:* The relatively low prevalence of these diseases made it difficult to identify any regional differences.

Background

The results in this section are based on the 1995 and 2001 National Health Surveys. Emphasis is placed on reporting the more recent 2001 data, but the 1995 data provide additional and historical information. Whereas about 54,000 people were surveyed in 1995, only about 26,000 were surveyed in 2001, reducing the opportunity for detecting significant differences in this year.

Interpretation of the results presented here should take into account the small size of the sample in remote areas, and the tendency to sample in larger population centres rather than the sparsely settled areas. So it is possible that the results are biased towards those living in larger less remote centres, who may have different health outcomes.

Rates are based on survey respondents self-reporting chronic disease. Results can be affected if a respondent is unaware of, or is confused about the nature of, the disease. In areas where patients are less likely to see a doctor and be diagnosed, they may be less likely to be aware of the presence of disease. Additionally, people with higher educational attainment may be better informed about the nature of any disease.

Because of the possibility that the better health of older people in the more remote areas can mask the poorer health in younger ages in any overall summary measure, age-specific rates have also been reported. In many cases, the number of respondents in each age group is very small and it is difficult to detect significant differences. However, in other cases, description of regional differences in age-specific rates sheds considerable light on underlying patterns.

Because patterns of disease may be different for each sex, data are presented for males and for females as well as for all persons.

Statistical methods are described on page 302.

Where data were not available for 1995, rates for 2001 only are reported here (i.e. there is no comparison of rates in 1995 and 2001).

In almost all areas, rates for non-Indigenous people who responded to the survey were statistically indistinguishable from those from the total population, and so are not reported separately.

Up to three sets of results have been provided in each of Tables 1.1.1.1–1.1.1.11:

- 2001 survey results, age-standardised to the rates in the 2001 Major Cities population
- 1995 survey results, age-standardised to the rates in the 1995 Major Cities population
- a comparison of rates in 2001 with those in 1995 (last row of each table). The values presented are 2001 survey results, age-standardised to the rates calculated for each area in 1995. A ratio greater than 1 indicates an increase between the years, and a ratio less than 1 indicates a decrease between the years.

For example (from Table 1.1.1.4), males in regional areas were:

- 0.89 times as likely to self-report asthma in 2001 as their counterparts in Major Cities in that year
- 1.12 times as likely to self-report asthma in 1995 as their counterparts in Major Cities in that year
- 0.85 times as likely to self-report asthma in 2001 as those in regional areas in 1995.

In most cases, individual comparisons are not statistically significantly different (i.e. it is not certain that the difference calculated from the sample is indicative of the difference in the population). Significance, where found, is indicated in the table.

Detailed results

All chronic diseases

Based on the number who self-reported in the National Health Survey, an estimated 5.3 million people suffered from a chronic disease in 2001.

About 45% of these were male, with 66% of all cases in Major Cities, 22% in Inner Regional areas and 12% in Outer Regional areas.

Overall, rates of self-reported chronic disease for males and females were similar to their counterparts across the three areas. Although not significant at the 95% level of confidence, females in regional areas appeared to be 1.05 times as likely as those in Major Cities to self report chronic disease. This higher overall rate for females in regional areas was influenced by rates for 15–64-year-old females, who were 1.11 times as likely to self-report chronic disease as those in Major Cities (Table 1.1.1.1).

Diabetes

2001

Based on the number who self-reported in the National Health Survey, an estimated 550,000 people had diabetes in 2001. It is acknowledged that many people who have diabetes do not realise it, so the true national total is likely to be higher.

About half of the people self-reporting diabetes were male, with 68% of all cases in Major Cities, 20% in Inner Regional areas and 12% in Outer Regional areas.

There were fewer males with diabetes outside Major Cities than expected (0.7 times as many), and about the same number of females as expected (Table 1.1.1.2). The lower rates for males were largely influenced by very low rates among 45–64-year-olds (0.5 times Major Cities rates). Rates for females in Outer Regional areas may be influenced by fewer than expected cases for females 65 years and over, and more than expected cases for those aged 15–64, although the differences were not statistically significant. This possible higher prevalence among 15–64-year-olds may be a consequence of higher prevalence among Indigenous women.

Of Indigenous people, 9% in non-remote areas and 16% in remote areas self-reported diabetes in the 2001 National Health Survey (ABS 2002a). This compares with 3% of people from the total population in Major Cities.

1995–2001

The rate at which people self-identified as having diabetes increased substantially between 1995 and 2001, from 2% to 3% of the population. This increase did not appear to be a consequence of ageing within the population. Rates for males and females in Major Cities were 1.26 and 1.27 times higher, respectively, than they were in 1995. Rates for males in regional areas had not significantly changed, but rates for females were 1.44 times higher in 2001 than they were in 1995.

1995

In 1995, people in regional areas were 0.9 times as likely to self-report having diabetes as their counterparts in Major Cities. The pattern was similar in 2001, where rates were 0.9 times those in Major Cities, although the difference was not statistically significant at the 95% level of confidence. In 1995, males in Outer Regional areas was the only group reported here for whom rates were significantly lower (0.8 times) than in Major Cities at the time.

Comparison with mortality

This pattern of diabetes prevalence is at variance with the pattern for mortality:

- Mortality for males was about the same in Inner Regional areas and 1.24 as high in Outer Regional areas as in Major Cities; and for females it was 1.11 times as high in Inner Regional areas and 1.44 times as high in Outer Regional areas (page 98).
- Regional prevalences were 0.7 times as high for males and almost the same for females as those for their counterparts in Major Cities.

Confidence intervals around the estimates of relative regional diabetes prevalence tend to be lower than the point estimates of the standardised mortality ratio—indicating that the patterns of prevalence and mortality are probably different.

There could be several reasons for the apparent discrepancy between diabetes prevalence and mortality:

- people living in regional areas may be less aware that they have diabetes than people in Major Cities;
- people living in regional areas may be less able to access services to prevent death from diabetes;
- the National Health Surveys may not adequately represent people living in regional areas.

Cerebrovascular diseases

2001

Based on the number who self-reported in the National Health Survey, an estimated 104,000 people had cerebrovascular disease in 2001.

Roughly half of these were male, with 68% of all cases in Major Cities, 22% in Inner Regional areas and 10% in Outer Regional areas.

There were fewer males than expected self-reporting cerebrovascular disease outside Major Cities (0.7 times as many), and about the same number of females as expected (Table 1.1.1.3). The lower rates for regional males were largely influenced by low rates among those 65 years and over (0.5 times Major Cities rates). Overall rates for females would have been substantially higher in Outer Regional areas except for the effect of low rates among those who were 65 years and over (0.2 times those in Major Cities).

1995–2001

The rate at which people in Major Cities self-reported cerebrovascular disease did not appear to change significantly between 1995 and 2001. There are broad similarities in the inter-regional patterns evident in 1995 and 2001, and the data show a statistically non-significant decrease in the rate at which regional males and females self-report cerebrovascular disease.

1995

Overall, the rate at which males in regional areas self-reported cerebrovascular disease in 1995 was not significantly different from that for males in Major Cities in the same year. However, whereas males in Inner Regional areas were about as likely to self-report cerebrovascular disease as those in Major Cities, males in Outer Regional areas were about half as likely. In 1995, females in regional areas were 1.35 times as likely to self-report cerebrovascular disease as their counterparts in Major Cities.

Comparison with mortality

This pattern of lower regional cerebrovascular disease prevalence for males and higher regional prevalence for females suggested by results from the 1995 and 2001 National Health Surveys differs from the pattern for death, for which rates were similar in Major Cities, Inner Regional and Outer Regional areas. However, confidence intervals around the estimates of relative regional prevalence are relatively large, and in many cases include the estimate of relative regional mortality; consequently, caution should be exercised in comparing inter-regional patterns of cerebrovascular disease prevalence and mortality.

Asthma

2001

Based on the number who self-reported in the National Health Survey, an estimated 2.2 million people suffered from asthma in 2001.

About 45% of these were male, with 68% of all cases in Major Cities, 20% in Inner Regional areas and 12% in Outer Regional areas.

There were fewer males self-reporting asthma outside Major Cities than expected (0.9 times as many), and about the same number of females as would be expected if Major Cities rates had applied to the population living in regional areas.

Of Indigenous people who participated in the National Health Survey, 17% self-reported asthma (ABS 2002a) compared with 11% and 12% for males and females from the total population, respectively, who lived in Major Cities (Table 1.1.1.4).

1995–2001

In 2001 people in Major Cities were 1.10 times as likely to self-reported asthma as in 1995. This followed a decrease nationally between 1989–90 and 1995, which was previously reported by the ABS (ABS 1997a). In 1995, 10% and 11% of male and female survey participants in Major Cities self-reported asthma, compared with 11% and 12% in 2001. Males in regional areas were 0.85 times as likely to self-report asthma as they had been in 1995, and females in regional areas were 1.11 times as likely.

1995

Overall, males in regional areas were 1.12 times and females were 1.06 times as likely to self-report asthma as their counterparts in Major Cities in 1995.

Making a broad comparison between the inter-regional patterns in 1995 and 2001:

- for males, the prevalence of self-reported asthma in 1995 was about 1.10 times as high in regional areas as in Major Cities, but in 2001 it was 0.9 times as high
- for females, the patterns in both years were similar (i.e. a significant 1.06 times as high in regional areas as in Major Cities in 1995, and an apparent 1.06 times as high in regional areas in 2001).

Comparison with mortality

This pattern is not remarkably different from that for deaths: death rates were similar or up to 30% higher for males in regional areas and higher (but not significantly so) for females in regional areas than their counterparts in Major Cities in the period 1997–99.

Bronchitis/emphysema

2001

Based on the number who self-reported in the National Health Survey, an estimated 665,000 people suffered from bronchitis or emphysema in 2001.

About 47% of these were male, with 68% of all cases in Major Cities, 21% in Inner Regional areas and 9% in Outer Regional areas.

Broadly, there were fewer people in regional areas who self-reported bronchitis or emphysema than expected (Table 1.1.1.5), but only for females in Outer Regional areas was the difference statistically significant (0.7 times as many as expected). Relatively low regional rates among those 65 years and over, significantly so (0.35 times the Major Cities rate) among Outer Regional females, were a major contributor to these lower prevalences.

Rates for males aged 25–44 years in both Inner and Outer Regional areas in 2001 were 0.5 times those for their Major Cities counterparts.

1995–2001

In 2001, people in Major Cities and regional areas were, respectively, 0.86 and 0.83 times as likely to self-reported bronchitis or emphysema as they had been in 1995.

1995

There were about as many people in Inner Regional areas self-reporting bronchitis or emphysema in 1995 as expected. However, the number of males and females in Outer Regional areas self-reporting bronchitis or emphysema in 1995 were, respectively, 0.72 and 0.84 times those expected if Major Cities rates at the time had applied in those areas. In Outer Regional areas, age-specific rates of self-reporting were between 0.64 and 0.81 times those at the time in Major Cities.

The inter-regional pattern evident in 1995 is very similar to that in 2001, i.e. regional prevalences that were about 0.9 times those in Major Cities, largely linked in each year to lower prevalences in Outer Regional areas (0.75–0.8 times those in Major Cities at the time).

Comparison with mortality

Prevalence of self-reported bronchitis or emphysema, as indicated by both the 1995 and 2001 National Health Surveys, appeared to be slightly lower in regional areas than in Major Cities. Death rates due to chronic obstructive pulmonary disease (COPD) were 1.2–1.4 times as high for males and 1.05–1.1 times as high for females in regional areas as in Major Cities.

Confidence intervals for estimates of relative regional prevalence tend to be lower than the estimates of the standardised mortality ratio—lending weight to the possibility that these inter-regional patterns of prevalence and mortality are different.

Arthritis

2001

Based on the number who self-reported in the National Health Survey, an estimated 2.6 million people suffered from arthritis in 2001.

About 40% of these were male, with 63% of all cases in Major Cities, 25% in Inner Regional areas and 13% in Outer Regional areas.

In regional areas, there were between 1.1 and 1.2 times as many males and females as expected self-reporting arthritis (Table 1.1.1.6). Substantial contributors to these higher rates in regional areas were rates for 45–64-year-old males and females that were 1.3 times those in Major Cities.

1995–2001

In 2001, people in Major Cities and regional areas were, respectively, 0.89 and 0.90 times as likely to self-report arthritis as their counterparts had been in 1995.

1995

Overall, the rate at which males in regional areas self-reported arthritis in 1995 was 1.24 times as high as for males in Major Cities in the same year. Females in regional areas were 1.08 times (8%) as likely to self-report arthritis as their counterparts in Major Cities in 1995. These higher rates appear to be strongly driven by higher rates of self-reporting among regional 25–64-year-olds, rates that were substantially (1.2–1.7 times) higher for males, and 1.1–1.2 times as high for females (but for females the difference was not statistically significant).

The inter-regional pattern evident in 1995 was very similar to that in 2001, i.e. regional prevalences that were about 15% higher in each year than in Major Cities; 15–25% higher for males, and 10% higher for females in regional areas than those in Major Cities.

Osteoporosis

2001

Based on the number who self-reported in the National Health Survey, an estimated 300,000 people suffered from osteoporosis in 2001.

About 83% of these were female, with 70% of all cases in Major Cities, 19% in Inner Regional areas and 11% in Outer Regional areas.

There were 0.6 times as many (i.e. fewer) males than expected in regional areas self-reporting osteoporosis (Table 1.1.1.7). The number of regional females self-reporting osteoporosis was not significantly lower than expected, although there were 0.6 times as many (i.e. fewer) 25–64-year-old women with osteoporosis as expected in regional areas.

1995–2001

In 2001, males and females in Major Cities were, respectively, 1.80 times and equally as likely to self-report osteoporosis as in 1995.

In 1995, 0.3% of males in Major Cities who participated in the National Health Survey self-reported osteoporosis, compared with 0.6% in 2001. The rate at which females in Major Cities self-reported osteoporosis did not change significantly between 1995 and 2001 (2.6% and 2.7%, respectively).

Although the regional prevalence of self-reported osteoporosis for both males and females appears higher in 2001 than it was in 1995, the differences are not statistically significant.

1995

Overall, the rate at which males in regional areas self-reported osteoporosis in 1995 was not significantly lower than for males in Major Cities in the same year (although regional males 65 years and over were less (0.35 times) likely to self-report osteoporosis than their Major Cities counterparts). Females in regional areas were 0.8 times as likely to self-report osteoporosis as their counterparts in Major Cities in 1995.

The results from both 1995 and 2001 are generally consistent. Even though statistical significance is not reached in some cases, the survey results for both years suggest the same story: rates of self-reported osteoporosis for both males and females that are about 0.8 times as high as in Major Cities.

Ischaemic heart disease

2001

Based on the number who self-reported in the National Health Survey, an estimated 354,000 people suffered from ischaemic heart disease (IHD) in 2001.

About 57% of these were male, with 65% of all cases in Major Cities, 23% in Inner Regional areas and 11% in Outer Regional areas.

Overall, there were about as many males and females who self-reported IHD as expected in 2001 (data for 1995 were not available). There were significantly fewer (0.5 times as many) 45–64-year-old males who self-reported IHD in Outer Regional areas, but otherwise regional rates for males were not significantly lower than they were in Major Cities (Table 1.1.1.8). The rates for regional females tended to be higher than for those in Major Cities, but not significantly.

Comparison with mortality

This absence of a regional difference in the rate of self-reported IHD (at least for males) is, at least on the surface, at odds with mortality data, which show higher rates of death in regional areas due to this cause (1.1 times as high for males, and 1.05 times as high for females). However, confidence intervals around the estimates of relative regional prevalence are relatively large, and in a number of cases include the point estimates for relative regional mortality. Consequently, caution should be exercised in comparing inter-regional patterns of IHD prevalence and mortality.

Kidney disease

2001

Based on the number who self-reported in the National Health Survey, an estimated 82,000 people suffered from renal disease in 2001.

About 44% of these were male, with 67% of all cases in Major Cities, 24% in Inner Regional areas and 8% in Outer Regional areas.

The number of people in regional areas self-reporting renal disease was not significantly different from the number expected if Major Cities rates had applied in those areas (Table 1.1.1.9). There were, however, substantially fewer (0.45 times as many) people aged 65 years and over in regional areas self-reporting renal disease than expected. Data for 1995 were not available.

Comparison with mortality

Confidence intervals for estimates of both prevalence and mortality are wide, making it difficult to clearly compare patterns. Death rates due to renal disease for regional males in 1997–99 were similar to those in Major Cities; for females, rates were similar to Major Cities in Inner Regional areas, and about 1.10 times as high in Outer Regional areas.

Lung cancer

2001

Based on the number who self-reported in the National Health Survey, an estimated 15,000 people suffered from lung cancer in 2001.

About 81% of these were male, with 65% of all cases in Major Cities, 11% in Inner Regional areas and 24% in Outer Regional areas.

Lung cancer is not well represented in the relatively small survey sample. It is not possible to make confident statements about the prevalence of this disease from this data source.

The data are presented in Table 1.1.1.10 for interest/discussion.

Comparison with mortality

Confidence intervals for estimates of both prevalence and mortality are wide, making it difficult to clearly compare patterns. Death rates due to lung cancer for regional males in 1997–99 were slightly higher than those in Major Cities; for females, rates were not significantly different from those in Major Cities.

Colorectal cancer

2001

Based on the number who self-reported in the National Health Survey, an estimated 20,000 people suffered from colorectal cancer in 2001.

About 74% of these were male, with 77% of all cases in Major Cities, 14% in Inner Regional areas and 9% in Outer Regional areas.

Although there were fewer (0.4 times as many) regional males self-reporting colorectal cancer than expected, the number of females self-reporting this disease was not significantly different from that expected (Table 1.1.1.11).

Comparison with mortality

Confidence intervals for estimates of both prevalence and mortality are wide, making it difficult to compare patterns. However, in 1997–99, mortality due to colorectal cancer for males and females in regional areas was about 1.05–1.10 times as high as Major Cities. The inter-regional pattern of prevalence for females compares reasonably well with that for mortality, but males in regional areas had substantially lower prevalence than those in Major Cities—again, contrary to the pattern for mortality.

Tables on prevalence of self-reported chronic disease

Notes to the tables

- Age-specific comparisons have been included, even though, in the majority of cases, the numbers are too small to allow meaningful comparisons (in which case, calculated confidence intervals would be large, and statistical significant difficult to establish). Nevertheless, in a number of cases, these age-specific rates do provide useful information.
- The statistic used to compare regions is the ratio of the number of observed cases to the number expected if 'standard rates' applied in each area.
- The standard for 2001 data is the rate of self-reporting in Major Cities in 2001.
- When comparing regions in 1995, the standard is the rate of self-reporting in Major Cities in 1995.
- The last row in some of the tables compares rates in 1995 with those in 2001. Comparison over time is not possible using the presented data for 1995 and 2001, because their standards (1995 Major Cities rates and 2001 Major Cities rates) are different. The last row compares the observed number with the condition in 2001, with the number expected if 1995 age-specific rates for that area applied in that area in 2001. A ratio greater than 1 indicates an increase between the years in that area, and a ratio less than 1 indicates a decrease between the years. It is not possible to compare areas using the ratios in this last row; only comparisons within each area between 1995 and 2001 are possible.
- The column headed 'MC%' contains the crude percentage of the Major Cities sample who self-reported the disease.
- Ratios that are significantly different from 1.00 are indicated with bold font and an asterisk.
- In some cases, data for 1995 were not available, and reporting has been restricted to 2001.
- The percentage of people with the characteristic of interest can be inferred from the tables. The crude percentage for Major Cities is given in the first column for each sex. The percentage of each age group is equal to the Major Cities percentage multiplied by the ratio. For example, 15% (0.87×17%) of the 0–14-year-old males in Outer Regional areas self-reported a chronic disease. The age-standardisation process, by definition, will prevent similar derivation of the crude percentage (for the total).

Table 1.1.1.1: Ratio of the number of people self-reporting any chronic disease to the number expected, 2001

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
0–14	17	1.00	1.03	0.87	0.97	13	1.00	1.04	0.72	0.92	15	1.00	1.04	***0.80**	0.95
15–24	18	1.00	0.89	0.97	0.91	20	1.00	0.95	1.38	1.10	19	1.00	0.92	1.19	1.01
25–44	17	1.00	1.00	0.90	0.96	21	1.00	1.12	1.14	1.13	19	1.00	1.07	1.03	1.05
45–64	34	1.00	1.04	1.05	1.04	40	1.00	1.07	1.14	1.09	37	1.00	1.06	1.09	1.07
65+	59	1.00	0.98	1.01	0.99	69	1.00	1.02	0.93	0.99	65	1.00	1.00	0.96	0.99
Total	25	1.00	1.00	0.98	0.99	30	1.00	1.05	1.05	1.05	28	1.00	1.03	1.01	1.02

Source: ABS National Health Survey, 2001.

Table 1.1.1.2: Ratio of the number of people self-reporting diabetes to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	1	1.00	0.67	0.58	0.63	1	1.00	0.75	1.38	0.99	1	1.00	0.71	0.96	0.80
45–64	7	1.00	***0.57**	***0.48**	***0.54**	4	1.00	1.08	1.47	1.21	6	1.00	***0.77**	0.83	***0.79**
65+	10	1.00	0.96	1.05	0.99	11	1.00	1.06	0.84	0.99	11	1.00	1.02	0.93	0.99
Total	3	1.00	***0.71**	0.75	***0.72**	3	1.00	1.00	1.14	1.05	3	1.00	0.85	0.93	0.88
1995 (using 1995 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	1	1.00	0.95	1.44	1.15	1	1.00	***0.49**	1.38	0.83	1	1.00	***0.67**	***1.40**	0.96
45–64	5	1.00	0.75	0.80	0.77	4	1.00	0.91	1.19	1.02	4	1.00	***0.82**	0.96	***0.87**
65+	10	1.00	1.08	0.68	0.95	8	1.00	0.99	0.77	0.92	9	1.00	1.04	***0.73**	0.94
Total	2	1.00	0.93	***0.80**	0.89	2	1.00	0.87	1.03	0.93	2	1.00	***0.90**	0.91	***0.91**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	***1.26**	0.97	1.20	1.05	..	***1.27**	***1.46**	1.41	***1.44**	..	***1.27**	1.20	***1.31**	***1.24**

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.3: Ratio of the number of people self-reporting cerebrovascular disease to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	1	1.00	1.16	0.84	1.04	0	1.00	0.88	1.66	1.14	1	1.00	1.08	1.07	1.07
65+	4	1.00	***0.31**	0.73	***0.46**	3	1.00	1.42	***0.20**	1.02	3	1.00	0.86	***0.49**	0.73
Total	1	1.00	0.61	0.74	***0.66**	0	1.00	1.30	0.72	1.10	1	1.00	0.90	0.74	0.85
1995 (using 1995 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	1	1.00	0.72	0.59	0.67	0	1.00	1.51	1.86	1.64	1	1.00	1.05	1.10	1.07
65+	5	1.00	1.05	***0.34**	0.82	3	1.00	1.30	1.14	1.25	4	1.00	1.16	***0.66**	1.00
Total	1	1.00	1.08	***0.46**	0.87	0	1.00	***1.36**	1.38	***1.37**	1	1.00	***1.20**	0.83	1.08
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	0.96	***0.55**	1.61	0.75	..	1.08	1.02	0.56	0.87	..	1.01	0.77	0.94	0.81

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.4: Ratio of the number of people self-reporting asthma to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
0–14	15	1.00	0.99	0.85	0.94	12	1.00	1.09	***0.70**	0.94	14	1.00	1.03	***0.78**	0.94
15–24	16	1.00	0.85	0.92	0.87	16	1.00	1.01	1.32	1.12	16	1.00	0.93	1.12	0.99
25–44	9	1.00	0.77	1.05	0.88	12	1.00	1.22	1.23	***1.22**	11	1.00	1.03	1.15	1.08
45–64	8	1.00	0.83	0.84	0.84	12	1.00	0.96	1.22	1.05	10	1.00	0.92	1.04	0.96
65+	8	1.00	0.85	0.90	0.87	10	1.00	0.85	0.87	0.86	9	1.00	0.85	0.88	0.86
Total	11	1.00	***0.88**	0.91	***0.89**	12	1.00	1.05	1.08	1.06	12	1.00	0.97	1.00	0.98
1995 (using 1995 MC rates as standard)															
0–14	17	1.00	1.21	1.11	1.17	14	1.00	1.05	0.95	1.01	16	1.00	***1.14**	1.04	***1.10**
15–24	13	1.00	1.12	1.18	1.14	15	1.00	1.08	1.11	1.09	14	1.00	1.10	***1.14**	***1.11**
25–44	8	1.00	1.12	0.92	1.04	10	1.00	0.93	1.29	1.07	9	1.00	1.01	***1.12**	1.05
45–64	6	1.00	1.06	1.32	1.17	9	1.00	1.22	1.04	1.15	8	1.00	***1.16**	***1.16**	***1.16**
65+	8	1.00	0.94	1.12	1.00	8	1.00	0.98	0.97	0.97	8	1.00	0.96	1.03	0.98
Total	10	1.00	***1.13**	***1.11**	***1.12**	11	1.00	1.04	***1.09**	***1.06**	11	1.00	***1.09**	***1.09**	***1.09**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	***1.09**	***0.84**	0.88	***0.85**	..	***1.12**	1.11	1.10	***1.11**	..	***1.10**	0.98	0.99	0.98

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.5: Ratio of the number of people self-reporting bronchitis or emphysema to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
2001 (using 2001 MC rates as standard)															
0–14	2	1.00	1.34	1.33	1.33	2	1.00	0.81	***0.33**	0.62	2	1.00	1.09	0.84	1.00
15–24	2	1.00	0.55	0.87	0.66	2	1.00	1.62	2.03	1.76	2	1.00	1.09	1.48	1.22
25–44	3	1.00	***0.54**	***0.52**	***0.53**	3	1.00	1.31	0.81	1.12	3	1.00	0.96	0.68	0.85
45–64	3	1.00	1.14	0.87	1.04	4	1.00	1.04	0.89	0.99	4	1.00	1.08	0.87	1.01
65+	11	1.00	0.82	0.76	0.80	8	1.00	0.75	***0.34**	***0.62**	9	1.00	0.79	***0.57**	***0.71**
Total	3	1.00	0.89	0.81	0.86	4	1.00	1.02	***0.70**	0.90	4	1.00	0.96	***0.75**	0.88
1995 (using 1995 MC rates as standard)															
0–14	3	1.00	1.24	0.57	0.97	3	1.00	0.96	0.93	0.95	3	1.00	1.10	***0.74**	0.96
15–24	2	1.00	0.88	1.17	0.98	4	1.00	0.98	1.00	0.99	3	1.00	0.93	1.06	0.98
25–44	3	1.00	1.19	0.63	0.97	3	1.00	1.09	0.94	1.04	3	1.00	1.13	***0.80**	1.00
45–64	5	1.00	0.97	0.81	0.90	5	1.00	1.00	0.81	0.93	5	1.00	0.99	***0.81**	0.92
65+	13	1.00	0.78	0.68	0.75	7	1.00	1.06	***0.56**	0.90	10	1.00	0.90	***0.64**	***0.82**
Total	4	1.00	0.97	***0.72**	***0.88**	4	1.00	1.03	***0.84**	0.96	4	1.00	1.00	***0.78**	***0.92**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	***0.83**	***0.75**	0.93	***0.81**	..	0.89	0.90	0.76	0.85	..	***0.86**	***0.83**	0.84	***0.83**

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.6: Ratio of the number of people self-reporting arthritis to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
0–14	—	1.00	1.69	0.00	1.07	—	1.00	5.78	29.73	14.97	—	1.00	1.88	1.41	1.70
15–24	1	1.00	1.27	0.90	1.15	2	1.00	0.61	1.76	1.01	1	1.00	0.88	1.42	1.06
25–44	6	1.00	***1.49**	0.95	1.28	7	1.00	0.95	0.93	0.94	7	1.00	1.18	0.93	1.09
45–64	19	1.00	1.21	***1.31**	***1.25**	26	1.00	***1.30**	***1.33**	***1.31**	23	1.00	***1.27**	***1.30**	***1.28**
65+	38	1.00	1.05	1.03	1.05	53	1.00	1.06	0.95	1.02	46	1.00	1.05	0.97	1.02
Total	10	1.00	***1.19**	1.14	***1.17**	15	1.00	***1.14**	1.11	***1.13**	13	1.00	***1.16**	***1.11**	***1.14**
1995 (using 1995 MC rates as standard)															
0–14	—	1.00	2.18	5.32	3.43	—	1.00	0.99	0.50	0.80	—	1.00	1.21	1.36	1.27
15–24	1	1.00	1.57	1.11	1.41	3	1.00	1.57	1.46	1.53	2	1.00	***1.55**	1.35	***1.48**
25–44	6	1.00	***1.68**	***1.81**	***1.73**	8	1.00	1.20	1.18	1.19	7	1.00	***1.41**	***1.46**	***1.43**
45–64	21	1.00	***1.28**	1.15	***1.23**	32	1.00	1.15	1.07	1.12	26	1.00	***1.21**	***1.10**	***1.16**
65+	40	1.00	1.03	1.03	1.03	56	1.00	1.02	0.95	1.00	49	1.00	1.02	0.97	1.00
Total	11	1.00	***1.24**	***1.24**	***1.24**	17	1.00	***1.10**	1.04	***1.08**	14	1.00	***1.15**	***1.11**	***1.14**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	0.93	***0.89**	0.87	***0.89**	..	***0.87**	***0.89**	0.93	***0.90**	..	***0.89**	***0.89**	***0.90**	***0.90**

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.7: Ratio of the number of people self-reporting osteoporosis to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	1	1.00	0.61	0.57	0.60	4	1.00	***0.62**	0.68	***0.64**	3	1.00	***0.62**	0.62	***0.62**
65+	3	1.00	***0.31**	1.00	***0.56**	13	1.00	0.97	0.90	0.94	8	1.00	0.85	0.88	0.86
Total	1	1.00	***0.45**	0.85	***0.60**	3	1.00	0.82	0.91	0.85	2	1.00	***0.76**	0.86	***0.79**
1995 (using 1995 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	—	1.00	1.67	0.62	1.24	4	1.00	0.71	0.71	0.71	2	1.00	0.82	***0.68**	***0.76**
65+	2	1.00	***0.38**	***0.28**	***0.35**	12	1.00	0.85	0.72	0.81	8	1.00	***0.78**	***0.66**	***0.74**
Total	—	1.00	1.04	***0.53**	0.85	3	1.00	***0.83**	***0.77**	***0.81**	1	1.00	***0.84**	***0.72**	***0.80**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	***1.80**	0.78	3.07	1.28	..	1.03	1.04	1.23	1.10	..	1.12	1.01	1.40	1.12

Source: ABS National Health Survey, 1995 and 2001.

Table 1.1.1.8: Ratio of the number of people self-reporting ischaemic heart disease to the number expected, 2001

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	—	1.00	0.90	0.69	0.82	—	1.00	0.98	1.59	1.21	—	1.00	0.94	1.11	1.01
45–64	3	1.00	1.08	***0.50**	0.86	2	1.00	0.66	0.88	0.73	3	1.00	0.93	0.63	0.82
65+	12	1.00	0.89	0.98	0.92	8	1.00	1.28	1.09	1.22	10	1.00	1.07	1.04	1.06
Total	2	1.00	0.94	0.78	0.89	2	1.00	1.11	1.07	1.10	2	1.00	1.01	0.91	0.98

Source: ABS National Health Survey, 2001.

Table 1.1.1.9: Ratio of the number of people self-reporting renal disease to the number expected, 2001

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	—	1.00	1.07	0.80	0.96	1	1.00	1.55	0.69	1.27	1	1.00	1.39	0.72	1.15
65+	1	1.00	0.55	***0.06**	***0.38**	1	1.00	***0.35**	0.94	0.54	1	1.00	***0.47**	***0.38**	***0.44**
Total	—	1.00	1.04	***0.34**	0.78	—	1.00	1.17	0.97	1.10	—	1.00	1.12	0.67	0.96

Source: ABS National Health Survey, 2001.

Table 1.1.1.10: Ratio of the number of people self-reporting lung cancer to the number expected, 2001

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
2001 (using 2001 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	—	1.00	2.57	2.41	2.51	—	—	—	—	—	—	1.00	2.50	2.63	2.55
65+	1	1.00	0.42	2.55	1.18	—	1.00	—	—	—	1	1.00	***0.29**	1.89	0.84
Total	—	1.00	0.63	2.54	1.31	—	1.00	—	—	—	—	1.00	0.45	1.95	0.96

Source: ABS National Health Survey, 2001.

Table 1.1.1.11: Ratio of the number of people self-reporting colorectal cancer to the number expected, 2001

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
2001 (using 2001 MC rates as standard)															
0–14	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
25–44	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
45–64	1	1.00	***0.31**	***0.17**	***0.26**	—	—	—	—	—	—	1.00	***0.30**	***0.19**	***0.26**
65+	1	1.00	***0.33**	***0.00**	***0.21**	—	1.00	1.52	0.46	1.17	1	1.00	0.77	***0.16**	0.57
Total	—	1.00	***0.32**	0.62	***0.43**	—	1.00	1.25	0.36	0.95	—	1.00	0.52	0.60	0.55

Source: ABS National Health Survey, 2001.

1.1.2 Injuries

Summary of findings

In 2001, the likelihood of having had a recent injury (in a 4-week period), and the likelihood of having a long-term condition as a consequence of a previous injury, were higher in regional areas than in Major Cities.

Males and females from regional areas were 1.2 times as likely to self-report a recent injury.

Males and females from regional areas were 1.24 and 1.12 times as likely, respectively, to self-report a long-term condition due to injury.

Background

Results from the 2001 National Health Survey are presented to describe inter-regional differences in the rate at which people self-report a long-term condition due to injury, and self-report an injury in the 4 weeks prior to the survey.

The ratios and percentages presented for each age group are unadjusted, and those for the total population in each area have been age-standardised to largely remove any distorting effects of the different age structure of the various populations.

The basic data from which these indicators have been calculated from the 2001 National Health Survey. About 26,000 people participated in this face-to-face survey (ABS 2002b).

The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres.

Detailed results

Recent injury within the last 4 weeks

In 2001, 13% of males and 11% of females from Major Cities self-reported an injury in the 4 weeks prior to the survey.

Males and females from regional areas were 1.2 times and equally as likely, respectively, to self-report a recent injury as their counterparts from Major Cities (Table 1.1.2.1).

The pattern of inter-regional differences was the same for non-Indigenous males and females as it was for the total population.

Details for Indigenous people were unavailable from the National Health Survey (ABS 2002a).

Long-term condition due to injury

In 2001, 13% of males and 9% of females from Major Cities self-reported a long-term condition due to injury.

Males in regional areas were 1.24 times as likely to self-report a long-term condition due to injury as their counterparts from Major Cities (Table 1.1.2.2), and males aged 25–64-years-old were about 1.2 times as likely. Males in all other age groups in regional areas were also more likely than those from Major Cities to self-report a long-term condition due to injury although the difference in each case was not statistically significant.

Although differences for females were not significant at the 95% level of confidence, at a slightly lower level of confidence, females in regional areas were 1.12 times as likely to self-report a long-term condition due to injury as their counterparts from Major Cities.

The pattern of inter-regional differences was the same for non-Indigenous people as it was for the total population.

Details for Indigenous people were unavailable from the National Health Survey (ABS 2002a).

Table 1.1.2.1: Ratio of the number of people self-reporting a recent injury to the number expected, 2001

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
2001 (using 2001 MC rates as standard)															
0–14	22	1.00	***1.29**	1.06	***1.21**	19	1.00	0.98	1.25	1.09	20	1.00	***1.16**	1.14	***1.15**
15–24	15	1.00	1.06	0.94	1.02	11	1.00	0.72	0.70	***0.71**	13	1.00	0.92	0.84	0.90
25–44	12	1.00	0.99	***1.41**	1.16	11	1.00	0.90	1.10	0.98	12	1.00	0.95	***1.26**	1.07
45–64	7	1.00	1.42	1.33	***1.39**	8	1.00	1.13	***0.53**	0.93	7	1.00	***1.26**	0.93	1.14
65+	5	1.00	1.74	0.72	1.38	6	1.00	1.11	1.62	1.28	5	1.00	1.36	1.22	1.32
Total	13	1.00	***1.22**	1.16	***1.20**	11	1.00	0.96	1.06	1.00	12	1.00	***1.10**	1.11	***1.10**

See notes on page 33.

Source: ABS National Health Survey, 2001.

Table 1.1.2.2: Ratio of the number of people self-reporting a long-term condition due to injury to the expected number, 2001

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
2001 (using 2001 MC rates as standard)															
0–14	1	1.00	1.88	0.76	1.47	1	1.00	1.17	2.34	1.62	1	1.00	1.60	1.42	1.53
15–24	8	1.00	1.55	1.14	1.42	9	1.00	1.15	0.72	1.00	8	1.00	1.35	0.92	1.20
25–44	18	1.00	1.18	***1.29**	***1.22**	11	1.00	1.24	1.30	***1.26**	15	1.00	***1.20**	***1.30**	***1.24**
45–64	21	1.00	1.11	***1.35**	***1.20**	14	1.00	1.04	0.86	0.98	18	1.00	1.08	1.19	1.12
65+	15	1.00	1.27	1.20	1.25	9	1.00	0.99	1.49	1.15	11	1.00	1.16	1.34	1.22
Total	13	1.00	***1.21**	***1.28**	***1.24**	9	1.00	1.12	1.12	1.12	11	1.00	***1.17**	***1.23**	***1.19**

See notes on page 33.

Source: ABS National Health Survey, 2001.

1.1.3 Mental health

Summary of findings

Overall, males and females in regional areas were about as likely to report psychological distress as those in Major Cities.

In 1997, there was no significant overall inter-regional difference in the rate at which affective, anxiety or substance abuse disorders were reported. Survey results suggested, however, that:

- compared with Major Cities, rates of self-reported affective disorders (depression) for 45–64-year-olds from Inner Regional areas were high, and rates among those 65 years or over from Outer Regional areas were low
- males in Outer Regional areas were 0.73 times as likely to report anxiety as those from Major Cities
- rates of substance abuse disorder in 18–24-year-old-women from regional areas were twice those of women in that age group from Major Cities. Conversely, rates of substance abuse disorder among men from regional areas aged 65 years or over appeared to be 0.36 times those (i.e. lower) for men in that age group from Major Cities.

Background

The 2001 National Health Survey (NHS) and the 1997 Survey of Mental Health and Wellbeing of Adults (SMHW) have been used in this indicator to describe, respectively:

- psychological distress
- affective disorders (depression), anxiety and substance abuse.

Respondents to the 2001 NHS were asked about negative emotional states in the 4 weeks prior to interview using the Kessler 10 Scale (K10). Responses were categorised as low (little or no psychological distress), moderate, high and very high (potentially indicating a need for professional help) levels of psychological distress (ABS 2002b). Results presented in this indicator relate to responses categorised as high or very high.

NHS and SMHW data provided by the ABS were accompanied by estimates of standard error, and these have been used to calculate confidence intervals for the measures of psychological distress.

Because rates of mental disorder are often age-dependent and the age structure of the populations of each of the areas is different, inter-regional comparisons have been indirectly age-standardised.

The 2001 NHS and the 1997 SMHW had sample sizes, respectively, of about 26,000 and 10,600 randomly selected people. The SMHW measured the prevalence of disorders over the 12 months prior to interview (ABS 1999a).

Detailed results

Psychological distress

In 2001, 13% of people reported 'high to very high levels of psychological distress' (referred to hereafter as psychological distress) in the 4 weeks prior to interview (ABS 2002b).

Overall, males and females in regional areas were about as likely to report psychological distress as those in Major Cities (Table 1.1.3.1).

The only specific groups in Table 1.1.3.1 for which there were significantly more people with self-reported psychological distress were males aged 18–24 years in Inner and Outer Regional areas. These two groups were 1.79 and 0.51 times as likely, respectively, to report psychological distress as those in Major Cities.

Figures for Indigenous people were not available due to the limited number of Indigenous people sampled. Inter-regional comparisons for non-Indigenous people were similar to those for the total population.

Affective disorders (depression)

Overall in Australia, rates of affective disorder were lowest among older people (1% of males and 3% of females aged 65 years and over), and higher in younger people (3% and 11%, respectively, of 18–24-year-old males and females, and 4–6% and 7–9% of 25–64-year-old males and females).

In 1997, there was no significant overall inter-regional difference in the rate at which affective disorders were reported (Table 1.1.3.2). Survey results suggested, however, that compared with Major Cities, rates in 45–64-year-olds from Inner Regional areas were high, and rates among those 65 years and over from Outer Regional areas were low.

Anxiety

Overall in Australia, rates of anxiety were higher among younger adults, declining from 8% for males aged 18–24 years to 4% for those aged 65 years and over, and from 13% to 14% for females under 65 years to 5% for those aged 65 years and over.

In 1997, there was no significant overall inter-regional difference in the rate at which anxiety was reported. However, survey results suggest that males in Outer Regional areas were 0.73 times as likely to self-report anxiety as their counterparts from Major Cities. Specifically, males in Outer Regional areas aged 25–44 years and 65 years and over were, respectively, 0.49 and 0.21 times as likely to report anxiety as their counterparts in Major Cities.

Survey results also suggested that 18–24-year-old females from Inner Regional areas were 1.73 times as likely to report anxiety as those from Major Cities (Table 1.1.3.3).

Substance abuse disorders

Overall in Australia, rates of substance abuse disorder were higher among younger adults than older adults (15% of 18–24-year-olds and 10% of 25–44-year-olds, compared with 1% for people aged 65 years and over).

In 1997, there was no significant overall inter-regional difference in the rate at which substance abuse disorders were reported (Table 1.1.3.4).

However, results from the survey suggest that rates of substance abuse disorder in 18–24-year-old women from regional areas were twice that of women in that age group from Major Cities. Conversely, rates of substance abuse disorder among men from regional areas aged 65 years and over, appeared to be 0.36 times those (i.e. lower) for men in that age group from Major Cities.

Table 1.1.3.1: Ratio of the number of people self-reporting psychological distress to the number expected, 2001

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
18–24	10	1.00	***1.79**	***0.51**	1.37	22	1.00	0.96	0.85	0.92	16	1.00	1.23	0.74	1.07
25–44	10	1.00	1.14	1.17	1.15	15	1.00	1.08	1.05	1.07	13	1.00	1.10	1.10	1.10
45–64	10	1.00	0.95	0.89	0.93	15	1.00	1.05	0.81	0.97	12	1.00	1.01	0.85	0.95
65+	8	1.00	0.84	0.88	0.85	12	1.00	0.79	0.79	0.79	10	1.00	0.81	0.82	0.81
Total	10	1.00	1.11	0.97	1.06	15	1.00	1.01	0.91	0.97	13	1.00	1.05	0.94	1.01

See notes on page 33.
Note: Figures relate to the 4-week period prior to interview.
Source: ABS National Health Survey, 2001.

Table 1.1.3.2: Ratio of the number of people reporting affective disorders to the number expected, 1997

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
18–24	3	1.00	2.41	0.00	1.46	11	1.00	1.05	0.76	0.94	7	1.00	1.28	0.57	1.00
25–44	6	1.00	0.86	0.77	0.82	9	1.00	0.84	1.19	0.97	7	1.00	0.85	1.02	0.91
45–64	4	1.00	1.64	0.84	1.32	7	1.00	1.24	1.23	1.24	5	1.00	***1.39**	1.06	1.26
65+	1	1.00	1.13	0.00	0.73	3	1.00	0.70	0.49	0.63	2	1.00	0.77	***0.36**	0.63
Total	4	1.00	1.23	0.71	1.03	7	1.00	0.97	1.09	1.02	6	1.00	1.05	0.94	1.01

Notes

1. Figures relate to the 12-month period prior to interview.
2. Rates for the total population in each area have been indirectly age-standardised to the age-specific rates in Major Cities in 1997. Otherwise, see notes on page 33.

Source: ABS Survey of Mental Health and Wellbeing of Adults, 1997.

Table 1.1.3.3: Ratio of the number of people reporting anxiety to the number expected, 1997

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
18–24	9	1.00	1.19	0.71	1.00	13	1.00	***1.73**	0.90	1.41	11	1.00	***1.48**	0.81	1.21
25–44	8	1.00	0.92	***0.49**	***0.75**	13	1.00	1.04	1.22	1.11	11	1.00	0.99	0.93	0.97
45–64	7	1.00	1.06	1.25	1.13	14	1.00	0.88	0.79	0.84	11	1.00	0.93	0.94	0.93
65+	4	1.00	1.30	***0.21**	0.92	5	1.00	0.88	1.17	0.97	5	1.00	1.02	0.77	0.94
Total	7	1.00	1.03	***0.73**	0.92	12	1.00	1.04	1.03	1.04	10	1.00	1.03	0.91	0.98

Notes

1. Figures relate to the 12-month period prior to interview.
2. Rates for the total population in each area have been indirectly age-standardised to the age-specific rates in Major Cities in 1997. Otherwise, see notes on page 33.

Source: ABS Survey of Mental Health and Wellbeing of Adults, 1997.

Table 1.1.3.4: Ratio of the number of people reporting substance abuse disorders to the number expected, 1997

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
18–24	22	1.00	0.79	1.00	0.87	9	1.00	***2.19**	1.59	***1.95**	15	1.00	1.18	1.18	1.18
25–44	14	1.00	1.04	0.92	0.99	6	1.00	1.05	0.85	0.97	10	1.00	1.04	0.90	0.99
45–64	6	1.00	1.04	1.03	1.04	2	1.00	1.06	0.65	0.90	4	1.00	1.07	0.94	1.02
65+	3	1.00	***0.42**	***0.26**	***0.36**	—	1.00	0.00	1.78	0.57	1	1.00	***0.39**	0.45	***0.41**
Total	12	1.00	0.95	0.93	0.95	4	1.00	1.28	0.98	1.16	8	1.00	1.06	0.96	1.02

Notes

1. Figures relate to the 12-month period prior to interview.
2. Rates for the total population in each area have been indirectly age-standardised to the age-specific rates in Major Cities in 1997. Otherwise, see notes on page 33.

Source: ABS Survey of Mental Health and Wellbeing of Adults, 1997.

1.1.4 Dental health

Summary of findings

In regional/remote areas, 6- and-12 year-old children had, respectively, about 1.3 and 1.2 times as many decayed, missing or filled teeth as their counterparts in Major Cities. This could be partly explained by the lower proportion of adequately fluoridated reticulated water systems in regional and remote areas than in Major Cities (see section 2.1.1). It may also be linked to lower prevalence of dentists in these areas (see section 3.5.2).

Background

This indicator provides a measure of the population's oral health at an early age when the foundation for future oral health is being laid.

Data for calculating the mean number of decayed, missing and filled (dmf) teeth in 35–44-year-olds are currently available only for 1987–88; there has not been another National Oral Health Survey since. Data for the survey did not appear to be well distributed across rural and remote areas.

Poor oral health in childhood predicts poor oral health in older age. Ages 6 and 12 reported here are WHO key age groups. The average number of decayed, missing and filled teeth is frequently used as an indicator of child dental health. The data have been drawn from the Child Dental Health Survey, conducted by the AIHW Dental Statistics and Research Unit (DSRU).

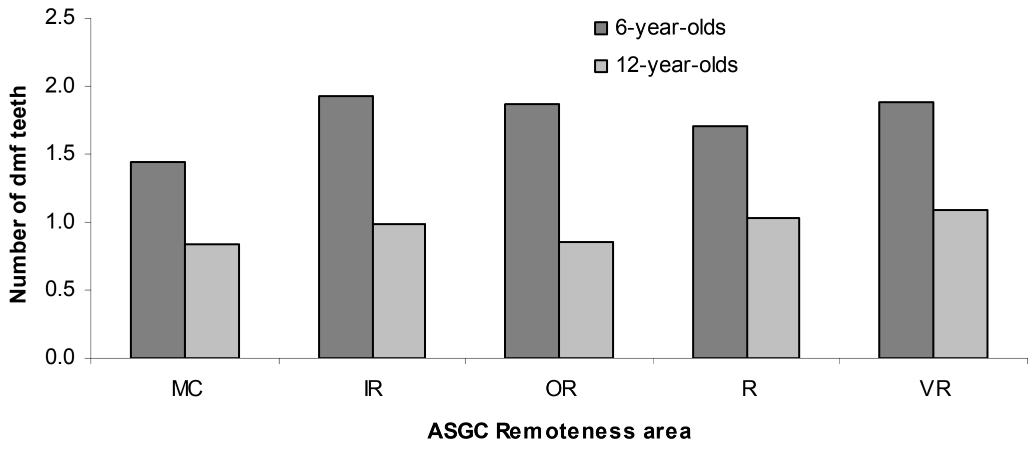
Data for the 6- and 12-year-olds is collected through school dental clinics, and is considered to capture details of almost all children who attend school (although coverage is higher in some states than others). The need for payments by parents in some states reduces the participation and therefore the available data. At present it is not possible to report for Indigenous people. Information about Indigenous status is collected well in only a few states. Work is proceeding to improve data quality and it is hoped that reporting will be possible in the future (pers.comm., Jason Armfield, DSRU).

Values for standard errors were not supplied with the data; consequently, it has not been possible to calculate confidence intervals for the estimates.

Detailed results

In 1998, 6-year-olds living in regional and remote areas tended to have more decayed, missing and filled teeth than those in Major Cities. In Inner Regional, Outer Regional, Remote and Very Remote areas, they had 1.33, 1.29, 1.18 and 1.30 as many decayed, missing and filled teeth, respectively, as 6-year-olds living in Major Cities.

In regional and remote areas, 12-year-olds also tended to have more decayed, missing and filled teeth than those in Major Cities. In Inner Regional, Outer Regional, Remote and Very Remote areas, they had 1.17, 1.20, 1.22 and 1.31 times as many decayed, missing and filled teeth, respectively, as 12-year-olds living in Major Cities.



Source: The Child Dental Health Survey, Australia 1998.

Figure 1.1.4.1: Mean number of decayed, missing and filled teeth in 6- and 12-year-olds by ASGC Remoteness Area, 1998

Table 1.1.4.1: Mean number of decayed, missing and filled teeth in 6- and 12-year-olds by ASGC Remoteness Area, Australia, 1998

Age of child	MC	IR	OR	R	VR	Total
				(number)		
6-year-olds	1.45	1.93	1.87	1.71	1.88	1.63
12-year-olds	0.84	0.98	0.85	1.02	1.09	0.89
Comparison with Major Cities						
				(ratio)		
6-year-olds	1.00	1.33	1.29	1.18	1.30	1.12
12-year-olds	1.00	1.17	1.02	1.22	1.31	1.06

Note: These figures are slightly different from those published in the 1998 Child Dental Heath Survey report because they are based on adjusted data.

Source: The Child Dental Health Survey, Australia, 1998.

1.1.5 Communicable diseases

Summary of findings

- *Gastroenteric diseases (salmonellosis and campylobacteriosis):* Rates of notification of salmonellosis were 1.3, 2.1 and 4.3 times as high in Inner and Outer Regional and remote areas, respectively, as in Major Cities in 2001. Notification rates for campylobacteriosis in these areas were the same as they were in Major Cities.
- *Ross River virus:* Rates of notification for Ross River virus were 3.1, 4.9 and 8.7 times as high in Inner and Outer Regional and remote areas in 2001, respectively, as in Major Cities.
- *Pertussis:* Rates of notification were 1.3, 1.9 and 1.9 times as high in Inner and Outer Regional and remote areas, respectively, as in Major Cities in 2001. In preceding years, the pattern has been for rates to be lowest in Major Cities, higher in Inner Regional areas, higher again in Outer Regional areas and highest in remote areas.
- *Syphilis:* Rates of notification were 0.5, 1.4 and 12.5 times as high in Inner Regional, Outer Regional and remote areas, respectively, as in Major Cities. The pattern in previous years was similar, but absolute rates and regional differences have declined substantially since 1991.
- *Chlamydia:* Rates of notification were 0.9, 1.7 and 4.1 times as high in Inner Regional, Outer Regional and remote areas, respectively, as in Major Cities in 2001. This pattern of higher rates outside Major Cities is typical of the pattern in previous years.

An inability to differentiate effectively between Indigenous and non-Indigenous people in the data prevents inter-regional comparisons as well as comparisons across time for the Indigenous and non-Indigenous populations. However:

- High rates of notification for syphilis, chlamydia and salmonella in regional and especially remote areas may reflect high rates in the general Indigenous population, and their greater representation in the populations of those areas.
- High rates of Ross River virus in these areas are likely to reflect higher overall rates of exposure (such as greater potential exposure to disease vectors such as mosquitoes) outside Major Cities generally, possibly compounded by the relatively large proportion of these areas that are in the tropics. Ross River virus notifications are less common for Indigenous people than they are for non-Indigenous people.
- Rates of pertussis are high in regional and remote areas even though they tend to be low overall for Indigenous people. Whatever the reason for higher rates of pertussis notification outside Major Cities, it is unlikely to be due to high rates in regional and remote area Indigenous populations (as appears to be the case for some of the other communicable diseases described here).

Background

Five indicator disease groups are reported here:

- gastroenteric diseases (salmonellosis and campylobacteriosis)
- Ross River virus
- pertussis
- syphilis
- chlamydia.

The data used here to describe communicable diseases are from Australia's National Notifiable Diseases Surveillance System (NNDSS). The Communicable Diseases Network of Australia (CDNA) made these data available and reviewed the results. A potential problem in interpreting changes in rates of notifiable diseases is that an increase or decrease in apparent rates over time may be a result of a change in underlying rates of disease, a change in the likelihood of cases being notified to the surveillance system or tested in the first case, or changes in diagnostic tests.

Because of concerns about relatively small numbers of notifications, data for Remote and Very Remote areas have been aggregated.

State and territory differences in surveillance practice may affect inter-regional comparison. For example, standard case definitions in all jurisdictions have been introduced only in the past year.

In some cases, the postcode on which the ASGC Remoteness Areas category is based may not be the postcode of the person's residence or the postcode in which infection took place. However, because of the very broad nature of the ASGC Remoteness Areas, any distorting effects are unlikely to be large.

Notification rates have been compared using the ratio of observed to expected notifications (indirectly age-standardised). The age-specific rates of notification for each sex in Major Cities in 2001 were applied to the populations of males and females who lived in each area in each of the years from 1991 to 2001 to yield the 'expected number of notifications'. The reported statistic is the ratio of the observed number to the calculated expected number of notifications. If there were twice as many observed cases as expected, then the ratio is 2.0. The ratio for Major Cities in 2001 is, by definition, 1.0.

Notification rates in remote (especially Very Remote) areas could be strongly influenced by rates for Indigenous people, because of the large proportion in these areas who are Indigenous. Previously published (Blummer et al. 2003; ABS & AIHW 1999; ABS & AIHW 2001) comparisons of the rates of notification for Indigenous and non-Indigenous people show higher notification rates for Indigenous people from South Australia, Western Australia and the Northern Territory (jurisdictions in which identification of Indigenous cases is considered best) for several of the diseases (salmonellosis, syphilis and chlamydia), similar or slightly lower rates for pertussis (Menzies et al. 2004; ABS & AIHW 1999; ABS & AIHW 2001) and substantially lower rates for Ross River virus (ABS & AIHW 1999; ABS & AIHW 2001).

Although data quality is enough to indicate much higher or lower rates for Indigenous people overall, it is not clear whether the quality of identification in this data set is adequate for comparing differences between areas for either the Indigenous or non-Indigenous populations. Based on experience in some other databases, even though Indigenous identification is quite good in some of the jurisdictions, identification in each of the ASGC

Remoteness Areas can vary substantially, invalidating inter-regional comparisons for Indigenous and possibly also for non-Indigenous populations.

Some records in the National Notifiable Diseases Surveillance System data set did not have adequate postcode information to allow allocation of a Remoteness Area category. In almost all of these cases, the postcode was either missing from the record or there was no match with an existing or previous postcode (e.g. 5999, 6999, 7999—known states, unknown postcode). The magnitude of this effect varies between disease groups and is described below for each of them. These records were not included in the analysis.

Detailed results

Gastroenteric diseases

Notifications for the gastroenteric diseases salmonellosis and campylobacteriosis have been reported separately as the inter-regional comparisons for the two are quite different.

Campylobacteriosis is reported more than three times as frequently as salmonellosis. The notification rate for both diseases in Australia increased between 1991 and 2001, indicating a higher incidence of disease or easier identification using improved laboratory methods (Lin et al. 2002).

Of the total 22,264 notifications[1] of salmonellosis and campylobacteriosis in 2001, 60%, 21%, 13% and 5% were of people in Major Cities, Inner Regional, Outer Regional and remote areas, respectively.

In 2001, there were 1.3, 2.1 and 4.3 times as many notifications of salmonella, and 1.0, 1.0 and 1.0 times as many notifications of campylobacteriosis as expected in Inner Regional, Outer Regional and remote areas as would be expected if Major Cities rates had applied in each of those areas (Figure 1.1.5.1 and Figure 1.1.5.2). For both diseases, the inter-regional pattern was similar in previous years; notification rates were lowest for salmonellosis in Major Cities and Inner Regional areas, increasing with remoteness; notification rates were similar in all areas for campylobacteriosis (although higher in remote areas in earlier years).

With the exception of remote areas, there has been a general increase in the notification rate for both diseases in most areas.

It is likely that higher rates of notification of salmonellosis in regional and remote areas is due to confounding issues such as a higher percentage of the population who are Indigenous in these areas. Without an ability to control for Indigenous status, it is unclear how much, if any, of the higher rates in regional and remote areas are due to remoteness. The overall rate of notification of this disease for Indigenous people in 1996–98 and 1998–2000 has been estimated at 2.5 and 4 times the rate for non-Indigenous people, respectively (ABS & AIHW 1999, ABS & AIHW 2001). It appears likely that high rates in the Indigenous population may be responsible for much, if not all, of the higher rates in regional and remote areas.

In this analysis, a total of 4% of notifications of gastroenteric diseases were lost to the analysis because the data could not be allocated to a Remoteness Area category.

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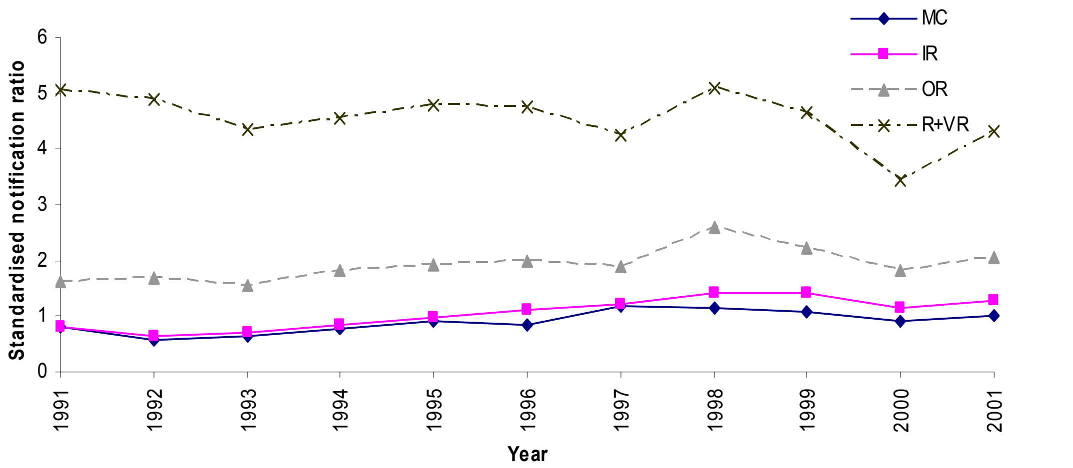
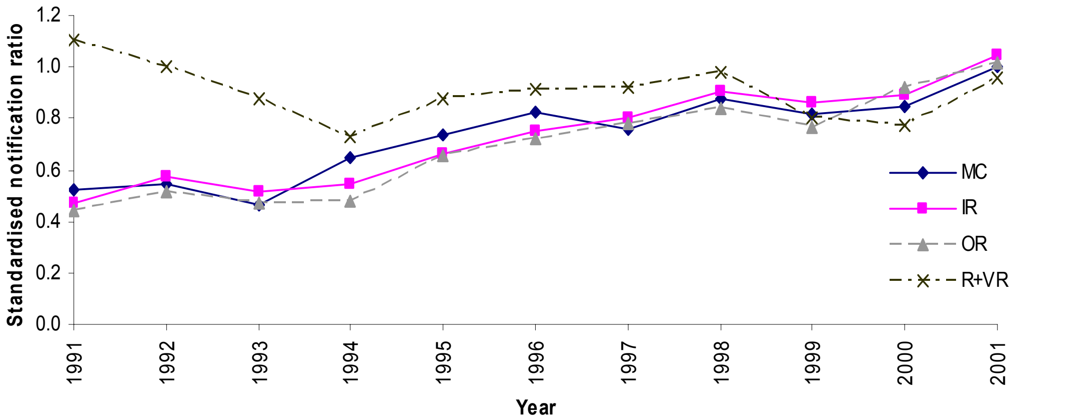
[1] The number of notifications with sufficient postcode information to allow allocation of remoteness.



Note: Expected numbers of notifications were calculated as the number of notifications that would have occurred if age-specific notification rates for Major Cities in 2001 were experienced by the populations in each of the areas in each year.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

Figure 1.1.5.1: Ratio of observed to expected notifications for salmonella, persons, 1991–2001



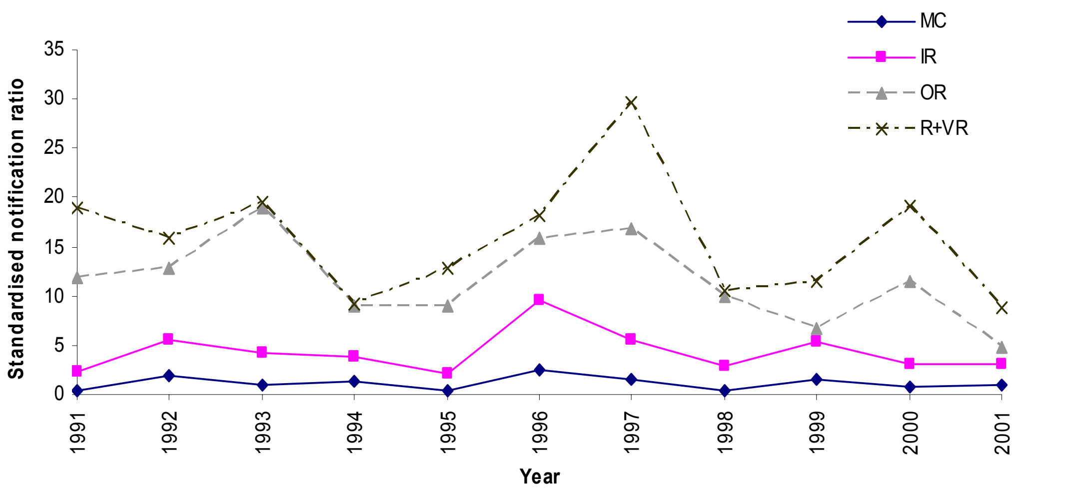
Note: Expected numbers of notifications were calculated as the number of notifications that would have occurred if age-specific notification rates for Major Cities in 2001 were experienced by the populations in each of the areas in each year. Data exclude NSW, as the disease was not notifiable in this state between 1991 and 2001.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

Figure 1.1.5.2: Ratio of observed to expected notifications for campylobacteriosis, persons, 1991–2001

Ross River virus

Ross River virus is one of several diseases transmitted by vectors such as mosquitoes. Others include Barmah Forest virus, dengue, Japanese encephalitis, Kunjin virus, malaria and Murray Valley encephalitis.



Note: Expected numbers of notifications were calculated as the number of notifications that would have occurred if age-specific notification rates for Major Cities in 2001 were experienced by the populations in each of the areas in each year.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

Figure 1.1.5.3: Ratio of observed to expected notifications for Ross River virus, persons, 1991–2001

Ross River virus is the most common of the vectorborne diseases. Of the total 5,273 cases notified in 2001, 61% were Ross River virus, 22% were Bahmah Forest virus and 13% were malaria.

The notification rate for vectorborne disease depends on annual rainfall patterns, the mosquito population and the exposure of humans to mosquitoes (Lin et al. 2002). Because the incidence of disease is affected by the weather and is therefore variable, it is difficult to discern clear trends over time.

Of the total 2,978 notifications[2] of Ross River virus in 2001, 33%, 31%, 24% and 11% were of people in Major Cities, Inner Regional, Outer Regional and remote areas, respectively. In 2001, there were 3.1, 4.9 and 8.7 times as many notifications in Inner Regional, Outer Regional and remote areas as would be expected if Major Cities rates had applied in each of those areas (Figure 1.1.5.3). The tendency for rates to increase with remoteness was also evident in previous years, but with greater inter-regional differences in many of the previous years.

Rates of notification for Indigenous people have been reported as lower than for non-Indigenous people (0.3 and 0.7 times as high in 1996–98 and 1998–2000), so high rates in regional and especially remote areas are likely to be due to other influences (ABS & AIHW

[2] The number of notifications with sufficient postcode information to allow allocation of remoteness.

1999; ABS & AIHW 2001). The higher rates of notification in regional and remote areas are likely to be influenced by the tendency for many of the more remote areas to be in tropical or subtropical areas. In regional and remote areas, particularly in the tropics, the opportunity for transmission could be greater given the likely higher exposure to mosquitoes and to animal and/or bird hosts of these diseases.

In this analysis, 2% of notifications were lost to the analysis because the data could not be allocated to a Remoteness Area category.

Pertussis

Pertussis, commonly known as whooping cough, is the most common vaccine-preventable illness in Australia, with periodic epidemics occurring at intervals of 3–5 years. As a result of the effectiveness of infant immunisation, young adolescents (10–14 years) now have the peak notification rate (Lin et al. 2002). The incidence of pertussis has increased in a number of countries since 1997, possibly linked to evolution of variants of the pertussis bacterium *Bordetella pertussis*.

Given the periodic increases in numbers of notifications associated with epidemics, time trends should be interpreted with caution.

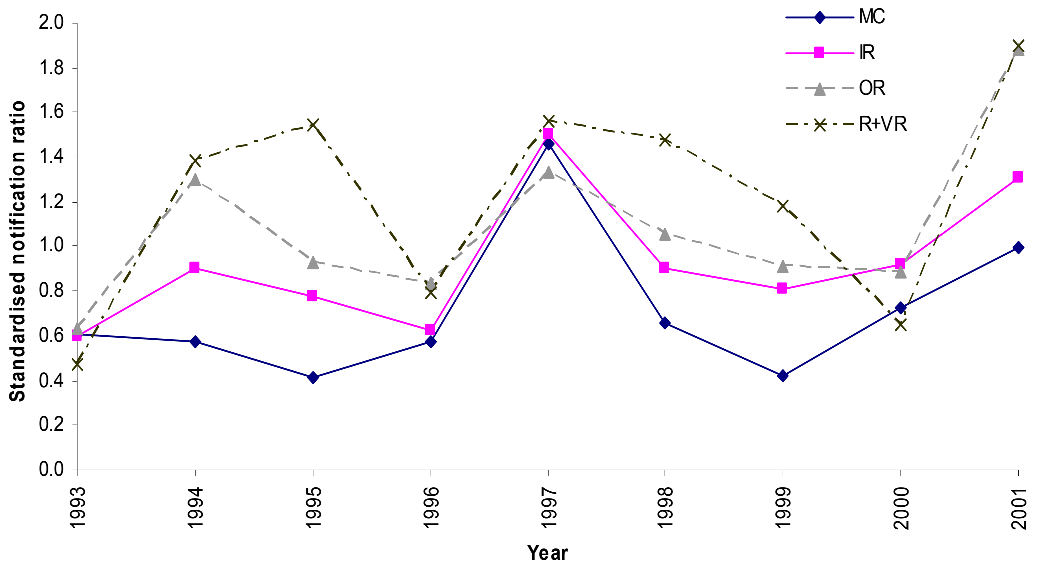
Notification of pertussis may not have been very complete in 1991 and 1992, and so data for these two years have been excluded. Peaks in 1997 and 2001 are associated with epidemics.

In 2001, there were 1.3, 1.9 and 1.9 times as many notifications in Inner Regional, Outer Regional and remote areas as would be expected if Major Cities rates had applied in these areas (Figure 1.1.5.4). Of the total 9,126 notifications[3] of pertussis in 2001, 55%, 23%, 17% and 4% were of people in Major Cities, Inner Regional, Outer Regional and remote areas. In the years preceding 2001, rates in regional and remote areas were either similar to, or higher than, those in Major Cities. On average over the period 1993–2001, rates in Inner Regional, Outer Regional and remote areas were, respectively, about 1.3, 1.5 and 1.7 times those in Major Cities.

In 2001, the rate of notification of pertussis for Indigenous people was 0.9 times what it was for non-Indigenous people (Menzies et al. 2004), a ratio similar to those (0.9 and 0.5, respectively) described in 1998–2000 (ABS & AIHW 2001) and 1996–1998 (ABS & AIHW 1999). It therefore appears probable that higher rates of notification in regional and remote areas are associated with remoteness, or with some other issue associated with, or confounding for, remoteness.

In this analysis, 1% of notifications were lost to the analysis because the data could not be allocated to a Remoteness Area category.

[3] The number of notifications with sufficient postcode information to allow allocation of remoteness.



Note: Expected numbers of notifications were calculated as the number of notifications that would have occurred if age-specific notification rates for Major Cities in 2001 were experienced by the populations in each of the areas in each year.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

Figure 1.1.5.4: Ratio of observed to expected notifications for specified pertussis, persons, 1993–2001

Syphilis

Syphilis is a sexually transmitted or congenital disease, for which notifications decreased between 1991 and 2001. For every ten notifications of females, there were twelve notifications of males, with a fairly substantial peak for women aged 25–29 years. Males were affected consistently at all adult life stages.

Data presented here are likely to be adversely affected by the fact that notifications can relate to both new and chronic infections. It is only recently that notifications of newly acquired cases with duration of less than 2 years are being differentiated from notifications of chronic cases (pers. comm. CDNA).

Screening surveys may be conducted in remote locations more frequently than in other areas, and the resulting higher detection rates in these remote areas may skew comparisons of areas.

Between 1991 and 2001, there was little change in syphilis notification rates in Major Cities or in Inner Regional areas, but there were reductions in Outer Regional and particularly remote areas. The ratios of observed to expected notifications fell by 0.25 and 3.45 each year in Outer Regional and remote areas, respectively. This represents decreases in the rate of notification of 6% and 7% per year in each area, respectively.

In 2001, there were 0.5, 1.4 and 12.5 times as many notifications in Inner Regional, Outer Regional and remote areas as would be expected if Major Cities rates had applied (Figure 1.1.5.5). Of the total 972 notifications[4] of syphilis in 2001, 54%, 8%, 12% and 26% were

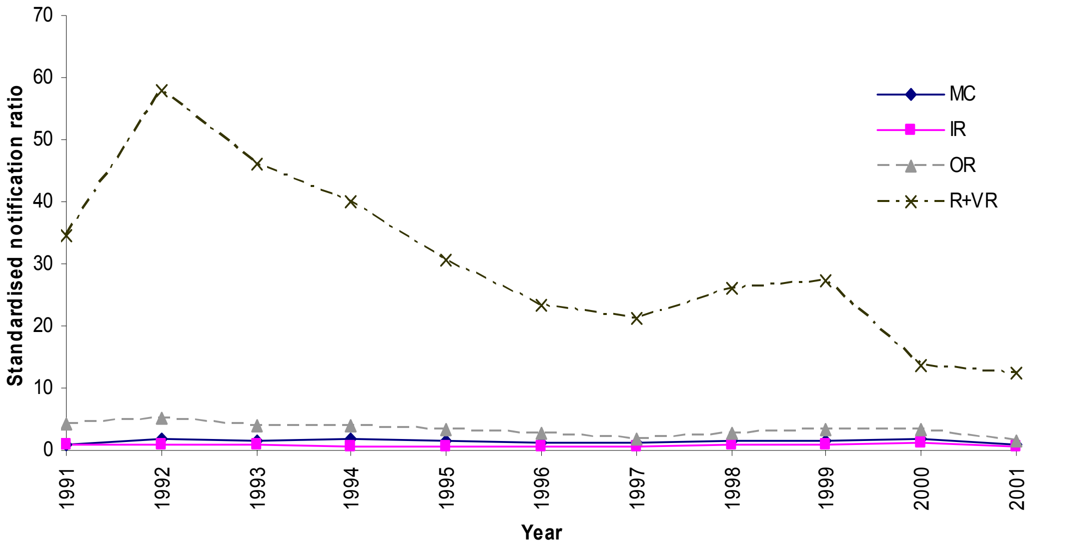
[4] The number of notifications with sufficient postcode information to allow allocation of remoteness.

of people in Major Cities, Inner Regional, Outer Regional and remote areas, respectively. This general pattern has been apparent since 1991 (when rates in the three regional/remote areas were 0.9, 4.6 and 37.3 times those in Major Cities at the time), with the rates in each of the areas decreasing relative to those in Major Cities over time (i.e. the differential has become smaller).

Elevated rates of syphilis notification in more remote areas are likely to be strongly affected by high rates in the Indigenous population generally, and may reflect the higher proportion of the population in these areas who are Indigenous. In 2001, overall notification rates for Indigenous people were approximately 100 times higher than for non-Indigenous people (Blumer et al. 2003). This suggests that the higher overall Indigenous notification rates may explain much of the regional variation described for this disease. It is unclear whether any of this variation can be attributed to other issues related to remoteness.

The decrease in syphilis notification rates between 1991 and 2001 may be due to a number of reasons, probably including the change in the notification definition mentioned earlier.

In this analysis, a total of 11% of syphilis notifications were lost to the analysis because the data could not be allocated to a Remoteness Area category. This loss was smaller (4–6%) in the years 1995–98, and larger in 1991 (22%) and 2001 (29%).



Note: Expected numbers of notifications were calculated as the number of notifications that would have occurred if age-specific notification rates for Major Cities in 2001 were experienced by the populations in each of the areas in each year.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

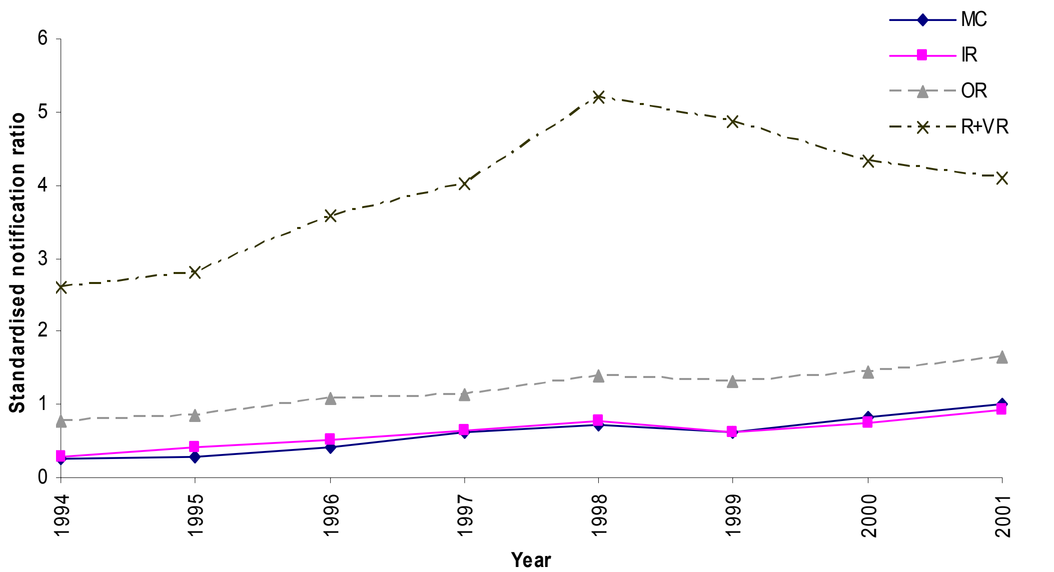
Figure 1.1.5.5: Ratio of observed to expected notifications for syphilis, persons, 1991–2001

Chlamydia

Chlamydia is the most commonly reported sexually transmitted infection (STI). Chlamydia has been a notifiable disease in all states since 1994 (although New South Wales did not report notifications to the national data set between 1994 and 1998) (Blumer et al. 2003). The rate of notification for chlamydia has increased over time, at least partly due to the introduction of screening programs and the use of more effective laboratory testing (Lin et al. 2002).

Between 1994 and 2001, there was a general increase in the notification rate in most areas. This increase is such that the ratio of observed to expected notifications increased by about 0.1 per year in Major Cities, Inner Regional and Outer Regional areas, respectively, throughout the period. There were increases in Remote and Very Remote areas between 1994 and 1998, but this increase does not appear to have been sustained beyond that period. (Although rates appear to have decreased since 1998, the 2001 ratio for Very Remote areas was still higher than it was in 1997.) The decline in remote areas also coincides with the start of data input from New South Wales, which could have affected the comparison.

In 2001, there were 0.9, 1.7 and 4.1 times as many notifications as expected in Inner Regional, Outer Regional and remote areas, respectively, as would be expected if Major Cities rates had applied (Figure 1.1.5.6). Of the total 18,316 notifications[5] of chlamydia in 2001, 62%, 15%, 13% and 10% were of people in Major Cities, Inner Regional, Outer Regional and remote areas, respectively. In previous years, the differences between rates in regional and remote areas and those in Major Cities have been greater: in 1994, rates in the four areas outside Major Cities were 1.1, 3.1 and 10.4 times those in Major Cities at the time. In summary, notification rates increased in all areas, but by 2001 there was proportionally less difference between rates in regional/remote areas and rates in Major Cities.



Note: Expected numbers of notifications were calculated as the number of notifications that would have occurred if age-specific notification rates for Major Cities in 2001 were experienced by the populations in each of the areas in each year. Data for all states except NSW 1994–1998. Data for all states from 1999.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

Figure 1.1.5.6: Ratio of observed to expected notifications for chlamydia, persons, 1994–2001

[5] The number of notifications with sufficient postcode information to allow allocation of remoteness.

Elevated rates of chlamydia notification in more remote areas are likely to be strongly affected by high rates in the Indigenous population generally. In 2001, notification rates were 7.5 times higher for Indigenous people than for non-Indigenous people (Blumer et al. 2003). As for syphilis, much of the regional variation described for this disease could be the result of the higher proportion of the remote area population who are Indigenous, coupled with their overall higher notification rates. It is unclear whether any of the inter-regional variation can be attributed to other issues related to remoteness.

In this analysis, 14% of chlamydia notifications were lost to the analysis because the data could not be allocated to a Remoteness Area category. This loss decreased from 28% in 1994, to 19% in 1996, then to 5–9% thereafter. It is likely that this systematic reduction in the number of records lost to analysis over time will act to increase the presented notification rates, but the effect is not large enough to explain all of the increase between 1994 and 2001.

Notifications data used for this indicator have been sourced from the Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

Table 1.1.5.1: Number of disease notifications, by Remoteness Area, 1991–2001

Year	MC	IR	OR	remote	Total
Salmonella					
1991	2,577	800	875	814	5,066
1992	1,799	651	917	781	4,148
1993	2,035	732	847	686	4,300
1994	2,484	878	999	709	5,070
1995	2,953	996	1,058	734	5,741
1996	2,715	1,165	1,088	725	5,693
1997	3,945	1,251	1,027	647	6,870
1998	3,794	1,456	1,419	771	7,440
1999	3,587	1,488	1,214	703	6,992
2000	3,128	1,194	987	520	5,829
2001	3,426	1,380	1,118	650	6,574
Campylobacteriosis					
1991	4,658	1,322	784	666	7,430
1992	4,934	1,644	912	599	8,089
1993	4,254	1,492	843	520	7,109
1994	5,956	1,606	863	428	8,853
1995	6,868	1,968	1,191	511	10,538
1996	7,766	2,255	1,316	530	11,867
1997	7,167	2,432	1,433	536	11,568
1998	8,363	2,753	1,538	572	13,226
1999	7,884	2,631	1,405	470	12,390
2000	8,283	2,770	1,692	449	13,194
2001	9,853	3,300	1,863	553	15,569
Ross River virus					
1991	382	556	1,614	685	3,237
1992	1,615	1,393	1,750	578	5,336
1993	764	1,068	2,622	704	5,158
1994	1,146	995	1,261	334	3,736
1995	310	566	1,270	466	2,612
1996	2,194	2,611	2,276	665	7,746
1997	1,400	1,544	2,436	1,102	6,482
1998	447	824	1,467	391	3,129
1999	1,397	1,538	998	431	4,364
2000	735	873	1,691	721	4,020
2001	989	933	727	329	2,978

(continued)

Table 1.1.5.1 (continued): Number of disease notifications, by Remoteness Area, 1991–2001

Year	MC	IR	OR	remote	Total
Pertussis					
1993	2,787	887	500	99	4,273
1994	2,655	1,361	1,030	288	5,334
1995	1,938	1,189	738	320	4,186
1996	2,718	966	673	166	4,523
1997	7,010	2,341	1,073	327	10,751
1998	3,180	1,416	852	309	5,760
1999	2,085	1,282	738	249	4,354
2000	3,594	1,484	721	137	5,936
2001	5,050	2,135	1,539	402	9,126
Syphilis					
1991	432	123	323	648	1,538
1992	795	144	392	1,089	2,429
1993	726	107	312	864	2,015
1994	921	96	304	753	2,080
1995	690	103	264	580	1,642
1996	626	89	204	447	1,367
1997	571	106	139	407	1,225
1998	724	122	220	507	1,575
1999	741	133	274	539	1,687
2000	894	183	261	268	1,606
2001	527	82	117	246	972
Chlamydia					
1994	1,809	568	965	1,108	4,454
1995	2,090	818	1,066	1,182	5,161
1996	2,940	1,051	1,348	1,487	6,828
1997	4,472	1,274	1,396	1,654	8,800
1998	5,292	1,525	1,707	2,131	10,662
1999	7,145	1,828	2,041	2,162	13,180
2000	9,238	2,242	2,177	1,902	15,561
2001	11,318	2,757	2,467	1,772	18,316

Note: Data for chlamydia excludes NSW before 1999.
Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

Table 1.1.5.2: Ratio of observed to expected disease notifications, by Remoteness Area, 1991–2001

Year	MC	IR	OR	remote	Total
Salmonella					
1991	0.8	0.8	1.6	5.1	1.1
1992	0.6	0.7	1.7	4.9	0.9
1993	0.6	0.7	1.5	4.4	0.9
1994	0.8	0.9	1.8	4.6	1.0
1995	0.9	1.0	1.9	4.8	1.2
1996	0.8	1.1	2.0	4.8	1.1
1997	1.2	1.2	1.9	4.2	1.4
1998	1.1	1.4	2.6	5.1	1.5
1999	1.1	1.4	2.2	4.6	1.4
2000	0.9	1.1	1.8	3.5	1.1
2001	1.0	1.3	2.1	4.3	1.3
Campylobacteriosis					
1991	0.5	0.5	0.4	1.1	0.5
1992	0.5	0.6	0.5	1.0	0.6
1993	0.5	0.5	0.5	0.9	0.5
1994	0.6	0.5	0.5	0.7	0.6
1995	0.7	0.7	0.7	0.9	0.7
1996	0.8	0.8	0.7	0.9	0.8
1997	0.8	0.8	0.8	0.9	0.8
1998	0.9	0.9	0.8	1.0	0.9
1999	0.8	0.9	0.8	0.8	0.8
2000	0.8	0.9	0.9	0.8	0.9
2001	1.0	1.0	1.0	1.0	1.0
Ross River virus					
1991	0.5	2.3	11.9	19.0	2.6
1992	1.9	5.5	12.7	16.0	4.2
1993	0.9	4.1	18.9	19.5	4.0
1994	1.3	3.8	9.0	9.2	2.8
1995	0.3	2.1	8.9	12.8	1.9
1996	2.4	9.6	15.8	18.1	5.7
1997	1.5	5.6	16.8	29.7	4.7
1998	0.5	2.9	10.0	10.5	2.2
1999	1.5	5.4	6.8	11.5	3.1
2000	0.8	3.0	11.4	19.1	2.8
2001	1.0	3.1	4.9	8.7	2.0

(continued)

Table 1.1.5.2 (continued): Ratio of observed to expected notifications, by Remoteness Area, 1991–2001

Year	MC	IR	OR	remote	Total
Pertussis					
1993	0.6	0.6	0.6	0.5	0.6
1994	0.6	0.9	1.3	1.4	0.7
1995	0.4	0.8	0.9	1.5	0.6
1996	0.6	0.6	0.8	0.8	0.6
1997	1.5	1.5	1.3	1.6	1.5
1998	0.7	0.9	1.1	1.5	0.8
1999	0.4	0.8	0.9	1.2	0.6
2000	0.7	0.9	0.9	0.6	0.8
2001	1.0	1.3	1.9	1.9	1.2
Syphilis					
1991	0.9	0.8	4.2	34.6	2.2
1992	1.7	1.0	5.2	57.8	3.5
1993	1.5	0.8	4.0	45.9	2.8
1994	1.9	0.7	3.8	39.9	2.9
1995	1.4	0.7	3.4	30.7	2.3
1996	1.3	0.6	2.6	23.5	1.9
1997	1.2	0.7	1.8	21.1	1.7
1998	1.4	0.8	2.8	26.0	2.1
1999	1.4	0.9	3.5	27.4	2.2
2000	1.7	1.2	3.3	13.6	2.1
2001	1.0	0.5	1.4	12.5	1.2
Chlamydia					
1994	0.2	0.3	0.8	2.6	0.4
1995	0.3	0.4	0.9	2.8	0.5
1996	0.4	0.5	1.1	3.6	0.6
1997	0.6	0.6	1.1	4.0	0.8
1998	0.7	0.8	1.4	5.2	1.0
1999	0.6	0.6	1.3	4.9	0.8
2000	0.8	0.8	1.4	4.3	1.0
2001	1.0	0.9	1.7	4.1	1.1

Notes

1. Data for chlamydia excludes NSW before 1999.
2. Ratios compare the number of observed notifications with the number expected if age-specific notification rates applied to the population in each area in each year.

Source: Communicable Diseases Network Australia—National Notifiable Diseases Surveillance System.

1.1.6 Birthweight

Summary of findings

In the period 1997–1999, 1.3% of babies born in Major Cities were of very low birthweight. Similar proportions of babies born in Inner and Outer Regional areas (1.4% and 1.2%) were of very low birthweight, and slightly higher proportions (1.5% and 1.8%) in Remote and Very Remote areas, respectively. These higher percentages in remote areas are likely to be influenced by the higher overall percentages of Indigenous babies with very low birthweight (2.2%), but the exact size of the effect is unclear, because of uncertainty about the accuracy of Indigenous identification. The tendency for low birthweight Indigenous babies is at least partially a consequence of low socioeconomic status, a factor that also influences the birthweight of non-Indigenous babies.

The same general inter-regional pattern was evident for low birthweight babies.

Of babies born in Major Cities, 88% had a birthweight between 2,500 and 4,200 g; 87% of babies in regional and Remote areas and 86% in Very Remote areas were in this range.

Mean birthweights were slightly higher in Inner (3,377 g) and Outer (3,371 g) Regional areas than in Major Cities (3,358 g), but were lower in Remote and Very Remote areas (3,327 g and 3,280 g, respectively). The mean weight of Indigenous babies was 3,155 g, compared with 3,367 g for non-Indigenous babies.

Background

Birthweights are an indicator of health status of babies and of the community in general. Being a healthy baby is a good foundation for adult health.

Babies are defined as low birthweight if their birthweight is less than 2,500 g. Within this category, those weighing less than 1500 g are designated as very low birthweight (AIHW 2001a). Babies greater than 4200 g are considered large.

Birthweight is related to maternal age, and therefore age standardisation (using the direct method) has been used to adjust percentages for differences in the age profile of mothers in each area. The age-standardised rates were found to be similar to the crude rates. Means, medians and percentiles have not been age-standardised and are presented as unadjusted descriptive data.

Direct age standardisation involves, for each area, applying the percentage of births that occurred in each maternal age group to the total number of births to women in that maternal age group nationally. Effectively, this calculates the number of low birthweight babies that would have been born if rates that applied in each of the areas had applied to the total population of births.

Perinatal data for the years 1997, 1998 and 1999 was provided by the National Perinatal Statistics Unit (NPSU). The postcode of the mother's home address was missing on 32% of the records, and another 8.4% had a postcode that could not be matched to an ASGC Remoteness Area.

The issue of missing postcodes was much more substantial for some states than others and for some years than for others. Consequently, the presented regional birthweights relate to those states and years for which the location of the mother's residence was available.

Although about 40% of the national data are missing from this regional analysis (and much is from states having a large share of regional and remote areas), it is reassuring that the means (and other statistics) for the total of the analysed states and years are almost identical to those for all Australian data (see Table 1.1.6.2). Nonetheless, caution should be exercised until data from all states are capable of being analysed by region.

Detailed results

In the period 1997–99:

- Newborn babies of mothers from regional areas were about as likely to be underweight as in Major Cities, and were slightly more likely to weigh 4,200 g or more (Table 1.1.6.1). Newborn babies of mothers from remote areas were slightly more likely to be low birthweight than those of mothers from Major Cities.
- The same patterns apply for babies of non-Indigenous mothers, except that those from remote (especially Very Remote) areas were as likely or less likely to be underweight as babies of non-Indigenous mothers from Major Cities.
- Newborn babies of Indigenous mothers were twice as likely to be underweight as those of non-Indigenous mothers, reflecting lower health status of Indigenous women generally.

Table 1.1.6.1: Percentage of live births within each birthweight range, by ASGC Remoteness Area, 1997–99

	MC	IR	OR	R	VR	Total
Birthweight range (grams)			Per cent			
All births						
Less than 1,500	1	1	1	1	1	1
1,500–2,499	5	5	5	6	6	5
2,500–4,199	88	87	88	87	87	88
4,199 or more	6	7	6	6	6	6
Births to non-Indigenous women						
Less than 1,500	1	1	1	1	1	1
1,500–2,499	5	5	5	5	4	5
2,500–4,199	88	87	88	88	89	88
4,199 or more	6	7	6	6	6	6
Births to Indigenous women						
Less than 1,500	n.p.	n.p.	n.p.	n.p.	n.p.	2
1,500–2,499	n.p.	n.p.	n.p.	n.p.	n.p.	10
2,500–4,199	n.p.	n.p.	n.p.	n.p.	n.p.	82
4,199 or more	n.p.	n.p.	n.p.	n.p.	n.p.	5

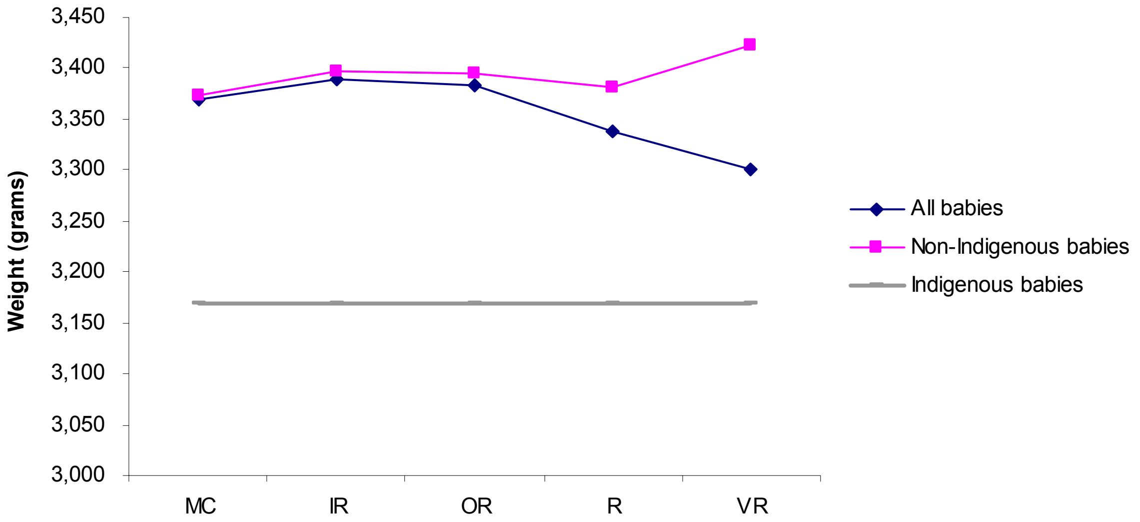
Notes

1. All percentages have been direct age-standardised to the total number of live births in the states and in the years for which data are available by postcode. Regional analysis here relies on data from about 60% of the national database. Caution should be exercised.
2. Details are for those states and years in which postcode of the mother's residence was available.
3. Percentages may not add to 100 due to rounding.
4. Indigenous and non-Indigenous data exclude births where the mother's Indigenous status is not stated and exclude Tasmanian data because the definition of Indigenous status is different from that of other states.

Source: National Perinatal Statistics unit (NPSU) National Perinatal database.

The mean birthweight of babies was slightly higher in regional areas and lower in Remote and Very Remote areas than in Major Cities (Figure 1.1.6.1 and Table 1.1.6.2).

The low overall mean birthweight of Indigenous babies may be responsible for much of the lower mean birthweights among babies in remote areas, as the mean weights for non-Indigenous babies do not appear to decline with increasing remoteness. However, exact details regarding the accuracy of the Indigenous identifier in each area are unknown, and care must be taken in reaching conclusions.



Notes

1. Details are for those states and years in which postcode of the mother's residence was available. Regional analysis here relies on data from about 60% of the national database. Caution should be exercised.
2. Indigenous and non-Indigenous data exclude births where the mother's Indigenous status is not stated.
3. Indigenous and non-Indigenous data exclude Tasmanian data because the definition of Indigenous status is different from that of other states.

Source: National Perinatal Statistics unit (NPSU) National Perinatal database.

Figure 1.1.6.1: Mean live birthweight, all babies and non-Indigenous babies by ASGC Remoteness Area, and Indigenous babies averaged across all areas, 1997–99

Table 1.1.6.2: Mean, median and percentiles for live birthweights in each area, 1997–99

	Live births	Mean	Median	Percentiles			
				10th	25th	75th	90th
	(number)	(grams)					
All births							
Major Cities	308,204	3,370	3,400	2,705	3,060	3,735	4,040
Inner Regional	84,849	3,389	3,430	2,700	3,070	3,760	4,070
Outer Regional	39,310	3,384	3,410	2,710	3,060	3,750	4,060
Remote	7,898	3,338	3,380	2,640	3,030	3,710	4,015
Very Remote	3,797	3,301	3,330	2,600	2,970	3,695	4,000
Unknown area	296	3,155	3,278	2,080	2,920	3,628	3,940
Total	**444,354**	**3,374**	**3,404**	**2,700**	**3,060**	**3,740**	**4,045**
Australia(a)	764,056	3,373	3,405	2,700	3,060	3,740	4,050
Non-Indigenous births (b) (c)							
Major Cities	304,137	3,372	3,400	2,710	3,060	3,735	4,040
Inner Regional	70,998	3,397	3,435	2,710	3,080	3,770	4,070
Outer Regional	30,375	3,394	3,420	2,725	3,080	3,760	4,065
Remote	6,154	3,381	3,415	2,710	3,090	3,740	4,020
Very Remote	2,155	3,422	3,440	2,775	3,120	3,780	4,045
Unknown area	243	3,191	3,284	2,330	2,950	3,635	3,945
Total	**414,062**	**3,378**	**3,410**	**2,710**	**3,070**	**3,740**	**4,050**
Australia(a)	675,286	3,378	3,410	2,710	3,070	3,740	4,050
Indigenous births (b) (c)							
Total	**11,511**	**3,169**	**3,210**	**2,410**	**2,820**	**3,580**	**3,905**
Australia(a)	24,892	3,175	3,220	2,415	2,830	3,588	3,930

(a) Includes all states and years 1997 to 1999.

(b) Excludes births where the mother's Indigenous status is not stated.

(c) Excludes Tasmanian data because definition of Indigenous status is different from that of other states.

Notes

1. Details are for those states and years in which postcode of the mother's residence was available— unless otherwise noted (see note (a)).
2. Regional analysis here relies on data from about 60% of the national data base. Caution should be exercised.

Source: National Perinatal Statistics Unit (NPSU) National Perinatal database.

1.2 Human function

1.2.1 Disability

Summary of findings

In 1998, 18% of males and 19% of females in Major Cities had some disability—5% and 7% of males and females, respectively, in Major Cities had a profound or severe disability.

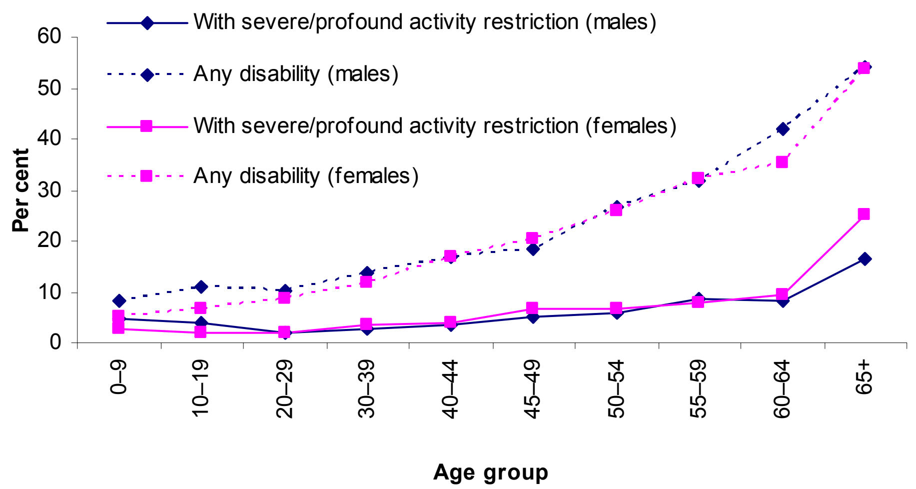
Males in Inner Regional and Outer Regional areas were about 1.2 times and 1.3 times as likely, respectively, to have a disability as those in Major Cities. For males younger than 65 years, rates were 1.3 and 1.4 times, respectively, those in Major Cities.

Females in regional areas were about 1.05 times as likely to have a disability as their counterparts in Major Cities. For females younger than 65 years, rates were 1.1 times those in Major Cities.

Males in Inner Regional and Outer Regional areas were about 1.4 times and 1.2 times as likely, respectively, to have a severe/profound disability as their counterparts in Major Cities. For males younger than 65 years, rates were 1.6 and 1.5 times, respectively, those in Major Cities.

Females in Inner Regional and Outer Regional areas were, respectively, about 1.05 and 0.9 times as likely to have a severe/profound disability as their counterparts in Major Cities. For females younger than 65 years, rates were 1.3 and 1.05 times, respectively, those in Major Cities.

Background



Note: Age groups are not consistent. They are 10-year age groups until 40 years of age, and 5-year age groups until 65 years.

Source: ABS Survey of Disability, Ageing and Carers, 1998.

Figure 1.2.1.1: National percentage with a disability, by age and sex, 1998

Disability data were provided from the 1998 ABS Survey of Disability, Ageing and Carers (ABS 1999b). This survey collected data from 37,580 people in private dwellings and 5,716 people in cared accommodation.

Because the prevalence of disability is strongly age-dependent (Figure 1.2.1.1), rates have been indirectly age-standardised using 1998 Major Cities age-specific rates as the standard. Standard errors were not provided by ABS with the data, and so it has not been possible to calculate confidence intervals for the estimates.

Detailed results

In 1998, 18% of males and 19% of females in Major Cities had some disability—5% and 7% of males and females, respectively, had a profound or severe disability. In Major Cities overall, 82% of males and 81% of females had no disability (Table 1.2.1.1).

Table 1.2.1.1: Ratio of the number of persons with a disability[(a)] to the expected number if 1998 Major Cities rates of disability had occurred, by ASGC Remoteness Area, 1998

Level of disability	MC	IR	OR
Males			
With disability	1.00	1.18	1.29
Severe[(b)]/profound[(c)] activity restriction	1.00	1.40	1.21
With disability (< 65 years)	1.00	1.27	1.38
Severe[(b)]/profound[(c)] activity restriction (< 65 years)	1.00	1.57	1.46
Crude percentage with disability	18	22	24
Crude percentage with severe/profound activity restriction	5	7	6
Females			
With disability	1.00	1.06	1.03
Severe[(b)]/profound[(c)] activity restriction	1.00	1.06	0.91
With disability (< 65 years)	1.00	1.09	1.09
Severe[(b)]/profound[(c)] activity restriction (< 65 years)	1.00	1.27	1.03
Crude percentage with a disability	19	21	19
Crude percentage with severe/profound activity restriction	7	7	6

(a) Defined by the World Health Organization (WHO) as any restriction or lack of ability (resulting from an impairment) to perform an action in the manner or within the range considered normal for a person. In the Survey of Disability, Ageing and Carers, a person has a disability if he/she has a limitation, restriction or impairment, which has lasted, or is likely to last, for at least 6 months and restricts everyday activities.

(b) Person sometimes needs help with communication, mobility or self-care.

(c) Person is unable to do, or always needs help with, a core activity task (communication, mobility or self-care).

Notes

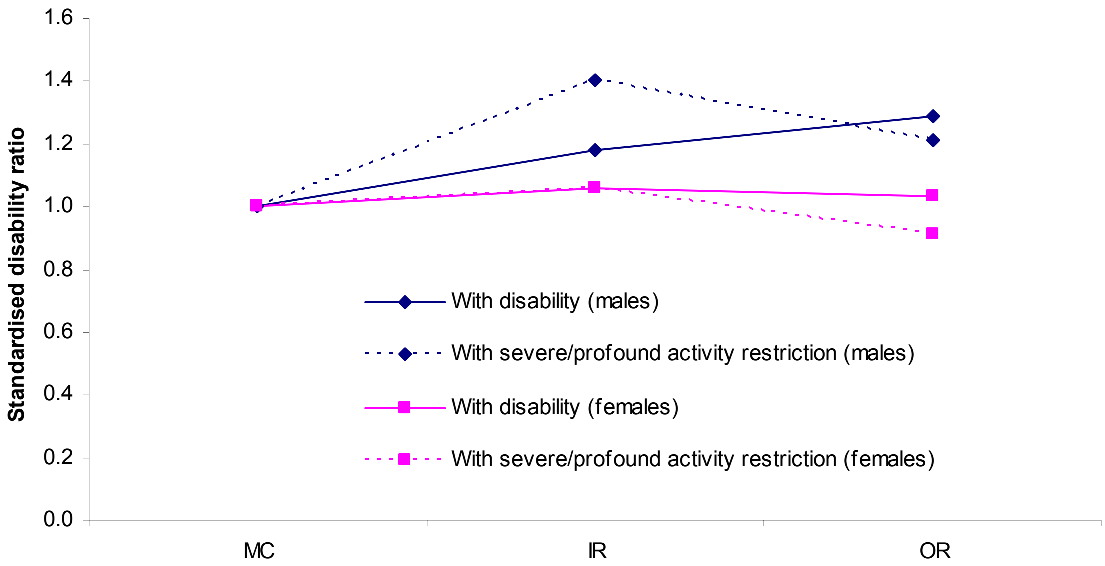
1. Rates have been indirectly age standardised to the age-specific rates in Major Cities calculated from the Survey of Disability, Ageing and Carers.
2. The survey did not include people in remote and sparsely settled parts of Australia.

Source: ABS Survey of Disability, Ageing and Carers, 1998.

Males in Inner Regional and Outer Regional areas were, respectively, 1.18 times and 1.29 times as likely to have a disability as those in Major Cities (Table 1.2.1.1 and Figure 1.2.1.2).

Females in Inner Regional areas were 1.06 times as likely to have a disability as their counterparts in Major Cities, and females in Outer Regional areas were 1.03 times as likely.

Males in Inner Regional and Outer Regional areas were 1.40 times and 1.21 times as likely, respectively, to have a severe/profound disability as their counterparts in Major Cities. Females in Inner Regional areas were 1.06 times as likely to have a severe/profound disability as their counterparts in Major Cities, and females in Outer Regional areas were 0.91 times as likely.



Notes

1. Rates have been indirectly age-standardised to the age-specific rates in Major Cities calculated from the Survey of Disability, Ageing and Carers.
2. Disability is defined by the World Health Organization (WHO) as any restriction or lack of ability (resulting from an impairment) to perform an action in the manner or within the range considered normal for a person. In the Survey of Disability, Ageing and Carers, a person has a disability if he/she has a limitation, restriction or impairment, which has lasted, or is likely to last, for at least 6 months and restricts everyday activities.
3. The survey did not include people in remote and sparsely settled parts of Australia.
4. Severe/profound disability is a disability for which the person sometimes needs help with communication, mobility or self-care (severe) or for which the person is unable to do, or always needs help with, a core activity task such as communication, mobility or self-care (profound).

Source: ABS Survey of Disability, Ageing and Carers, 1998.

Figure 1.2.1.2: Ratio of observed to expected numbers of males and females with disability, by ASGC Remoteness Area, 1998

1.2.2 Reduced activity because of illness

Summary of findings

In 2001, the average number of days of reduced activity increased slightly with remoteness.

A lack of information with which to calculate statistical significance has reduced the confidence with which these results can be reported. Despite this, it would appear that, for both males and females, the average number of days of reduced activity was 3–4% higher in Inner Regional areas, and for males was more than 10% higher in Outer Regional areas than their counterparts in Major Cities.

Non-Indigenous males and females in Major Cities and Inner Regional areas had averages that were similar to those for the total populations in those areas, but in Outer Regional areas, averages were slightly higher than for the total populations there. However, the overall pattern of averages increasing with remoteness remained (and, indeed, strengthened).

It is unclear exactly how averages for Indigenous people compare, but results from this survey suggest lower average numbers of days of reduced activity, compared with the non-Indigenous population, at least in Outer Regional areas.

Background

Days of reduced activity because of illness is a measure of short-term disability. Necessarily, a ‘normal level of activity’ will be different for each person—what is a normal level for a healthy 25-year-old male will (in most cases) be greater than for someone who is 95 years old, or for someone of the same age but with a chronic illness.

‘Days of reduced activity due to illness’ is a preferred measure to ‘days off work (or study) due to illness’, because people who are unemployed, not in the paid workforce, the elderly and children are included in the former. ‘Days of reduced activity’ includes ‘days off work’ as well as days when normal activities other than paid work could not be undertaken.

The basic data from which these indicators have been calculated were from the 2001 ABS National Health Survey (NHS). About 26,000 people participated in this face-to-face survey. The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres. NHS data for 1995 was not provided.

Although the ABS has published the percentage of people who had days of reduced activity due to illness, it has not published the average number of days of reduced activity (ABS 2002b). For Indigenous people, the number of days off work or study due to illness has been published, but not the number of days of reduced activity due to illness (ABS 2002a).

Values of standard error for estimates of the mean number of days of reduced activity in the previous fortnight were not available. This prevents discussion of the statistical significance of the differences.

The age-standardisation process was direct, and involved applying the age-specific averages from each sex and area to the 2001 Australian population in each age group. The resultant total ‘expected’ number of days of reduced activity was then divided by the total 2001 Australian population, to give a direct age-standardised average (see page 302—statistical methods section).

Detailed results

In 2001, on average, Australians experienced 0.96 days of reduced activity due to illness in the 2 weeks prior to the NHS (Table 1.2.2.1, Figure 1.2.2.1).

The number of days of reduced activity tended to be greater in regional areas than in Major Cities. For males, the average increased from 0.88 days per fortnight in Major Cities to 0.90 and 0.97 days in Inner and Outer Regional areas, respectively. In other words, the average for males appeared to be 3% higher in Inner Regional areas, and 11% higher in Outer Regional areas than in Major Cities.

Females apparently experienced a greater average number of days of reduced activity due to illness than males. The average increased from 1.03 days per fortnight in Major Cities to 1.07 days in Inner Regional areas (4% higher than in Major Cities). However, the average for females in Outer Regional areas (1.03 days) was similar to that in Major Cities.

Non-Indigenous males and females reported fewer days of reduced activity in Major Cities and Inner Regional areas, but similar numbers in Outer Regional areas to those experienced by the total populations in those areas. For non-Indigenous females, there is little (2–3%) inter-regional difference, but for non-Indigenous males in Outer Regional areas who took part in the survey, the average number of days away from usual activity was about 13% higher.

The ABS (2002a) reported a similar percentage of Indigenous people having days off work or study to non-Indigenous people, but did not report the percentage having days away from usual activity (nor the average number of such days).

The similarity of the presented averages for the total and non-Indigenous populations in Major Cities and Inner Regional areas is not surprising, considering the small proportions of Indigenous people in these populations. The higher averages for non-Indigenous males and females in Outer Regional areas (compared with the total populations in these areas) indicates that the Indigenous people who participated in the NHS experienced, on average, fewer days of reduced activity than non-Indigenous people.

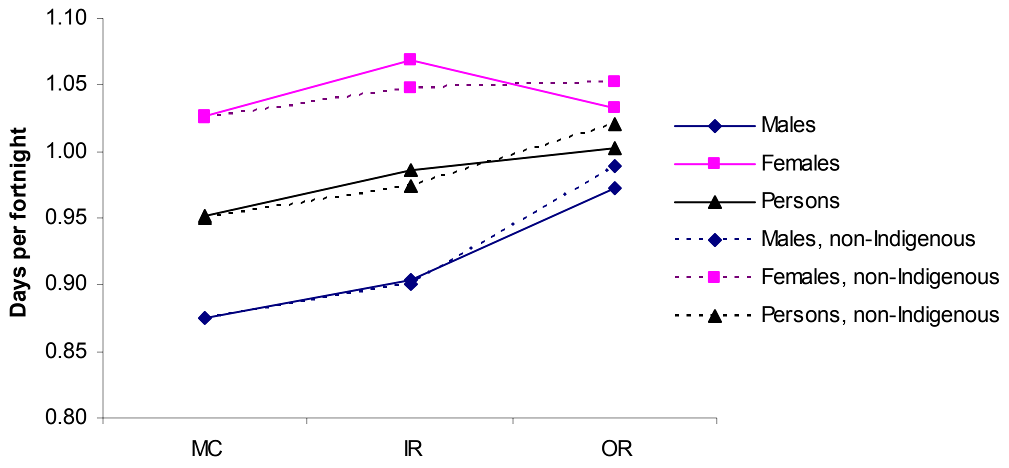
Table 1.2.2.1: Direct age-standardised mean number of days of reduced activity due to illness, people aged 5 years and over, 2001

Males				Females				Persons			
MC	IR	OR	Australia	MC	IR	OR	Australia	MC	IR	OR	Australia
(Days)											
All people											
0.88	0.90	0.97	0.89	1.03	1.07	1.03	1.03	0.95	0.99	1.00	0.96
Non-Indigenous people											
0.88	0.90	0.99	0.89	1.03	1.05	1.05	1.03	0.95	0.97	1.02	0.96

Notes

1. Data from Remote and Very Remote areas are included in Outer Regional areas.
2. Direct age-standardised to the 2001 Australian population.

Source: ABS National Health Survey, Australia, 2001.



Notes

1. Data from Remote and Very Remote areas are included in Outer Regional areas.
2. Direct age-standardised to the 2001 Australian population.

Source: ABS National Health Survey, Australia, 2001.

Figure 1.2.2.1: Age-standardised mean number of days of reduced activity in the previous 2 weeks due to illness, for persons 5 years and over, by ASGC Remoteness Area, 2001

1.3 Life expectancy and wellbeing

1.3.1 Life expectancy

Summary of findings

In the period 1997–99, life expectancies for males and females were highest in Major Cities and lowest in Very Remote areas. The average life expectancy for males was 78, 77, 76, 75 and 72 years, and for females was 84, 83, 83, 83 and 79 years, respectively, in Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas.

Indigenous males and females have been reported as having a life expectancy of 56 and 63 years, respectively, compared with 77 and 82 years, respectively, for all Australian males and females.

Uncertainties about inter-regional differences in the accuracy of Indigenous identification prevent reporting of Indigenous life expectancies for individual Remoteness Area.

The lower life expectancies for the total population in remote areas reflects the large proportion of the population in these areas who are Indigenous. Life expectancies for non-Indigenous males were 78, 77, 76, 77 and 79 years, and for non-Indigenous females they were 84, 83, 83, 85 and 88 years, respectively, in Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas. Higher life expectancies for non-Indigenous people in Very Remote areas than in the less remote areas may be a consequence of the potential migration of the frail aged to less remote areas.

Statistics describing the probability of living to 65 years avoid much of this potentially confounding effect (i.e. that of migration). Non-Indigenous males living in Major Cities, Inner and Outer Regional, Remote and Very Remote areas had, respectively, an 85%, 83%, 83%, 83% and 82% chance of reaching 65 years of age; females, respectively, a 91%, 90%, 90%, 90% and 89% chance.

Background

Life expectancy is a measure of the number of years a person can expect to live, given current death rates.

With improvements in medical care and public health, the age people reach has been increasing over time. It is likely that it will continue to increase (at least for some time).

Because estimates of life expectancy are based on current death rates, they cannot predict future improvements in the real likelihood of living a long life. Life expectancy is lowered by high infant death rates, as well as by high death rates among the elderly.

It is possible that death rates for people aged 65 years and over in remote areas may be substantially lowered by the migration to less remote areas of people requiring access to health facilities (that is, people in poorer health leaving remote areas, the healthier older people remaining). Because of its effect on death rates, this would also increase apparent life expectancy in remote areas. Consequently, the probability of living to 65 years of age is also included in this indicator, to reduce this probable effect.

Life expectancies and probabilities of reaching 65 years of age reported in this indicator relate to a hypothetical child born in the period 1997–99, and assume that current rates of death experienced in a particular area will remain unchanged for the child's lifetime and that the child will continue to live in that area all their life. These statistics do not report the actual length of time that any particular child will live, or the actual probability that they will live to 65 years of age—they simply translate current death rates into a more tangible statistic.

Detailed results

Life expectancies for males and females were highest in Major Cities and lowest in Very Remote areas. The average life expectancy of a male born in the period 1997–99 ranged from 78 years in Major Cities to 72 years in Very Remote areas. The average life expectancy of a female born during this period ranged from 84 years in Major Cities to 78.5 years in Very Remote areas.

Table 1.3.1.1: Life expectancy, by Remoteness Area, 1997–99

	MC	IR	OR	R	VR	Total
Males	77.9	76.7	76.0	75.3	72.2	77.3
Females	83.9	83.3	82.6	82.7	78.5	83.6

Source: AIHW National Mortality Database.

Source: AIHW National Mortality Database.

Figure 1.3.1.1: Life expectancy, by Remoteness Area, 1997–99

However, life expectancy for Indigenous people is substantially lower than for non-Indigenous people. A life expectancy of 56 years has been reported for Indigenous males compared with 77 years for all Australian males, and Indigenous females have a life expectancy of 63 years compared with 82 years for all Australian females (ABS & AIHW 2003). Though they are calculated in a slightly different way from other statistics presented in this indicator and use mortality data from slightly different years, these figures clearly illustrate the substantially lower life expectancies experienced by Indigenous people. Life expectancies for Indigenous people from individual Remoteness Areas have not been calculated because of concerns about differences in the accuracy of Indigenous identification in each of the areas (AIHW 2003a).

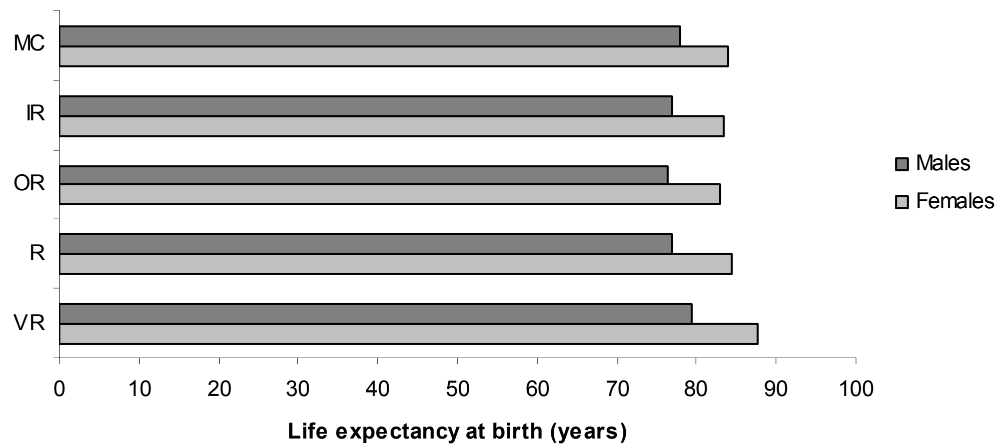
Indigenous persons make up 44% of the population of Very Remote areas but only 1%, 2%, 5% and 13% of the populations of Major Cities, Inner Regional, Outer Regional and Remote areas, respectively (see Section 2.3.1). Consequently the effect of reduced life expectancy of Indigenous persons on overall life expectancy is much greater in Very Remote areas than in other areas.

Reflecting this, life expectancies for non-Indigenous males and females were highest in Very Remote areas (79 and 88 years, respectively) and lowest in Outer Regional areas (76 and 83 years, respectively), which is in contrast to the total population.

Table 1.3.1.2: Life expectancy for non-Indigenous persons, by Remoteness Area, 1997–99

	MC	IR	OR	R	VR	Total
Males	77.9	76.8	76.4	77.0	79.3	77.5
Females	83.9	83.4	83.0	84.5	87.7	83.7

Source: AIHW National Mortality Database.



Source: AIHW National Mortality Database.

Figure 1.3.1.2: Life expectancy for non-Indigenous persons, by Remoteness Area, 1997–99

Probability of living to 65 years

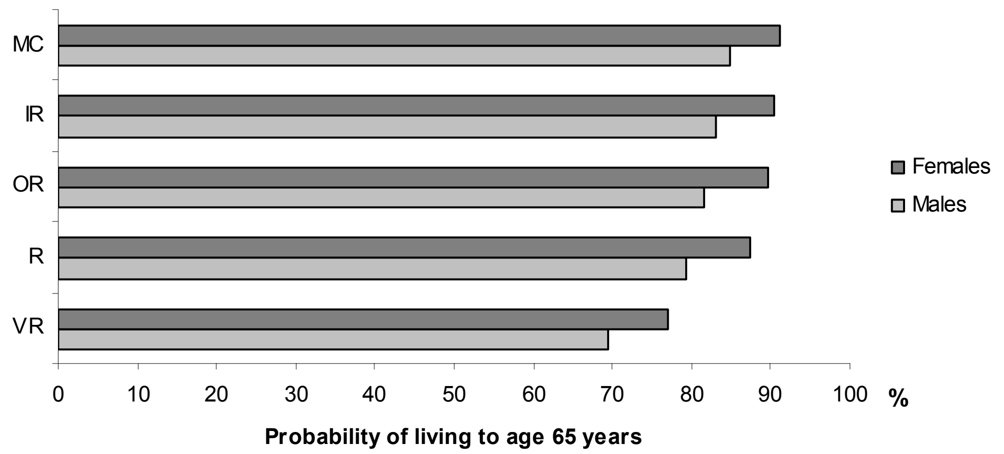
Another indicator of life expectancy is the probability that a newborn will reach its 65th birthday. This indicator, for regional comparisons, is a better indicator of life expectancy because it reduces the effect of any migration of people aged 65 years and over to less remote areas. This potential migration would result in an overestimation of life expectancy in more remote areas and an underestimation of life expectancy in less remote areas.

Table 1.3.1.3: Probability of living to age 65 years, by Remoteness Area, 1997–99

	MC	IR	OR	R	VR	Total
Males	84.8	83.2	81.6	79.4	69.3	83.9
Females	91.1	90.3	89.6	87.4	77.0	90.6

Source: AIHW National Mortality Database.

The probability of newborn males and females reaching their 65th birthday decreased with increasing remoteness. Male and female newborns in Very Remote areas had the lowest probability of reaching their 65th birthday (69% and 77%, respectively), and those in Major Cities had the highest probability (85% and 91%, respectively).



Source: AIHW National Mortality Database.

Figure 1.3.1.3: Probability of living to age 65, by Remoteness Area, 1997–99

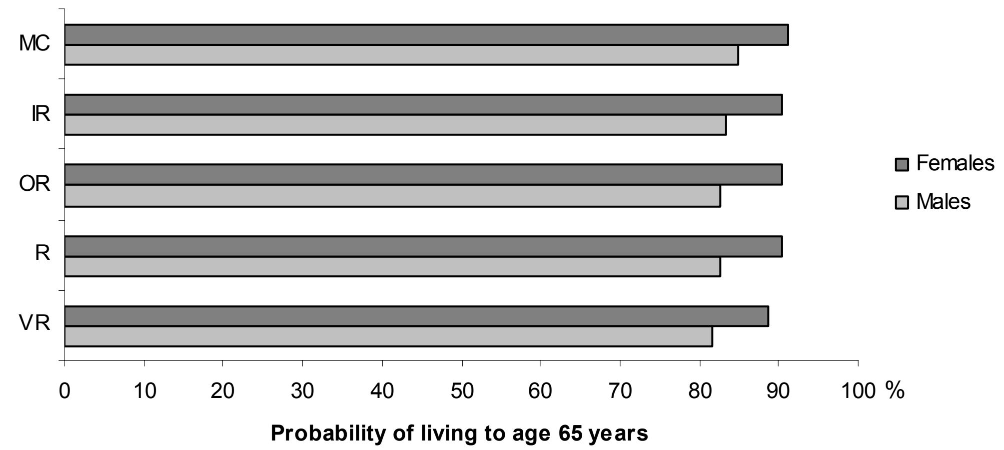
The probability of non-Indigenous newborns reaching their 65th birthday also decreased with increasing remoteness (Tables 1.3.1.3 and 1.3.1.4), but the inter-regional differences (about 3 percentage points lower in Very Remote areas than in Major Cities) were not as great as for the total population (about 16 percentage points difference).

Table 1.3.1.4: Probability of living to age 65 for non-Indigenous persons, by Remoteness Area, 1997–99

	MC	IR	OR	R	VR	Total
Males	84.9	83.3	82.5	82.6	81.7	84.3
Females	91.1	90.4	90.3	90.4	88.6	90.9

Source: AIHW National Mortality Database.

As for life expectancy, and for the same reasons, the lower probability of living to 65 years of age for those in Very Remote areas is largely a reflection of the lower life expectancy of Indigenous people and the relatively large numbers of Indigenous people who live in these areas.



Source: AIHW National Mortality Database.

Figure 1.3.1.4: Probability of living to age 65 for non-Indigenous persons, by Remoteness Area, 1997–99

1.3.2 Self-assessed health status

Summary of findings

In 2001, males in regional areas (particularly those aged 25–44 years) were less likely to self-report *good* health than those in Major Cities. This effect was also apparent in 1995 for people aged 15–24 and 45–64 years, but people who were 65 years and over were more likely to self-report *good* health than those in Major Cities.

People in Major Cities and regional areas were 0.95 times as likely to self-report *good* and 1.07 times as likely to report *poor* health in 2001 as in 1995.

In 2001, people in regional areas were about as likely to report *poor* health as those in Major Cities. However, males and females aged 25–44 years in regional areas were about 1.3 times as likely to self-report *poor* health as their similar-aged Major Cities counterparts. This is similar to, but more pronounced than, the inter-regional pattern in 1995.

The pattern for both self-reported *good* and *poor* health for non-Indigenous people was similar to that for the total population. Rates for females in Outer Regional areas were lower, but not sufficiently low to alter the general inter-regional comparisons described here for the total population.

Indigenous people were less likely to self-report *good* health (34%) and more likely to self-report *poor* health (34%) than their non-Indigenous counterparts (52% and 18%, respectively).

Background

The two most recent ABS National Health Surveys (1995 and 2001) are used to describe self-reported health in regional and remote areas, and the change over time.

The basic data from which these indicators have been calculated were from the 1995 and 2001 survey. About 54,000 and 26,000 people participated in these face-to-face surveys, respectively. The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres.

Respondents were asked to self-report their health as Excellent, Very Good, Good, Fair or Poor. Their response depended on their awareness and expectation of their own health.

This indicator compares the number who reported Excellent or Very Good health (referred to here as *good* health) and those who reported Fair or Poor health (referred to here as *poor* health) with the number expected if Major Cities rates applied in all areas.

At least three sets of results have been provided in each of Tables 1.3.2.1–1.3.2.3:

- 2001 survey results, age-standardised to the rates in the 2001 Major Cities population
- 1995 survey results, age-standardised to the rates in the 1995 Major Cities population
- a comparison of rates in 2001 with those in 1995 (last row of the table). The presented values are 2001 survey results, age-standardised to the rates calculated for each area in 1995. A ratio greater than 1 indicates an increase between the years, and a ratio less than 1 indicates a decrease between the years.

For example (from Table 1.3.2.1), males in regional areas were:

- 0.95 times as likely to self-report *good* health in 2001 as those in Major Cities in that year
- 0.99 times as likely to self-report *good* health in 1995 as their counterparts in Major Cities in that year (however, this difference was not statistically significant at the 95% level of confidence)
- 0.90 times as likely to self-report *good* health in 2001 as their counterparts in regional areas in 1995.

In most cases, individual comparisons are not statistically significantly different (that is, it is not certain that the difference calculated from the sample is indicative of the difference in the population). Significance, where found, is indicated in the table.

Detailed results

Good health

In 2001, 52% of people self-reported Excellent/Very Good (*good*) health, a decrease from 55% in 1995 (ABS 2002b).

Table 1.3.2.1 compares the number of people (excluding 0–14-year-olds) who self-reported Excellent or Very Good (*good*) health in each region, with the number that would be expected if Major Cities rates applied in each area.

In 2001, regional males were 0.95 times as likely to self–report *good* health as those in Major Cities, an overall effect at least partially affected by 25–44-year-old males, who were 0.89 times as likely as expected to self-report better health. In the same year, regional females were about as likely to self–report *good* health as those in Major Cities.

In 1995, there was no apparent overall regional difference for males or females. However, 15–24 and 45–64-year-old people in Outer Regional areas were 0.92 and 0.94 times (respectively) as likely to self-report *good* health as those in Major Cities. At odds with this finding, Outer Regional residents who were 65 years and over, were 1.13 times as likely to self-report *good* health as those in Major Cities, and those in Regional areas generally in this age group were 1.09 times as likely to self report *good* health. This apparent better health of older people, especially of those in Outer Regional areas, may be a consequence of the possible migration of the frail aged to less remote centres.

In 2001, males and females in Major Cities were about 0.95 times as likely to self-report *good* health as their Major Cities counterparts were in 1995. This tendency for a reduction in the likelihood of reporting *good* health is also apparent in regional areas.

Rates for non-Indigenous people were indistinguishable from those for the total population. In Outer Regional areas, non-Indigenous people were slightly more likely to self-report *good* health, but statistical significance of the regional differences remained the same as for the total population.

In the 2001 NHS, 34% of Indigenous people self-reported Excellent/Very Good health, compared with 52% of non-Indigenous people (ABS 2002a).

Poor health

In 2001, 18% of people self-reported Fair/Poor (*poor*) health, an increase from 17% in 1995 (ABS 2002b).

Table 1.3.2.2 compares the number of people (excluding 0–14-year-olds) who self-reported *poor* health in each region with the number that would be expected if Major Cities rates applied in each area.

In 2001, people living in regional areas were about as likely to self–report *poor* health as those in Major Cities. However, males and females aged 25–44 years in Inner and Outer Regional areas were about 1.3 times as likely to self-report *poor* health as those in Major Cities.

In 1995, there was no apparent overall regional difference for males or females. However, 25–44-year-old people in Outer Regional areas were 1.15 times as likely to self-report *poor* health as those in Major Cities. Conversely, 45–64-year-old people in Inner Regional areas were 0.91 times as likely to self-report *poor* health.

In 2001, females in Major Cities were 1.08 times as likely to self-report *poor* health as their Major Cities counterparts were in 1995. This tendency for greater likelihood of reporting *poor* health was apparent for males in Major Cities, and for people in Inner and Outer Regional areas, but the difference was not always statistically significant at the 95% level.

Rates for non-Indigenous people (Table 1.3.2.3) were similar to those for the total population. Those for non-Indigenous females in Outer Regional areas were lower (but not so as to significantly alter the inter-regional pattern). Unlike their counterparts from the total population, rates for 25–44-year-old non-Indigenous people in Outer Regional areas, although elevated, were not significantly higher than in Major Cities.

In the 2001 NHS, 34% of Indigenous people self-reported Fair/Poor health, compared with 18% of non-Indigenous people (ABS 2002a).

Table 1.3.2.1: Ratio of the number of people self-reporting Excellent or Very Good health status to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
15–24	67	1.00	1.00	1.06	1.02	61	1.00	1.01	1.06	1.03	64	1.00	1.01	1.06	1.02
25–44	58	1.00	0.91	***0.87**	***0.89**	61	1.00	1.00	0.95	0.98	59	1.00	0.95	***0.91**	***0.94**
45–64	44	1.00	0.97	0.97	0.97	47	1.00	1.05	1.02	1.04	46	1.00	1.02	0.99	1.01
65+	30	1.00	1.11	0.83	1.01	32	1.00	0.99	1.29	1.09	31	1.00	1.04	1.08	1.05
Total	52	1.00	0.97	0.93	***0.95**	53	1.00	1.02	1.02	1.02	52	1.00	0.99	0.98	0.99
1995 (using 1995 MC rates as standard)															
15–24	68	1.00	1.01	0.93	0.98	61	1.00	1.05	0.91	1.00	65	1.00	1.03	***0.92**	0.99
25–44	61	1.00	1.00	1.00	1.00	63	1.00	1.02	0.94	0.99	62	1.00	1.01	0.97	0.99
45–64	49	1.00	1.00	0.91	0.96	51	1.00	1.03	0.96	1.00	50	1.00	1.02	***0.94**	0.98
65+	31	1.00	1.04	1.13	1.07	33	1.00	1.08	1.13	1.10	32	1.00	1.06	***1.13**	***1.09**
Total	56	1.00	1.01	0.97	0.99	55	1.00	***1.03**	***0.96**	1.01	55	1.00	***1.02**	***0.97**	1.00
Comparison of rates in 2001 with those in 1995															
Total	..	***0.94**	***0.90**	***0.90**	***0.90**	..	***0.96**	***0.94**	1.02	0.97	..	***0.95**	***0.92**	0.96	***0.94**

See notes on page 33.

Source: ABS National Health Surveys, 1995 and 2001.

Table 1.3.2.2: Ratio of the number of people self-reporting Fair or Poor health status to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
2001 (using 2001 MC rates as standard)															
15–24	7	1.00	1.51	1.25	1.42	11	1.00	0.78	0.91	0.83	9	1.00	1.09	1.05	1.07
25–44	11	1.00	***1.39**	1.31	***1.36**	11	1.00	1.18	***1.44**	***1.28**	11	1.00	***1.28**	***1.37**	***1.32**
45–64	25	1.00	0.89	0.94	0.91	22	1.00	0.91	1.12	0.98	23	1.00	0.90	1.02	0.94
65+	35	1.00	0.83	0.98	0.88	34	1.00	0.92	0.91	0.92	35	1.00	0.88	0.95	0.90
Total	17	1.00	1.02	1.05	1.03	18	1.00	0.96	1.11	1.01	18	1.00	0.99	1.08	1.02
1995 (using 1995 MC rates as standard)															
15–24	9	1.00	0.96	0.87	0.93	9	1.00	1.09	0.84	1.00	9	1.00	1.02	0.85	0.96
25–44	10	1.00	1.05	1.06	1.06	10	1.00	1.10	1.26	1.16	10	1.00	1.08	***1.15**	***1.11**
45–64	20	1.00	0.88	1.20	1.01	20	1.00	0.94	0.94	0.94	20	1.00	***0.91**	1.08	0.98
65+	39	1.00	0.99	0.81	0.93	34	1.00	1.01	1.15	1.05	36	1.00	1.00	0.99	0.99
Total	16	1.00	0.97	1.02	0.99	16	1.00	1.01	1.08	1.04	16	1.00	0.99	1.05	1.01
Comparison of rates in 2001 with those in 1995															
Total	..	1.05	1.11	1.09	***1.11**	18	***1.08**	1.02	1.12	1.06	18	***1.07**	1.07	***1.10**	***1.08**

See notes on page 33.

Source: ABS National Health Surveys, 1995 and 2001.

Table 1.3.2.3: Ratio of the number of non-Indigenous people self-reporting Fair or Poor health status to the number expected, 2001

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 non-Indigenous MC rates as standard)															
15–24	7	1.00	1.53	1.04	1.42	11	1.00	0.68	0.81	0.73	9	1.00	1.04	0.90	0.99
25–44	11	1.00	***1.40**	1.25	***1.36**	11	1.00	1.20	1.21	1.20	11	1.00	***1.30**	1.23	***1.27**
45–64	24	1.00	0.87	0.96	0.91	22	1.00	0.89	0.98	0.92	23	1.00	***0.88**	0.97	0.91
65+	35	1.00	0.83	0.99	0.88	34	1.00	0.91	0.91	0.91	35	1.00	0.87	0.95	0.90
Total	17	1.00	1.01	1.04	1.03	18	1.00	0.94	1.00	0.96	17	1.00	0.97	1.02	0.99

See notes on page 33.

Source: ABS National Health Survey, 2001.

1.3.3 Happiness

Summary of findings

Although some results are unclear, it appears that people in regional areas are as likely or less likely to feel delighted about life as those in Major Cities, and more likely to feel that life is terrible.

In 2001, most people in Inner and Outer Regional areas were about as likely to self-report feeling delighted, pleased/mostly satisfied or to have mixed feelings about life as their Major Cities counterparts. However, males in Outer Regional areas were less likely (0.78 times as likely) to self-report feeling delighted than their Major Cities counterparts.

Females in regional areas were less likely (0.7 times as likely) to feel dissatisfied or unhappy, but 1.8 times as likely to feel terrible about their life. Males in regional areas were also more likely to feel terrible, although the difference was not statistically significant at the 95% level.

Elderly women in regional areas were less likely to self-report having mixed feelings or to be mostly dissatisfied/unhappy compared with similar-aged women in Major Cities. Although elderly men in regional areas were less likely to self-report having mixed feelings, they were about as likely to self-report feeling mostly dissatisfied/unhappy as their counterparts in Major Cities.

The inter-regional pattern for non-Indigenous people is similar to that described above for the total population. Comparable data for Indigenous versus non-Indigenous people is not available.

Background

How people feel about their lives (i.e. whether they are happy) is a fundamentally important issue in its own right, as well as being inextricably linked with health.

The basic data from which these indicators have been calculated are from the 2001 ABS National Health Survey (NHS). About 26,000 people participated in this face-to-face survey (ABS 2002b). The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres.

Respondents were asked to self-report their feelings about life as delighted, pleased, mostly satisfied, mixed feelings, mostly dissatisfied, unhappy or terrible.

This indicator compares the number who reported each of these feelings (pleased/mostly satisfied, and mostly dissatisfied/unhappy have been aggregated), with the number expected if Major Cities rates applied in all areas.

In most cases, individual comparisons in Table 1.3.3.1 are not statistically significantly different. Significance, where found, is indicated in the table.

Detailed results

In 2001, 12%, 64% and 18% of Australians felt delighted, pleased/mostly satisfied or had mixed feelings, respectively, about their life; 5% felt mostly dissatisfied or unhappy, and 1% felt terrible.

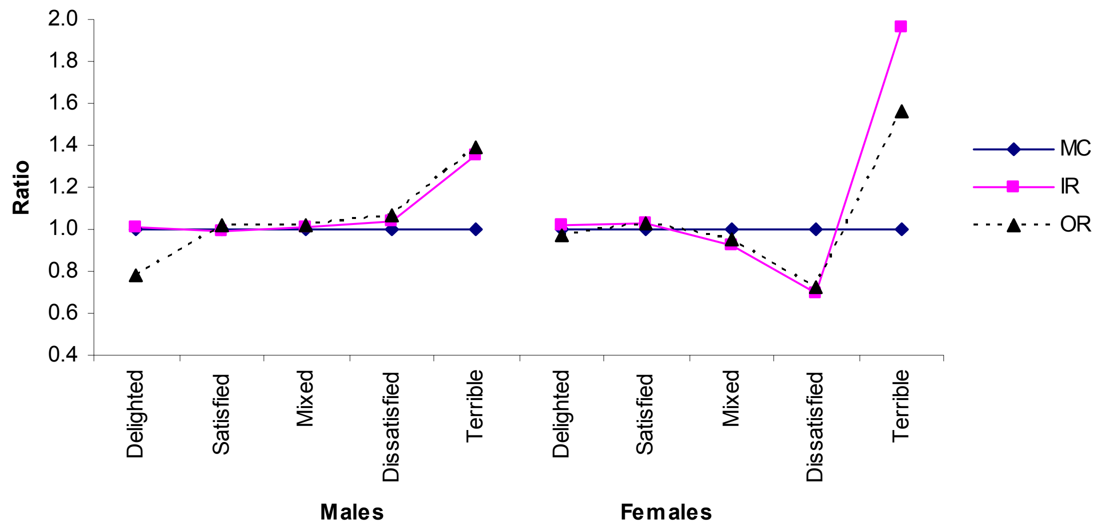
Delighted

People in Inner Regional areas and females in Outer Regional areas were about as likely to self-report feeling delighted about life as those in Major Cities. Males in Outer Regional areas were 0.78 times as likely to self-report feeling delighted about life.

Males and females aged 25–44 years in Outer Regional areas were, respectively, 0.70 and 0.75 times as likely to self-report feeling delighted about life as those in Major Cities.

Pleased or mostly satisfied

There was little inter-regional difference in the likelihood of feeling pleased or mostly satisfied.



Note: The categories of satisfied and dissatisfied include pleased and unhappy, respectively.
Source: ABS National Health Survey, 2001.

Figure 1.3.3.1: Ratio of the number of people self-reporting how they feel about their life, compared with the number expected, 2001

Mixed feelings

Overall, males and females in regional areas were about as likely to have mixed feelings about life as their counterparts in Major Cities.

However, elderly males and females in Inner and Outer Regional areas were less likely to self-report having mixed feelings about life than their Major Cities counterparts. In Inner and Outer Regional areas, males 65 years and over were, 0.74 and 0.79 times respectively as likely, and similar females were 0.76 and 0.61 times as likely to self-report having mixed feelings about life as their Major Cities counterparts.

Mostly dissatisfied or unhappy

Males in Inner and Outer Regional areas were about as likely to self-report feeling mostly dissatisfied or unhappy about life as their Major Cities counterparts. Females in Inner and Outer Regional areas were 0.7 times as likely to self-report feeling this way.

Terrible

Females in regional areas were 1.82 times as likely to feel terrible as those in Major Cities. Although the differences were not statistical significant at the 95% level, rates for males were also elevated.

The pattern for non-Indigenous people is similar to that for the total population (i.e. similar or lower probabilities feeling delighted, and higher probabilities of feeling terrible in regional areas).

Comparable data for Indigenous versus non-Indigenous people is not available.

Table 1.3.3.1: Ratio of the number of people self-reporting how they feel about their life compared with the number expected, 2001

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
Felt delighted															
18–24	12	1.00	0.93	0.94	0.94	16	1.00	0.70	0.83	0.75	14	1.00	0.81	0.88	0.83
25–44	14	1.00	0.86	***0.70**	***0.79**	14	1.00	1.05	***0.75**	0.94	14	1.00	0.96	***0.72**	***0.87**
45–64	9	1.00	1.16	0.83	1.03	9	1.00	1.10	1.17	1.12	9	1.00	1.13	0.99	1.08
65+	13	1.00	1.21	0.84	1.08	9	1.00	1.07	1.57	1.23	11	1.00	1.14	1.16	1.15
Total	12	1.00	1.01	***0.78**	0.92	12	1.00	1.02	0.97	1.00	12	1.00	1.02	***0.88**	0.96
Felt pleased or mostly satisfied															
18–24	72	1.00	0.92	1.07	0.97	60	1.00	1.17	1.08	1.14	66	1.00	1.03	1.07	1.04
25–44	63	1.00	0.98	1.04	1.00	63	1.00	1.00	1.01	1.00	63	1.00	0.99	1.03	1.00
45–64	63	1.00	1.00	0.98	0.99	62	1.00	0.98	1.03	1.00	63	1.00	0.99	1.00	1.00
65+	62	1.00	1.03	1.04	1.04	65	1.00	1.09	1.06	1.08	64	1.00	1.07	1.05	1.06
Total	64	1.00	0.99	1.02	1.00	63	1.00	1.03	1.03	1.03	63	1.00	1.01	1.03	1.02
Had mixed feelings															
18–24	13	1.00	1.37	0.58	1.11	20	1.00	0.72	0.89	0.78	16	1.00	1.00	0.77	0.92
25–44	18	1.00	1.09	1.03	1.07	18	1.00	0.97	1.12	1.03	18	1.00	1.03	1.08	1.05
45–64	19	1.00	0.96	1.18	1.05	21	1.00	1.01	0.95	0.99	20	1.00	0.99	1.07	1.02
65+	19	1.00	***0.74**	0.79	***0.76**	19	1.00	***0.76**	***0.61**	***0.71**	19	1.00	***0.76**	***0.70**	***0.74**
Total	18	1.00	1.01	1.02	1.01	19	1.00	0.92	0.95	0.93	19	1.00	0.96	0.99	0.97

(continued)

Table 1.3.3.1 (continued): Ratio of the number of people self-reporting how they feel about their life compared with the number expected, 2001

	Males					Females					Persons				
Age	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional	MC%	MC	IR	OR	Regional
Felt mostly dissatisfied or unhappy															
18–24	3	1.00	1.54	1.76	1.61	3	1.00	0.52	1.26	0.77	3	1.00	0.99	1.49	1.16
25–44	4	1.00	1.20	1.20	1.20	4	1.00	0.80	1.03	0.89	4	1.00	1.00	1.12	1.04
45–64	7	1.00	0.86	0.77	0.83	7	1.00	***0.67**	***0.48**	***0.61**	7	1.00	***0.77**	***0.64**	***0.72**
65+	5	1.00	1.07	1.54	1.24	5	1.00	0.67	***0.51**	***0.61**	5	1.00	0.84	0.98	0.89
Total	5	1.00	1.04	1.07	1.05	5	1.00	***0.70**	***0.72**	***0.70**	5	1.00	0.86	0.90	***0.87**
Felt terrible															
18–24	1	1.00	1.07	***0.00**	0.72	1	1.00	3.14	***0.00**	2.08	1	1.00	1.87	***0.00**	1.25
25–44	1	1.00	1.98	1.23	1.69	1	1.00	1.84	1.65	1.77	1	1.00	***1.90**	1.45	***1.73**
45–64	1	1.00	1.15	1.71	1.36	1	1.00	***2.68**	1.64	***2.34**	1	1.00	***1.92**	1.68	***1.83**
65+	1	1.00	0.68	1.83	1.08	1	1.00	0.63	1.72	0.99	1	1.00	0.65	1.76	1.02
Total	1	1.00	1.35	1.39	1.37	1	1.00	***1.97**	1.56	***1.82**	1	1.00	***1.68**	1.47	***1.61**

See notes on page 33.

Source: ABS National Health Survey, 2001.

1.4 Deaths

1.4.1 Overall mortality

Summary of findings

Males and females from regional and remote areas had higher rates of death than those from Major Cities.

Death rates for males in Inner Regional, Outer Regional, Remote and Very Remote areas were 1.1, 1.1, 1.2 and 1.5 times those in Major Cities, and for females from these areas rates were 1.05, 1.05, 1.1 and 1.5 times those in Major Cities.

High rates in remote areas, especially, were influenced by high overall death rates for Indigenous people—rates that were 3 times those for their non-Indigenous counterparts from Major Cities.

Rates for non-Indigenous people in Inner Regional, Outer Regional, Remote and Very Remote areas were 1.05, 1.1, 1.05 and 1.00 times those in Major Cities, and rates for non-Indigenous females were 1.05, 1.05, 1.00 and 0.9 times those in Major Cities. This pattern is similar to that for the total population (i.e. slightly elevated rates in regional areas), except for remote areas, where rates tended to be similar to those in Major Cities.

These relatively low overall rates in remote areas are influenced by low rates for older people, rates that are at odds with the relatively high rates for younger people from these areas. It is possible that lower rates for older people in remote areas may be a consequence of the migration of older people in poor health to larger, less remote centres, leaving healthier individuals whose deaths rates are lower (AIHW 2003a). Death rates for non-Indigenous people under 65 years of age from regional and remote areas were 1.1 –1.2 times those in Major Cities.

Death rates for almost all individual age groups were significantly higher for both males and females outside Major Cities than inside. The greatest inter-regional differences were evident in the 15–24-year-age group. These inter-regional differences were smaller for non-Indigenous people, and in many age groups they were not significant. The greatest inter-regional differences, again, were for those aged 15–24 years.

Death rates for Indigenous people generally were between 3 and 6 times as high as for non-Indigenous people in most age groups, and 1.3 times as high for those aged 75 years and over.

Background

Mortality, the rate of death, is possibly the best ultimate measure of health. Although it does not measure the quality of life or the average day-to-day health of people, as a measure it has a number of advantages over other indicators.

Although some personal characteristics recorded (such as Indigenous status) are less than accurate, all deaths are recorded and, as such, it is a complete collection of the deaths of people in Australia. Also, the rate of death is a reflection of the health of individual people in the population during their lifetime.

In reporting mortality in each of the five ASGC Remoteness Areas, it is important to report for both Indigenous and non-Indigenous people. It is known that Indigenous people have death rates that are three times higher than for non-Indigenous people, for a number of socioeconomic, lifestyle, social and (possibly) genetic reasons (ABS & AIHW 2003). Indigenous people also constitute a large proportion of the population in regional, Remote and especially Very Remote areas (see Section 2.3.1, page 160). Higher overall death rates in regional and remote areas may be a reflection of the proportionally greater numbers of Indigenous people living there, rather than any effect of remoteness per se.

The high death rate for Indigenous people is obviously an average; death rates would be expected to be lower for those Aboriginal and Torres Strait Islander peoples who have experienced average Australian levels of income, employment, education, housing and access to health and other services throughout their lives.

So as to differentiate between the effects of 'Indigenous' and 'rural' issues on the health of people living in regional and remote areas, this indicator reports on mortality for Indigenous and non-Indigenous people separately.

Poor identification of Indigenous people in the mortality database and almost certain better identification in regional and remote areas (although the absolute accuracies in each region are unknown) prevent the inter-regional comparison of Indigenous mortality, but allow the cautious inter-regional comparison of non-Indigenous mortality, especially in remote areas (AIHW 2003a).

Indigenous mortality is reported for the four states (Northern Territory, Western Australia, South Australia and Queensland) for which Indigenous identification is most accurate.

The statistics reported here are standardised mortality ratios (SMRs). These are the ratio of the observed number of deaths in the period to the number that would be expected if age-specific death rates for Major Cities during this period were experienced in all areas.

Detailed results

In 1997–99, males in Inner Regional, Outer Regional, Remote, Very Remote areas were, respectively, 1.07, 1.11, 1.17 and 1.49 times as likely to die during this period as their counterparts in Major Cities; females were, respectively, 1.04, 1.07, 1.09 and 1.51 times as likely (Table 1.4.1.1).

For people living in Very Remote areas the SMR dropped sharply in the older age groups (65–74 years and 75 years and over). It is likely that this is a result of people in this age group (particularly those with a health condition) migrating to less remote areas.

Mortality of non-Indigenous persons

In 1997–1999, non-Indigenous males in Inner Regional, Outer Regional, Remote, Very Remote areas were, respectively, 1.07, 1.10, 1.07 and 1.00 times as likely to die during this period as their counterparts in Major Cities, and non-Indigenous females were, respectively 1.03, 1.06, 0.98 and 0.87 times as likely (Table 1.4.1.2).

In remote areas, the death rates of those who were 75 years and over were lower than for their counterparts in Major Cities, substantially so in Very Remote areas.

For non-Indigenous people under 65 years, death rates for males in Inner Regional areas, and females in Inner and Outer Regional areas were about 1.1 times those in Major Cities, and those for males from Outer Regional and remote areas were about 1.2 times those in Major Cities. Rates for females in remote areas were not significantly higher than for their counterparts in Major Cities.

Table 1.4.1.1: The ratio of observed deaths to those expected if Major Cities rates applied in each area, males and females, 1997–99

	Male					Female				
		IR	OR	R	VR		IR	OR	R	VR
Age group (years)	MC rate	Standardised mortality ratio				MC rate	Standardised mortality ratio			
0–4	132	***1.09**	***1.29**	***1.38**	***2.59**	110	1.01	1.05	***1.35**	***2.94**
5–14	15	1.10	1.17	***1.89**	***3.68**	11	1.06	***1.30**	1.55	***4.28**
15–24	90	***1.34**	***1.45**	***2.09**	***2.66**	35	***1.23**	***1.21**	***2.16**	***2.67**
25–44	142	***1.10**	***1.20**	***1.55**	***2.61**	66	***1.10**	***1.14**	***1.55**	***3.14**
45–64	519	***1.11**	***1.22**	***1.33**	***2.15**	312	***1.09**	***1.19**	***1.40**	***2.65**
65–74	2552	***1.06**	***1.13**	***1.19**	***1.42**	1413	1.02	***1.11**	***1.26**	***1.68**
75+	8470	***1.05**	***1.03**	***0.93**	***0.71**	6734	***1.04**	***1.04**	***0.91**	***0.80**
Total	. .	***1.07**	***1.11**	***1.17**	***1.49**	. .	***1.04**	***1.07**	***1.09**	***1.51**

* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. 'MC rates' (i.e. Major Cities rates) are expressed as deaths per 100,000 population per year. Total (crude) Major Cities rate is largely meaningless and is not included.
3. Although the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.

Source: AIHW National Mortality Database.

Mortality of Indigenous persons

In 1997–99, average death rates for Indigenous males and females in the Northern Territory, Western Australia, South Australia and Queensland were 3.1 times as high as for their non-Indigenous counterparts in Australian Major Cities.

Age-specific mortality

Tables 1.4.1.1 and 1.4.1.2 describe age-specific mortality.

Death rates for males and females in all age groups (except those over 75 years) were higher in regional and remote areas than in Major Cities. There was a strong tendency for rates to become progressively higher with remoteness, with rates for people under 45 years from Very Remote areas about 2.5–3.5 times as high as those in Major Cities. Males and females in regional areas who were 15–24 years old had rates of death that were, respectively, about 1.4 and 1.2 times those in Major Cities; similar-aged people in Remote and Very Remote areas had death rates that were about 2.1 and 2.7 times as high as those in Major Cities.

Death rates for non-Indigenous people in most age groups tended to increase with remoteness. Rates tended to be highest in remote areas, except in people 75 years and over, whose rates were lower than in Major Cities.

Death rates for 15–24-year-old non-Indigenous males in regional and Remote areas were, respectively, about 1.4 and 1.7 times those for males from Major Cities, showing a similar pattern to the total male population. Rates for non-Indigenous females of this age were 1.25 times those in Inner Regional areas, and although higher in Outer Regional and remote areas, not significantly so.

Age-specific mortality for Indigenous males and females was substantially greater than for non-Indigenous people from any area. Rates for males and females aged 0–24 years, 25–64 years, 65–74 years and 75 years and over were, respectively, about 3, 5–6, 3 and 1.3 times those for non-Indigenous people in those age groups in Major Cities.

Table 1.4.1.2: The ratio of observed deaths to those expected if Major Cities non-Indigenous rates applied to the non-Indigenous population in each area and to the Indigenous population, 1997–99

	Male						**Female**					
	Non-Indigenous					**Indigenous**	**Non-Indigenous**					**Indigenous**
		IR	**OR**	**R**	**VR**			**IR**	**OR**	**R**	**VR**	
Age group (years)	**MC rate**	**Standardised mortality ratio**					**MC rate**	**Standardised mortality ratio**				
0–4	130	1.08	***1.15**	1.14	1.17	***3.0**	109	1.00	0.96	1.01	0.86	***2.8**
5–14	15	1.12	1.13	1.48	***2.62**	***2.9**	11	1.09	1.24	1.20	1.92	***3.6**
15–24	89	***1.34**	***1.39**	***1.74**	1.46	***3.5**	34	***1.25**	1.10	1.39	1.53	***3.3**
25–44	139	***1.10**	***1.12**	1.09	1.11	***5.3**	65	***1.10**	1.03	0.88	0.89	***6.0**
45–64	517	***1.11**	***1.18**	***1.14**	***1.24**	***4.8**	309	***1.08**	***1.12**	1.10	***1.27**	***5.3**
65–74	2,550	***1.06**	***1.12**	***1.15**	***1.17**	***2.4**	1,410	1.02	***1.09**	***1.13**	0.99	***3.3**
75+	8,468	***1.04**	***1.05**	0.95	***0.70**	***1.2**	6,732	***1.02**	***1.04**	***0.91**	***0.72**	***1.4**
Total	. .	***1.07**	***1.10**	***1.07**	1.00	***3.1**	. .	***1.03**	***1.06**	0.98	***0.87**	***3.1**
0–64	. .	***1.12**	***1.17**	***1.17**	***1.22**	***4.4**	. .	***1.09**	***1.09**	1.06	1.16	***4.7**

* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. 'MC rates' (i.e. Major Cities rates) for non-Indigenous persons are expressed as deaths per 100,000 population per year. Total (crude) Major Cities rate is largely meaningless and is not included.
3. Ratios for Indigenous people are for SA, WA, NT and Qld.
4. Although the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.
5. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution.

Source: AIHW National Mortality Database.

1.4.2 Perinatal mortality

Summary of findings

Rates of foetal and neonatal death are higher in regional and especially remote areas. Foetal death rates are 1.1, 1.2, 1.4 and 2.2 times as high in Inner Regional, Outer Regional, Remote and Very Remote areas, and neonatal death rates are 1.2, 1.3, 1.5 and 2.9 times as high in these areas as in Major Cities.

Uncertainty about the overall accuracy of recording of Indigenous status, and regional differences in this accuracy in both the births and perinatal data sets, prevents disentanglement of Indigenous and regional/remote effects. It is clear, however, that overall high rates of Indigenous perinatal mortality have a substantial effect in remote areas.

Background

Perinatal mortality is an indicator of population health and birth outcomes.

A foetal death (stillbirth) is defined as the death, before birth, of a foetus of 400 grams or more. A neonatal death is defined as the death of a newborn within 28 days of birth. Perinatal deaths are the sum of all foetal and neonatal deaths.

Rates have been calculated from ABS Perinatal Deaths data and ABS Births data. However, with available data, it is not possible to accurately comment on the inter-regional patterns for either Indigenous or non-Indigenous people. Allocation of ASGC Remoteness Area from the source (ABS) was provided for the 1999–2001 period only.

A small number of records in the perinatal deaths data set did not contain details of the mother's age, or the postcode of the mother's address, and so were excluded from the analysis.

Indirect age-standardised death rates provide an inter-regional comparison of the risk of death in each area that allows for differences in the age of the mothers giving birth. The risk of perinatal death is greater for very young and very old mothers, and the births in Very Remote areas are more likely to be from young mothers. Crude perinatal death rates and numbers of deaths are descriptive statistics, providing an understanding of the size of the issue in each area.

Detailed findings

The rate of foetal and neonatal death was lowest in Major Cities, slightly higher in regional areas, and highest in Remote and especially Very Remote areas.

The crude rate of foetal death was 1.1, 1.2, 1.3 and 2.1 times as high in Inner and Outer Regional, Remote and Very Remote areas, respectively, as in Major Cities, and the rate of neonatal death was 1.1, 1.3, 1.5 and 2.7 times as high in these areas as in Major Cities (Table 1.4.2.1).

Inter-regional comparisons using indirect age-standardised rates show a very similar pattern, with the rate of foetal and neonatal death being statistically significantly higher in all areas outside Major Cities. The maternal age-standardised rate of foetal death was 1.1, 1.2, 1.4 and 2.2 times as high in Inner and Outer Regional, Remote and Very Remote areas, respectively, as in Major Cities, and the rate of neonatal death was 1.2, 1.3, 1.5 and 2.9 times as high in these areas as in Major Cities (Table 1.4.2.1)

Table 1.4.2.1: Number, crude rate and indirect age-standardised rate of foetal and neonatal death, 1999–2001

	MC	IR	OR	R	VR	Total
			Average number per year			
Foetal deaths	803	260	159	34	33	1290
Neonatal deaths	488	163	104	23	26	805
Total (perinatal) deaths	1291	423	264	58	60	2095
Births	164,776	47,883	26,527	5,233	3,232	247,652
			Crude rate per 1000 births			
Foetal deaths	4.9	5.4	6.0	6.6	10.3	5.2
Neonatal deaths	3.0	3.4	3.9	4.4	8.1	3.2
Total (perinatal) deaths	7.8	8.8	9.9	11.0	18.5	8.5
			Ratio of observed to expected deaths			
Foetal deaths	1.00	1.11	1.24	1.38	2.16	n.p.
Neonatal deaths	1.00	1.16	1.35	1.51	2.88	n.p.
Total (perinatal) deaths	1.00	1.13	1.28	1.43	2.42	n.p.

Note: Expected deaths are calculated as the number of foetal and neonatal deaths that would have occurred if Major Cities maternal age-specific death rates applied in each area.

Source: ABS Births data, 1999–2001, ABS Perinatal deaths data, 1999–2001.

Babies born to Indigenous women were 1.9 times as likely to be stillborn (foetal death) and 2.6 times as likely to die within 28 days of birth (neonatal death) as those born to non-Indigenous women (ABS & AIHW 2003).

The high perinatal death rates in Very Remote areas are likely to be affected by the high overall perinatal death rates for Indigenous infants (ABS & AIHW 2003), high Indigenous fertility (Section 2.3.4), and proportionally large numbers of Indigenous people in these areas (Section 2.3.1). The very high percentages (69% and 86%, respectively) of foetal and neonatal deaths that are recorded as Indigenous in Very Remote areas indicate that a substantial proportion of these deaths are of babies born to Indigenous mothers.

1.4.5 Leading causes of death and excess deaths

Summary of findings

The leading causes of death in Australia are circulatory diseases (41% in 1997–99), cancers (28%), respiratory diseases (8%) and injury (6%), with a similar pattern being observed both inside and outside Major Cities. However, the leading causes of the higher death rates experienced in regional and remote areas are mainly circulatory diseases (42% of the 'excess' deaths) and injury (24%), with respiratory disease and cancers each contributing about 10% of the 'excess'.

More specifically, coronary heart disease (23%), 'other' cardiovascular disease (16%), chronic obstructive pulmonary disease (11%), motor vehicle accidents (11%), diabetes (6%), suicide (6%) and 'other' injuries (6%) were the main contributors to the 'excess' deaths that elevate regional and remote area mortality above levels experienced in Major Cities. Prostate, colorectal and lung cancers together contribute another 10% of the 'excess' deaths.

Background

In this report, the leading causes of death are described in three ways, by comparing across the four areas:

- the number of observed and expected deaths
- the average annual number of observed deaths
- the average annual number of 'excess' deaths.

Comparison statistics are provided for the total population in each area, the non-Indigenous population in each area, the non-Indigenous population younger than 65 years, and the total Indigenous population in the aggregated area of South Australia, Western Australia, the Northern Territory and Queensland.

The data is sourced from the ABS mortality data collection and pertains to the 3-year period 1997–99. Because of differences in the age and sex structure of the populations in each area, the results have been age-standardised and reported for each sex. Standardisation has been by the indirect method (see page 302). This method basically compares the number of deaths observed with the number expected if Major Cities death rates applied uniformly across all areas; the ratio is referred to as the standardised mortality ratio (SMR). If there were twice as many deaths as expected, then the SMR is 2.00; if there were as many as expected then the SMR is 1.00; if there were half as many as expected, then the SMR is 0.5.

The number of expected deaths is calculated by multiplying the number of people in each age group in an area by the death rate experienced by people in that age group in Major Cities.

The annual number of 'excess' deaths is the difference between the number of observed deaths and the number of expected deaths each year if Major Cities rates applied in all areas. 'Excess' deaths have been reported because although SMRs provide a measure of inequity, they do not provide a measure of magnitude (that is, an understanding of the absolute size of disadvantage for particular causes of death in each region, in terms of human lives lost).

A substantial proportion of the poorer health outcomes in more remote areas can be a consequence of poor Indigenous health. Consequently, mortality for the Indigenous and non-Indigenous populations is reported alongside mortality for the total population. However, two issues affect the reporting of data for Indigenous people:

- Concerns about the inter-regional differences in the accuracy of the recording of Indigenous deaths prevent reporting on Indigenous mortality separately for the five regions used in this report. Reporting of differences between areas may reflect differences in the accuracy of the records rather than real differences in mortality. Consequently, overall rather than regional mortality rates for Indigenous people are presented.
- Identification of Indigenous mortality was considered to be most reliable in the Northern Territory, South Australia, Western Australia and Queensland during the study period. Overall mortality rates for Indigenous people have been calculated using data from these jurisdictions only.

Because a 'non-Indigenous' person has been defined in this report as someone who is not identified as Indigenous, underidentification of Indigenous people will necessarily mean overreporting of non-Indigenous people in the mortality data. However, the effect on reporting by area will be much less than for Indigenous people (minimal in Major Cities and in regional areas), because non-Indigenous persons constitute the vast majority of the population. A full discussion and sensitivity analysis of the combined effects of differences in the proportions of Indigenous people and their propensity to identify as such can be found in *Rural, Regional and Remote Health: A Study on Mortality* (AIHW 2003a).

Frequently, death rates for elderly non-Indigenous people from remote areas appear substantially lower than for their Major Cities counterparts, whereas rates for younger people from remote areas are higher than for those in Major Cities. It is possible that this effect is due to elderly people in poorer health migrating to less remote areas where they can access services, leaving behind the healthier individuals, who have lower death rates. To control for this apparent effect, death rates for the population under 65 years have been presented alongside those for the total population.

Detailed results

The overall annual leading causes of death are circulatory disease (52,230 deaths), cancers (35,604 deaths), respiratory diseases (9,857 deaths) and injury (8,143 deaths), which were responsible nationally for 41%, 28%, 8% and 6% of deaths, respectively. Other causes (22,354 deaths), including diabetes (2,952 deaths), were responsible for the remainder. The importance of diabetes to mortality is understated in this report, because it is frequently a contributing factor to other deaths (e.g. those classified as due to circulatory diseases).

However, circulatory disease (42%) is also the leading cause of 'excess' death outside Major Cities, and injury (24%) is the next greatest cause, followed by respiratory disease (10%) and cancers (11%). Injury deaths assume even greater importance because they are frequently of young and working-age people.

Table 1.4.5.1 describes the 'excess' deaths resulting from the leading specific causes of higher death rates outside Major Cities: ischaemic and 'other' heart disease, chronic obstructive pulmonary disease, motor vehicle accidents, diabetes, suicide, 'other' injuries, and some cancers (prostate, colorectal and lung). These causes explain about 90% of all of the excess deaths that occur outside Major Cities.

Table 1.4.5.2 compares, for each cause, the rates of deaths in each area with those in Major Cities. The presented statistic is the ratio of the number of deaths observed to the number expected if Major Cities rates applied in each area. A ratio of 2 indicates twice as many deaths as expected (i.e. rates twice those in Major Cities), and a ratio of 0.5 indicates half as many deaths as expected (i.e. rates half those in Major Cities). This measure provides an indication of the inter-regional 'inequity' in the risk of death from each cause.

Table 1.4.5.1: Leading causes of 'excess' deaths in areas outside Major Cities, 1997–99

Cause of death	Annual 'excess' deaths	Per cent of total 'excess'
Coronary (Ischaemic) heart disease	755	23
'Other' cardiovascular diseases[(a)]	518	16
Chronic obstructive pulmonary disease	374	11
Motor vehicle accidents	368	11
Diabetes	191	6
Suicide	184	6
'Other' injuries[(b)]	214	6
Prostate cancer	131	4
Colorectal cancer	117	4
Lung cancer	52[(c)]	2[(c)]
All other causes	399	12
All causes	3,303	100

(a) Excludes stroke and rheumatic heart disease.

(b) 'Other' injuries include all injuries except motor vehicle accidents, suicide, homicide and accidental shooting.

(c) There were 52 additional deaths due to lung cancer overall (this was made up of 112 additional deaths of those under 70 years outside Major Cities and 60 fewer than expected for those who were 70 years and over). While it accounted for 2% of all additional deaths, lung cancer accounted for 6% of additional deaths of people under 65 years.

Source: AIHW National Mortality Database.

Table 1.4.5.3 compares, for each cause, the annual number of deaths in each area. This measure provides an indication of the relative 'importance' of each cause of death in each area.

Table 1.4.5.4 (from which Table 1.4.5.1 is derived) estimates, for each cause, the annual number of deaths in excess of the number expected if Major Cities rates applied in each area. This measure identifies the specific causes of the higher overall death rates, and describes the magnitude of their contribution to these higher rates.

For most causes, rates of death are higher in regional and especially remote areas. The higher rates in remote areas are almost invariably affected by high overall rates for Indigenous people. For other causes (e.g. motor vehicle accidents—MVA), rates may be elevated because of high rates in the Indigenous population, but rates for the non-Indigenous population in regional and/or remote areas are still high relative to Major Cities rates.

The absolute numbers of deaths in regional and especially remote areas are smaller than in Major Cities, a consequence of the larger numbers of people living in Major Cities.

The causes showing the greatest disparity between areas in the rate of death include respiratory diseases (such as chronic obstructive pulmonary disease—COPD), almost all injury (MVA, suicide, accidental shooting and 'other' injuries), diabetes and rheumatic heart disease.

Some causes show only slightly higher rates outside Major Cities, but are responsible for large numbers of deaths. For example, rates of ischaemic heart disease are about 10% higher outside Major Cities than inside (not dramatically higher, compared with causes such as accidental shooting), but (unlike accidental shooting) responsible for a large proportion of deaths and 'excess' deaths.

Causes that are responsible for large numbers of deaths include circulatory diseases and cancers. Respiratory diseases, injury and conditions such as diabetes are also substantial contributors. Causes of the additional deaths that are responsible for the overall higher death rates outside Major Cities have been described earlier (Table 1.4.5.1).

Selected causes of death

Details for four specific major causes of death of interest are detailed below. More detail is available from the AIHW report *Rural, Regional and Remote Heath: A Study on Mortality* (AIHW 2003a).

Coronary (ischaemic) heart disease was responsible for 755 more deaths each year outside Major Cities than expected. Rates were 10% higher in all areas outside Major Cities except Very Remote areas, where they were 30% higher. For younger non-Indigenous people (aged 0–64 years), rates were 10%, 20%, 20% and 30% higher in Inner Regional, Outer Regional, Remote and Very Remote areas respectively. Overall, there were 3.3 times as many deaths of Indigenous people as expected (9.3 times as many for 0–64-year-olds).

There were about 374 more deaths (mainly male) than expected outside Major Cities from **chronic obstructive pulmonary disease** each year; overall rates in Inner Regional, Outer Regional, Remote and Very Remote areas were 1.2, 1.3, 1.3 and 1.9 times those in Major Cities, respectively. Death rates for non-Indigenous people aged 0–64 years were 1.3, 1.6, 1.8 and 2.8 times as high, respectively, in the four areas outside Major Cities. Rates for Indigenous people were 3.4 times as high as expected (and 8.8 times as high for 0–64-year-olds).

Outside Major Cities, there were 368 more deaths annually from **motor vehicle accidents** than expected, of which 70% were of males. Rates were substantially elevated outside Major Cities for all areas examined. Rates for non-Indigenous people aged 0–64 years were 1.8, 2.0, 2.1 and 2.4 times as high, respectively, in the four areas outside Major Cities. Indigenous death rates due to this cause were 4.1 times as high as expected.

There were 184 more deaths than expected due to **suicide** annually outside Major Cities, and practically all were of males. Rates in the four areas were 1.2, 1.2, 1.4 and 1.6 times the rate in Major Cities. Rates for non-Indigenous people were 1.2 times as high in Inner Regional, Outer Regional and Remote areas as in Major Cities, with all age groups between 15 and 64 years contributing, but similar in Very Remote areas to those in Major Cities. Rates for non-Indigenous people aged 0–64 years from Inner and Outer Regional areas were 1.3 and 1.2 times as high as in Major Cities. Indigenous death rates due to this cause were 2.9 times as high as expected.

Table 1.4.5.2: Standardised mortality ratios for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	Population group	(ratio)									
All cancers	All people	***1.05**	***1.06**	1.04	1.00	n.p.	1.00	1.00	0.95	1.08	n.p.
	Non-Indigenous	***1.05**	***1.06**	1.03	0.88	n.p.	1.00	0.99	0.92	0.87	n.p.
	Non-Indigenous (0–64)	***1.13**	***1.13**	1.01	1.04	n.p.	***1.04**	1.02	0.91	0.99	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***1.5**	n.p.	n.p.	n.p.	n.p.	***1.5**
Lung cancer	All people	1.02	***1.08**	1.13	***1.31**	n.p.	0.96	0.93	1.16	***1.43**	n.p.
	Non-Indigenous	1.02	***1.08**	1.13	1.18	n.p.	0.96	***0.91**	1.11	1.05	n.p.
	Non-Indigenous (0–64)	***1.12**	***1.27**	1.14	***1.88**	n.p.	1.08	0.90	1.15	1.47	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***1.9**	n.p.	n.p.	n.p.	n.p.	***2.4**
Breast cancer	All people	n.p.	n.p.	n.p.	n.p.	n.p.	0.99	0.99	0.89	0.81	n.p.
	Non-Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	0.99	0.99	0.86	0.73	n.p.
	Non-Indigenous (0–64)	n.p.	n.p.	n.p.	n.p.	n.p.	1.01	0.98	0.85	0.77	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	1.1
Colorectal cancer	All people	***1.07**	1.05	1.06	***0.61**	n.p.	***1.09**	***1.13**	0.92	0.82	n.p.
	Non-Indigenous	***1.07**	1.06	1.04	0.68	n.p.	***1.09**	***1.14**	0.97	0.94	n.p.
	Non-Indigenous (0–64)	***1.21**	1.11	1.04	0.55	n.p.	***1.19**	***1.25**	1.01	1.32	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	0.6	n.p.	n.p.	n.p.	n.p.	0.6
Cervical cancer	All people	. .	. .	. .	. .	. .	0.95	***1.27**	1.53	***3.32**	n.p.
	Non-Indigenous	. .	. .	. .	. .	. .	0.94	1.18	1.15	1.07	n.p.
	Non-Indigenous (0–64)	. .	. .	. .	. .	. .	1.05	1.09	0.93	0.73	n.p.
	Indigenous	. .	. .	. .	. .	. .	n.p.	n.p.	n.p.	n.p.	***6.5**

(Continued)

Table 1.4.5.2 (continued): Standardised mortality ratios for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	**Population group**	(ratio)									
Prostate cancer	All people	***1.14**	***1.20**	1.16	1.02	n.p.	. .	. .	. .	. .	. .
	Non-Indigenous	***1.13**	***1.21**	1.20	1.17	n.p.	. .	. .	. .	. .	. .
	Non-Indigenous (0–64)	***1.40**	***1.41**	1.59	1.23	n.p.	. .	. .	. .	. .	. .
	Indigenous	n.p.	n.p.	n.p.	n.p.	0.8	. .	. .	. .	. .	. .
Melanoma	All people	***1.27**	1.06	0.85	0.45	n.p.	1.02	1.01	0.99	0.96	n.p.
	Non-Indigenous	***1.27**	1.08	0.89	0.59	n.p.	1.01	1.02	1.01	1.26	n.p.
	Non-Indigenous (0–64)	***1.45**	***1.27**	0.97	0.65	n.p.	1.00	1.20	1.14	1.12	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	0.0	n.p.	n.p.	n.p.	n.p.	0.2
Other cancers	All people	***1.03**	1.02	0.99	0.99	n.p.	0.99	0.98	0.91	1.08	n.p.
	Non-Indigenous	***1.03**	1.02	0.95	***0.75**	n.p.	0.98	0.97	***0.87**	0.84	n.p.
	Non-Indigenous (0–64)	***1.08**	1.05	0.93	0.85	n.p.	1.01	1.01	0.83	0.93	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***1.8**	n.p.	n.p.	n.p.	n.p.	***1.5**
All circulatory diseases	All people	***1.08**	***1.10**	***1.10**	***1.36**	n.p.	***1.06**	***1.08**	1.04	***1.18**	n.p.
	Non-Indigenous	***1.08**	***1.09**	1.02	0.95	n.p.	***1.04**	***1.07**	0.98	***0.78**	n.p.
	Non-Indigenous (0–64)	***1.10**	***1.18**	***1.21**	1.23	n.p.	***1.16**	***1.29**	1.24	1.46	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.4**	n.p.	n.p.	n.p.	n.p.	***3.0**
Ischaemic heart disease	All people	***1.10**	***1.08**	***1.11**	***1.36**	n.p.	***1.05**	***1.07**	1.01	1.12	n.p.
	Non-Indigenous	***1.10**	***1.07**	1.04	0.96	n.p.	***1.04**	***1.06**	0.97	0.86	n.p.
	Non-Indigenous (0–64)	***1.11**	***1.14**	***1.21**	1.23	n.p.	***1.22**	***1.42**	1.30	***1.86**	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.4**	n.p.	n.p.	n.p.	n.p.	***3.1**

(Continued)

Table 1.4.5.2 (continued): Standardised mortality ratios for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	**Population group**					(ratio)					
Stroke	All people	1.03	1.04	0.98	***1.38**	n.p.	1.02	1.00	0.91	0.91	n.p.
	Non-Indigenous	1.03	1.04	0.92	1.03	n.p.	1.00	0.99	0.87	***0.61**	n.p.
	Non-Indigenous (0–64)	0.98	1.06	0.88	1.43	n.p.	***1.15**	***1.21**	1.31	1.48	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.0**	n.p.	n.p.	n.p.	n.p.	***2.2**
Rheumatic heart disease	All people	0.94	***1.42**	2.28	***8.06**	n.p.	0.96	***1.34**	***2.64**	***5.85**	n.p.
	Non-Indigenous	0.95	1.26	1.05	0.04	n.p.	0.97	1.12	1.35	1.56	n.p.
	Non-Indigenous (0–64)	0.81	1.08	1.83	0.10	n.p.	0.93	1.47	2.18	0.50	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***30.9**	n.p.	n.p.	n.p.	n.p.	***20.4**
Other circulatory diseases	All people	***1.09**	***1.22**	***1.18**	***1.24**	n.p.	***1.12**	***1.18**	***1.22**	***1.49**	n.p.
	Non-Indigenous	***1.09**	***1.22**	1.10	0.86	n.p.	***1.10**	***1.18**	1.14	0.80	n.p.
	Non-Indigenous (0–64)	***1.17**	***1.40**	***1.41**	1.13	n.p.	1.09	1.11	1.00	0.89	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***2.9**	n.p.	n.p.	n.p.	n.p.	***3.1**
All respiratory diseases	All people	***1.09**	***1.23**	***1.26**	***1.88**	n.p.	1.00	***1.06**	***1.29**	***1.86**	n.p.
	Non-Indigenous	***1.08**	***1.21**	1.13	1.22	n.p.	0.99	1.04	1.15	0.88	n.p.
	Non-Indigenous (0–64)	***1.20**	***1.49**	1.40	***1.99**	n.p.	***1.13**	***1.24**	***1.76**	1.67	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***4.5**	n.p.	n.p.	n.p.	n.p.	***4.4**
COPD	All people	***1.21**	***1.39**	***1.27**	***1.90**	n.p.	***1.06**	***1.12**	***1.38**	***1.84**	n.p.
	Non-Indigenous	***1.21**	***1.38**	***1.19**	***1.44**	n.p.	1.05	***1.10**	1.25	0.99	n.p.
	Non-Indigenous (0–64)	***1.38**	***1.76**	1.42	***3.00**	n.p.	1.17	***1.33**	***2.48**	2.40	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.2**	n.p.	n.p.	n.p.	n.p.	***3.8**

(Continued)

Table 1.4.5.2 (continued): Standardised mortality ratios for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	**Population group**	(ratio)									
Asthma	All people	1.08	***1.29**	***2.17**	1.09	n.p.	1.07	1.18	1.01	1.58	n.p.
	Non-Indigenous	1.08	1.19	***2.22**	0.76	n.p.	1.06	1.13	0.89	0.77	n.p.
	Non-Indigenous (0–64)	1.29	***1.52**	***2.41**	0.75	n.p.	1.11	1.21	1.27	0.84	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	**3.2**	n.p.	n.p.	n.p.	n.p.	***3.0**
Pneumonia	All people	***0.85**	0.97	1.33	***2.26**	n.p.	0.98	1.02	1.26	***2.35**	n.p.
	Non-Indigenous	***0.84**	0.92	1.09	1.30	n.p.	0.96	1.01	1.07	0.88	n.p.
	Non-Indigenous (0–64)	0.96	1.10	0.95	1.63	n.p.	***1.54**	1.31	0.56	2.06	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***8.8**	n.p.	n.p.	n.p.	n.p.	***5.8**
Other respiratory diseases	All people	***0.86**	***0.89**	0.91	***1.71**	n.p.	***0.82**	0.91	1.04	1.32	n.p.
	Non-Indigenous	***0.86**	***0.86**	***0.67**	0.59	n.p.	***0.82**	***0.86**	0.90	0.55	n.p.
	Non-Indigenous (0–64)	0.84	1.08	0.99	0.91	n.p.	0.86	1.06	1.22	0.36	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***5.3**	n.p.	n.p.	n.p.	n.p.	***5.1**
All injuries	All people	***1.25**	***1.40**	***1.71**	***2.35**	n.p.	***1.19**	***1.27**	***1.53**	***2.44**	n.p.
	Non-Indigenous	***1.26**	***1.37**	***1.54**	***1.68**	n.p.	***1.18**	***1.21**	***1.23**	1.06	n.p.
	Non-Indigenous (0–64)	***1.32**	***1.42**	***1.57**	***1.77**	n.p.	***1.26**	***1.17**	1.21	1.24	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.4**	n.p.	n.p.	n.p.	n.p.	***3.9**
Motor vehicle accidents	All people	***1.65**	***1.93**	***2.42**	***3.81**	n.p.	***1.65**	***1.85**	***2.27**	***3.10**	n.p.
	Non-Indigenous	***1.67**	***1.90**	***2.24**	***2.63**	n.p.	***1.66**	***1.78**	***1.79**	0.98	n.p.
	Non-Indigenous (0–64)	***1.78**	***2.02**	***2.25**	***2.78**	n.p.	***1.82**	***1.93**	***1.83**	1.17	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.9**	n.p.	n.p.	n.p.	n.p.	***4.5**

(Continued)

Table 1.4.5.2 (continued): Standardised mortality ratios for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	Population group	(ratio)									
Suicide	All people	***1.27**	***1.27**	***1.47**	***1.65**	n.p.	1.03	0.97	0.86	1.18	n.p.
	Non-Indigenous	***1.27**	***1.24**	***1.28**	1.05	n.p.	1.04	0.92	0.80	0.87	n.p.
	Non-Indigenous (0–64)	***1.32**	***1.23**	***1.27**	1.02	n.p.	1.08	0.93	0.82	0.78	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.1**	n.p.	n.p.	n.p.	n.p.	***2.2**
Interpersonal violence	All people	***0.80**	1.00	1.64	***4.06**	n.p.	0.91	1.02	***2.94**	***9.13**	n.p.
	Non-Indigenous	***0.79**	0.92	1.20	2.10	n.p.	0.91	0.71	1.39	2.40	n.p.
	Non-Indigenous (0–64)	***0.76**	0.86	1.23	2.18	n.p.	0.99	0.61	1.10	2.59	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***5.6**	n.p.	n.p.	n.p.	n.p.	***11.3**
Accidental shooting	All people	***3.08**	***4.17**	***6.72**	***15.50**	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
	Non-Indigenous	***3.10**	***4.27**	***7.24**	***22.27**	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
	Non-Indigenous (0–64)	***3.34**	***3.72**	***7.72**	***19.01**	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	0.0	n.p.	n.p.	n.p.	n.p.	n.p.
Other injuries	All people	***1.10**	***1.31**	***1.60**	***2.05**	n.p.	***1.11**	***1.21**	***1.44**	***2.08**	n.p.
	Non-Indigenous	***1.09**	***1.28**	***1.47**	***1.74**	n.p.	***1.10**	***1.18**	1.21	1.07	n.p.
	Non-Indigenous (0–64)	***1.11**	***1.37**	***1.57**	***1.99**	n.p.	1.08	0.98	1.17	1.52	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.2**	n.p.	n.p.	n.p.	n.p.	***3.7**
All other causes	All people	***0.97**	***1.04**	***1.17**	***1.81**	n.p.	***1.05**	***1.14**	***1.18**	***2.34**	n.p.
	Non-Indigenous	***0.97**	1.00	0.96	***0.79**	n.p.	***1.04**	***1.10**	0.93	0.99	n.p.
	Non-Indigenous (0–64)	***0.91**	***0.94**	0.88	***0.74**	n.p.	1.04	1.03	1.04	1.17	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***4.1**	n.p.	n.p.	n.p.	n.p.	***4.7**

(Continued)

Table 1.4.5.2 (continued): Standardised mortality ratios for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	Population group	(ratio)									
Diabetes	All people	1.01	***1.25**	***1.52**	***2.82**	n.p.	***1.11**	***1.44**	***1.93**	***5.48**	n.p.
	Non-Indigenous	1.00	***1.17**	1.19	***0.52**	n.p.	***1.10**	***1.33**	***1.34**	1.59	n.p.
	Non-Indigenous (0–64)	0.86	1.05	1.27	0.85	n.p.	0.90	***1.38**	1.71	***3.52**	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***11.1**	n.p.	n.p.	n.p.	n.p.	***16.0**
Renal disease	All people	1.01	1.02	1.11	***1.99**	n.p.	1.00	***1.12**	1.31	***3.35**	n.p.
	Non-Indigenous	1.00	0.99	0.95	1.21	n.p.	0.98	1.08	1.02	1.27	n.p.
	Non-Indigenous (0–64)	1.04	1.07	1.46	0.66	n.p.	1.23	1.14	0.42	1.79	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***5.0**	n.p.	n.p.	n.p.	n.p.	***9.1**
Others	All people	***0.97**	1.00	***1.12**	***1.66**	n.p.	***1.05**	***1.09**	1.06	***1.87**	n.p.
	Non-Indigenous	***0.97**	0.98	0.93	***0.80**	n.p.	***1.04**	***1.07**	***0.87**	0.89	n.p.
	Non-Indigenous (0–64)	***0.91**	***0.93**	***0.84**	***0.74**	n.p.	***1.05**	***1.00**	***1.00**	***0.99**	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	***3.5**	n.p.	n.p.	n.p.	n.p.	***3.4**

* Significantly different from 1 (that is, rates are significantly different from those for people or non-Indigenous people in Major Cities).

Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. Ratios for Indigenous people are for SA, WA, NT and Qld.
3. Although the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes.
4. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution.

Source: AIHW National Mortality Database.

Table 1.4.5.3: Average yearly number of observed deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males						Females					
		MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Cause	Population group	(number)											
All cancers	All people	12,697	4,675	2,313	297	120	20,102	10,358	3,352	1,544	173	75	15,502
	Non-Indigenous	12,665	4,659	2,275	278	79	19,958	10,330	3,333	1,514	158	42	15,377
	Non-Indigenous (0–64)	3,335	1,227	648	90	34	5,334	2,950	975	472	57	19	4,473
	Indigenous [(a)]	n.p.	n.p.	n.p.	n.p.	n.p.	107	n.p.	n.p.	n.p.	n.p.	n.p.	89
Lung cancer	All people	2,927	1,051	547	74	35	4,634	1,397	442	195	28	13	2,076
	Non-Indigenous	2,918	1,044	537	71	24	4,595	1,390	438	188	25	7	2,048
	Non-Indigenous (0–64)	717	264	160	22	13	1,176	372	130	53	9	3	567
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	29	n.p.	n.p.	n.p.	n.p.	n.p.	18
Breast cancer	All people	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	1,711	548	258	29	10	2,557
	Non-Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	1,707	545	253	26	7	2,538
	Non-Indigenous (0–64)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	796	254	121	14	4	1,189
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	13
Colorectal cancer	All people	1,575	592	286	38	9	2,501	1,380	489	232	22	7	2,129
	Non-Indigenous	1,573	590	284	35	8	2,491	1,378	487	230	22	6	2,123
	Non-Indigenous (0–64)	450	178	87	13	2	730	322	123	63	7	3	518
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	5	n.p.	n.p.	n.p.	n.p.	n.p.	4
Cervical cancer	All people	. .	. .	. .	. .	. .	. .	167	51	32	5	4	260
	Non-Indigenous	. .	. .	. .	. .	. .	. .	167	50	29	3	1	251
	Non-Indigenous (0–64)	. .	. .	. .	. .	. .	. .	79	26	13	2	—	120
	Indigenous	. .	. .	. .	. .	. .	. .	n.p.	n.p.	n.p.	n.p.	n.p.	**8**

(Continued)

Table 1.4.5.3 (continued): Average yearly number of observed deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males						Females					
		MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Cause	Population group	(number)											
Prostate cancer	All people	1,527	614	309	36	13	2,500	. .	. .	. .	. .	. .	. .
	Non-Indigenous	1,525	612	308	35	11	2,491	. .	. .	. .	. .	. .	. .
	Non-Indigenous (0–64)	105	49	26	4	1	187	. .	. .	. .	. .	. .	. .
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	5	. .	. .	. .	. .	. .	. .
Melanoma	All people	373	162	68	7	2	611	229	74	35	4	2	344
	Non-Indigenous	372	161	68	7	2	610	229	74	35	4	1	343
	Non-Indigenous (0–64)	152	69	32	4	1	258	94	29	17	2	1	143
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	—	n.p.	n.p.	n.p.	n.p.	n.p.	—
Other cancers	All people	6,282	2,252	1,101	141	60	9,837	5,474	1,747	792	85	38	8,137
	Non-Indigenous	6,264	2,247	1,077	129	34	9,751	5,460	1,739	778	77	21	8,075
	Non-Indigenous (0–64)	1,907	665	341	47	16	2,977	1,287	414	204	23	8	1,936
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	67	n.p.	n.p.	n.p.	n.p.	n.p.	45
All circulatory diseases	All people	15,823	6,013	2,953	374	197	25,360	17,767	5,945	2,750	291	116	26,870
	Non-Indigenous	15,757	5,975	2,868	323	99	25,023	17,711	5,917	2,681	256	55	26,619
	Non-Indigenous (0–64)	2,464	880	500	79	30	3,953	882	330	180	23	8	1,423
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	250	n.p.	n.p.	n.p.	n.p.	n.p.	189
Ischaemic heart disease	All people	9,525	3,670	1,755	229	118	15,297	8,712	2,903	1,342	138	53	13,149
	Non-Indigenous	9,481	3,643	1,699	200	61	15,083	8,678	2,885	1,305	123	29	13,020
	Non-Indigenous (0–64)	1,678	607	333	54	20	2,693	401	160	92	11	5	668
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	156	n.p.	n.p.	n.p.	n.p.	n.p.	95

(Continued)

Table 1.4.5.3 (continued): Average yearly number of observed deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males						Females					
		MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Cause	Population group	(number)											
Stroke	All people	3,151	1,141	550	65	39	4,945	4,998	1,609	715	71	25	7,417
	Non-Indigenous	3,140	1,136	539	56	21	4,891	4,988	1,603	698	64	12	7,365
	Non-Indigenous (0–64)	334	106	61	8	5	514	220	81	42	6	2	351
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	43	n.p.	n.p.	n.p.	n.p.	n.p.	38
Rheumatic heart disease	All people	51	17	12	3	4	87	114	35	22	5	4	181
	Non-Indigenous	49	16	10	1	—	77	112	35	18	2	1	169
	Non-Indigenous (0–64)	14	4	3	1	—	21	19	6	4	1	—	29
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	8	n.p.	n.p.	n.p.	n.p.	n.p.	11
Other circulatory diseases	All people	3,107	1,189	639	78	35	5,049	3,968	1,403	674	77	33	6,156
	Non-Indigenous	3,098	1,184	623	68	17	4,990	3,957	1,398	662	67	13	6,097
	Non-Indigenous (0–64)	437	163	104	16	5	726	242	84	42	5	1	375
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	43	n.p.	n.p.	n.p.	n.p.	n.p.	46
All respiratory diseases	All people	3,314	1,273	690	87	55	5,420	2,951	940	453	61	32	4,437
	Non-Indigenous	3,302	1,263	664	73	26	5,328	2,938	934	436	51	11	4,369
	Non-Indigenous (0–64)	330	130	85	12	6	563	270	99	53	10	3	435
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	69	n.p.	n.p.	n.p.	n.p.	n.p.	53
COPD	All people	2,023	869	475	53	33	3,453	1,385	473	226	30	14	2,128
	Non-Indigenous	2,017	863	464	47	18	3,409	1,379	468	219	26	6	2,097
	Non-Indigenous (0–64)	163	76	51	6	5	301	122	47	26	6	2	204
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	28	n.p.	n.p.	n.p.	n.p.	n.p.	21

(Continued)

Table 1.4.5.3 (continued): Average yearly number of observed deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males						Females					
		MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Cause	**Population group**	(number)											
Asthma	All people	112	41	24	6	1	185	184	62	32	3	2	283
	Non-Indigenous	112	41	22	5	1	181	184	62	30	3	1	279
	Non-Indigenous (0–64)	43	17	11	3	—	74	61	21	11	2	—	95
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	3	n.p.	n.p.	n.p.	n.p.	n.p.	4
Pneumonia	All people	521	154	85	15	11	786	764	235	111	15	10	1,135
	Non-Indigenous	517	153	77	11	4	763	760	234	108	12	3	1,116
	Non-Indigenous (0–64)	41	13	8	1	1	63	25	12	5	—	—	43
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	21	n.p.	n.p.	n.p.	n.p.	n.p.	15
Other respiratory diseases	All people	658	209	106	13	10	995	618	171	85	13	5	892
	Non-Indigenous	656	206	100	9	2	974	614	170	80	11	1	877
	Non-Indigenous (0–64)	82	24	16	2	1	125	62	19	10	2	—	92
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	16	n.p.	n.p.	n.p.	n.p.	n.p.	14
All injuries	All people	3,390	1,270	750	155	113	5,678	1,540	556	285	48	36	2,465
	Non-Indigenous	3,336	1,245	701	125	53	5,459	1,525	548	263	35	9	2,381
	Non-Indigenous (0–64)	2,645	980	560	107	48	4,340	835	304	140	22	8	1,309
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	165	n.p.	n.p.	n.p.	n.p.	n.p.	68
Motor vehicle accidents	All people	632	309	189	40	35	1,206	282	141	77	14	10	524
	Non-Indigenous	623	305	178	33	15	1,153	278	139	71	10	2	500
	Non-Indigenous (0–64)	526	262	156	29	14	987	203	107	56	8	2	376
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	42	n.p.	n.p.	n.p.	n.p.	n.p.	19

(Continued)

Table 1.4.5.3 (continued): Average yearly number of observed deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males						Females					
		MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Cause	Population group	(number)											
Suicide	All people	1,287	474	255	52	31	2,099	360	109	51	7	5	533
	Non-Indigenous	1,271	466	239	41	13	2,030	357	108	47	6	2	520
	Non-Indigenous (0–64)	1,113	408	204	37	12	1,774	305	93	40	5	2	446
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	56	n.p.	n.p.	n.p.	n.p.	n.p.	11
Interpersonal violence	All people	142	33	23	7	9	214	65	18	10	5	7	105
	Non-Indigenous	136	31	19	4	3	194	64	17	6	2	1	90
	Non-Indigenous (0–64)	129	28	17	4	3	180	56	16	5	1	1	79
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	13	n.p.	n.p.	n.p.	n.p.	n.p.	13
Accidental shooting	All people	7	7	5	1	1	21	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
	Non-Indigenous	7	7	5	1	1	21	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
	Non-Indigenous (0–64)	6	6	3	1	1	18	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	–	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Other injuries	All people	1,321	448	278	55	36	2,138	833	287	147	22	14	1,302
	Non-Indigenous	1,299	437	260	45	20	2,061	826	283	139	17	4	1,270
	Non-Indigenous (0–64)	872	276	180	36	18	1,381	271	86	39	7	3	406
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	54	n.p.	n.p.	n.p.	n.p.	n.p.	25
All other causes	All people	6,937	2,299	1,210	190	136	10,772	7,544	2,512	1,253	154	120	11,582
	Non-Indigenous	6,868	2,267	1,134	142	40	10,451	7,485	2,489	1,187	112	33	11,306
	Non-Indigenous (0–64)	2,331	651	356	56	17	3,411	1,282	417	207	32	11	1,949
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	248	n.p.	n.p.	n.p.	n.p.	n.p.	221

(Continued)

Table 1.4.5.3 (continued): Average yearly number of observed deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males						Females					
		MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Cause	Population group	(number)											
Diabetes	All people	919	324	195	31	24	1,494	895	319	188	28	28	1,458
	Non-Indigenous	909	320	179	22	3	1,433	883	314	169	18	6	1,390
	Non-Indigenous (0–64)	180	50	33	6	2	271	98	28	21	4	2	153
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	50	n.p.	n.p.	n.p.	n.p.	n.p.	59
Renal disease	All people	549	194	93	12	10	857	668	211	107	14	12	1,012
	Non-Indigenous	548	194	90	10	4	845	664	209	102	10	3	988
	Non-Indigenous (0–64)	28	9	5	1	—	43	30	12	5	—	—	48
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	11	n.p.	n.p.	n.p.	n.p.	n.p.	21
Others	All people	5,469	1,780	922	147	103	8,421	5,981	1,982	957	112	79	9,112
	Non-Indigenous	5,412	1,754	865	110	33	8,173	5,938	1,966	917	84	24	8,928
	Non-Indigenous (0–64)	2,123	591	318	48	16	3,097	1,155	376	180	28	9	1,748
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	184	n.p.	n.p.	n.p.	n.p.	n.p.	141

Notes

1. Numbers of deaths of males from breast cancer and those of females from accidental shooting have not been provided because the numbers are very small.

2. Figures for Indigenous people are for the aggregated area of SA, WA, NT and Queensland. This, and the inaccuracies in the identification of Indigenous deaths prevent calculation from the table of the number of Indigenous deaths in each area. The sum of the number of Indigenous and non-Indigenous people will not equal the total, because figures for the Indigenous population refer to the four jurisdictions in which identification is thought to be most accurate.

Source: AIHW Mortality database.

Table 1.4.5.4: Average annual number of 'excess' deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	Population group	(number)									
All cancers	All people	232	135	12	—	379	—	–2	–9	6	–6
	Non-Indigenous	233	129	8	–11	359	–10	–9	–13	–6	–38
	Non-Indigenous (0–64)	145	72	1	1	220	36	11	–6	—	41
	Indigenous	n.p.	n.p.	n.p.	n.p.	38	n.p.	n.p.	n.p.	n.p.	30
Lung cancer	All people	18	41	8	8	76	–16	–15	4	4	–23
	Non-Indigenous	16	38	8	4	65	–17	–19	2	—	–33
	Non-Indigenous (0–64)	27	34	3	6	70	10	–6	1	1	6
	Indigenous	n.p.	n.p.	n.p.	n.p.	14	n.p.	n.p.	n.p.	n.p.	11
Breast cancer	All people	n.p.	n.p.	n.p.	n.p.	n.p.	–3	–2	–4	–2	–11
	Non-Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	–4	–2	–4	–2	–12
	Non-Indigenous (0–64)	n.p.	n.p.	n.p.	n.p.	n.p.	2	–3	–3	–1	–4
	Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	2
Colorectal cancer	All people	40	15	2	–6	51	42	27	–2	–2	66
	Non-Indigenous	40	16	1	–4	54	40	28	–1	—	67
	Non-Indigenous (0–64)	31	9	1	–2	38	20	13	—	1	33
	Indigenous	n.p.	n.p.	n.p.	n.p.	–3	n.p.	n.p.	n.p.	n.p.	–3
Cervical cancer	All people	. .	. .	. .	. .	. .	–3	7	2	3	9
	Non-Indigenous	. .	. .	. .	. .	. .	–3	4	—	—	2
	Non-Indigenous (0–64)	. .	. .	. .	. .	. .	1	1	—	—	2
	Indigenous	. .	. .	. .	. .	. .	n.p.	n.p.	n.p.	n.p.	7

(Continued)

Table 1.4.5.4 (continued): Average annual number of 'excess' deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	**Population group**					(number)					
Prostate cancer	All people	73	52	5	—	131	. .	. .	. .	. .	. .
	Non-Indigenous	73	54	6	2	134	. .	. .	. .	. .	. .
	Non-Indigenous (0–64)	14	8	2	—	24	. .	. .	. .	. .	. .
	Indigenous	n.p.	n.p.	n.p.	n.p.	–1	. .	. .	. .	. .	. .
Melanoma	All people	34	4	–1	–2	35	1	—	—	—	1
	Non-Indigenous	34	5	–1	–1	37	1	1	—	—	2
	Non-Indigenous (0–64)	22	7	—	–1	28	—	3	—	—	3
	Indigenous	n.p.	n.p.	n.p.	n.p.	–2	n.p.	n.p.	n.p.	n.p.	–1
Other cancers	All people	67	24	–2	–1	88	–22	–20	–9	3	–48
	Non-Indigenous	71	17	–6	–12	70	–27	–21	–12	–4	–64
	Non-Indigenous (0–64)	52	15	–4	–3	60	3	3	–5	–1	1
	Indigenous	n.p.	n.p.	n.p.	n.p.	30	n.p.	n.p.	n.p.	n.p.	15
All circulatory diseases	All people	464	274	34	53	825	320	202	12	18	552
	Non-Indigenous	449	244	7	–5	696	242	168	–4	–15	390
	Non-Indigenous (0–64)	82	75	14	6	176	45	40	5	3	93
	Indigenous	n.p.	n.p.	n.p.	n.p.	175	n.p.	n.p.	n.p.	n.p.	126
Ischaemic heart disease	All people	328	137	23	31	519	137	91	2	6	236
	Non-Indigenous	317	112	7	–3	433	100	72	–4	–5	163
	Non-Indigenous (0–64)	61	42	10	4	116	28	27	3	2	60
	Indigenous	n.p.	n.p.	n.p.	n.p.	110	n.p.	n.p.	n.p.	n.p.	64

(Continued)

Table 1.4.5.4 (continued): Average annual number of 'excess' deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	Population group	(number)									
Stroke	All people	34	20	–1	11	64	31	—	–7	–2	21
	Non-Indigenous	33	20	–5	1	49	8	–8	–9	–8	–17
	Non-Indigenous (0–64)	–2	4	–1	1	2	11	7	1	1	20
	Indigenous	n.p.	n.p.	n.p.	n.p.	29	n.p.	n.p.	n.p.	n.p.	21
Rheumatic heart disease	All people	–1	4	1	4	8	–2	6	3	3	10
	Non-Indigenous	–1	2	—	—	1	–1	2	1	—	2
	Non-Indigenous (0–64)	–1	—	—	—	—	—	1	—	—	1
	Indigenous	n.p.	n.p.	n.p.	n.p.	8	n.p.	n.p.	n.p.	n.p.	10
Other circulatory diseases	All people	102	116	12	7	237	151	105	14	11	281
	Non-Indigenous	100	111	6	–3	215	133	101	8	–3	239
	Non-Indigenous (0–64)	24	30	5	1	59	7	4	—	—	11
	Indigenous	n.p.	n.p.	n.p.	n.p.	28	n.p.	n.p.	n.p.	n.p.	31
All respiratory diseases	All people	103	130	18	26	277	–2	26	14	15	53
	Non-Indigenous	98	115	8	5	226	–11	15	7	–1	10
	Non-Indigenous (0–64)	22	28	4	3	56	12	10	4	1	27
	Indigenous	n.p.	n.p.	n.p.	n.p.	53	n.p.	n.p.	n.p.	n.p.	41
COPD	All people	151	133	11	15	310	25	24	8	6	63
	Non-Indigenous	147	127	8	6	287	21	19	5	—	46
	Non-Indigenous (0–64)	21	22	2	3	48	7	7	4	1	18
	Indigenous	n.p.	n.p.	n.p.	n.p.	19	n.p.	n.p.	n.p.	n.p.	15

(Continued)

Table 1.4.5.4 (continued): Average annual number of 'excess' deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	Population group	(number)									
Asthma	All people	3	6	3	—	12	4	5	—	1	9
	Non-Indigenous	3	3	3	—	9	4	3	—	—	6
	Non-Indigenous (0–64)	4	4	2	—	9	2	2	—	—	4
	Indigenous	n.p.	n.p.	n.p.	n.p.	2	n.p.	n.p.	n.p.	n.p.	3
Pneumonia	All people	–28	–3	4	6	–21	–4	2	3	6	7
	Non-Indigenous	–28	–7	1	1	–33	–9	1	1	—	–7
	Non-Indigenous (0–64)	—	1	—	—	—	4	1	—	—	5
	Indigenous	n.p.	n.p.	n.p.	n.p.	19	n.p.	n.p.	n.p.	n.p.	13
Other respiratory diseases	All people	–23	–6	—	4	–25	–26	–5	2	1	–28
	Non-Indigenous	–24	–9	–3	–2	–38	–27	–8	1	–1	–35
	Non-Indigenous (0–64)	–3	1	—	—	–2	–2	1	—	—	–1
	Indigenous	n.p.	n.p.	n.p.	n.p.	13	n.p.	n.p.	n.p.	n.p.	10
All injuries	All people	257	215	64	65	602	88	60	17	21	186
	Non-Indigenous	254	190	44	21	510	85	46	6	1	138
	Non-Indigenous (0–64)	237	165	39	21	461	63	21	4	1	89
	Indigenous	n.p.	n.p.	n.p.	n.p.	117	n.p.	n.p.	n.p.	n.p.	51
Motor vehicle accidents	All people	122	91	24	26	263	56	36	8	7	106
	Non-Indigenous	123	84	18	9	235	55	31	4	—	91
	Non-Indigenous (0–64)	115	78	16	9	219	49	27	4	—	79
	Indigenous	n.p.	n.p.	n.p.	n.p.	31	n.p.	n.p.	n.p.	n.p.	15

(Continued)

Table 1.4.5.4 (continued): Average annual number of 'excess' deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	Population group	(number)									
Suicide	All people	100	54	17	12	183	3	–2	–1	1	1
	Non-Indigenous	98	46	9	1	154	4	–4	–1	—	–2
	Non-Indigenous (0–64)	98	38	8	—	144	7	–3	–1	–1	2
	Indigenous	n.p.	n.p.	n.p.	n.p.	38	n.p.	n.p.	n.p.	n.p.	6
Interpersonal violence	All people	–8	—	3	7	1	–2	—	3	7	8
	Non-Indigenous	–8	–2	1	2	–8	–2	–3	1	1	–3
	Non-Indigenous (0–64)	–9	–3	1	2	–9	—	–3	—	1	–2
	Indigenous	n.p.	n.p.	n.p.	n.p.	11	n.p.	n.p.	n.p.	n.p.	12
Accidental shooting	All people	4	4	1	1	10	n.p.	n.p.	n.p.	n.p.	n.p.
	Non-Indigenous	4	4	1	1	11	n.p.	n.p.	n.p.	n.p.	n.p.
	Non-Indigenous (0–64)	4	3	1	1	9	n.p.	n.p.	n.p.	n.p.	n.p.
	Indigenous	n.p.	n.p.	n.p.	n.p.	0	n.p.	n.p.	n.p.	n.p.	n.p.
Other injuries	All people	40	66	21	19	145	30	25	7	7	69
	Non-Indigenous	37	57	14	9	118	26	21	3	—	51
	Non-Indigenous (0–64)	28	48	13	9	98	7	–1	1	1	8
	Indigenous	n.p.	n.p.	n.p.	n.p.	37	n.p.	n.p.	n.p.	n.p.	18
All other causes	All people	–59	44	28	61	73	120	149	23	68	362
	Non-Indigenous	–63	5	–6	–10	–75	96	111	–8	–1	199
	Non-Indigenous (0–64)	–67	–23	–8	–6	–102	16	6	1	2	25
	Indigenous	n.p.	n.p.	n.p.	n.p.	188	n.p.	n.p.	n.p.	n.p.	174

(Continued)

Table 1.4.5.4 (continued): Average annual number of 'excess' deaths for specific causes of death, ASGC Remoteness Area, 1997–99

		Males					Females				
		IR	OR	R	VR	Total	IR	OR	R	VR	Total
Cause	**Population group**	(number)									
Diabetes	All people	2	38	10	15	66	31	57	13	23	125
	Non-Indigenous	1	26	4	–3	28	29	42	5	2	77
	Non-Indigenous (0–64)	–8	2	1	—	–6	–3	6	1	2	6
	Indigenous	n.p.	n.p.	n.p.	n.p.	45	n.p.	n.p.	n.p.	n.p.	56
Renal disease	All people	1	2	1	5	9	—	11	3	9	23
	Non-Indigenous	–1	–1	—	1	–1	–4	8	—	1	5
	Non-Indigenous (0–64)	—	—	—	—	1	2	1	—	—	3
	Indigenous	n.p.	n.p.	n.p.	n.p.	9	n.p.	n.p.	n.p.	n.p.	19
Others	All people	–62	4	17	41	–2	89	81	7	36	214
	Non-Indigenous	–63	–20	–10	–8	–102	71	61	–13	–4	117
	Non-Indigenous (0–64)	–59	–25	–9	–6	–97	17	–1	—	—	16
	Indigenous	n.p.	n.p.	n.p.	n.p.	134	n.p.	n.p.	n.p.	n.p.	99

Notes

1. 'Excess' deaths are calculated as the difference between the number of deaths observed in each area, and the number expected if Major Cities age-specific death rates applied in each area. The number of expected deaths of 'All people' is based on the age-specific death rates for 'All people' living in Major Cities. The numbers of expected deaths of 'non-Indigenous and Indigenous people are based on the age-specific death rates for non-Indigenous people living in Major Cities.
2. Numbers of 'excess' deaths for Indigenous people are for the combined area of SA, WA, NT and Qld only. Numbers of deaths for non-Indigenous people and 'All people' are for Australia.
3. Estimates of the number of excess deaths of non-Indigenous people in Remote and Very remote areas should be treated with caution.

Source: AIHW National Mortality Database.

2 Determinants of health

2.1 Environmental factors

2.1.1 Fluoridated water

Summary of findings

Available data indicate that the percentage of localities with reticulated water supplies that are adequately fluoridated declines with remoteness. Over 80% of localities in Major Cities had reticulated water supplies that were adequately fluoridated, compared with 30–40% of those in regional and Remote areas, and 25% of those in Very Remote areas.

Because the data set is an aggregation of data that has been collected over a period of a decade or more, the findings are likely to be indicative, rather than highly accurate.

Background

Fluoride augmentation of domestic water supplies reduces the risk of dental caries in children and in later life. Opportunity for public health gain exists in any area where reticulated water supplies do not contain adequate fluoride.

This indicator describes the fluoride concentration of reticulated water supplies only; it reports nothing about private water supplies. Some water (e.g. some bore water) is naturally fluoridated, whereas tank (collected rain) water contains very little fluoride.

The data set does not provide information about the percentage of water supplies that have adequate fluoride; it simply provides information about whether the fluoride in reticulated water supplies in any particular postcode is equal to or greater than the NHMRC target for adequate fluoride augmentation (NHMRC 1991). This target fluoride concentration is lower in warm climates and higher in colder climates where people are likely to drink more and less water, respectively. A desirable fluoride concentration is typically in the range of 0.6 to 1.1 parts per million.

The data set is national, with data for the various areas updated from time to time. Some data within this data set may be up to a decade old.

Data is sourced from the Fluoridated Water database, held by the Australian Research Centre for Population Oral Health, Adelaide.

Detailed results

The latest data available from the Fluoridated Water database show that approximately 49% of localities had reticulated water supplies with adequate fluoride augmentation. Reticulated water supplies of localities in Inner Regional, Outer Regional and Remote areas were less than half as likely to be adequately fluoridated as those in Major Cities. Reticulated water supplies of localities in Very Remote areas were one-quarter as likely.

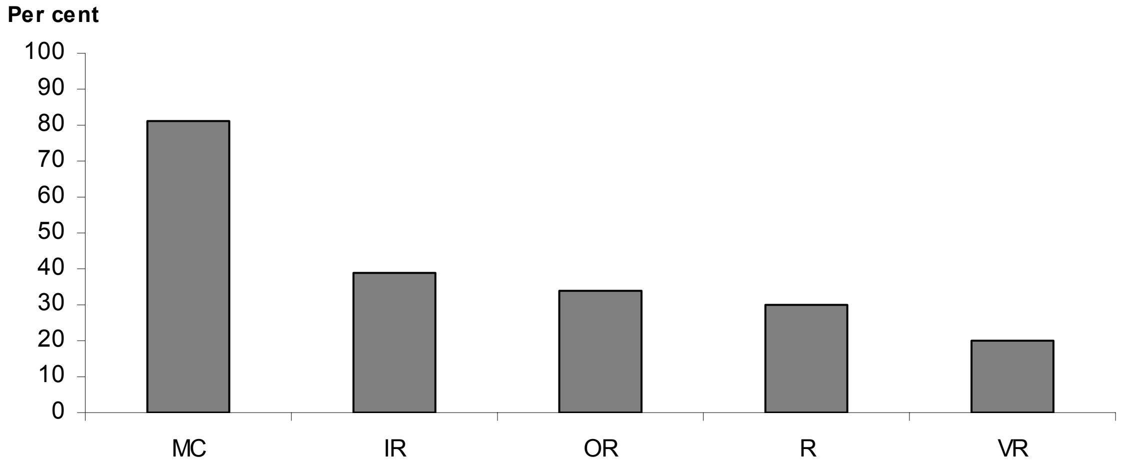
Table 2.1.1.1: Localities with reticulated water supplies having adequate fluoridation, by ASGC Remoteness Area

	MC	IR	OR	R	VR	Total
				(per cent)		
Localities having adequate fluoride augmentation	81	39	34	30	20	49
				(number)		
Number of localities with reticulated water supplies that are adequately fluoridated	3050	1882	1268	167	56	6423
Number of localities with reticulated water supplies[(a)]	3776	4871	3700	554	283	13184
				(ratio)		
Comparison of percentage with Major Cities	1.00	0.48	0.42	0.37	0.25	0.60

(a) There were 714 locations for which information on fluoride concentration was not available.

Note: The data relate to a broad time period, with fresh data being added or updated periodically.

Source: Fluoridated Water database, Australian Research Centre for Population Oral Health, Adelaide.



Source: Fluoridated Water database, Australian Research Centre for Population Oral Health, Adelaide.

Figure 2.1.1.1: Proportion of localities with water supplies that were adequately fluoridated, by ASGC Remoteness Area

2.2 Socioeconomic factors

2.2.1 Educational status of the adult population

Summary of findings

High school education

The likelihood of adults having finishing school at Year 12 or equivalent has increased over time.

People from Major Cities were more likely to have finished Year 12 than those in regional and remote areas. In 2001, persons aged 20 years and over living in Major Cities (48%) were more likely to leave school at Year 12 or equivalent than those living in Inner Regional areas (32%), Outer Regional (30%), Remote (32%) and Very Remote areas (26%).

Indigenous people were less likely than non-Indigenous people to have finished Year 12 or equivalent.

Inter-regional differences were also evident for both Indigenous and non-Indigenous people:

- Whereas 27% of Indigenous people aged 20 years and over in Major Cities finished Year 12 or equivalent, this figure declined to almost 20% in regional areas, 14% in Remote areas and 9% in Very Remote areas.
- Non-Indigenous people from Major Cities (48%) were more likely to have completed Year 12 or equivalent than those in regional (32% and 31%) or remote (33% and 36%) areas.

Tertiary qualifications

In 2001, adults from regional and especially remote areas were less likely to have a tertiary qualification than adults from Major Cities:

- 19% of adults from Major Cities had a bachelor's degree or higher, compared with 11%, 9%, 9% and 8% from Inner Regional, Outer Regional, Remote and Very Remote areas, respectively.
- 55% of adults from Major Cities had no tertiary qualifications, compared with 61%, 65%, 65% and 73% from the other four areas, respectively.

Indigenous Australians are less likely to have tertiary qualifications than non-Indigenous Australians.

The proportions of both the Indigenous and non-Indigenous populations with no tertiary qualifications appeared to be related to remoteness:

- In 2001, 71% of Indigenous people in Major Cities aged 20 years and over had no tertiary qualification, compared with 76%, 82%, 86% and 94% in Inner and Outer Regional, Remote and Very Remote areas, respectively.
- Of non-Indigenous people in Major Cities aged 20 years and over, 55% had no tertiary qualifications, fewer than in Inner and Outer Regional, Remote and Very Remote areas, where 61%, 65%, 64% and 61%, respectively, had no such qualifications.

Background

Three educational indicators have been described in this report. This one reports the educational status of adults who live in regional and remote areas. The other two (Sections 2.2.2 and 2.2.3) refer to educational opportunities for young people.

Educational status is relevant because it, as well as income, influences health status through a range of factors including risk factors and access to services. People with a higher educational status are less likely to have a poor risk factor profile (e.g. are less likely to smoke), tend to have higher incomes providing them with greater access to health services, and are more likely to be aware of health issues and of available services.

In this indicator, educational status has been described for three age groups because community expectations and work-related educational requirements have increased with time.

The data have been sourced from the 1991, 1996 and 2001 censuses. However, the definition of 'the highest level of schooling' attained changed between 1996 and 2001; in 1991 and 1996, highest level of schooling was defined as the age at which the individual left school, whereas in 2001 it was defined as the school year (e.g. Year 12) during which the individual left school. In 6% of records, there was insufficient information to allocate a level of tertiary education; these records have been omitted from the analysis.

Detailed results

Two sets of results are presented here:

- high school completion rates
- highest level of qualification completed.

High school completion rates

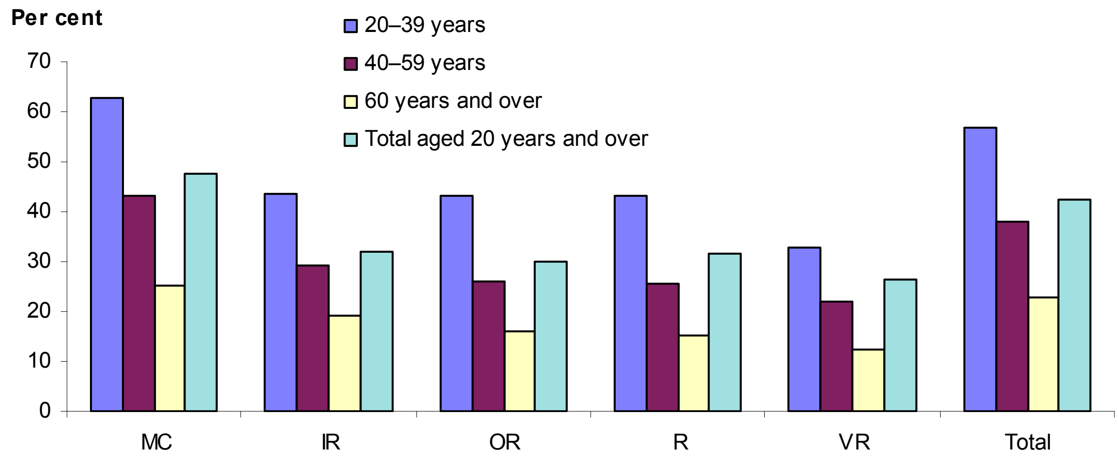
There has been a general trend towards more Australians finishing school at Year 12 or equivalent and more attaining tertiary qualifications. This has been in response to the increased demands of the economy for skilled labour and decreased demands for unskilled labour.

The likelihood of adults having finishing school at Year 12 or equivalent has increased over time (Table 2.2.1.1 and Table 2.2.1.2). In 1991 and 1996, respectively, 35% and 39% of people aged 20 years and over had left school when they were 17 years and over. In 2001, 42% of people aged 20 years and over had left school in Year 12 or equivalent. This trend is also illustrated using data from the 2001 Census; 57%, 38% and 23%, of persons aged 20–39 years, 40–59 years and 60 years and over, respectively, finished school at Year 12 or equivalent (Table 2.2.1.1).

People from Major Cities were more likely to have finished Year 12 than those in regional and remote areas (Table 2.2.1.1). In 2001, persons aged 20 years and over living in Major Cities (48%) were more likely to have left school at Year 12 or equivalent than those living in Inner Regional areas (32%), Outer Regional (30%), Remote (32%) and Very Remote areas (26%).

This pattern is repeated in the three individual age groups (Table 2.2.1.1).

Although there were substantial differences between Major Cities and the other areas, the differences between regional and remote areas are relatively small (Table 2.2.1.1 and Table 2.2.1.2).



Source: ABS 2001 Census.

Figure 2.2.1.1: Percentage of persons who left school at Year 12 or equivalent, by age group by ASGC Remoteness area, 2001

Table 2.2.1.1: Proportion of persons who left school at Year 12 or equivalent by ASGC Remoteness Area, 2001

Age group	MC	IR	OR	R	VR	Total
			(per cent)			
20–39 years	63	44	43	43	33	57
40–59 years	43	29	26	26	22	38
60 years and over	25	19	16	15	13	23
Total (20 years and over)	48	32	30	32	26	42

Source: ABS, 2001 Census.

Table 2.2.1.2: Proportion of persons who left school at 17 years or over, by ASGC Remoteness Area, 1991 and 1996

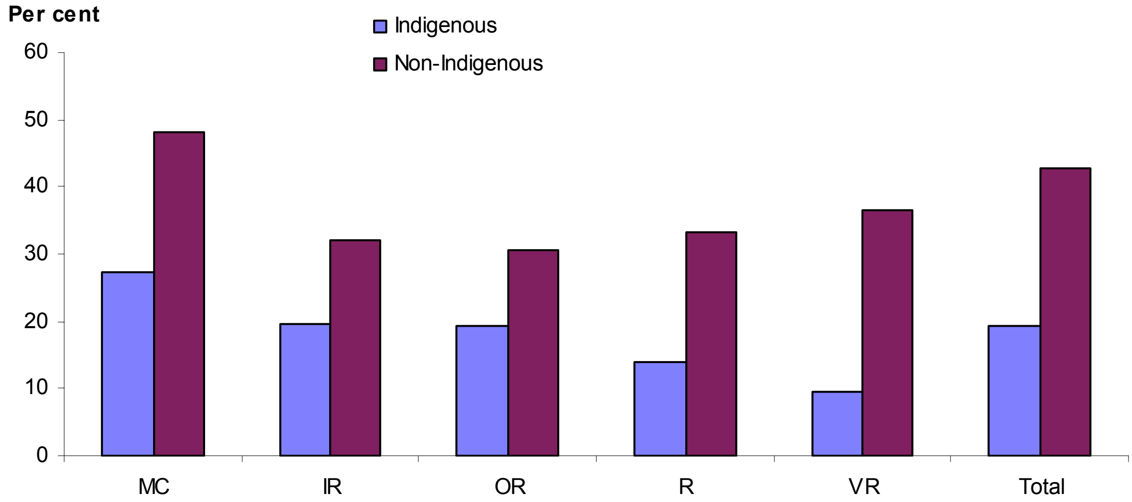
Age group/year	MC	IR	OR	R	VR	Total
			(per cent)			
20–39 years						
1991	55	40	38	36	35	50
1996	60	45	42	42	39	55
40–59 years						
1991	30	21	19	18	19	27
1996	37	27	24	23	23	33
60 years and over						
1991	16	12	11	10	10	14
1996	17	12	10	10	11	15
Total (20 years and over)						
1991	39	27	26	27	28	35
1996	43	31	29	30	30	39

Source: ABS, 1991 and 1996 Census.

In 2001, Indigenous people were less likely than non-Indigenous people to have finished Year 12 or equivalent (Table 2.2.1.3). Overall, 19% of Indigenous people, compared with 43% of non-Indigenous people, completed Year 12; 25% versus 58% of 20–39-year-olds, 11% versus 38% of 40–59-year-olds and 6% versus 23% of those aged 60 years and over.

Inter-regional differences were also evident for both Indigenous and non-Indigenous people (Figure 2.2.1.2 and Table 2.2.1.3):

- Although 27% of Indigenous people aged 20 years and over in Major Cities finished Year 12 or equivalent, the proportion declined to almost 20% in regional areas, 14% in Remote areas and 9% in Very Remote areas.
- Non-Indigenous people from Major Cities (48%) were more likely to have completed Year 12 or equivalent than those in regional (32% and 31%) or remote (33% and 36%) areas.



Source: ABS 1996 Census.

Figure 2.2.1.2: Indigenous and non-Indigenous persons aged 20 years and over who left school at Year 12 or equivalent, by ASGC Remoteness Area, 2001

Table 2.2.1.3: Indigenous and non-Indigenous persons who left school at Year 12 or equivalent, by ASGC Remoteness Area, 2001

Age group/ Indigenous/Non-Indigenous	MC	IR	OR	R	VR	Total
			(per cent)			
20–39						
Indigenous	34	26	26	19	12	25
Non-Indigenous	63	44	44	46	48	58
All persons	63	44	43	43	33	57
40–59						
Indigenous	17	12	10	8	6	11
Non-Indigenous	43	30	27	27	29	38
All persons	43	29	26	26	22	38
60 years and over						
Indigenous	11	8	4	3	2	6
Non-Indigenous	25	19	16	16	17	23
All persons	25	19	16	15	13	23
Total (20 years and over)						
Indigenous	27	20	19	14	9	19
Non-Indigenous	48	32	31	33	36	43
All persons	48	32	30	32	26	42

Source: ABS, 2001 Census.

Highest level of tertiary qualification completed

Classification of data collected in 1991 and 1996 is different from that collected in 2001. Although the categories are similar, they are not identical, so data for the two periods (1991 and 1996, and 2001) have been presented separately.

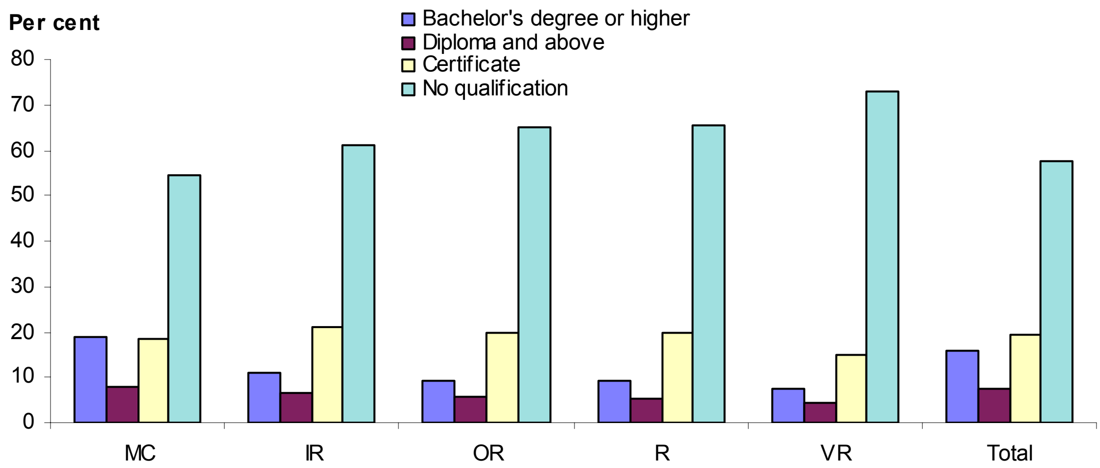
In 2001, 16% of persons aged 20 years and over had a bachelor's degree or higher, 7% had a diploma or above, 19% had a certificate and 57% had no tertiary qualifications (Table 2.2.1.4 and Figure 2.2.1.3).

In 2001, adults from regional and especially remote areas were less likely to have a tertiary qualification than adults from Major Cities:

- 19% of adults from Major Cities had a bachelor's degree or higher, compared with 11%, 9%, 9% and 8% from Inner Regional, Outer Regional, Remote and Very Remote areas, respectively.
- 55% of adults from Major Cities had no tertiary qualifications, compared with 61%, 65%, 65% and 73% from Inner Regional, Outer Regional, Remote and Very Remote areas, respectively.

Older people were less likely than younger people to hold a tertiary qualification.

These patterns are similar to those in 1991 and 1996 (Table 2.2.1.5)

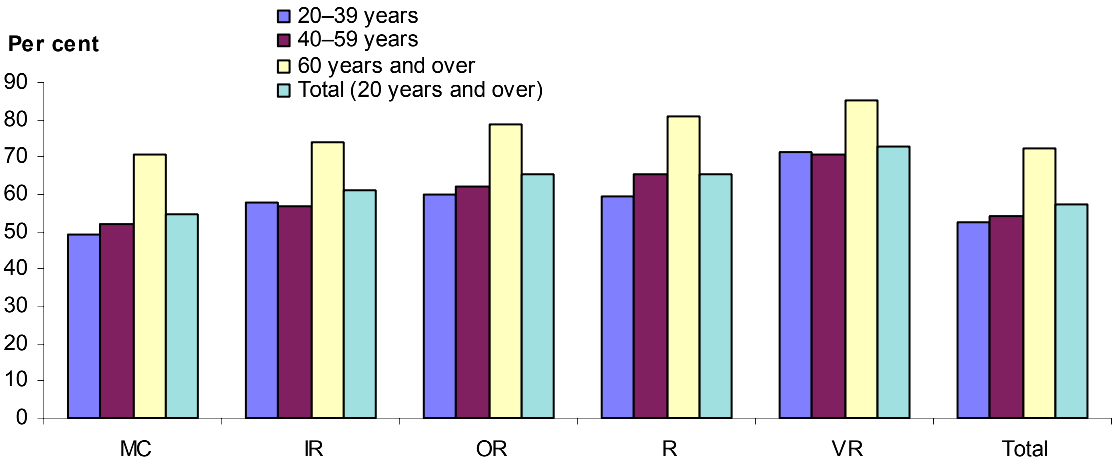


Source: ABS 2001 Census.

Figure 2.2.1.3: Proportion of persons aged 20 years and over, by level of tertiary qualification, by ASGC Remoteness Area, 2001

People aged 20–39 years in Inner Regional, Outer Regional and Remote areas were more likely to hold a certificate than those in Major Cities and Very Remote areas.

For those aged 40–59, the pattern was similar, but weaker, and in this age group and for this level of qualification there was greatest consistency. The likelihood of holding a certificate was in the narrow range between 16% and 22% across the regions.



Source: ABS 1996 Census.

Figure 2.2.1.4: Proportion of persons aged 20 years and over with no tertiary qualification by age group by ASGC Remoteness Area, 2001

Table 2.2.1.4: Age group by highest qualification by ASGC Remoteness Area, 2001

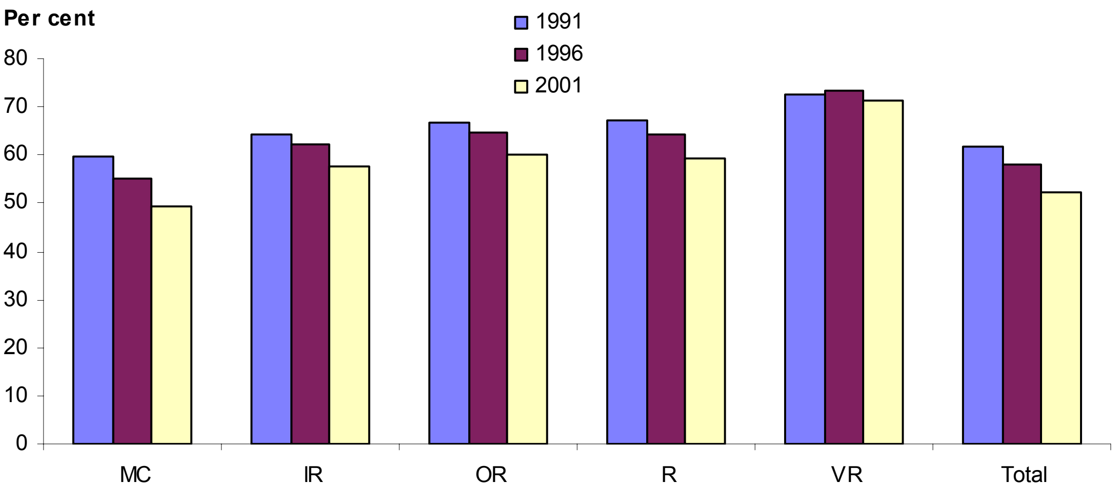
Age group/highest qualification	MC	IR	OR	R	VR	Total
			(per cent)			
20–39 years						
Bachelor's degree or higher	23	12	11	12	9	19
Diploma and above	8	6	5	5	4	8
Certificate	19	25	23	24	16	21
No tertiary qualification	49	58	60	59	71	52
Total	**100**	**100**	**100**	**100**	**100**	**100**
40–59 years						
Bachelor's degree or higher	20	13	10	9	8	17
Diploma and above	9	8	7	6	5	8
Certificate	19	22	21	19	16	20
No tertiary qualification	52	57	62	66	71	54
Total	**100**	**100**	**100**	**100**	**100**	**100**
60 years and over						
Bachelor's degree or higher	8	6	4	4	3	7
Diploma and above	6	5	4	4	3	5
Certificate	15	15	13	12	9	15
No tertiary qualification	71	74	79	81	85	72
Total	**100**	**100**	**100**	**100**	**100**	**100**
Total (20 years and over)						
Bachelor's degree or higher	19	11	9	9	8	16
Diploma and above	8	7	6	5	4	7
Certificate	18	21	20	20	15	19
No tertiary qualification	55	61	65	65	73	57
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: ABS, 2001 Census.

Table 2.2.1.5: Age group by highest qualification by ASGC Remoteness Area, 1991 and 1996

Age group/highest qualification	MC	IR	OR	R	VR	Total
			(per cent)			
20–39 years						
Bachelor's degree or higher						
1991	14	8	7	7	6	12
1996	19	10	9	10	8	16
Undergraduate diploma/Associate diploma						
1991	7	7	6	6	6	7
1996	9	7	6	6	5	8
Skills/Basic vocational						
1991	19	21	20	20	16	19
1996	17	21	20	20	14	18
No qualification						
1991	60	64	67	67	73	62
1996	55	62	65	64	73	58
40–59 years						
Bachelor's degree or higher						
1991	12	7	6	4	4	10
1996	16	10	8	7	6	14
Undergraduate diploma/Associate diploma						
1991	8	8	7	6	5	8
1996	9	9	7	7	5	9
Skills/Basic vocational						
1991	18	18	16	15	14	18
1996	17	18	17	16	13	17
No qualification						
1991	63	67	72	75	78	65
1996	58	63	68	71	76	60
60 years and over						
Bachelor's degree or higher						
1991	5	3	2	1	1	4
1996	6	4	3	2	2	5
Undergraduate diploma/Associate diploma						
1991	4	4	4	3	2	4
1996	5	5	4	3	2	5
Skills/Basic vocational						
1991	12	11	9	8	6	11
1996	12	12	10	9	6	12
No qualification						
1991	79	82	85	87	90	81
1996	76	80	84	85	89	78
Total (20 years and over)						
Bachelor's degree or higher						
1991	11	6	6	5	5	10
1996	15	9	7	8	7	13
Undergraduate diploma/Associate diploma						
1991	7	7	6	6	5	7
1996	8	7	6	6	5	8
Skills/Basic vocational						
1991	17	18	16	17	14	17
1996	16	18	17	17	13	17
No qualification						
1991	65	69	72	72	76	67
1996	60	66	70	69	76	63

Source: ABS, 1991 and 1996 Census.



Source: ABS 1991, 1996 and 2001 Census.

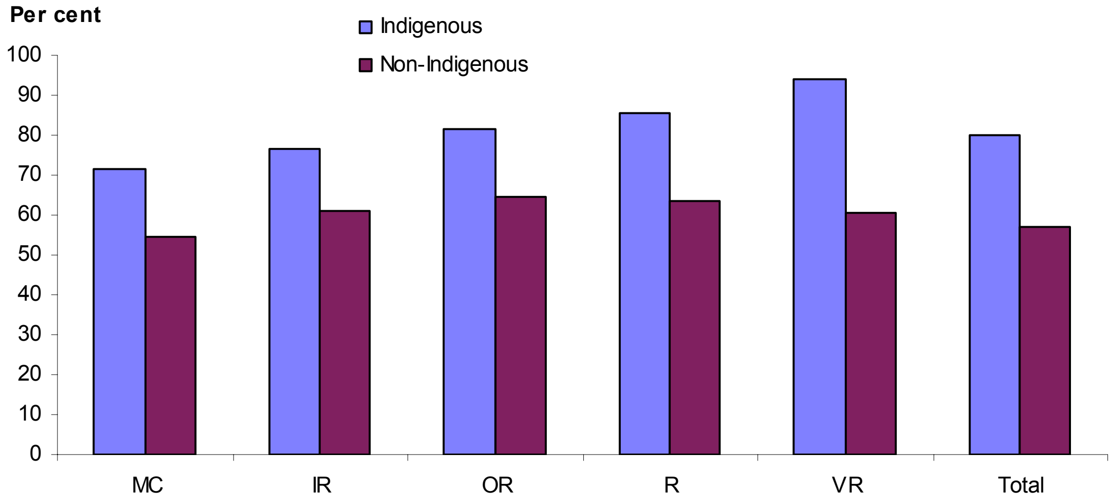
Figure 2.2.1.5: Proportion of persons aged 20 years and over with no tertiary qualification, by ASGC Remoteness Area, 1991, 1996 and 2001

Indigenous Australians are less likely to have tertiary qualifications than non-Indigenous Australians (Table 2.2.1.6 and Figure 2.2.1.6). In 2001, 80% of Indigenous Australians aged 20 years and over had no qualifications (down from 90% in 1991), compared with 57% of non-Indigenous Australians (down from 66% in 1991).

The proportion of the population with no tertiary qualifications appeared to be related to remoteness, strongly so in the Indigenous population, less strongly in the non-Indigenous population.

In 2001, 71% of Indigenous people in Major Cities aged 20 years and over had no tertiary qualification, compared with 76%, 82%, 86% and 94% in Inner and Outer Regional, Remote and Very Remote areas, respectively.

Of similar aged non-Indigenous people in Major Cities, 55% had no tertiary qualifications, fewer than in Inner and Outer Regional, Remote and Very Remote areas, where 61%, 65%, 64% and 61% had no such qualifications.



Source: ABS, 1996 Census.

Figure 2.2.1.6: Proportion of Indigenous and non-Indigenous persons aged 20 years and over with no tertiary qualification, by ASGC Remoteness Area, 1996

Table 2.2.1.6: Proportion of Indigenous and non-Indigenous persons without tertiary qualifications, by age group, by ASGC Remoteness Area, 2001

Age group/ Indigenous/Non-Indigenous	**MC**	**IR**	**OR**	**R**	**VR**	**Total**
			(per cent)			
20–39 years						
Indigenous	70	76	80	84	94	79
Non-Indigenous	49	57	59	56	54	52
40–59 years						
Indigenous	70	74	81	85	93	79
Non-Indigenous	52	56	62	64	62	54
60 years and over						
Indigenous	84	87	93	96	99	91
Non-Indigenous	71	74	78	80	79	72
Total (20 years and over)						
Indigenous	71	76	82	86	94	80
Non-Indigenous	54	61	65	64	61	57

Source: ABS, 2001 Census.

2.2.2 High school apparent retention rates

Summary of findings

In 2001, 17-year-olds living in Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.84, 0.72, 0.44 and 0.23 times as likely to be high school students as those in Major Cities.

Indigenous 17-year-olds living in Major Cities, Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.72, 0.65, 0.54, 0.33 and 0.18 times as likely as non-Indigenous 17-year-olds to still be at school.

Non-Indigenous 17-year-olds in Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.85, 0.73, 0.45 and 0.33 times as likely to still be at school as their non-Indigenous counterparts living in Major Cities.

Background

In Australia's competitive job market, students who leave before completing secondary school face greater obstacles to obtaining work and remaining employed than those who complete secondary school.

This indicator attempts to describe the percentage of children from each Remoteness Area who will still be at school when they are 17 years old—this is a different statistic from the percentage of 17-year-olds in each area who are currently still at school.

This indicator uses 1996 and 2001 ABS census data to describe the apparent rate at which students remain at school. A crude rate can be calculated based on the number of 17-year-olds who reported being at school or not being at school in each census. However, some 17-year-olds who have left school may move to a larger centre in order to obtain work, so such a method may overstate retention rates in remote and regional areas, and understate retention rates in Major Cities.

To adjust for this possibility, retention rates have been calculated using a denominator equal to the number of 10–14-year-olds in each population in 1996, divided by 5, to yield an estimate of the number of children in the cohort who would be aged 17 years in 2001.

Available population data for ASGC Remoteness Areas were available in 5-year age groups only. The number of 12-year-olds in 1996 has been estimated to be one-fifth of the number of 10–14 year-olds in each Remoteness Area in that year. The resultant denominator will be approximately (not exactly) correct, but substantially more appropriate than the number of 17-year-olds living in each area in each census year, for the reason stated above.

Some students leave their home area to complete their schooling in another area, thereby artificially lowering the rates in the first area and inflating them in the second. No allowance has been made for this.

Only full-time students were included in this analysis; part-time students were not included. This may have had a small effect on the results. For Indigenous students, 11% were part time, with little variation between areas. For non-Indigenous students, however, there was some variation; 6% of non-Indigenous students from Major Cities were part time, and 8% of those in regional areas and 11% and 14% in Remote and Very Remote areas, respectively, were part time.

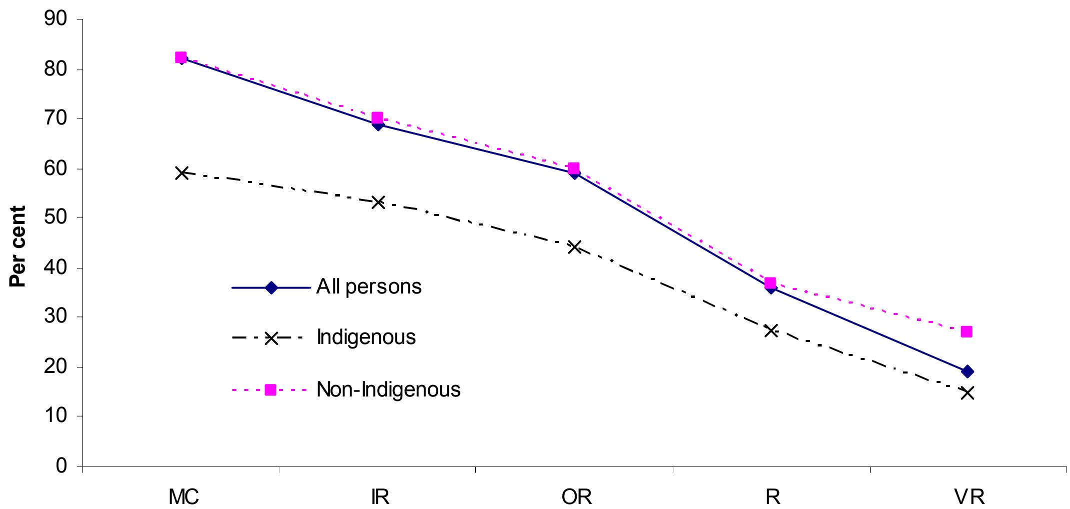
Rates for Indigenous and non-Indigenous people in each area are presented for this indicator. It is assumed that identification during the census, although not perfect, is likely to be adequate, because identification problems affecting the numerator will equally affect the denominator.

Because the data were collected in August 2001, the 17-year-olds described in this indicator are younger than the 17-year-olds who commenced tertiary studies at the start of the calendar year, described in the next indicator (Section 2.2.3).

Detailed results

In 2001, 17-year-olds from regional and remote areas were less likely to still be attending high school than their counterparts in Major Cities (Table 2.2.2.1 and Figure 2.2.2.1). People of this age in Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.84, 0.72, 0.44 and 0.23 times as likely to be high school students as those in Major Cities.

Indigenous 17-year-olds were less likely to still be at school than their non-Indigenous counterparts, especially in more remote areas (Table 2.2.2.1 and Figure 2.2.2.1). In Inner and Outer Regional, Remote and Very Remote areas they were, respectively, 0.90, 0.75, 0.46 and 0.25 times as likely to still be at school as their Indigenous counterparts living in Major Cities. However, Indigenous 17-year-olds from Major Cities, Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.72, 0.65, 0.54, 0.33 and 0.18 times as likely to still be at school as their non-Indigenous counterparts from Major Cities.



Note: The number of full-time students aged 17 years usually resident in the area on census night 2001, divided by the estimated number of 12-year-olds usually resident in the area 30 June 1996, expressed as a percentage. This rate does not account for students repeating a year or migrating in or out of the area or the Australian school student population during the intervening period.

Source: ABS 1996 and 2001 Census.

Figure 2.2.2.1: Apparent percentage of 17-year-olds enrolled in high school at the time of the 2001 Census, by ASGC Remoteness Area

The inter-regional pattern for non-Indigenous 17-year-olds was similar (Table 2.2.2.1 and Figure 2.2.2.1). Non-Indigenous 17-year-olds in Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.85, 0.73, 0.45 and 0.33 times as likely to still be at school as their counterparts in Major Cities.

Table 2.2.2.1: Apparent percentage of 17-year-olds at school in each Remoteness Area, 2001

	MC	IR	OR	R	VR	Total
			Apparent percentage			
All persons	82	69	59	36	19	75
Indigenous	59	53	44	27	15	39
Non-Indigenous	82	70	60	37	27	74

Note: The number of full-time students aged 17 years usually resident in the area on census night 2001, divided by the estimated number of 12-year-olds usually resident in the area 30 June 1996, expressed as a percentage. This rate does not account for students repeating a year or migrating in or out of the area or the Australian school student population during the intervening period.

Source: ABS, 1996 and 2001 Census.

2.2.3 Progression from school to university and TAFE

Summary of findings

The likelihood of commencing tertiary studies for young people decreases with increasing remoteness.

In the period 1998–2001, young people from Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.68, 0.60, 0.38 and 0.25 times as likely to commence tertiary education (TAFE/university) as those whose home address was in Major Cities.

In 2001, young non-Indigenous people from Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.69, 0.61, 0.33 and 0.53 times as likely to commence tertiary education as those whose home address was in Major Cities.

In 2001, young Indigenous people were 0.3 times as likely to commence tertiary education as young non-Indigenous people.

Background

This indicator measures relative educational disadvantage between the areas. The number of people enrolled in tertiary education is an indicator of future employment, socioeconomic status and health. It is also a measure of the educational opportunity afforded to young people in each area.

Progression to tertiary education, particularly university, is influenced by marks, motivation and money, all three of which are at least partially interrelated (Heaney 1999). Marks are influenced by home and school environment, motivation and innate capacity. In many cases, attendance at university presumes an ability to afford the extra costs of living away from home (potentially an issue for students from regional and remote areas). Motivation is influenced by a range of factors including family expectations, perceptions of available jobs and expectations of the likely affordability of attendance. Students in regional and remote areas are likely to be at a disadvantage in relation to all of these.

Tertiary education commencement rates have been calculated using:

- the number of 17–20-year-olds from each Remoteness Area (assigned on the basis of their home address as opposed to their term address) commencing tertiary studies in each year as the numerator
- the estimated number of 12-year-olds in the population of each Remoteness Area 7 years previously as the denominator.

The number of 17–20-year-olds is used as the numerator because a student can start tertiary education at any age; although it is most usual to start at age 17 or 18, it is not uncommon to enrol at age 19 or 20. Within this age group, 85% were 17 or 18, 10% were 19 and 5% were 20. Also, the home address on the student data files of these students is more likely to be their parents' home address, indicative of where the students are 'from', than would be the case for older commencing students. Individuals who commence tertiary studies at an older age will therefore not be included.

The number of 12-year-olds estimated to be in the population 7 years earlier has been used as the denominator because the current size of the population of 17–20-year-olds, based on ABS estimates of 15–19-year-olds in the current year, would tend to understate the number of young people in the population in regional and remote areas. This is because young people tend to move out of these areas in search of work and to attend tertiary institutions. The number of 12-year-olds is calculated as the number of 10–14-year-olds divided by 5.

A second method has also been used. Available data allow the calculation of commencement rates for the total, the Indigenous and the non-Indigenous populations of 17–20-year-olds in 2001 only. This method is simpler than the cohort method described above, and involves dividing the number of students aged 17, 18, 19 and 20 commencing in 2001 by the average population of 12-year-olds in 1994. Indigenous status was not recorded for a number of commencements, and so these have been allocated proportionally to the ratio of Indigenous to non-Indigenous in the 10–14 population in each Remoteness Area.

Although the statistic generated for this indicator is not precisely valid, sensitivity analyses suggest that it is likely to closely reflect reality.

Detailed results

Nationally, just over one-third (33.6%) of persons born in 1981 commenced TAFE or University during the 1998–2001 period.

Young people from Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.68, 0.60, 0.38 and 0.25 times as likely to commence tertiary education as those whose home address was in Major Cities (Table 2.2.3.1). This pattern is almost identical to the inter-regional pattern for the previous three cohorts.

Table 2.2.3.1: Apparent TAFE and university commencement rates[(a)] for 17–20-year-olds by ASGC Remoteness Area

	MC	IR	OR	R	VR	Total
			(per cent)			
Cohort 1[(b)] – born in 1978 – commenced 1995-1998	36.4	27.5	22.3	12.3	9.4	31.6
Cohort 2[(b)] – born in 1979 – commenced 1996-1999	37.0	27.8	21.6	16.1	9.0	32.4
Cohort 3[(b)] – born in 1980 – commenced 1997-2000	38.5	27.0	21.6	12.4	7.6	33.0
Cohort 4 – born in 1981 – commenced 1998-2001	39.1	26.6	23.5	14.7	9.6	33.6
Commencement in 2001	38.6	26.5	22.6	11.8	10.4	33.1
Commencement in 2001 (non-Indigenous)[(d,e)]	39.0	26.9	23.8	13.0	20.7	33.9
Commencement in 2001 (Indigenous)[(d,e)]	n.p.	n.p.	n.p.	n.p.	n.p.	10.1

(a) Commencement rates are here defined as the number of commencements per 100 people in the cohort; equivalent to percentage of the population.

(b) The number of persons born in a particular year who commenced university or TAFE at either 17, 18, 19 or 20 years of age, divided by the number of 12-year-olds who lived in the area 7 years prior to their commencement (the same age cohort), expressed as a percentage.

(c) Estimated resident population data by Remoteness Area for 1988, 1989 and 1990 was not available. To calculate the denominator for these proportions an assumption has been made that the annual rate of increase in the populations apparent between 1991 and 1994, also applied to the populations in 1988, 1989 and 1990.

(d) The denominator uses the 1996 Indigenous population of 12-year-olds (data available for the closest available year). Thus the non-Indigenous denominator is taken as the total population of 12-year-olds in 1994 minus the corresponding Indigenous population in 1996.

(e) Indigenous status was not recorded on a number of records. These records were allocated Indigenous status in proportion to the populations of Indigenous and non-Indigenous people in the 10–14-year age group in each Remoteness Area.

Source: Calculations based on Department of Education Science and Training, TAFE and university enrolments 1995 to 2001.

The last three rows of Table 2.2.3.1 compare commencement rates in 2001. Statistics were calculated using the second method described in the Background and allow comparison of rates for Indigenous and non-Indigenous students.

The inter-regional pattern calculated for commencements in 2001 using the second method (Table 2.2.3.1) is similar to the pattern described using the first method (although numbers from Remote areas in that year were lower than in previous years).

Using the second method, rates of commencement for non-Indigenous people are slightly higher than for people overall, particularly in Very Remote areas. Young people from Inner and Outer Regional, Remote and Very Remote areas were, respectively, 0.69, 0.61, 0.33 and 0.53 times as likely, overall, to commence tertiary education as those whose home address was in Major Cities.

The accuracy of Indigenous identification in each area is unknown, and so rates for Indigenous people are presented for the Australian population only. Young Indigenous people were 0.3 times as likely to commence tertiary (TAFE/university) education as young non-Indigenous people.

2.2.4 Employment

Summary of findings

In 2001:

- the unemployment rate was higher in regional (8–9%) areas and lower in remote (5–6%) areas than in Major Cities (7%).
- a slightly lower proportion of the population in regional (71–72%) and Very Remote (68%) areas, and a slightly higher proportion of the population in Remote (75%) areas aged 15 years and above were working or looking for work (i.e. participating in the labour force) than those in Major Cities (73%).
- the employment-to-population ratio (the percentage of the population who are employed) was lower in regional (65–66%) and Very Remote (64%) areas and higher in Remote (70%) areas than in Major Cities (68%).

The employment patterns across the five areas differed between the Indigenous and non-Indigenous populations. Unemployment rates for Indigenous people were higher in regional areas (22% and 21%), and lower in Very Remote areas (8%) than they were in Major Cities (17%) or Remote areas (18%). Unemployment rates for non-Indigenous people were also higher in regional areas (8%), but were lower in Remote (5%) and Very Remote areas (4%) than they were in Major Cities (7%).

Participation rates for Indigenous people were lower in regional (53% and 52%) and Remote (52%) areas and even lower in Very Remote areas (48%) than in Major Cities (58%). For non-Indigenous people, participation rates were slightly lower in regional areas (72% and 73%), and substantially higher in remote areas (78% and 82%), than in Major Cities (74%).

The percentage of the Indigenous population employed was lower in regional (41%) and remote (42% and 45%) areas than in Major Cities (48%). The percentage of the non-Indigenous population employed was lower in regional areas (66% and 68%) but higher in Remote (74%) and Very Remote (79%) areas than in Major Cities (69%).

Box 2.1: Employment status—concepts and definitions

*The working-age population (those aged 15 years and over) is divided into three mutually exclusive groups: the employed, the unemployed and those not in the labour force. The employed and the unemployed together make up the **labour force**, which is the number of people contributing to, or willing to contribute to, the supply of labour at a given time. The remainder are **not in the labour force**. The employed and the unemployed are defined according to a specific set of rules:*

***Employed persons** are those who worked for at least 1 hour in the reference week for pay, profit, commission or payment-in-kind, in a job or business or on a farm (and comprise employees, employers and own-account workers); or worked for at least 1 hour without pay in a family business or farm; or were employees who had a job but were away from work for certain defined reasons (such as off roster, on strike, on paid leave etc.).*

***Unemployed persons** are those who were not employed and had actively looked for work (according to defined criteria) and were available to start work or were about to start work.*

***Persons not in the labour force** may be keeping house, retired, voluntarily inactive, permanently unable to work; those in institutions; members of certain religious orders; and those whose only activity was jury service or unpaid voluntary work for a charitable organisation.*

During periods of low employment, some who would otherwise wish to work cease actively looking, and thereby move from the 'unemployed' category to 'not in the labour force'. Conversely, when employment prospects improve, some start looking for work and move into the 'unemployed' category.

Background

Employment gives people a sense of function, of integration with the community and of self-worth, as well as delivering the financial resources to provide for necessities.

Employment opportunities and types of jobs are often more restricted in non-metropolitan areas. This limits the opportunities for people to find employment in rural communities and may require people to move to less remote centres or accept less favourable employment options.

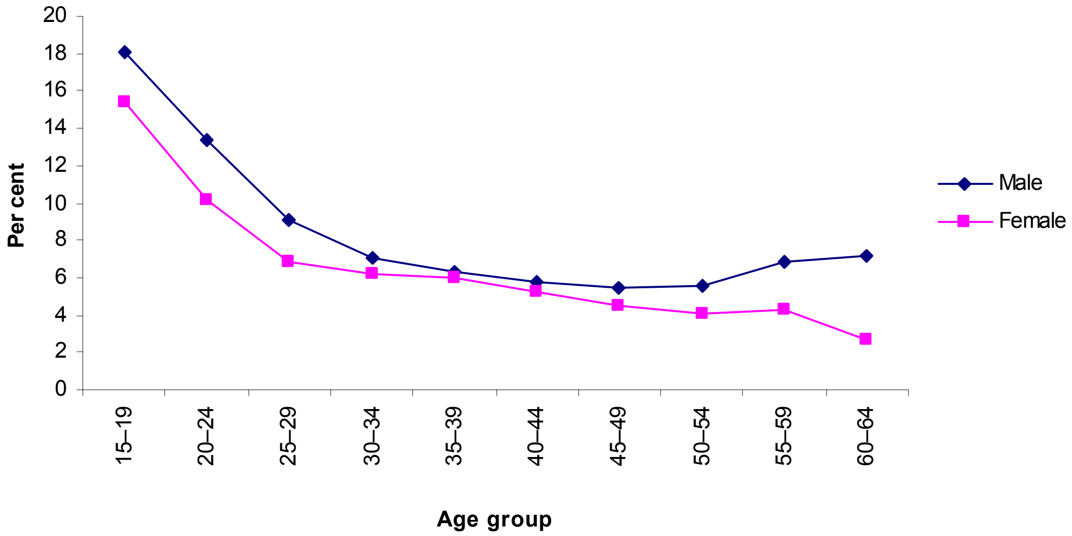
Data presented here are sourced from the 1991, 1996 and 2001 ABS Censuses. Three rates are provided for this indicator:

- The participation rate: the percentage of the population of working age who are in the labour force. This measures the proportion of people working or seeking work.
- The unemployment rate: the percentage of those people in the labour force who are not employed. This measures the 'unmet demand' for employment. As noted in Box 2.1 on the previous page, there is considerable movement between the ranks of the unemployed and those not in the labour force. Paradoxically, when employment prospects improve after a period of low employment, people who had wanted to work but had felt discouraged from seeking work, start actively looking for work again, thus maintaining the prevailing unemployment rates for a period.
- The employment-to-population ratio: the percentage of the population who are employed. This measures the relative proportions of those actually contributing to the economy and those who are not. It can be used as a quasi measure of the proportion with the burden of supporting the entire community, but this does not take into account those who, although not working, have sufficient means to support themselves.

All three rates can be calculated for the entire working-age population (either as crude rates or standardised for factors such as age and sex) or for specific age groups. For this indicator, the age range is restricted to those aged 15–64 years.

To control for different age and sex structures in each of the populations, the presented percentages have been directly age-standardised (see method section on page 302). These age-standardised percentages will vary from the crude percentages usually described. They do not describe the actual percentage of the population who are out of work (crude rates do this). Instead, age-standardised rates allow a more realistic comparison of the chances of an average person being unemployed in each area.

Figure 2.2.4.1 describes age-specific unemployment rates for males and females, as measured in the 2001 ABS Census. Males are more likely to be unemployed than females, and younger people more likely to be unemployed than older people.



Source: ABS 2001 Census.

Figure 2.2.4.1: Age-specific unemployment rates for males and females, 2001

For about 4% of records in the 2001 Census, employment status was not stated. Table 2.2.4.1 describes the percentage of records in which employment status was not stated, by Indigenous status and by ASGC Remoteness Area. These unknowns have been excluded from the calculation of percentages (i.e. from both the numerator and the denominator). If there is little or no systematic bias associated with non-response to the questions on employment status, then the higher percentages not responding associated with Indigenous people and with more remote areas are unlikely to have any substantial effect on inter-regional comparisons. It is unclear whether such bias is likely to exist.

Table 2.2.4.1: Crude percentage of records with employment not stated, by Indigenous status and ASGC Remoteness Area, 2001

	MC	IR	OR	R	VR	Total
			(Per cent)			
Indigenous	3	2	3	5	4	3
Non-Indigenous	1	1	1	1	1	1
Total	4	4	4	6	8	4

Source: ABS 2001 Census.

Detailed results

In 1991, 1996 and 2001, the unemployment rate was higher in regional areas and lower in remote areas than in Major Cities. At the time of the Census in 2001, 7% of the labour force in Major Cities was unemployed, compared with 9% and 8% in regional areas, 6% in Remote areas and 5% in Very Remote areas (Table 2.2.4.2 and Figure 2.2.4.2).

In 1991, 1996 and 2001, a slightly lower proportion of the population in regional and Very Remote areas, and a slightly higher proportion of the population in Remote areas aged 15 years and above were working or looking for work (i.e. participating in the labour force) compared with those in Major Cities. At the time of the Census in 2001, 73% of people in Major Cities were participating in the labour force, compared with 71% and 72% in regional areas, 75% in Remote areas and 68% in Very Remote areas (Table 2.2.4.2 and Figure 2.2.4.3).

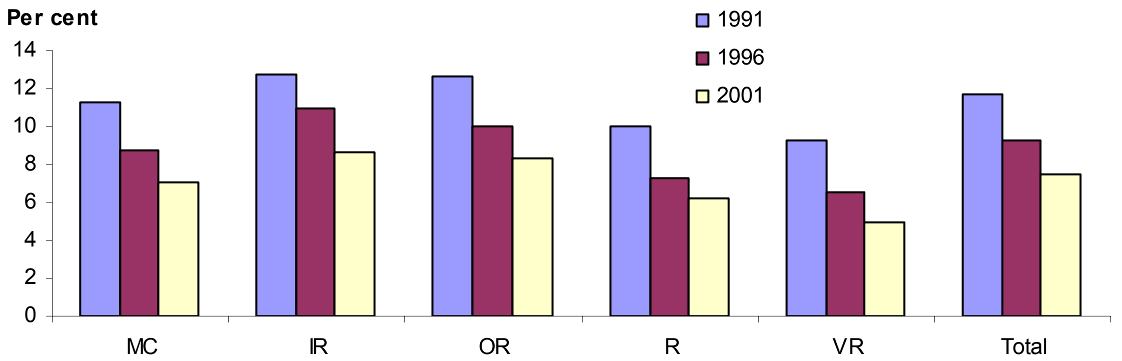
In 1991, 1996 and 2001, the employment-to-population ratio was lower in regional and Very Remote areas and higher in Remote areas than in Major Cities. At the time of the Census in 2001, 68% of people in Major Cities aged 15 years and over were employed, compared with 65% and 66% in regional areas, 70% in Remote areas and 64% in Very Remote areas (Table 2.2.4.2 and Figure 2.2.4.4).

Table 2.2.4.2: Age-standardised unemployment rates, participation rates and employment-to-population ratios for persons aged 15–64 years, by ASGC Remoteness Area, 1991, 1996, 2001

	MC	IR	OR	R	VR	Total
			(per cent)			
Unemployment rate						
2001	7	9	8	6	5	7
1996	9	11	10	7	7	9
1991	11	13	13	10	9	12
Participation rate						
2001	73	71	72	75	68	73
1996	73	71	72	75	69	72
1991	74	71	72	75	70	73
Employment-to-population ratio						
2001	68	65	66	70	64	67
1996	67	63	65	70	65	66
1991	65	62	63	68	64	65

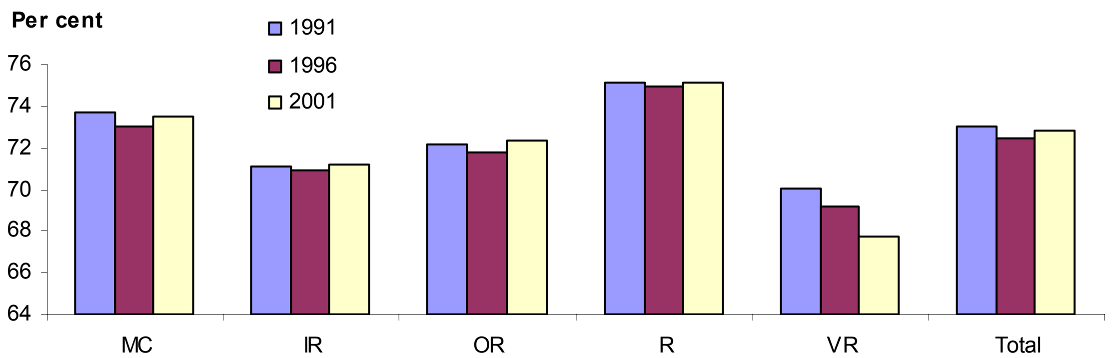
Source: ABS, 1991, 1996 and 2001 Census.

Unlike unemployment rates and employment-to-population ratios, age-standardised participation rates did not change substantially between 1991 and 2001 (except in Very Remote areas where they decreased by 2 percentage points during the period). Age-standardised unemployment rates declined substantially in all areas, by about 4 or 5 percentage points. Employment-to-population ratios increased in most areas by about 3 percentage points, but negligibly in Very Remote areas over the 10-year period.



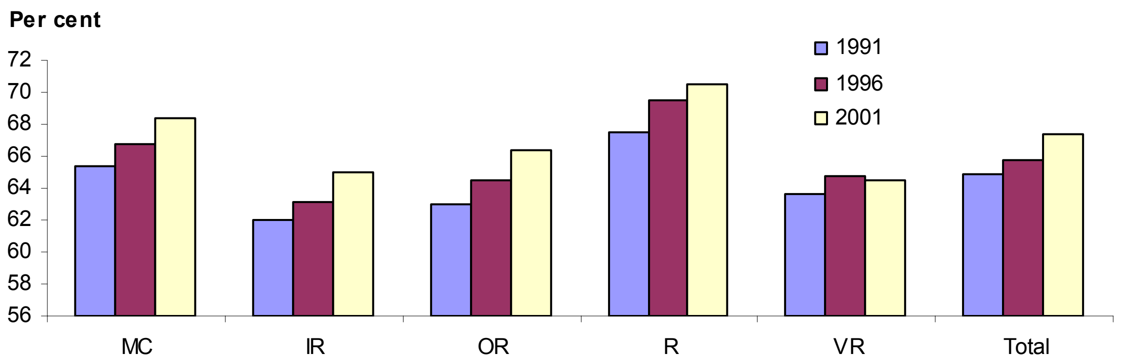
Source: ABS 1991, 1996 and 2001 Census.

Figure 2.2.4.2: Age-standardised unemployment rates for persons aged 15–64 years, by ASGC Remoteness Area, 1991, 1996 and 2001



Source: ABS 1991, 1996, 2001 Census.

Figure 2.2.4.3: Age-standardised participation rates for persons aged 15–64 years, by ASGC Remoteness Area, 1991, 1996, 2001



Source: ABS 1991, 1996, 2001 Census.

Figure 2.2.4.4: Employment-to-population ratios for persons aged 15–64 years, by ASGC Remoteness Area, 1991, 1996 and 2001

Table 2.2.4.3 compares crude and age-standardised unemployment rates. Crude rates describe the actual percentage of the population who are employed, whereas age-standardised rates describe what the average person within the population experiences. Some (e.g. Indigenous) populations have larger proportions of young people than others, and some (e.g. remote area) populations have proportionally more males than others. Because unemployment (and labour force participation) is influenced by age and by sex, populations with identical age-specific unemployment rates may appear to have different overall crude unemployment rates. For this reason, age-standardised, rather than crude, rates have been described in this indicator.

Table 2.2.4.3: Comparison of crude and age-standardised unemployment rates for persons aged 15–64 years, by Indigenous status and ASGC Remoteness Area, 2001

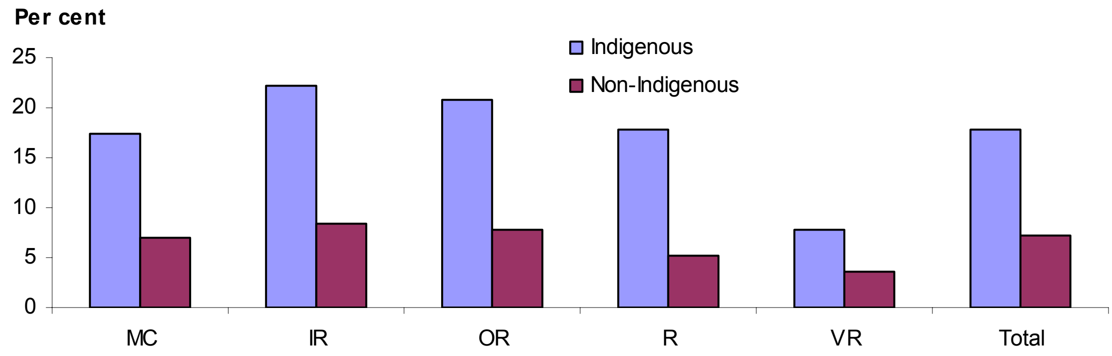
	MC	IR	OR	R	VR	Total
			(Per cent)			
Indigenous						
Crude	20	25	23	19	8	20
Age-standardised	17	22	21	18	8	18
Non-Indigenous						
Crude	7	8	7	5	3	7
Age-standardised	7	8	8	5	4	7
Total						
Crude	7	8	8	6	5	7
Age-standardised	7	9	8	6	5	7

Source: ABS 2001 Census.

In 2001, unemployment rates for Indigenous people were higher than those for non-Indigenous Australians. The overall unemployment rate for Indigenous people aged 15–64 years was 18% compared with 7% for non-Indigenous people (Table 2.2.4.4 and Figure 2.2.4.5).

Unemployment rates for Indigenous people were higher in regional areas (22% and 21%), and lower in Very Remote areas (8%) than they were in Major Cities (17%) or Remote areas (18%).

Unemployment rates for non-Indigenous people were also higher in regional areas (8%), but were lower in Remote (5%) and Very Remote areas (4%) than they were in Major Cities (7%).



Source: ABS 2001 Census.

Figure 2.2.4.5: Unemployment rates for Indigenous and non-Indigenous persons aged 15–64 years, by ASGC Remoteness Area, 2001

Table 2.2.4.4: Age-standardised unemployment rates, participation rates and employment-to-population ratios for Indigenous and non-Indigenous persons aged 15–64 years by ASGC Remoteness Area, 2001

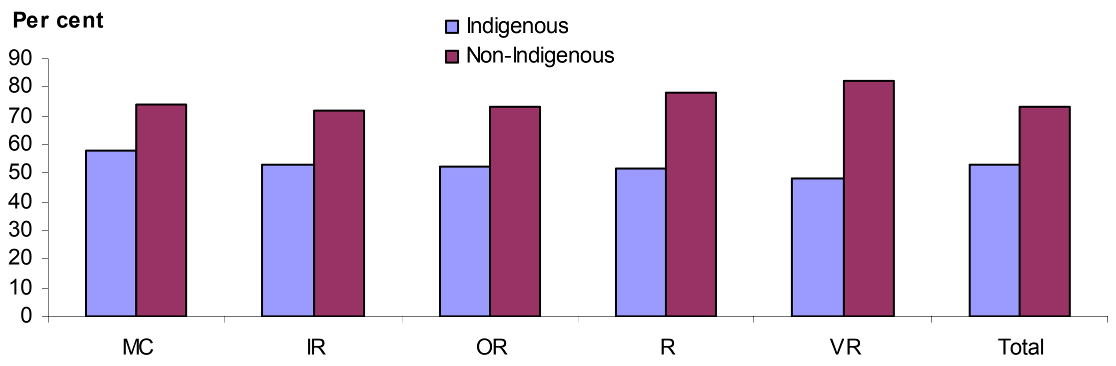
	MC	IR	OR	R	VR	Total
Unemployment rate						
Indigenous	17	22	21	18	8	18
Non-Indigenous	7	8	8	5	4	7
All persons	7	9	8	6	5	7
Participation rate						
Indigenous	58	53	52	52	48	53
Non-Indigenous	74	72	73	78	82	73
All persons	73	71	72	75	68	73
Employment-to-population ratio						
Indigenous	48	41	41	42	45	44
Non-Indigenous	69	66	68	74	79	68
All persons	68	65	66	70	64	67

Source: ABS 2001 Census

In 2001, the overall participation rate was lower for Indigenous people (53%) than for non-Indigenous people (73%) (Table 2.2.4.4 and Figure 2.2.4.6).

Participation rates for Indigenous people were lower in regional (53% and 52%) and Remote (52%) areas and especially lower in Very Remote areas (48%) than in Major Cities (58%).

For non-Indigenous people, participation rates were slightly lower in regional areas (72% and 73%), and substantially higher in remote areas (78% and 82%), than in Major Cities (74%).



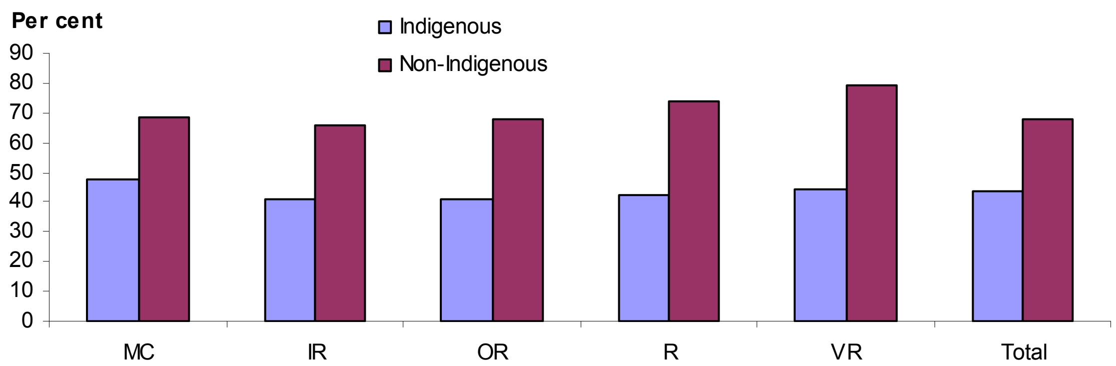
Source: ABS 2001 Census.

Figure 2.2.4.6: Participation rates for Indigenous and non-Indigenous persons aged 15–64 years, by ASGC Remoteness Area, 2001

In 2001, the overall employment-to-population ratio was lower for Indigenous people (44%) than for non-Indigenous people (68%) (Table 2.2.4.4 and Figure 2.2.4.7).

The percentage of the Indigenous population employed was lower in regional (41%) and remote (42% and 45%) areas than in Major Cities (48%).

The percentage of the non-Indigenous population employed was lower in regional areas (66% and 68%) but higher in Remote (74%) and Very Remote (79%) areas than in Major Cities (69%).



Source: ABS 2001 Census.

Figure 2.2.4.7: Employment-to-population ratios for Indigenous and non-Indigenous persons aged 15–64 years, by ASGC Remoteness Area, 2001

2.2.6 Household income and the gap between rich and poor

Summary of findings

In 1999, equivalised after-tax household incomes in regional areas were about 80% of those in Major Cities (i.e. they were less).

Between 1996 and 1999:

- mean equivalised after-tax household incomes (EATH incomes) increased in each area, by 13%, 14% and 3% in Major Cities, Inner Regional and Outer Regional areas, respectively.
- P10 EATH incomes (low incomes) increased in each area, by 5%, 6% and 12% in Major Cities, Inner Regional and Outer Regional areas, respectively
- P90 EATH incomes (high incomes) increased in each area, by 14%, 14% and 4% in Major Cities, Inner Regional and Outer Regional areas, respectively.

Box 2.2: Equivalised after-tax household (EATH) income—concepts and definitions

*Equivalised after-tax household (EATH) income is the combined income of all wage earners sharing a household after tax has been subtracted, divided by a factor reflecting the number of adults and children in that household (1.0 for the first adult aged 15 years and above, plus 0.5 for each additional adult, plus 0.3 for each child aged 0–14 years – the modified OECD scale (*De Vos & Zaidi 1997*)).*

P10 refers to the EATH income of the household containing the person whose EATH income is greater than 10% of all other people, and lower than 90% of all other people (i.e. P10 is quite a low income).

P90 refers to the EATH income of the household containing the person whose EATH income is greater than 90% of all other people, and lower than 10% of all other people (i.e. P90 is quite a high income).

P20, P50 and P80 are similarly defined.

P90/P10 ratio is calculated as the high (P90) income divided by the low (P10) income. A large ratio indicates a wide range of income; a small ratio indicates a narrow range of income in the population.

Between 1996 and 1999, P90/P10 ratios (the ratio of high incomes to low incomes, indicative of the 'gap' between rich and poor) increased by about 8% in Major Cities (from 3.72 to 4.03) and Inner Regional areas (from 3.22 to 3.46), but decreased by about 7% in Outer Regional areas (from 3.80 to 3.53), i.e. income inequality became greater in the former, but less in the latter.

Income inequality is greater in Major Cities than it is in regional areas. In 1999:

- the P90/P10 ratio was close to 4 in Major Cities and close to 3.5 in regional areas (indicating greater income inequality between the richest and the poorest in Major Cities than in regional areas)
- the P80/P20 ratio was about 2.6 in Major Cities and about 2.5 in regional areas (indicating only slight inter-regional differences in the income inequality of the moderately affluent and the moderately poor)

- the P80/P50 and P20/P50 ratios were similar in all three areas (1.54–1.55 and 0.59–0.63 respectively), indicating similar levels of inequality in each of the areas within the majority of the population (the middle-income earners).

The inter-regional pattern in 1996 was similar, with the exception that all ratios in Outer Regional areas were similar to or higher than they were in Major Cities, indicating similar or higher levels of income inequality in Outer Regional areas at that time compared with Major Cities.

Comparable information on income inequality is not available for remote areas.

Background

Income from employment (or other personal income such as investments or superannuation) or via social security provides for necessities such as food, clothing, shelter, security, education, transport and health care. It also provides people with choices as well as control over their own lives. The 'less skilled' nature of work opportunities in more remote settings and the higher level of competition for jobs, as well as lower prevalence of employment, act to keep income at lower levels. Higher levels of fertility and larger families, along with greater prevalence of Indigenous people, who tend to have larger households, may require income to be assessed more cautiously than measures based merely on average 'household income'.

Income is relative; relative to the income of others and relative to the cost of goods and services. Indicators of income need to be interpreted in the light of information about the costs of goods and services across geographic areas (see cost of living indicator—page 206).

Concerns about the quality and comparability of data pertaining to income in the 1991, 1996 and 2001 Censuses, and the lack of information about after-tax incomes, prevent reporting of income from these data sources. Data from the ABS Survey of Income and Housing Costs have been used instead.

The level of income inequality as well as income per se has been suggested as a determinant of health (Kawachi & Kennedy 1999), although such a relationship is still being debated (Wagstaff & van Doorslaer 2000). It is well known that the health of poor people is worse than that of wealthy people. This additional relationship between income inequality and health suggests that people (mostly those in the lower income groups) in populations with a wide range of individual incomes can be expected to have poorer average health outcomes than people in populations where individual incomes tend to be similar.

One way to measure the gap between rich and poor within an area is to use the P90/P10, P80/P20, P80/P50 and P20/P50 ratios of equivalised after-tax household income (hereafter referred to as 'EATH income').

Ratios of highest to lowest income are much smaller when EATH income is used rather than gross household income (i.e. where household size is not taken into account). For example, when using pre-tax household income data from the 1996 Census, the household at the P90 level earned 8.45 times more than the household at the P10 level. Using equivalised after-tax household income from the 1996 Survey of Income and Housing costs reduces this figure to 3.65 times.

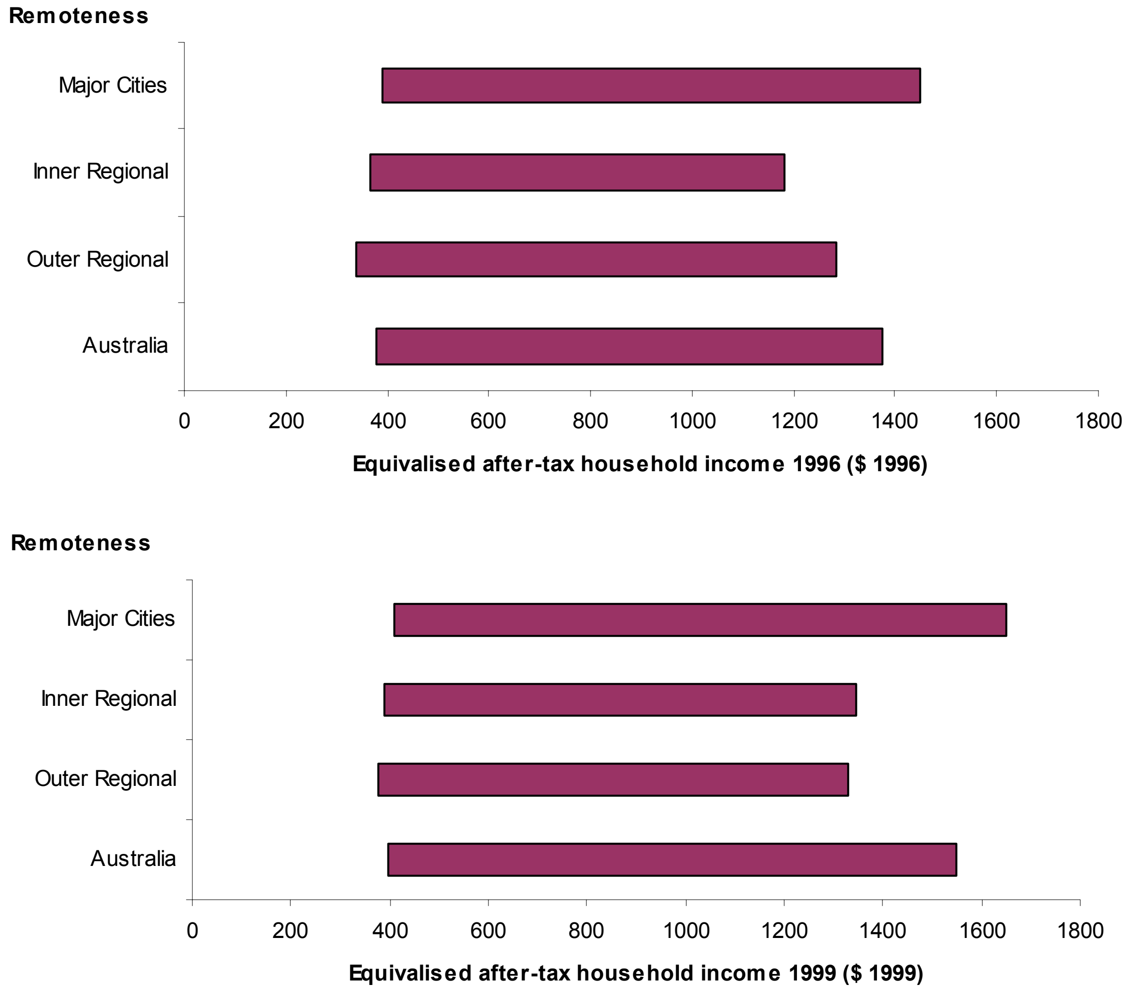
Data are taken from the ABS Survey of Income and Housing Costs, a random survey conducted face-to-face with each member of the selected households aged at least 15 years. The survey was conducted on a yearly basis from 1994–95 to 1997–98, and in 1999–2000, 2000–01 and 2002–03. The survey asks respondents about rents, mortgages, other housing costs and income. Sampling is not conducted in remote areas. Data from the 1996–1997 and 1999–2000 surveys are presented in this report.

Lack of sampling in remote areas restricts reporting here to Inner and Outer Regional areas only. The relatively small numbers of respondents in regional (especially Outer Regional areas) suggests caution in interpreting the numbers.

Detailed results

In 1999, Major Cities had the highest mean EATH income of $972 per week, followed by Inner and Outer Regional areas with mean EATH incomes of $807 and $787 per week, respectively.

Between 1996 and 1999 the mean EATH income in Major Cities and Inner Regional areas grew by 13% and 14% respectively, and in Outer Regional areas it grew by 3%.



Note: Each bar represents the range of EATH incomes between P10 and P90, in each area.

Source: ABS 1996 and 1999 Surveys of Income and Housing Costs.

Figure 2.2.6.1: Range of equivalised weekly after-tax household income, 10th to 90th percentiles, 1996 and 1999

Income inequality based on P90/P10 and P80/P20 ratios of EATH income is greater in Major Cities than in other areas. In 1999 the P90/P10 ratio in Major Cities was 4.03. This means that people at the P90 level had an equivalised after-tax household income 4.03 times that of people at the P10 level. In comparison, the P90/P10 ratios for Inner Regional areas and Outer Regional areas in 1999 were 3.46 and 3.53 respectively (i.e. the 'gap' was smaller). In Major Cities the P80/P20 ratio was 2.63, compared with 2.45 in Inner Regional areas and 2.5 in Outer Regional areas (i.e. income inequality between the rich and the poor in regional areas was slightly less than in Major Cities).

There was little variation between areas for the other ratios, P80/P50 tended to be 1.53–1.57 and P20/P50 was 0.59–0.63, suggesting similar levels of inequity in each area for the 60% of the population from households with moderate household incomes (P20–P80).

In Major Cities, the level of income inequality based on EATH income increased between 1996 and 1999. The P90/P10 ratio increased from 3.72 to 4.03, and the P80/P20 ratio increased from 2.53 to 2.63. In the same period, the P80 and P20 ratios moved in opposite directions away from the median EATH income, indicating that income inequality in Major Cities increased over the period (Table 2.2.6.1).

Table 2.2.6.1: Equivalised weekly after-tax household income, 1996 and 1999

	MC	IR	OR	Total[(a)]
		$[(b)]		
1996				
P10[(c)]	389	367	338	377
P20	469	417	408	445
P50	775	620	656	721
P80	1186	972	1026	1125
P90	1448	1182	1285	1376
Mean income	858	706	764	814
1999				
P10	409	389	377	397
P20	507	452	442	482
P50	866	714	721	810
P80	1333	1107	1107	1268
P90	1648	1344	1330	1550
Mean income	972	807	787	915
		Ratio		
1996				
P90/P10	3.72	3.22	3.80	3.65
P80/P20	2.53	2.33	2.51	2.53
P80/P50	1.53	1.57	1.56	1.56
P20/P50	0.61	0.67	0.62	0.62
1999				
P90/P10	4.03	3.46	3.53	3.90
P80/P20	2.63	2.45	2.50	2.63
P80/P50	1.54	1.55	1.54	1.57
P20/P50	0.59	0.63	0.61	0.60

(a) Total does not include Remote and Very Remote areas.

(b) Dollar amounts have not been adjusted for inflation. Amounts reported for 1996 are in 1996 dollars, amounts reported for 1999 are in 1999 dollars.

(c) The meaning of P10, P20, etc and of the ratios (e.g. P90/P10) are explained in Box 2.2 at the beginning of this indicator.

Source: ABS 1996 and 1999 Surveys of Income and Housing Costs.

For Inner Regional areas the P90/P10 and P80/P20 ratios increased from 3.22 to 3.46 and 2.33 to 2.45 respectively between 1996 and 1999. There was little change, or a slight decrease in the P80/P50 ratio (1.57 to 1.55), and in the P20/P50 ratio (0.67 to 0.63).

In Outer Regional areas, the level of income inequality (based on equivalised after-tax household income) declined between 1996 and 1999. The P90/P10 ratio decreased from 3.80 to 3.53. There were very small decreases (little or no change) in the P80/P20 (2.51 to 2.50), P80/P50 (1.56 to 1.54), and P20/P50 (0.62 to 0.61) ratios.

2.2.7 Percentage employed in each industry

Summary of findings

People from rural and remote areas are often stereotyped as farmers, but for people aged 15 years and over who live in Inner and Outer Regional, Remote and Very Remote areas, the agriculture, forestry and fishing industries combined employed, respectively, only 4%, 10%, 15% and 11% of the adult population in 2001.

Mining, another stereotypical regional remote area industry, employed another 0.5%, 1%, 5% and 5% of the people in these areas.

Other industries that were substantial employers in regional and remote areas were:

- manufacturing—about 6% of people from regional areas and under 3% of people from remote areas
- retail—between 7% and 9% in regional and Remote areas, and 5% in Very Remote areas
- education—between 4% and 5% in each area
- health and community services—between 4% and 6% in each area
- construction—3% to 4% in each area.

Another 18%, 17%, 18% and 14% of people aged 15 years and over in the four areas, respectively, were employed in other industries, between 3% and 5% were unemployed, and 41%, 38%, 31% and 36%, respectively, were not in the labour force (retired, studying, full-time parenting, etc).

Background

This indicator describes the percentage of the adult population in each Remoteness Area employed in each of a range of industries. This measure briefly describes the diversity of the economy in each area.

Data are taken from the 2001 ABS Census. Presented statistics are simple percentages.

Detailed results

In 2001, the industries in which the greatest numbers of people were employed were retail (8.6%), manufacturing (7.2%), property and business services (6.5%), health and community services (5.7%), education (4.2%) and construction (4%). A further 21.7% were employed in other industries (including agriculture, forestry, fishing and mining together employing 2.9% of the adult population), 4.7% were unemployed and 37.4% were not in the labour force.

The percentage of the population employed in several industries changed as remoteness increased:

- agriculture, forestry, fishing and mining increased in importance, occupying 4.3%, 11.0%, 9.9% and 16.4% of the adults in Inner and Outer Regional, Remote and Very Remote areas, respectively
- manufacturing decreased from 7.9% in Major Cities, to 6.6% and 5.0% in Inner and Outer Regional areas, respectively, and 3% and 1.6% in Remote and Very Remote areas, respectively
- retail decreased from 8.7% in Major Cities to 7.2% in Remote areas, and then to 4.7% in Very Remote areas

- property and business services decreased from 7.9% in Major Cities, to 4.1%, 3.6%, 3.3% and 2.0% in the other four areas, respectively
- education and construction were about equally important in each of the areas
- government administration and defence employed 12.1% of adults in Very Remote areas compared with about 3% or less in the other areas (including Major Cities)
- health and community services became relatively less important in more remote areas, declining from 5.9% in Major Cities to 5.8%, 5.1%, 4.6% and 4.2% in the other four areas.

Table 2.2.7.1: Labour force status and industry division (ANZSIC) by ASGC Remoteness Area, 2001

	MC	IR	OR	R	VR	Total
			(per cent)			
Employed	59.1	54.1	57.2	65.0	60.6	57.9
Agriculture, forestry & fishing	0.4	3.8	9.8	14.7	11.0	2.3
Mining	0.3	0.5	1.1	5.2	5.4	0.5
Manufacturing	7.9	6.6	5.0	3.0	1.6	7.2
Electricity, gas & water supply	0.4	0.6	0.5	0.5	0.3	0.4
Construction	4.0	4.1	3.5	4.0	3.0	4.0
Wholesale trade	3.4	2.6	2.7	2.4	1.2	3.1
Retail trade	8.7	8.8	8.2	7.2	4.7	8.6
Accommodation, cafes & restaurants	2.8	3.0	3.3	4.3	3.9	2.9
Transport and storage	2.6	2.2	2.6	2.9	2.2	2.5
Communication services	1.3	0.7	0.6	0.6	0.4	1.1
Finance and insurance	2.8	1.2	0.9	0.7	0.3	2.2
Property and business services	7.9	4.1	3.6	3.3	2.0	6.5
Government admin & defence	2.6	2.3	2.9	3.5	12.1	2.6
Education	4.2	4.3	4.1	4.7	4.5	4.2
Health and community services	5.9	5.8	5.1	4.6	4.2	5.7
Cultural & recreational services	1.6	1.1	0.9	0.9	0.7	1.4
Personal and other services	2.2	2.0	1.8	2.1	2.7	2.1
Non-classifiable economic units	0.4	0.3	0.3	0.4	0.4	0.3
Unemployed	4.5	5.1	5.0	4.1	3.2	4.7
Not in the labour force	36.4	40.9	37.9	30.9	36.2	37.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: ABS 2001 Census.

In 2001, the pattern for Indigenous people was different. The percentage of Indigenous people unemployed (10.6%) or not in the workforce (48.7%) was higher than for the non-Indigenous population (4.6% and 36.9%, respectively).

For Indigenous people, major differences in the pattern of economic activity across Remoteness Areas were that:

- manufacturing decreased in importance, from employing 4.8% of Indigenous people in Major Cities, to 4.2%, 2.6%, 1.2% and 0.2%, respectively, in Inner and Outer Regional, Remote and Very Remote areas

- retail trade decreased in importance, from employing 5.4% of Indigenous people in Major Cities, to 4.9%, 3.5%, 2.7% and 1.3%, respectively, in Inner and Outer Regional, Remote and Very Remote areas
- government administration and defence increased from 4.3% in Major Cities, to 3.2%, 6.2%, 8.9% and 23.7% in the four other areas
- health and community services remained similar in most areas, with just over 5% of Indigenous adults in all areas employed in this sector (3.4% in Very Remote areas)
- only a small percentage (2.6%) of Indigenous people were employed in agriculture, forestry, fishing and mining.

Table 2.2.7.2: Labour force status and industry division (ANZSIC) of Indigenous persons by ASGC Remoteness Area, 2001

	MC	IR	OR	R	VR	Total
			(per cent)			
Employed	45.0	38.1	38.0	39.7	41.2	40.8
Agriculture, forestry & fishing	0.4	1.6	3.2	2.5	1.8	1.8
Mining	0.2	0.3	0.6	2.1	0.8	0.6
Manufacturing	4.8	4.2	2.6	1.2	0.2	3.0
Electricity, gas & water supply	0.2	0.3	0.2	0.2	0.1	0.2
Construction	3.2	2.7	1.9	2.2	0.9	2.3
Wholesale trade	2.1	1.6	1.3	0.8	0.2	1.4
Retail trade	5.4	4.9	3.5	2.7	1.3	3.9
Accommodation, cafes & restaurants	2.3	2.1	1.8	1.6	0.5	1.7
Transport and storage	2.1	1.4	1.4	1.2	0.5	1.4
Communication services	1.2	0.4	0.3	0.2	0.0	0.6
Finance and insurance	0.9	0.4	0.2	0.1	0.1	0.4
Property and business services	4.2	2.8	2.5	2.4	1.0	2.8
Government admin & defence	4.3	3.2	6.2	8.9	23.7	8.4
Education	3.7	3.6	3.9	3.7	2.4	3.5
Health and community services	5.4	5.4	5.1	5.3	3.4	4.9
Cultural & recreational services	1.5	0.8	0.9	0.9	0.4	1.0
Personal and other services	2.5	1.9	2.0	3.2	3.6	2.5
Non-classifiable economic units	0.5	0.4	0.5	0.5	0.3	0.4
Unemployed	11.7	13.2	11.9	9.8	3.9	10.6
Not in the labour force	43.3	48.7	50.1	50.4	54.8	48.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: ABS 2001 Census.

For non-Indigenous people the pattern was largely similar to that for the total population, except in Very Remote areas where:

- 25.9% were engaged in agriculture, forestry, fishing and mining as opposed to 11.0% for the total population
- 7.0% were engaged in retail trade versus 4.7% in the total population
- 6.3% were employed in hospitality versus 3.9% for the total population

- 4.7% were employed in government administration and defence compared with 12.1% for the total population in these areas.

Table 2.2.7.3: Labour force status and industry division (ANZSIC) of non-Indigenous persons by ASGC Remoteness Area, 2001

	MC	IR	OR	R	VR	Total
			(per cent)			
Employed	59.5	54.6	58.1	67.9	75.1	58.5
Agriculture, forestry & fishing	0.4	3.8	10.1	16.0	17.3	2.4
Mining	0.3	0.5	1.2	5.5	8.6	0.5
Manufacturing	7.9	6.7	5.1	3.1	2.6	7.3
Electricity, gas & water supply	0.4	0.6	0.5	0.6	0.5	0.4
Construction	4.0	4.2	3.6	4.2	4.5	4.0
Wholesale trade	3.4	2.7	2.7	2.6	2.0	3.1
Retail trade	8.8	9.0	8.4	7.7	7.0	8.7
Accommodation, cafes & restaurants	2.8	3.0	3.4	4.6	6.3	2.9
Transport and storage	2.6	2.2	2.7	3.1	3.4	2.6
Communication services	1.3	0.7	0.6	0.6	0.7	1.1
Finance and insurance	2.8	1.2	0.9	0.7	0.5	2.3
Property and business services	7.9	4.2	3.6	3.4	2.7	6.6
Government admin & defence	2.6	2.3	2.8	3.0	4.7	2.5
Education	4.3	4.4	4.2	4.9	6.0	4.3
Health and community services	5.9	5.8	5.1	4.6	4.8	5.8
Cultural & recreational services	1.6	1.1	1.0	0.9	0.8	1.5
Personal and other services	2.2	2.1	1.8	2.0	2.2	2.1
Non-classifiable economic units	0.4	0.3	0.3	0.4	0.5	0.3
Unemployed	4.5	4.9	4.7	3.6	2.8	4.6
Not in the labour force	36.1	40.5	37.1	28.6	22.2	36.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: ABS 2001 Census.

2.2.8 Socioeconomic Indexes for Areas (SEIFA)

Summary of findings

For the three indexes of relative socioeconomic disadvantage, economic resources, and education & occupation, outcomes are better in Major Cities than in regional and Remote areas.

In 1996, 34% of people in Major Cities lived in Australia's least disadvantaged areas, compared with 14%, 8%, 10% and 2% of people in Inner and Outer Regional, Remote and Very Remote areas, respectively. Conversely, 20% of people in Major Cities lived in Australia's most disadvantaged areas, compared with between 26% and 33% of people in regional and Remote areas, and 53% of people in Very Remote areas.

In 1996, while 38% of people in Major Cities lived in the parts of Australia best supplied with economic resources, 13%, 7%, 10% and 5% of people in the other four areas, respectively, lived in such places. While 17% of people from Major Cities lived in parts of Australia with the lowest supply of economic resources, 26%, 37%, 38% and 69% of people in the other four areas, respectively, lived in such places.

In 1996, while 34% of people in Major Cities lived where educational and occupational attainment levels were high, only 10%, 5%, 3% and 1% of people in the other four areas, respectively, lived in such locations. Of people from Major Cities, 19% lived where educational and occupational attainment was low, compared with 31%, 39%, 36% and 44% of people in the other four areas, respectively.

Background

Socioeconomic Indexes for Areas provide a summary measure of the socioeconomic conditions in an area.

The indexes are applied at the finest level of area—the Australian Census Collection Districts (CDs). There are many CDs within each ASGC Remoteness Area. This indicator attempts to find the proportion of people in each of the five Remoteness Areas who live in CDs ranked in four groups according to three separate (but related) indexes of disadvantage. In other words, this indicator describes the percentage of the population in each Remoteness Area, who score highest, high, low, and lowest on three socioeconomic indexes:

- the Index of Relative Socioeconomic Disadvantage
- the Index of Economic Resources
- the Index of Education and Occupation.

Percentages were calculated from 1996 ABS Census data by:

- listing all Australian Census Collection Districts (CDs) in order from lowest to highest SEIFA score
- identifying the 25th, 50th and 75th quartiles, thereby dividing the CDs into four groups of equal number—ranked from lowest to highest SEIFA scores
- allocating a Remoteness Area category (Major Cities, Inner Regional, etc.) to each CD
- for each SEIFA quartile and each Remoteness Area, summing the total number of people
- calculating the simple percentage of people in each Remoteness Area in each SEIFA quartile.

The resultant percentages describe the proportion of each Remoteness Area's population who live in Australia's most and least disadvantaged areas.

For example, the 25% of Census collection districts with the lowest index scores are placed in the first quartile of each index. Areas in the first quartile of the:

- Index of Relative Socioeconomic Disadvantage have the highest proportions of socioeconomically disadvantaged individuals and families (ABS 1998).
- Index of Economic Resources have the largest proportions of households on low incomes and living in small dwellings. These areas also have relatively high proportions of households in public housing.
- Index of Education and Occupation have the largest proportions of people who have low educational attainment, work in unskilled occupations or are unemployed.

There is much overlap between these three indexes.

Detailed results

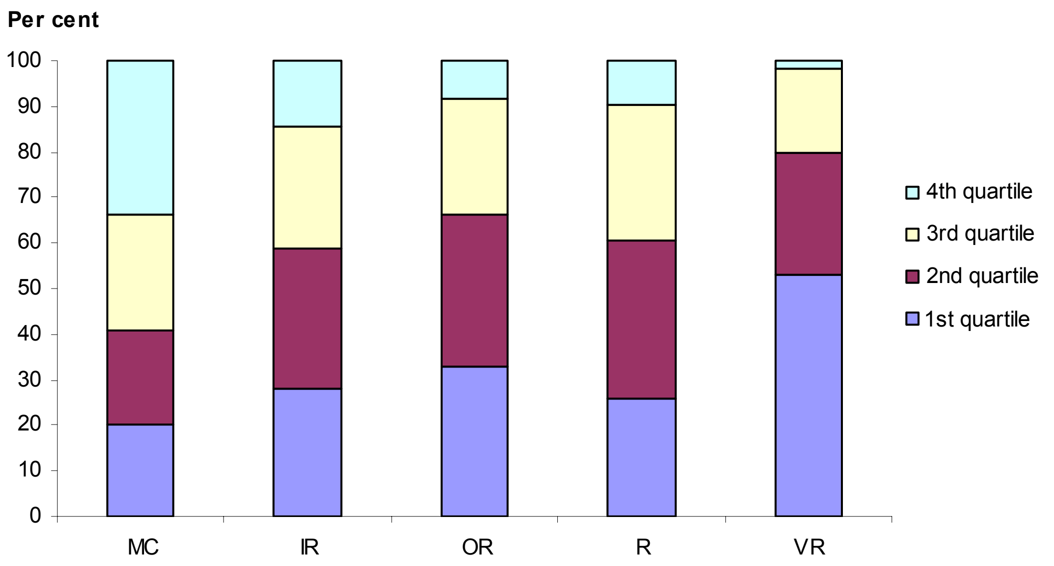
SEIFA Index of Relative Socioeconomic Disadvantage

Table 2.2.8.1: Index of Relative Socioeconomic Disadvantage, percentage of persons enumerated in each quartile, by Remoteness Area, 1996

Quartile of socioeconomic disadvantage	MC	IR	OR	R	VR	Total
			(per cent)			
4th quartile (least disadvantaged areas)	34	14	8	10	2	26
3rd quartile	25	27	26	30	18	25
2nd quartile	21	31	33	35	27	24
1st quartile (most disadvantaged areas)	20	28	33	26	53	24
Total	100	100	100	100	100	100

Source: ABS Socioeconomic Indexes for Areas, 1996.

In 1996, as remoteness increased, the proportion of people living in least disadvantaged areas decreased and the proportion in the most disadvantaged areas increased. For example, whereas 34% of people in Major Cities lived in areas classified as most advantaged, 14%, 8%, 10% and 2% of people in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively, lived in such areas. Whereas 20% of people from Major Cities lived in areas classified as most disadvantaged, 28%, 33%, 26% and 53% of people in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively, lived in such areas.



Source: ABS Socioeconomic Indexes for Areas, 1996.

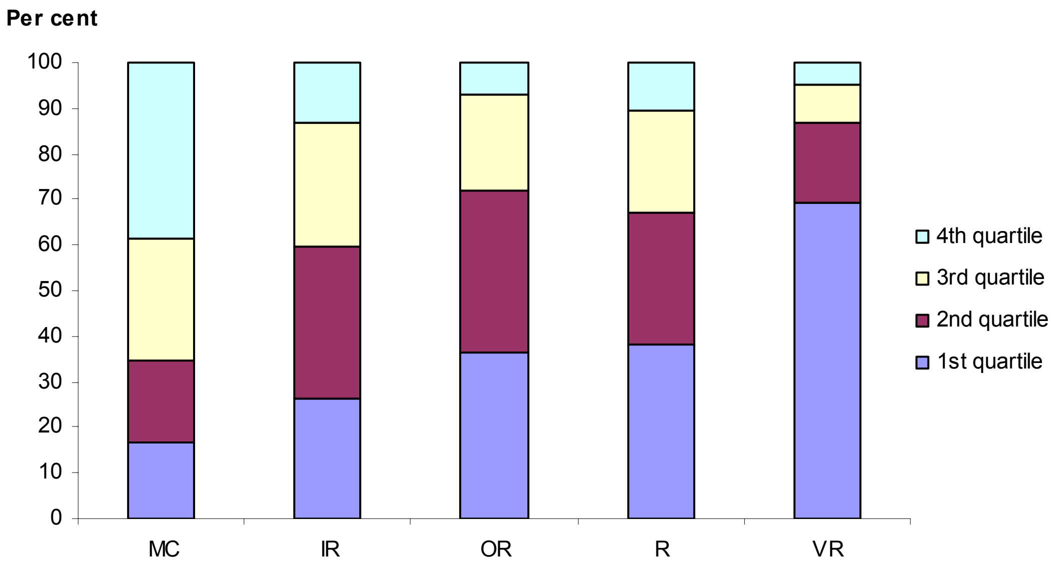
Figure 2.2.8.1: Index of Relative Socioeconomic Disadvantage, percentage of persons enumerated in each quartile, by ASGC Remoteness Area, 1996

SEIFA Index of Economic Resources

Table 2.2.8.2: Index of Economic Resources, percentage of persons enumerated in each quartile, by Remoteness Area, 1996

Quartile of economic resources	MC	IR	OR	R	VR	Total
			(per cent)			
4th quartile (most economic resources)	38	13	7	10	5	29
3rd quartile	27	27	21	23	8	26
2nd quartile	18	33	36	29	17	23
1st quartile (least economic resources)	17	26	37	38	69	22
Total	100	100	100	100	100	100

Source: ABS Socioeconomic Indexes for Areas, 1996.



Source: ABS Socioeconomic Indexes for Areas, 1996.

Figure 2.2.8.2: Index of Economic Resources, percentage of persons enumerated in each quartile, by ASGC Remoteness Area, 1996

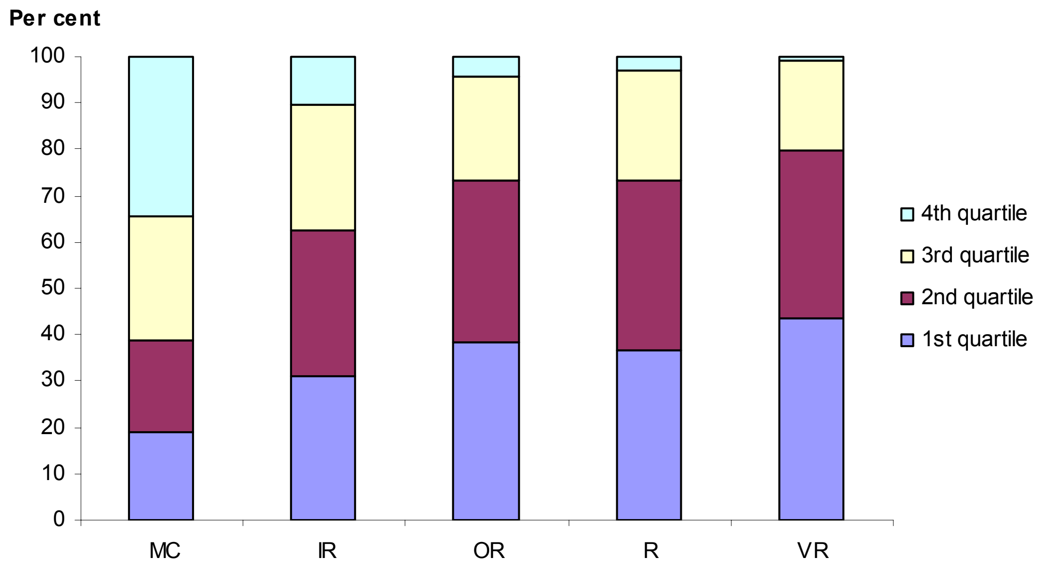
In 1996, as remoteness increased, the proportion of people living in areas with the most economic resources decreased and the proportion living in areas with the least economic resources increased. Whereas 38% of people in Major Cities lived in areas classified as well supplied with economic resources, only 13%, 7%, 10% and 5% of people in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively, lived in such areas. Whereas 17% of people from Major Cities lived in areas classified as poorly supplied with economic resources, 26%, 37%, 38% and 69% of people in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively, lived in such areas.

SEIFA Index of Education and Occupation

Table 2.2.8.3: Index of Education and Occupation, percentage of persons enumerated in each quartile, by Remoteness area, 1996

Quartile of education and occupation	MC	IR	OR	R	VR	Total
			(per cent)			
4th quartile (high educational and occupational attainment)	34	10	5	3	1	25
3rd quartile	27	27	22	23	20	26
2nd quartile	20	32	35	37	36	25
1st quartile (low educational and occupational attainment)	19	31	39	36	44	24
Total	100	100	100	100	100	100

Source: ABS Socioeconomic Indexes for Areas, 1996.



Source: ABS Socioeconomic Indexes for Areas, 1996.

Figure 2.2.8.3: Index of Education and Occupation, percentage of persons enumerated in each quartile, by Remoteness Area, 1996

In 1996, as remoteness increased, the proportion of people living in areas in which educational and occupational attainment was highest decreased and the proportion living in areas with low levels of educational and occupational attainment increased. Whereas 34% of people in Major Cities lived in areas classified as having high educational and occupational attainment, only 10%, 5%, 3% and 1% of people in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively, lived in such areas. Whereas 19% of people from Major Cities lived in areas classified as having low educational and occupational attainment, 31%, 39%, 36% and 44% of people in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively, lived in such areas.

In 1996, 63%, 73%, 73% and 80% of people in Inner and Outer Regional, Remote and Very Remote areas lived in areas classified as having the lowest educational and occupational attainment (i.e. in the lowest two quartiles), compared with 39% in Major Cities.

2.3 Community capacity

2.3.1 Demography

Summary of findings

In 2001, 66% of the population lived in Major Cities, and 21%, 10%, 2% and 1% lived in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively.

Of the Major Cities population, 1% were Indigenous, and 2%, 5%, 13% and 44%, respectively, of the population in the other four areas were Indigenous.

Of the Indigenous population, 30% lived in Major Cities, whereas 20%, 23%, 9% and 17%, respectively, lived in Inner and Outer Regional, Remote and Very Remote areas.

Females slightly outnumbered males in Major Cities, and males outnumbered females in the other areas, substantially so in some age groups in remote areas.

There were substantial differences in the age structure of the populations in each area. Children were proportionally more numerous in regional and especially remote areas; people aged 25–44 years were less numerous in regional areas, but proportionally more numerous in remote areas; and people aged 65 years and over were slightly more numerous in regional areas, and substantially less numerous in remote areas.

Between 1996 and 2001, the population of Major Cities and Inner Regional areas grew by 7%, and the population of Outer Regional, Remote and Very Remote areas grew, respectively, by 3%, 2% and 4%.

Background

It is important for policy development to take into account the population profile in the rural/remote setting. Issues like population growth, ageing, changes in sex ratios and in the proportion who are Indigenous have implications for health status, policy and allocation of resources. This indicator (2.3.1 Demography) as well as 2.3.2 (Dependency), 2.3.3 (Internal migration) and 2.3.4 (Fertility) describe these issues.

The age and sex of the population as well as the proportion who are Indigenous are important issues, both in their own right and for the interpretation of many of the other indicators.

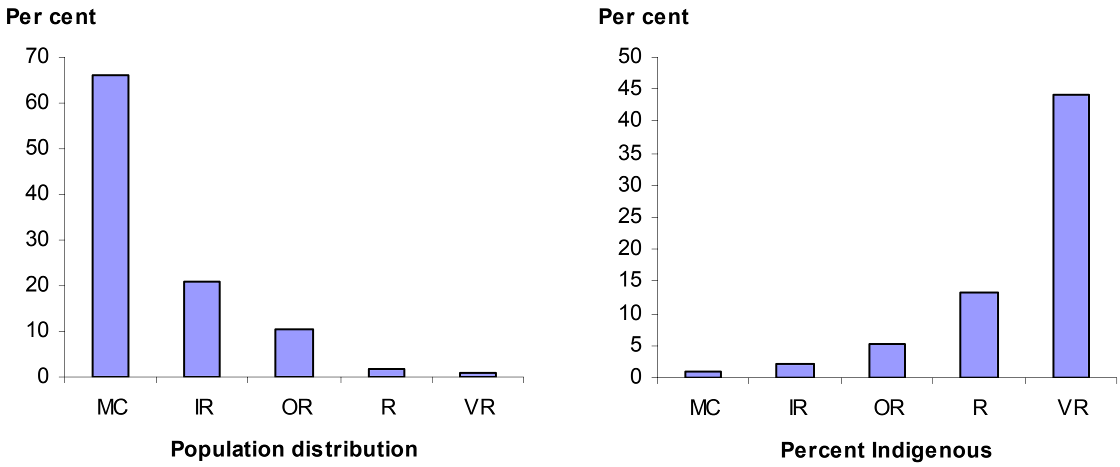
The counts and simple proportions presented here have been derived from ABS census estimates of the population in each area.

Detailed results

In 2001, 66% of the Australian population lived in Major Cities, making Australia one of the most urbanised populations in the world. A further 21% and 10% lived in Inner and Outer Regional areas, and 2% and 1% lived in Remote and Very Remote areas respectively (Table 2.3.1.2 and Figure 2.3.1.1).

In 2001, 2% of the Australian population were Indigenous. Indigenous people become proportionally more numerous as remoteness increases—although Indigenous people made up only 1% of the Major Cities population they constituted 2%, 5%, 13% and 44%, respectively, of people living in Inner and Outer Regional, Remote and Very Remote areas (Table 2.3.1.2 and Figure 2.3.1.1).

This substantial representation in regional, and especially remote areas reflects the relatively smaller numbers of non-Indigenous people in these areas, and the more even distribution of the Indigenous population across the country (30%, 20%, 23%, 9% and 17% of the Indigenous population lived in Major Cities, Inner and Outer Regional, Remote and Very Remote areas) (Table 2.3.1.2 and Figure 2.3.1.1).



Source: ABS population estimates.

Figure 2.3.1.1: Population distribution by Remoteness Area and the percentage who are Indigenous in each Remoteness Area, 2001

There are distinct differences in the ratio of males to females in each area. Males constituted about 49%, 50%, 51%, 53% and 53%, respectively, of the population in the five areas respectively in 2001. Between 55% and 60%of the population aged 40–64 in Very Remote areas were male (Figure 2.3.1.3).

There are also differences in the age distribution of the populations. Figure 2.3.1.2 and Table 2.3.1.1 describe differences in the age structure of populations in each of the areas in 2001:

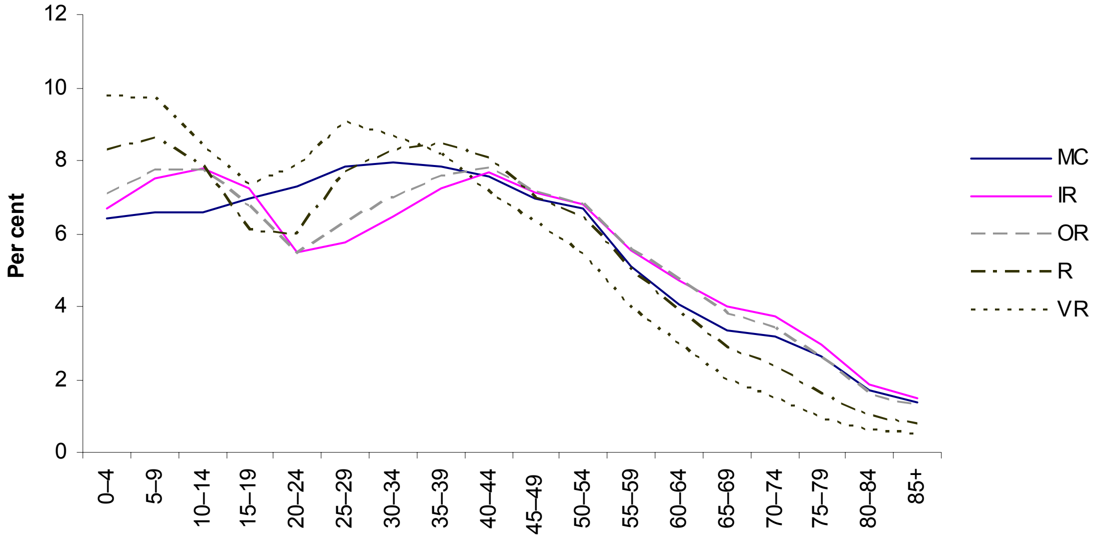
- Regional area populations had proportionally more children aged 0–14 years (22% and 23%) than Major Cities (20%), fewer people aged 25–44 years (27% and 29% compared with 31% in Major Cities), and slightly more people 65 years and over.
- Remote area populations had proportionally more children (25% and 28%) than Major Cities and regional areas, more people aged 25–44 years (32% and 33%), and fewer people 65 years and over (9% and 5%).

Between 1996 and 2001, populations in Major Cities, Inner and Outer Regional, Remote and Very Remote areas increased by 7%, 7%, 3%, 2% and 4%, respectively (BTRE 2003). Garnaut et al. (2001) showed that in the previous 10 years, populations in capital cities grew by 14%, and those in other metropolitan areas, and coastal, inland and remote areas grew by 28%, 23%, 7% and 8%, respectively.

Table 2.3.1.1: Age structure for Indigenous and non-Indigenous populations, 2001

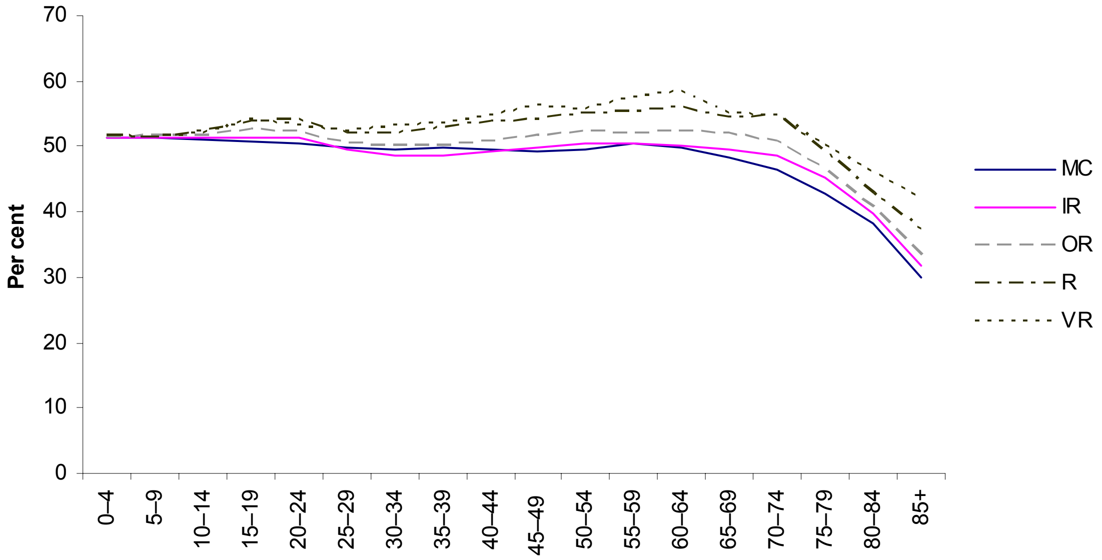
	MC	IR	OR	R	VR	Total
	(Per cent in each age group)					
Indigenous						
0–14	39	42	40	37	36	39
15–24	19	18	18	17	19	18
25–44	29	26	28	29	29	28
45–64	12	11	12	13	12	12
65+	2	3	3	3	4	3
Total	100	100	100	100	100	100
Non-Indigenous						
0–14	19	21	22	23	21	20
15–24	14	13	12	11	12	14
25–44	31	27	29	33	36	30
45–64	23	24	25	24	24	23
65+	12	14	13	9	7	13
Total	100	100	100	100	100	100
Total population						
0–14	20	22	23	25	28	21
15–24	14	13	12	12	15	14
25–44	31	27	29	32	33	30
45–64	23	24	24	22	19	23
65+	12	14	13	9	5	13
Total	100	100	100	100	100	100

Source: ABS population estimates.



Source: ABS population estimates.

Figure 2.3.1.2: Age distribution of the population in each Remoteness Area, 2001



Source: ABS population estimates.

Figure 2.3.1.2: Percentage of the population in each Remoteness Area who are male, by age group, 2001

Table 2.3.1.2: Population distribution of Indigenous and Non-Indigenous persons by ASGC Remoteness Area, 2001

	MC	IR	OR	R	VR	Total
			(Per cent of total Indigenous population in each area)			
0–14	30	22	24	9	16	100
15–24	31	20	22	9	18	100
25–44	31	19	23	10	18	100
45–64	30	20	24	10	17	100
65+	26	18	23	11	21	100
Total	**30**	**20**	**23**	**9**	**17**	**100**
			(Per cent of population in each area who are Indigenous)			
0–14	2	4	9	20	57	4
15–24	1	3	8	19	56	3
25–44	1	2	5	12	39	2
45–64	1	1	3	8	28	1
65+	0	0	1	5	28	1
Total	**1**	**2**	**5**	**13**	**44**	**2**
			(Number of people)			
0–14	2,520,842	883,436	453,253	80,083	49,585	3,987,198
15–24	1,834,243	510,157	244,593	39,055	27,108	2,655,157
25–44	4,010,213	1,094,487	576,344	105,251	58,862	5,845,157
45–64	2,926,336	972,579	485,905	72,130	33,245	4,490,194
65+	1,579,210	565,030	253,742	27,810	9,742	2,435,534
Total	12,870,843	4,025,689	2,013,837	324,329	178,542	19,413,240
			(Per cent of total population in each area)			
Total	66	21	10	2	1	100

Source: ABS population estimates.

2.3.2 Dependency

Summary of findings

In 2001 the childhood dependency ratio was higher in regional and especially remote areas than it was in Major Cities, being 0.29, 0.34, 0.35, 0.37 and 0.42, respectively, in Major Cities, Inner and Outer Regional, Remote and Very Remote areas.

In 2001 the aged dependency ratio was higher in Inner Regional areas than in any of the other areas, and lower in Remote and especially Very Remote areas than it was in Major Cities, being 0.18, 0.22, 0.19, 0.13, 0.08, respectively, in Major Cities, Inner and Outer Regional, Remote and Very Remote areas.

In 2001 the total dependency ratio was higher outside Major Cities than inside, especially in Inner and Outer Regional areas. Total dependency ratios were 0.47, 0.56, 0.54, 0.50, 0.50, respectively, in Major Cities, Inner and Outer Regional, Remote and Very Remote areas.

Between 1991 and 2001, childhood dependency ratios decreased in all areas. In regional, Remote and Very Remote areas, the size of annual decreases was twice, three times and about 1.5 times what it was in Major Cities, the childhood dependency ratios tending to become more similar over time.

Between 1991 and 2001, aged dependency ratios increased in all areas. In regional and Remote areas, the annual increase was more than twice what it was in Major Cities, whereas increases in Very Remote areas were only slightly higher than in Major Cities. The tendency is for high aged dependency ratios for regional populations to become higher and diverge from those for Major Cities, and low ratios for remote populations tend to become higher and converge with those for Major Cities.

Decreasing childhood dependency ratios and increasing aged dependency ratios are not surprising in view of the ageing of the population.

Between 1991 and 2001, total dependency ratios for all areas have decreased slightly in Major Cities and regional areas, but at 3–4 times this amount in remote areas.

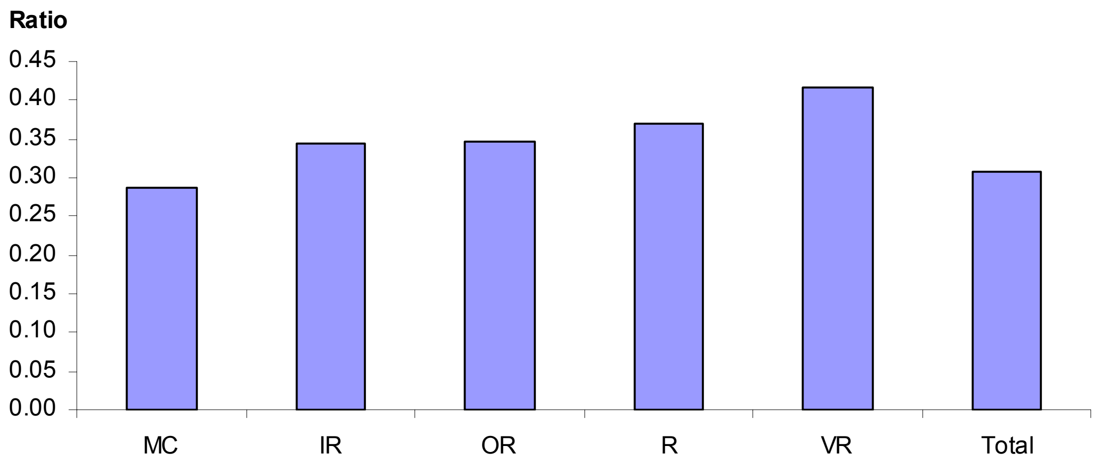
Background

A dependency ratio is the proportion of persons of a dependent age divided by the proportion of persons of working age. Dependency ratios are only an approximate guide to dependency levels in a particular area because not all persons of working age are in the labour force and some persons aged 65 years and over are still in the labour force. A childhood dependency ratio has been defined as the number of Australians aged under 15 divided by the number of those in the working-age population (persons aged 15–64 years). An aged dependency ratio has been formulated as the number of Australians aged 65 years and over divided by the number of those in the working-age population. A total dependency ratio is calculated as the sum of the two dependency ratios.

Detailed results

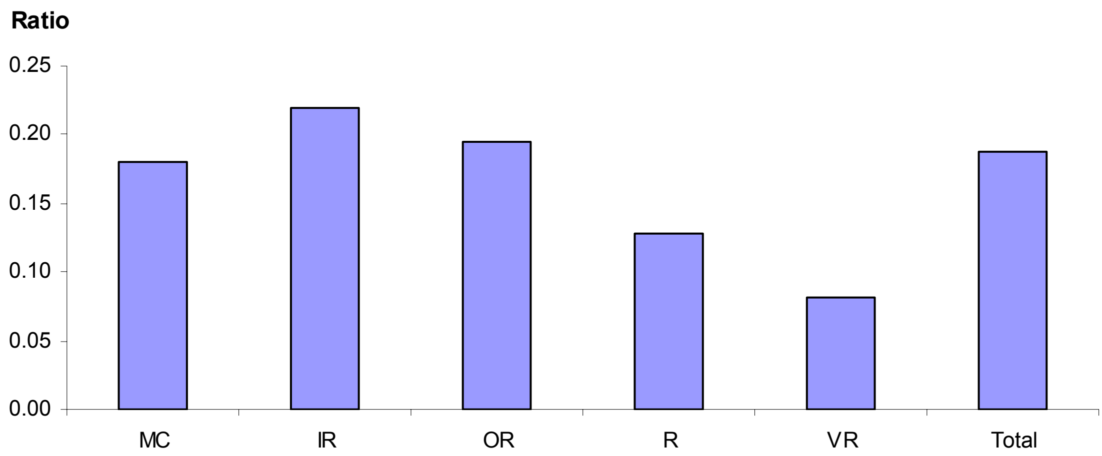
In 2001 the childhood dependency ratio was higher in regional and especially remote areas than it was in Major Cities, being 0.29, 0.34, 0.35, 0.37 and 0.42, respectively, in Major Cities, Inner and Outer Regional, Remote and Very Remote areas (Figure 2.3.2.1 and Table 2.3.2.1). This indicates that in Major Cities there were 29 children (aged 0–14 years) for every 100 people of working age (aged 15–64 years), whereas in Very Remote areas there were

42 children per 100 people of working age. Remote and Very Remote areas contain a larger proportion of Indigenous people than other areas; Indigenous people tend to be younger than non-Indigenous people due to higher fertility rates and lower life expectancy (see sections 1.4.1, Overall mortality, and 2.3.4, Fertility).



Source: Data have been calculated from ABS population estimates, 2001.

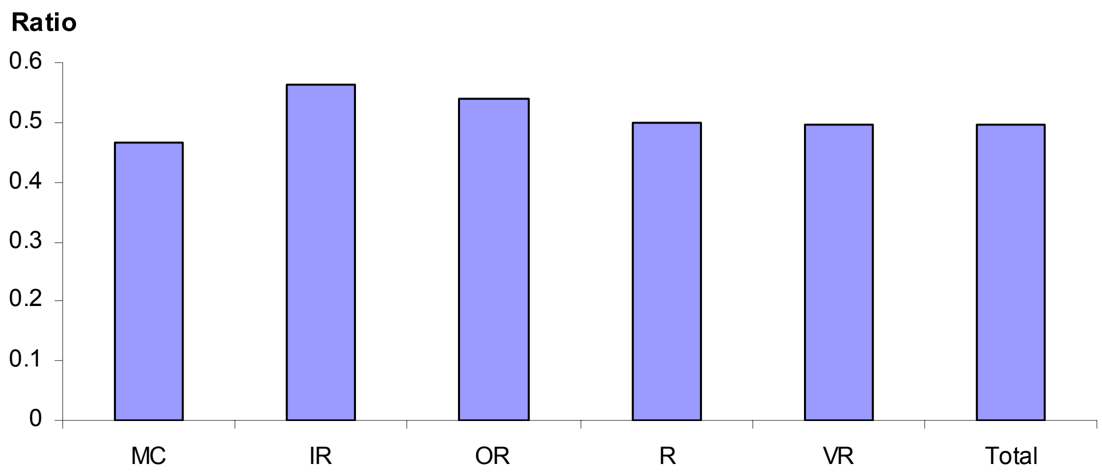
Figure 2.3.2.1: Childhood dependency ratios, 2001



Source: Data have been calculated from ABS population estimates, 2001.

Figure 2.3.2.2: Aged dependency ratios, 2001

In 2001 the aged dependency ratio was higher in Inner Regional areas than in any of the other areas, and lower in Remote and especially Very Remote areas than it was in Major Cities, being 0.18, 0.22, 0.19, 0.13, 0.08, respectively, in Major Cities, Inner and Outer Regional, Remote and Very Remote areas (Figure 2.3.2.2 and Table 2.3.2.1). Inner Regional areas include coastal areas close to Major Cities. These are popular retirement areas, and tend to be better supplied with services than more remote areas.



Source: Data have been calculated from ABS population estimates, 2001.

Figure 2.3.2.3: Total dependency ratios, 2001

In 2001 the total dependency ratio was higher outside Major Cities than inside, especially in Inner and Outer Regional areas (Figure 2.3.2.3 and Table 2.3.2.1). Total dependency ratios were 0.47, 0.56, 0.54, 0.50, 0.50, respectively, in Major Cities, Inner and Outer Regional, Remote and Very Remote areas.

Between 1991 and 2001, childhood dependency ratios decreased in all areas. In regional, Remote and Very Remote areas, the size of annual decreases was twice, three times and about 1.5 times what it was in Major Cities. Childhood dependency ratios tend to become more similar over time (Figure 2.3.2.4 and Table 2.3.2.2).

Between 1991 and 2001, aged dependency ratios increased in all areas. In regional and Remote areas, the annual increase was more than twice what it was in Major Cities, whereas increases in Very Remote areas were only slightly higher than in Major Cities. The tendency is for high aged dependency ratios for regional populations to become higher and diverge from those for Major Cities, and low ratios for remote populations tend to become higher and converge with those for Major Cities.

Between 1991 and 2001, total dependency ratios for all areas have decreased slightly in Major Cities and regional areas, but at 3–4 times the this amount in remote areas.

Table 2.3.2.1: Average annual change in dependency ratios, 1991 to 2001

	MC	IR	OR	R	VR	Total
Childhood dependency ratio	–0.0015	–0.0033	–0.0033	–0.0040	–0.0025	–0.0022
Aged dependency ratio	0.0013	0.0027	0.0029	0.0027	0.0016	0.0018
Total dependency ratio	–0.0003	–0.0006	–0.0004	–0.0013	–0.0009	–0.0004

Notes

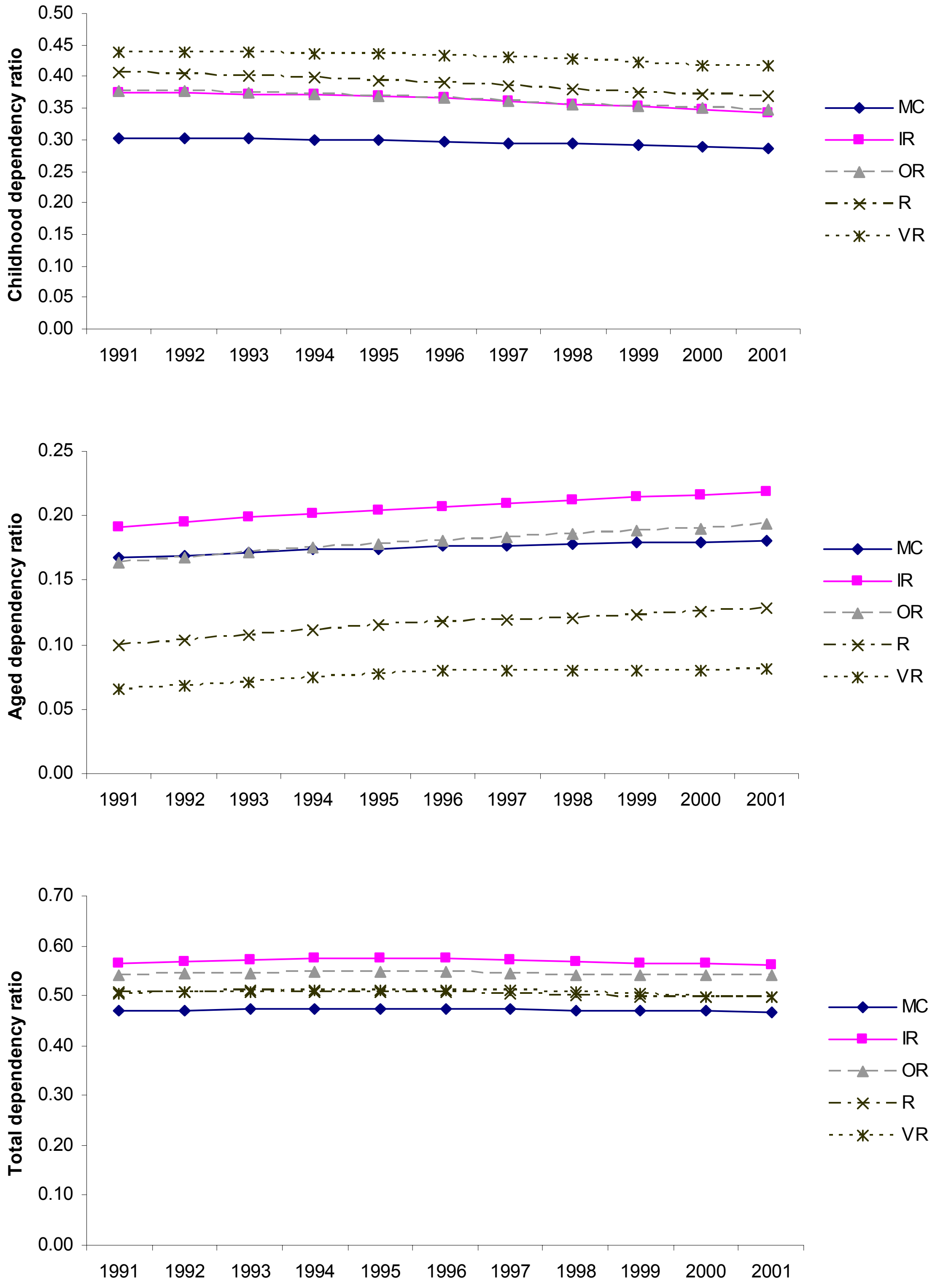
1. Negative change indicates a decrease in the dependency ratio, positive change indicates an increase.
2. The annual change in the Major Cities childhood dependency ratio of –0.0017 indicates that each year, the childhood dependency ratio decreases by 0.0017. If this rate of change continued, then the Major Cities childhood dependency ratio would decrease from 0.2874 in 2001, to 0.2857 in 2002, and to 0.2704 in 2011.

Source: Table 2.3.2.1.

Table 2.3.2.2: Dependency ratios, by ASGC Remoteness Area, 1991 to 2001

	MC	IR	OR	R	VR	Total
Childhood ratio						
1991	0.30	0.38	0.38	0.41	0.44	0.33
1992	0.30	0.37	0.38	0.40	0.44	0.33
1993	0.30	0.37	0.37	0.40	0.44	0.33
1994	0.30	0.37	0.37	0.40	0.44	0.32
1995	0.30	0.37	0.37	0.39	0.43	0.32
1996	0.30	0.37	0.37	0.39	0.43	0.32
1997	0.30	0.36	0.36	0.39	0.43	0.32
1998	0.29	0.36	0.36	0.38	0.43	0.32
1999	0.29	0.35	0.35	0.38	0.42	0.31
2000	0.29	0.35	0.35	0.37	0.42	0.31
2001	0.29	0.34	0.35	0.37	0.42	0.31
Aged ratio						
1991	0.17	0.19	0.16	0.10	0.06	0.17
1992	0.17	0.19	0.17	0.10	0.07	0.17
1993	0.17	0.20	0.17	0.11	0.07	0.17
1994	0.17	0.20	0.18	0.11	0.07	0.18
1995	0.17	0.20	0.18	0.11	0.08	0.18
1996	0.18	0.21	0.18	0.12	0.08	0.18
1997	0.18	0.21	0.18	0.12	0.08	0.18
1998	0.18	0.21	0.19	0.12	0.08	0.18
1999	0.18	0.21	0.19	0.12	0.08	0.18
2000	0.18	0.22	0.19	0.13	0.08	0.19
2001	0.18	0.22	0.19	0.13	0.08	0.19
Total dependency ratio						
1991	0.47	0.57	0.54	0.51	0.50	0.50
1992	0.47	0.57	0.54	0.51	0.51	0.50
1993	0.47	0.57	0.55	0.51	0.51	0.50
1994	0.47	0.57	0.55	0.51	0.51	0.50
1995	0.47	0.57	0.55	0.51	0.51	0.50
1996	0.47	0.57	0.55	0.51	0.51	0.50
1997	0.47	0.57	0.54	0.50	0.51	0.50
1998	0.47	0.57	0.54	0.50	0.51	0.50
1999	0.47	0.57	0.54	0.50	0.50	0.50
2000	0.47	0.56	0.54	0.50	0.50	0.50
2001	0.47	0.56	0.54	0.50	0.50	0.49

Source: Data have been calculated from ABS population estimates, 1991 to 2001.



Source: Table 2.3.2.2.

Figure 2.3.2.4: Dependency ratios by ASGC Remoteness Area, 1991 to 2001

2.3.3 Internal migration

Summary of findings

Migration has a substantial influence on some populations, especially those from Very Remote areas, the young and the elderly.

Based on 1996 census data, migration causes adult populations in Major Cities and Inner Regional areas to increase, respectively, by 0.1% and 0.2% each year, and those in Outer Regional, Remote and Very Remote areas to decrease, respectively, by 0.6%, 0.8% and 2.1% per year.

These losses and gains are described by age group and Indigenous status.

A lower percentage of the Indigenous populations in each area move than appears to be the case for non-Indigenous people. The overall trend appears to be towards less remote areas. Just under 2% of young (15–24 years) Indigenous people from remote areas moved to less remote areas in the year, a lower percentage moved from regional areas, and migration added 2% to Major Cities Indigenous populations. The pattern for Indigenous people aged 25 years and over is not so clear, with migration alternately bolstering some populations and reducing others, depending on age group.

There was very strong trend for non-Indigenous people aged 15–24 years to migrate towards Major Cities (similar to the trend for Indigenous young people, but stronger); net migration increased the number in this age group in Major Cities by 1.2%, whereas the populations of Inner and Outer Regional, Remote and Very Remote areas reduced by 2.6%, 3.5%, 1.4% and 0.4%.

Net migration in the other age groups was towards Inner Regional areas. There was net migration away from Major Cities and also away from Outer Regional, Remote and especially Very Remote areas. The percentage of the population moving out of Very Remote areas was 3.5%, 2.6%, 4.9% and 4.0% for those aged 25–44, 45–64, 65–74 and 75 years and over, respectively.

Background

Internal migration refers to migration of people from one area within Australia to another, e.g. from Inner Regional areas to Major Cities.

It is possible that migration masks important health differentials. People may move between Remoteness Areas in response to the opportunity for, and pressure to, access education, work or health services. Also, migration between Remoteness Areas may affect the interpretation of other indicators; for example, migration of older people in poorer health to less remote areas, leaving those who are in good health in these areas, may hide poor health outcomes in remote areas and overstate them in other areas.

This indicator uses data from the 1996 census (2001 data were not available when the analysis was conducted). Respondents were asked where they resided 12 months previously and also where they resided at the time of the last census (i.e. 1991). The description of migration provided here is based on where they lived in 1996, and 1 year previously in 1995.

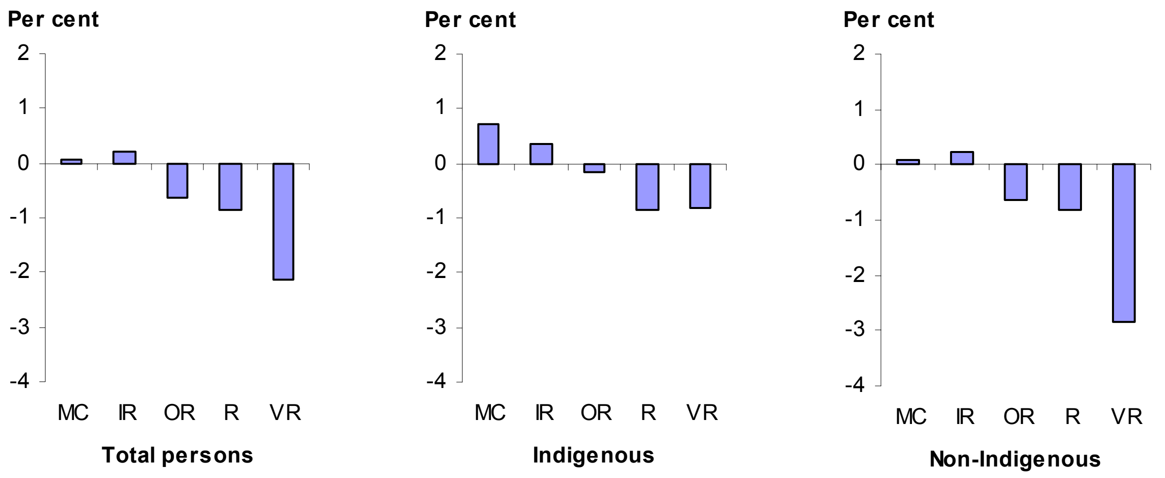
The shorter 1-year period has been used in preference to the longer 5-year period, in order to capture the migration of older people. If older people in frail health do in fact move to less remote areas, many of them may die within the longer 5-year period, so the fact that they recently moved from more remote areas cannot be recorded. Use of the 1-year period reduces the size of this effect.

Detailed results

Findings for Indigenous and non-Indigenous populations are described from page 177.

Migration of people aged 15 years and over

In the 12-month period 1995–96, migration from (mainly) less remote areas increased the populations of Major Cities and Inner Regional areas by 0.1% and 0.2%, respectively. There was a net movement out of Outer Regional, Remote and Very Remote areas, equivalent to 0.8%, 1.1% and 2.1% of their populations, respectively (Figure 2.3.3.1 and Table 2.3.3.1).



Notes

1. Columns represent net population change due to migration into or out of the area.
2. Numbers of people moving into and out of areas are provided in Tables 2.3.3.9–2.3.3.11.

Source: ABS 1996 Census data.

Figure 2.3.3.1: Net migration between Remoteness Areas, 1995–96, persons aged 15 years and over

Table 2.3.3.1: Migration between Remoteness Areas, 1995–96, persons aged 15 years and over

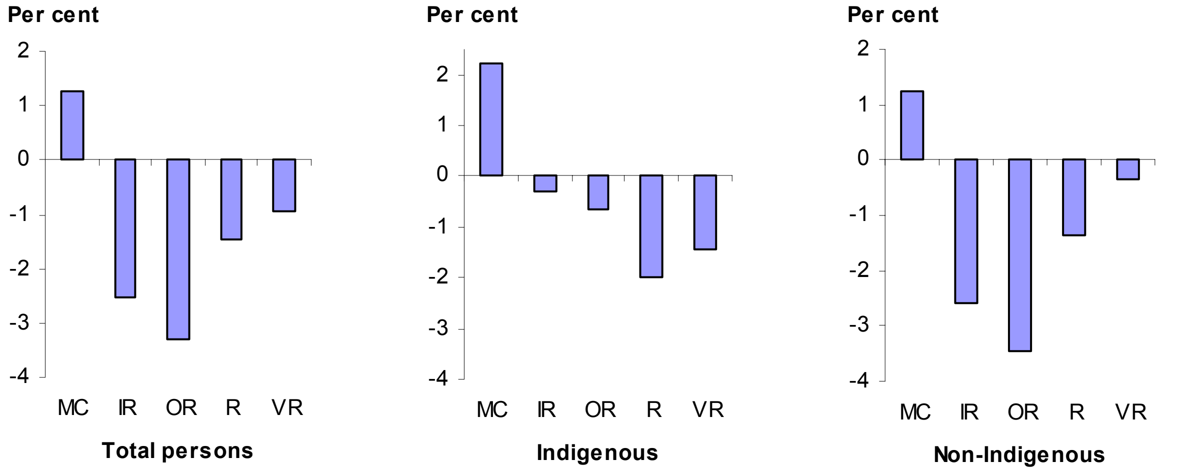
	MC	IR	OR	R	VR
			(per cent)		
Net movement to/from less remote areas	0.0	0.0	–0.8	–1.1	–2.1
Net movement to/from more remote areas	0.1	0.3	0.2	0.2	0.0
Net gain to area due to internal migration	0.1	0.2	–0.6	–0.8	–2.1

Note: This table shows population change in the area during 1995–96 due to internal migration only. Other population change which occurred due to births, deaths and overseas migration during this period has not been included. A positive figure shows that internal migration has resulted in population growth. A negative figure shows that internal migration has resulted in population loss.

Source: ABS 1996 Census and Table 2.3.3.9.

Migration of people aged 15–24 years

In the 12-month period 1995–96, 15–24-year-olds tended to move from more remote areas towards less remote areas (Figure 2.3.3.2 and Table 2.3.3.2). Of the 15–24-year-olds who lived in Inner Regional areas, 3.1% moved to Major Cities, increasing the population there by 1.3%. Of the 15–24-year-olds who lived in Outer Regional areas, 3.5% moved to less remote areas in the same period, just over 60% of these people moving to Inner Regional areas and just under 40% to Major Cities.



Notes

1. Columns represent net population change due to migration into or out of the area.
2. There are differences between the scales of the three graphs.
3. Numbers of people moving into and out of areas are provided in Tables 2.3.3.9–2.3.3.11.

Source: ABS 1996 Census data.

Figure 2.3.3.2: Net migration between Remoteness Areas, 1995–96, persons aged 15–24 years

Table 2.3.3.2: Migration between Remoteness Areas, 1995–96, persons aged 15–24 years

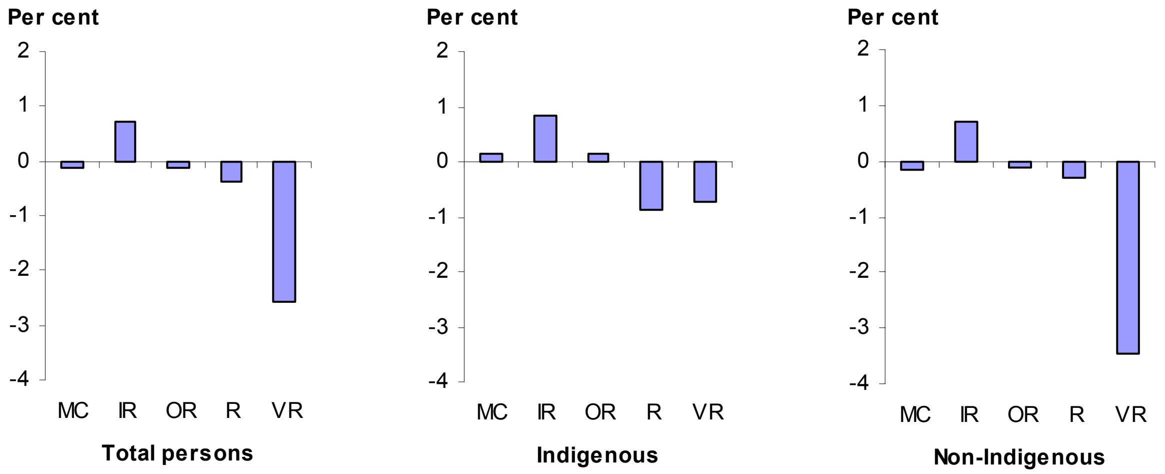
	MC	IR	OR	R	VR
			(per cent)		
Net movement to/from less remote areas	0.0	–3.1	–3.5	–1.8	–0.9
Net movement to/from more remote areas	1.3	0.5	0.2	0.3	0.0
Net gain to area due to internal migration	1.3	–2.5	–3.3	–1.5	–0.9

Note: This table shows population change in the area during 1995–96 due to internal migration only. Other population change which occurred due to births, deaths and overseas migration during this period has not been included. A positive figure shows that internal migration has resulted in population growth. A negative figure shows that internal migration has resulted in population loss.

Source: ABS 1996 Census and Table 2.3.3.9.

Migration of people aged 25–44 years

In the 12-month period, migration increased the population of 25–44-year-olds in Inner Regional areas by 0.7% (Figure 2.3.3.3 and Table 2.3.3.3). Almost three-quarters of these people had moved from Major Cities. People of this age in Outer Regional, Remote and Very Remote areas, however, tended to migrate towards less remote (i.e. Major Cities and Inner Regional) areas.



Notes

1. Columns represent net population change due to migration into or out of the area.
2. Numbers of people moving into and out of areas are provided in Tables 2.3.3.9–2.3.3.11.

Source: ABS 1996 Census data.

Figure 2.3.3.3: Net migration between Remoteness Areas, 1995–96, persons aged 25–44 years

Table 2.3.3.3: Migration between Remoteness Areas, 1995–96, persons aged 25–44 years

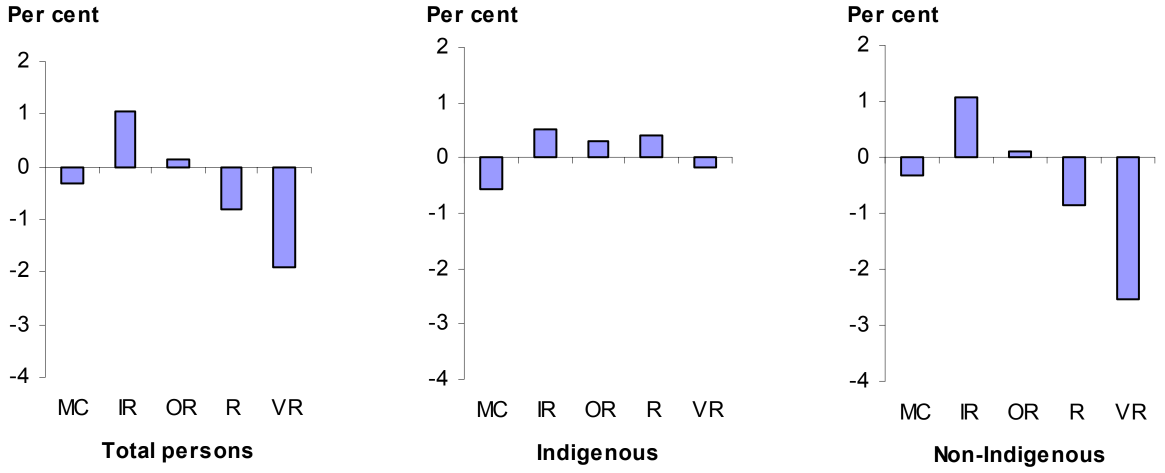
	MC	IR	OR	R	VR
			(per cent)		
Net movement to/from less remote areas	0.0	0.5	–0.3	–0.6	–2.6
Net movement to/from more remote areas	–0.1	0.2	0.2	0.3	0.0
Net gain to area due to internal migration	–0.1	0.7	–0.1	–0.4	–2.6

Note: This table shows population change in the area during 1995–96 due to internal migration only. Other population change which occurred due to births, deaths and overseas migration during this period has not been included. A positive figure shows that internal migration has resulted in population growth. A negative figure shows that internal migration has resulted in population loss.

Source: ABS 1996 Census and Table 2.3.3.9.

Migration of people aged 45–64 years

In the 12-month period, migration of people aged 45–64 years added 1.1% to the population of Inner Regional areas (Figure 2.3.3.4 and Table 2.3.3.4). Almost 83% of these people came from Major Cities. Remote areas lost 0.9% of their 45–64-year-old population to less remote areas, with most (78%) moving to Outer Regional areas. Very Remote areas lost 1.9% of their 45–64-year-old population to less remote areas, with almost 60% of these people moving to Remote areas.



Notes

1. Columns represent net population change due to migration into or out of the area.
2. Numbers of people moving into and out of areas are provided in Tables 2.3.3.9–2.3.3.11.

Source: ABS 1996 Census data.

Figure 2.3.3.4: Net migration between Remoteness Areas, 1995–96, persons aged 45–64 years

Table 2.3.3.4: Migration between Remoteness Areas, 1995–96, persons aged 45–64 years

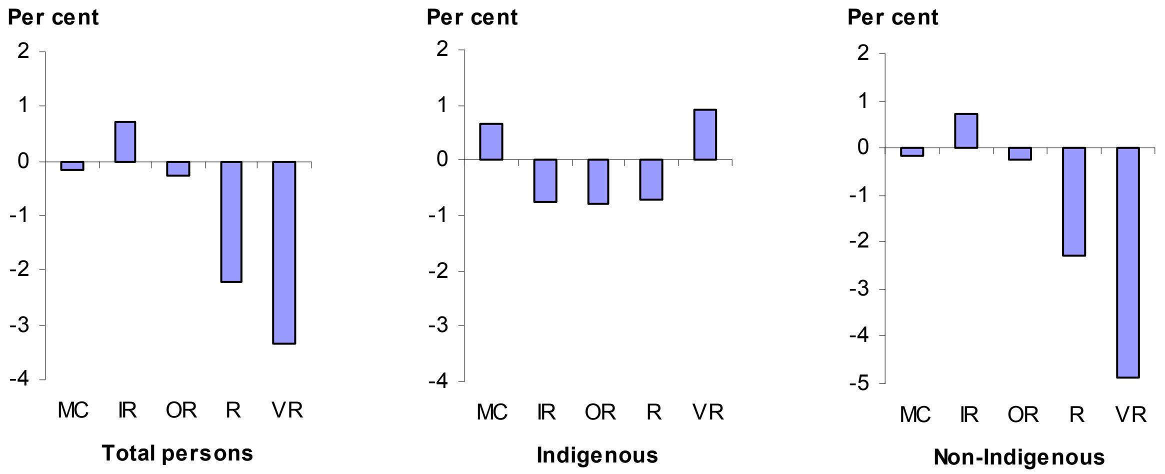
	MC	IR	OR	R	VR
			(per cent)		
Net movement to/from less remote areas	0.0	0.9	0.0	–0.9	–1.9
Net movement to/from more remote areas	–0.3	0.2	0.1	0.1	0.0
Net gain to area due to internal migration	–0.3	1.1	0.1	–0.8	–1.9

Note: This table shows population change in the area during 1995–96 due to internal migration only. Other population change which occurred due to births, deaths and overseas migration during this period has not been included. A positive figure shows that internal migration has resulted in population growth. A negative figure shows that internal migration has resulted in population loss.

Source: ABS 1996 Census and Table 2.3.3.9.

Migration of people aged 65–74 years

Migration of 65–74-year-olds increased the population in that age group in Inner Regional areas by 0.7% in 1995–96. Almost 64% of these people came from Major Cities (Figure 2.3.3.5 and Table 2.3.3.5). Outer Regional areas lost 0.4% of their 65–74-year-old population to less remote areas, mainly to Inner Regional areas (90%). Remote areas lost 2.3% of their 65–74-year-old population to less remote areas, mainly to Outer Regional areas (81%). Very Remote areas lost 3.4% of their 65–74-year-old population to less remote areas, with almost 65% of these moving to Remote areas.



Notes

1. Columns represent net population change due to migration into or out of the area.
2. There are differences between the scales of the three graphs.
3. Numbers of people moving into and out of areas are provided in Tables 2.3.3.9–2.3.3.11.

Source: ABS 1996 Census data.

Figure 2.3.3.5: Net migration between Remoteness Areas, 1995–96, persons aged 65–74 years

Table 2.3.3.5: Migration between Remoteness Areas, 1995–96, persons aged 65–74 years

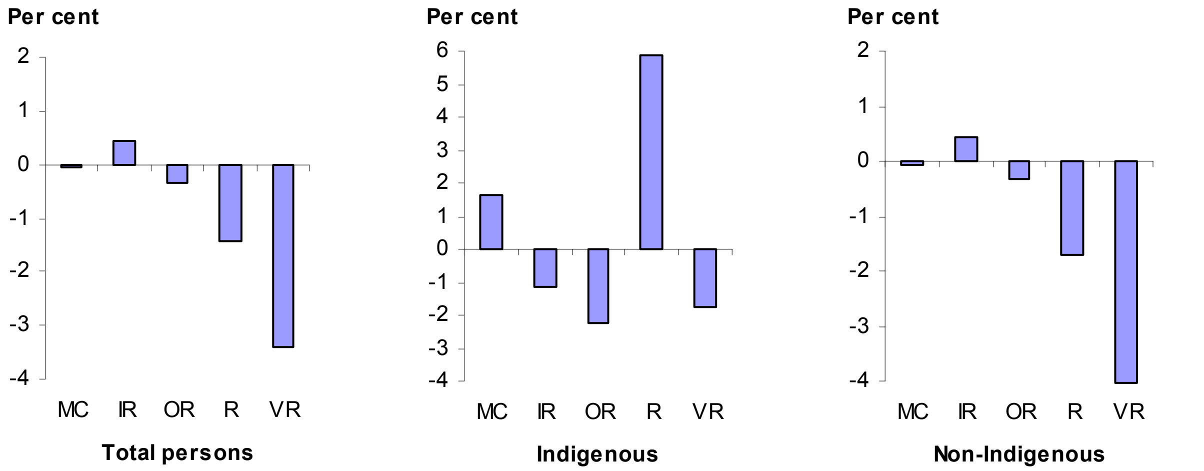
	MC	IR	OR	R	VR
			(per cent)		
Net movement to/from less remote areas	0.0	0.5	–0.4	–2.3	–3.4
Net movement to/from more remote areas	–0.1	0.3	0.1	0.1	0.0
Net gain to area due to internal migration	–0.1	0.7	–0.3	–2.2	–3.4

Note: This table shows population change in the area during 1995–96 due to internal migration only. Other population change which occurred due to births, deaths and overseas migration during this period has not been included. A positive figure shows that internal migration has resulted in population growth. A negative figure shows that internal migration has resulted in population loss.

Source: ABS 1996 Census and Table 2.3.3.9.

Migration of people aged 75 years and over

The population of people aged 75 years and over in Inner Regional areas increased by 0.4% in 1995–96 through internal migration (Figure 2.3.3.6 and Table 2.3.3.6). Almost 57% of these people came from Major Cities. Outer Regional areas lost 0.4% of their population of this age to less remote areas, with most moving to Inner Regional areas (90%). Remote areas lost 1.7% of their population to less remote areas, mainly to Outer Regional areas (83%). Very Remote areas lost 3.4% of their population to less remote areas, with just over 68% moving to Remote areas.



Notes

1. Columns represent net population change due to migration into or out of the area.
2. There are differences between the scales of the three graphs.
3. Numbers of people moving into and out of areas are provided in Tables 2.3.3.9–2.3.3.11.

Source: ABS 1996 Census data.

Figure 2.3.3.6: Net migration between Remoteness Areas, 1995–96, persons aged 75 years and over

Table 2.3.3.6: Migration between Remoteness Areas, 1995–96, persons aged 75 years and over

	MC	IR	OR	R	VR
			(per cent)		
Net movement to/from less remote areas	0.0	0.2	–0.4	–1.7	–3.4
Net movement to/from more remote areas	–0.1	0.2	0.1	0.3	0.0
Net gain to area due to internal migration	–0.1	0.4	–0.3	–1.4	–3.4

Note: This table shows population change in the area during 1995–96 due to internal migration only. Other population change which occurred due to births, deaths and overseas migration during this period has not been included. A positive figure shows that internal migration has resulted in population growth. A negative figure shows that internal migration has resulted in population loss.

Source: ABS 1996 Census and Table 2.3.3.9.

Indigenous people

In 1995–96, internal migration in the Indigenous population aged 15 years and over tended to be from more remote areas to less remote areas (Table 2.3.3.7). However, the percentage of the population moving was smaller than for the non-Indigenous population, suggesting lower levels of mobility between Remoteness Areas (although this says nothing about mobility within Remoteness Areas).

For Indigenous people 15 years and over, Remote and Very Remote areas lost almost 1% of their Indigenous population to less remote areas by migration in the 12-month period. Migration into and out of Outer Regional areas resulted in a small net loss to less remote areas. The Indigenous populations of Major Cities and Inner Regional areas increased by 0.7% and 0.4% through migration mainly from more remote areas.

Migration of those aged 25–44 years resulted in Remote and Very Remote areas losing just under 1% of their population and Inner Regional areas increasing by slightly less than 1%.

Migration of those aged 45–64 years increased the populations of Inner and Outer Regional and Remote areas by less than 0.5% each, and decreased the populations in Major Cities and Very Remote areas by 0.6% and 0.2%.

Migration of those aged 65 years and over, reduced the populations of Inner and Outer Regional areas by about 1%, and increased those of Major Cities and to Remote areas.

Table 2.3.3.7: Migration between Remoteness Areas, 1995–96, Indigenous persons aged 15 years and over

Age group and migration pattern	MC	IR	OR	R	VR
15–24 years			(per cent)		
Net movement to/from less remote areas	0.0	–1.2	–1.7	–2.8	–1.4
Net movement to/from more remote areas	2.2	0.9	1.1	0.8	0.0
Net gain to area due to internal migration	**2.2**	**–0.3**	**–0.6**	**–2.0**	**–1.4**
25–44 years					
Net movement to/from less remote areas	0.0	–0.2	–0.4	–1.2	–0.7
Net movement to/from more remote areas	0.1	1.1	0.5	0.3	0.0
Net gain to area due to internal migration	**0.1**	**0.9**	**0.1**	**–0.9**	**–0.7**
45–64 years					
Net movement to/from less remote areas	0.0	0.5	0.1	0.5	–0.2
Net movement to/from more remote areas	–0.6	0.0	0.2	–0.1	0.0
Net gain to area due to internal migration	**–0.6**	**0.5**	**0.3**	**0.4**	**–0.2**
65 years and over					
Net movement to/from less remote areas	0.0	–1.0	–1.2	0.4	0.0
Net movement to/from more remote areas	1.0	0.2	0.0	1.2	0.0
Net gain to area due to internal migration	**1.0**	**–0.9**	**–1.2**	**1.5**	**0.0**
Total aged 15 years and over					
Net movement to/from less remote areas	0.0	–0.5	–0.7	–1.3	–0.8
Net movement to/from more remote areas	0.7	0.8	0.6	0.4	0.0
Net gain to area due to internal migration	**0.7**	**0.4**	**–0.1**	**–0.9**	**–0.8**

Note: This table shows population change in the area during 1995–96 due to internal migration only. Other population change which occurred due to births, deaths and overseas migration during this period has not been included. A positive figure shows that internal migration has resulted in population growth. A negative figure shows that internal migration has resulted in population loss.

Source: ABS 1996 Census and Table 2.3.3.10.

Non-Indigenous persons

Overall, in the 12-month period 1995–1996 there was a net movement of non-Indigenous people to Major Cities and Inner Regional areas, whose populations increased, respectively, by 0.1 and 0.2% (Table 2.3.3.8). These people came from Outer Regional, Remote and Very Remote areas whose populations decreased by, respectively, 0.6%, 0.8% and 2.8%, as a result of this migration.

Table 2.3.3.8: Migration between Remoteness Areas, 1995–96, non-Indigenous persons aged 15 years and over

Age group and migration pattern	MC	IR	OR	R	VR
15–24 years			(per cent)		
Net movement to/from less remote areas	0.0	–3.1	–3.6	–1.6	–0.4
Net movement to/from more remote areas	1.2	0.5	0.1	0.2	0.0
Net gain to area due to internal migration	**1.2**	**–2.6**	**–3.5**	**–1.4**	**–0.4**
25–44 years					
Net movement to/from less remote areas	0.0	0.5	–0.3	–0.6	–3.5
Net movement to/from more remote areas	–0.1	0.2	0.2	0.3	0.0
Net gain to area due to internal migration	**–0.1**	**0.7**	**–0.1**	**–0.3**	**–3.5**
45–64 years					
Net movement to/from less remote areas	0.0	0.9	0.0	–1.0	–2.6
Net movement to/from more remote areas	–0.3	0.2	0.1	0.1	0.0
Net gain to area due to internal migration	**–0.3**	**1.1**	**0.1**	**–0.9**	**–2.6**
65–74 years					
Net movement to/from less remote areas	0.0	0.5	–0.4	–2.4	–4.9
Net movement to/from more remote areas	–0.1	0.3	0.1	0.1	0.0
Net gain to area due to internal migration	**–0.1**	**0.7**	**–0.3**	**–2.3**	**–4.9**
75 years and over					
Net movement to/from less remote areas	0.0	0.3	–0.4	–1.8	–4.0
Net movement to/from more remote areas	–0.1	0.2	0.1	0.1	0.0
Net gain to area due to internal migration	**–0.1**	**0.4**	**–0.3**	**–1.7**	**–4.0**
Total aged 15 years and over					
Net movement to/from less remote areas	0.0	0.0	–0.8	–1.0	–2.8
Net movement to/from more remote areas	0.1	0.2	0.1	0.2	0.0
Net gain to area due to internal migration	**0.1**	**0.2**	**–0.6**	**–0.8**	**–2.8**

Note: This table shows population change in the area during 1995–96 due to internal migration only. Other population change which occurred due to births, deaths and overseas migration during this period has not been included. A positive figure shows that internal migration has resulted in population growth. A negative figure shows that internal migration has resulted in population loss.

Source: ABS 1996 Census and Table 2.3.3.11.

Migration of non-Indigenous 15–24-year-olds was towards Major Cities. In the 12-month period, the Major Cities population increased by 1.2% as a result of migration of people in this age group from Inner and Outer Regional, Remote and Very Remote areas, whose populations correspondingly decreased by 2.6%, 3.5%, 1.4% and 0.4%, respectively (Figure 2.3.3.9).

Movement of all other age groups was towards Inner Regional areas, the population of which increased by about 1% in the 12-month period for each age group except those aged 75 years and over (up 0.4%).

In most age groups in the 12-month period, there was a net movement of about 0.1% of the Major Cities population to more remote areas (0.3% for those aged 45–64 years).

The net effect of migration on the population of Outer Regional areas was small or negligible for those aged 25–64, and for those 65 years and over, it amounted to a loss of about 0.3%.

Remote areas lost 0.3% and 0.9% of their 25–44 and 45–64-year-olds, respectively, and about 2% of those 65 years and over.

Very Remote area populations in the age groups 25–44, 45–64, 65–74 and 75+ decreased by 3.5%, 2.6%, 4.9% and 4.0%, respectively, due to migration in the 12 months 1995–96 (Figure 2.3.3.10).

Comparison of Tables 2.3.3.7 and 2.3.3.8 is complicated by the fact that the age structures and regional distributions of the Indigenous and non-Indigenous populations are substantially different.

Table 2.3.3.9: Numbers of people migrating into and out of ASGC Remoteness Areas, 1995–96

		Migration from					
All ages 15+		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**8,494,272**	259,855	45,016	9,673	4,969	**8,813,785**
	IR	258,960	**2,291,794**	136,046	7,769	2,780	**2,697,349**
	OR	39,857	130,433	**1,172,364**	42,069	5,692	**1,390,414**
	R	9,275	6,933	40,966	**150,639**	12,641	**220,454**
	VR	4,510	2,382	4,674	12,162	**84,353**	**108,082**
	Total	**8,806,874**	**2,691,398**	**1,399,066**	**222,312**	**110,435**	**13,230,085**

15–24 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**1,570,337**	68,293	17,144	3,227	1,440	**1,660,441**
	IR	53,820	**378,741**	25,942	1,873	694	**461,070**
	OR	11,522	23,332	**186,599**	7,121	1,446	**230,020**
	R	2,812	1,851	6,894	**22,991**	2,399	**36,947**
	VR	1,421	777	1,276	2,285	**17,540**	**23,299**
	Total	**1,639,912**	**472,994**	**237,855**	**37,497**	**23,519**	**2,411,777**

25–44 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**3,341,538**	104,594	19,493	4,498	2,638	**3,472,762**
	IR	109,903	**849,821**	51,143	3,419	1,480	**1,015,766**
	OR	18,930	49,940	**460,001**	17,867	2,941	**549,679**
	R	4,738	3,073	17,355	**68,689**	6,030	**99,884**
	VR	2,389	1,192	2,372	5,774	**39,780**	**51,507**
	Total	**3,477,498**	**1,008,620**	**550,364**	**100,246**	**52,868**	**5,189,597**

45–64 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**2,282,140**	59,025	5,955	1,481	710	**2,349,311**
	IR	65,552	**654,189**	37,444	1,754	482	**759,422**
	OR	7,029	36,470	**341,126**	11,724	1,058	**397,408**
	R	1,397	1,475	11,532	**42,698**	3,139	**60,241**
	VR	622	357	844	3,069	**20,559**	**25,451**
	Total	**2,356,740**	**751,516**	**396,902**	**60,727**	**25,948**	**3,591,833**

65–74 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**757,271**	17,039	1,440	300	124	**776,174**
	IR	18,323	**245,235**	13,323	488	91	**277,461**
	OR	1,454	12,787	**112,290**	3,374	170	**130,075**
	R	210	340	3,259	**10,328**	710	**14,847**
	VR	64	39	117	695	**4,280**	**5,194**
	Total	**777,323**	**275,440**	**130,430**	**15,184**	**5,375**	**1,203,751**

75+ years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**542,985**	10,904	984	167	58	**555,097**
	IR	11,360	**163,809**	8,193	235	33	**183,630**
	OR	922	7,904	**72,347**	1,983	77	**83,234**
	R	118	195	1,926	**5,933**	363	**8,535**
	VR	15	18	65	340	**2,193**	**2,631**
	Total	**555,401**	**182,829**	**83,515**	**8,657**	**2,724**	**833,127**

Note: Cells indicating migration towards less remote areas are shaded.
Source: ABS 1996 Census.

Table 2.3.3.10: Numbers of Indigenous people migrating into and out of ASGC Remoteness Areas, 1995–96

		Migration from					
All ages 15+		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**54,639**	3,056	1,319	459	295	**59,768**
	IR	2,893	**29,321**	2,908	368	164	**35,654**
	OR	1,168	2,710	**40,376**	2,132	821	**47,206**
	R	378	294	2,046	**13,275**	2,787	**18,779**
	VR	265	148	624	2,709	**34,669**	**38,415**
	Total	**59,343**	**35,529**	**47,273**	**18,942**	**38,734**	**199,822**
15–24 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**17,235**	1,172	639	202	137	**19,384**
	IR	1,030	**9,220**	989	160	62	**11,461**
	OR	448	925	**12,394**	683	339	**14,789**
	R	151	116	621	**3,798**	908	**5,593**
	VR	96	63	243	864	**11,001**	**12,267**
	Total	**18,960**	**11,495**	**14,886**	**5,706**	**12,447**	**63,494**
25–44 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**25,719**	1,410	544	220	134	**28,027**
	IR	1,374	**13,606**	1,364	164	84	**16,591**
	OR	595	1,235	**18,658**	997	362	**21,847**
	R	180	130	967	**6,312**	1,264	**8,854**
	VR	123	70	285	1,237	**15,400**	**17,115**
	Total	**27,992**	**16,451**	**21,818**	**8,931**	**17,243**	**92,435**
45–64 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**9,495**	393	106	31	18	**10,043**
	IR	421	**5,299**	461	35	18	**6,234**
	OR	113	460	**7,539**	364	101	**8,577**
	R	35	39	373	**2,475**	473	**3,394**
	VR	37	11	74	476	**6,284**	**6,882**
	Total	**10,101**	**6,203**	**8,552**	**3,381**	**6,894**	**35,130**
65–74 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	1,483	55	19	6	3	**1,566**
	IR	49	843	68	7	0	**966**
	OR	8	66	1,276	63	13	**1,426**
	R	6	7	59	440	89	**602**
	VR	9	3	15	91	1,316	**1,434**
	Total	**1,556**	**974**	**1,437**	**606**	**1,421**	**5,994**
75+ years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**707**	26	11	1	2	**747**
	IR	18	**354**	27	2	0	**401**
	OR	4	23	**510**	25	6	**567**
	R	6	2	26	**249**	53	**337**
	VR	0	1	7	40	**668**	**717**
	Total	**735**	**406**	**580**	**318**	**730**	**2,769**

Note: Cells indicating migration towards less remote areas are shaded.
Source: ABS 1996 Census.

Table 2.3.3.11: Numbers of non-Indigenous people migrating into and out of ASGC Remoteness Areas, 1995–96

		Migration from					
All ages 15+		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**8,439,633**	256,799	43,697	9,214	4,674	**8,754,018**
	IR	256,067	**2,262,473**	133,138	7,401	2,616	**2,661,695**
	OR	38,689	127,723	**1,131,987**	39,937	4,871	**1,343,208**
	R	8,897	6,639	38,920	**137,364**	9,854	**201,675**
	VR	4,245	2,234	4,050	9,454	**49,685**	**69,667**
	Total	**8,747,531**	**2,655,869**	**1,351,792**	**203,370**	**71,701**	**13,030,263**
15–24 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**1,553,102**	67,121	16,505	3,025	1,303	**1,641,057**
	IR	52,790	**369,521**	24,953	1,714	632	**449,609**
	OR	11,073	22,407	**174,205**	6,438	1,107	**215,230**
	R	2,662	1,735	6,273	**19,193**	1,491	**31,354**
	VR	1,325	714	1,033	1,420	**6,540**	**11,032**
	Total	**1,620,953**	**461,498**	**222,969**	**31,791**	**11,072**	**2,348,283**
25–44 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**3,315,819**	103,185	18,949	4,278	2,504	**3,444,735**
	IR	108,529	**836,216**	49,779	3,254	1,396	**999,174**
	OR	18,335	48,704	**441,344**	16,870	2,579	**527,832**
	R	4,557	2,943	16,387	**62,377**	4,766	**91,031**
	VR	2,266	1,122	2,087	4,536	**24,380**	**34,391**
	Total	**3,449,506**	**992,169**	**528,546**	**91,316**	**35,625**	**5,097,162**
45–64 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**2,272,645**	58,632	5,849	1,451	691	**2,339,268**
	IR	65,131	**648,891**	36,984	1,718	465	**753,189**
	OR	6,916	36,010	**333,588**	11,360	957	**388,831**
	R	1,362	1,435	11,160	**40,224**	2,666	**56,847**
	VR	585	345	770	2,593	**14,276**	**18,569**
	Total	**2,346,639**	**745,313**	**388,350**	**57,346**	**19,055**	**3,556,703**
65–74 years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**755,789**	16,984	1,421	294	121	**774,608**
	IR	18,274	**244,392**	13,255	481	91	**276,494**
	OR	1,446	12,721	**111,014**	3,311	157	**128,649**
	R	204	333	3,200	**9,887**	621	**14,245**
	VR	55	36	102	604	**2,964**	**3,760**
	Total	**775,767**	**274,466**	**128,992**	**14,578**	**3,954**	**1,197,757**
75+ years		**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Migration to	**MC**	**542,278**	10,878	973	166	55	**554,350**
	IR	11,342	**163,454**	8,167	233	33	**183,229**
	OR	919	7,881	**71,837**	1,958	71	**82,666**
	R	112	193	1,900	**5,683**	310	**8,198**
	VR	15	17	59	299	**1,525**	**1,914**
	Total	**554,665**	**182,423**	**82,935**	**8,339**	**1,995**	**830,358**

Note: Cells indicating migration towards less remote areas are shaded.
Source: ABS 1996 Census.

2.3.4 Fertility

Summary of findings

In the period 1999–2001, overall birth rates were higher for women in regional and remote areas than for those in Major Cities. Rates in Inner and Outer Regional, Remote and Very Remote areas were, respectively, 1.03, 1.14, 1.35 and 1.47 times those in Major Cities.

Higher regional and remote area birth rates were a consequence of substantially higher rates in young women, especially in remote areas, and slightly lower birth rates in older women.

Birth rates for 15–19-year-olds were up to twice as high in regional areas, and 3 and 7 times as high in Remote and Very Remote areas as in Major Cities. Rates for 20–29-year-old women in regional and remote areas were about 1.5 times those in Major Cities, and rates for women older than this were between 0.7 and 0.9 times those in Major Cities.

Nationally, most births (93%) were to women aged 20–39 years, with 5% to women under 20 years. However, the percentage of births to younger women increases with remoteness, and is particularly high in Very Remote areas, where 17% of all births were to women under 20 years.

Indigenous women had higher rates of fertility than non-Indigenous women, and were more likely to give birth when under 20 years. These observations help explain the results in remote areas, where Indigenous people constitute a large proportion of the population.

Background

Fertility impacts on health services and on poverty. Teenage fertility can have an adverse impact on life opportunities for parents and their children, and risks surrounding birth are greater for very young and older mothers.

Comparison of birth rates and access to obstetricians/gynaecologists may be pertinent to the health of mothers and babies, and access to birth control advice.

The accuracy of the Indigenous identifier prevents regional comparison of births for Indigenous and non-Indigenous women.

Detailed results

Table 2.3.4.1: Ratio of the number of observed births to the expected number if 1999–2001 Major Cities rates had occurred in each ASGC Remoteness Area, 1999–2001

Age of mother	MC	IR	OR	R	VR
15–19[a]	1.00	1.59	2.12	3.30	7.05
20–29	1.00	1.44	1.56	1.67	1.59
30–39	1.00	0.88	0.88	0.94	0.80
40–44[b]	1.00	0.73	0.72	0.87	0.86
Total	**1.00**	**1.03**	**1.14**	**1.35**	**1.47**

(a) The small number of births to mothers under 15 years have been included in this age group.

(b) The small number of births to mothers 45 years and over have been included in this age group.

Source: ABS births data, 1999–2001.

The total number of births presented here for the years 1999–2001 does not agree with the totals published by ABS (ABS 1999–2001). The difference (of around 550–700 births in each year) is due to births to women whose place of usual residence was overseas or undefined (pers. comm. Genevieve Heard, ABS).

In the period 1999–2001, women in Inner Regional, Outer Regional, Remote and Very Remote areas were, respectively, 1.03, 1.14 times, 1.35 times and 1.47 times as likely to give birth as their counterparts in Major Cities.

Women aged 15–19 years in Inner and Outer Regional areas were, respectively, 1.59 and 2.12 times as likely to give birth as those in Major Cities. Women in this age group in Remote and Very Remote areas were much more likely (3.30 and 7.05 times as likely) to give birth than those in Major Cities.

Women aged 20–29 in regional and remote areas were about 1.5 times as likely to give birth in 1999–2001 as their counterparts in Major Cities, and those aged 30 years or over were between 0.7 and 0.9 times as likely as their counterparts in Major Cities.

Table 2.3.4.2: Average annual number of births, by age of mother, by ASGC Remoteness Area, 1999–2001

Age of mother	MC	IR	OR	R	VR	Australia
15–19[(a)]	5,847	2,974	1,830	404	562	11,617
20–29	72,577	24,100	13,779	2,753	1,706	114,915
30–39	81,521	19,694	10,376	1,972	916	114,477
40–44[(b)]	4,832	1,115	543	104	49	6,642
Total	164,776	47,883	26,527	5,233	3,232	247,652

(a) The small number of births to mothers under 15 years have been included in this age group.

(b) The small number of births to mothers 45 years and over have been included in this age group.

Source: ABS births data, 1999–2001.

Most births (93%) occur in women aged 20–39, with 5% in women younger than 20 years (Table 2.3.4.2). In Very Remote areas, 17% of all births are to women under 20 years.

Age-specific birth rates (Table 2.3.4.3) mirror the ratios for observed and expected numbers of births (Table 2.3.4.1), but they also express the absolute rate of birth for each age group in each area.

Table 2.3.4.3: Age-specific birth rate, by ASGC Remoteness Area, 1999–2001

Age of mother	MC	IR	OR	R	VR	Australia
	Rate per 1,000 women					
15–19[(a)]	14	21	29	45	95	18
20–29	74	106	117	128	118	84
30–39	81	69	70	76	65	77
40–44[(b)]	10	7	7	9	9	9
Total (crude rate)	**57**	**60**	**66**	**76**	**81**	**59**

(a) The small number of births to mothers younger than 15 years have been included in this age group.

(b) The small number of births to mothers 45 years and over have been included in this age group.

Source: ABS births data, 1999–2001.

For the period 1998–2000, Indigenous fertility was estimated to be at least 2.14 babies per woman which compares with 1.73 babies for all Australian women. However, due to under-identification issues, the difference is likely to be greater (ABS & AIHW 2003).

During the period 1998–2000, 21.7% of Indigenous babies were born to women under 20 years, compared with 4.5% for non-Indigenous women (ABS & AIHW 2003). These previously published statistics help to explain the higher overall birth rates and higher proportions of babies born to younger women in remote (especially Very Remote) areas, where Indigenous people constitute a large proportion of the population.

2.3.5 Community safety

Summary of findings

The death rate due to interpersonal violence is used here as an indicator of the general level of violence in each area.

Annually in the period 1997–99, interpersonal violence was responsible for the deaths of 319 people (214 males and 105 females): 112 of these people had been living in areas outside Major Cities. Of these 319 deaths, 26 were of Indigenous people living in South Australia, Western Australia, the Northern Territory and Queensland.

Of the 6 average annual deaths of 0–4-year-olds from this cause outside Major Cities, 2 were of Indigenous children from South Australia, Western Australia, the Northern Territory and Queensland.

There were fewer (0.8 times as many deaths of males in Inner Regional areas) or similar numbers of deaths than expected due to interpersonal violence in regional areas. However, there were substantially more than expected (2.9 and 4–9 times as many) in Remote and Very Remote areas, although the actual numbers of deaths were relatively small.

There were about 6 and 11 times as many deaths of Indigenous males and females as expected from interpersonal violence.

For non-Indigenous people in most of the areas, death rates due to interpersonal violence were similar to the rate in Major Cities, but for males in Inner Regional areas the rate was 0.8 times the rate in Major Cities (that is, lower).

Annually, there were 9 'excess' deaths due to interpersonal violence outside Major Cities (10 fewer and 0, 6 and 13 'excess' deaths in the four areas). A substantial proportion of the 'excess' deaths were of Indigenous people.

Background

Homicide, including the deaths of young children, is an extreme indicator of community safety and function. This indicator is likely to be correlated to overall levels of violence and abuse within each community. High levels of violence also generate fear and reduce opportunities for social interaction, significantly reducing the quality of life.

National child protection data (which might otherwise provide a good overview of child physical abuse) suffers from a number of problems that are likely to invalidate comparison. These include different case definitions in each state, the unavailability of a geographical identifier in the national data set, a different probability of notification in more remote areas and issues relating to the identification of Indigenous children.

The use of rates of hospital separation due to neglect and injury from interpersonal violence has been considered as an alternative or supporting indicator. However, different admission policies between hospitals may affect the validity of analysis based on such data.

The 'place of occurrence' field would allow reporting for interpersonal violence at home and interpersonal violence in the community, but information on place of occurrence is available only for a proportion of records and so has not been used in this analysis.

The ICD-10 codes (X85–Y09, Y87.1, Y35–Y36, Y89.0 and Y89.1) used to define the data describe the killing of one person by another in an act of homicide (including situations in which the intent may have been to kill the person, and those where it may not).

Material in this indicator is largely taken from the 2003 AIHW report *Rural, Regional and Remote Health: A Study on Mortality* (AIHW 2003a).

Detailed results

Annually, there were 142, 33, 23, 7 and 9 deaths of males and 65, 18, 10, 5 and 7 deaths of females in Major Cities, Inner and Outer Regional, Remote and Very Remote areas (the five areas), respectively, as a result of interpersonal violence. Of these, 12, 3, 2, 1 and 1 were 0–4 years old.

There were fewer or similar numbers of deaths than expected due to interpersonal violence in regional areas, but substantially more than expected in Remote and Very Remote areas, although the actual numbers of deaths were relatively small (Table 2.3.5.1).

- There were 0.8 times as many deaths of males due to interpersonal violence as expected in Inner Regional areas, and similar numbers to that expected in Outer Regional areas. For females, there were about as many deaths as expected in these regional areas.
- In remote areas, there were more deaths than expected, with 4.1 times as many deaths of males in Very Remote areas, and 2.9 and 9.1 times as many deaths of females as expected in Remote and Very Remote areas, respectively.
- There were, respectively, about 6 and 11 times as many deaths as expected of Indigenous males and females due to interpersonal violence.
- In the period 1997–99, there were 0.7, 1.0, 1.4 and 3.5 times as many deaths of 0–4-year-old children as expected in the five areas, respectively, due to interpersonal violence. However, none of these ratios are significantly different from 1.0

In Major Cities, death rates for males and females tended to be relatively low, with rates highest for males between ages 25 and 44 years (3.5–4.5 per 100,000 per year). Rates were lower for females (maximum of 1.6 per 100,000 per year), the pattern roughly following that for males.

There were –8 (i.e. 8 fewer deaths than expected), 0, 3 and 7 'excess' deaths of males annually from interpersonal violence, and –2, 0, 3 and 7 'excess' deaths of females annually in the four areas outside Major Cities. Of the relatively small 'excess' that occurred in Remote and Very Remote areas, almost all were of people aged less than 50 years.

Indigenous population

In the period 1997–99, there were 26 deaths per year of Indigenous people (13 males and 13 females) as a result of interpersonal violence in South Australia, Western Australia, the Northern Territory and Queensland. There would also have been a number of deaths due to this cause in the other jurisdictions where identification is less reliable. Of these 26 deaths, there were 23 (11 males and 12 females) more than expected.

There were about 6 and 11 times as many deaths of Indigenous males and females as expected due to this cause (Table 2.3.5.2). For males, 55% of the 'excess' occurred among those aged 25–44 years, and about 20% each among those aged 15–24 and 45–64 years. For females, about 65% of the 'excess' was among those 25–44 years, about 20% among those aged 15–24 years and 10% among those aged 45–64 years. A little less than 10% of the 'excess' occurred in Indigenous children under 5 years. Overall, there were between 5 and 20 times as many deaths as expected of Indigenous males and females in individual age groups between 15 and 64 years.

Table 2.3.5.1: The ratio of observed deaths to those expected[(a)] as a result of interpersonal violence, by sex, 1997–99

	Male					Female				
		IR	OR	R	VR		IR	OR	R	VR
Age group (years)	MC rate	Standardised mortality ratio				MC rate	Standardised mortality ratio			
0–4	2	0.81	0.35	0.30	2.24	1	0.49	2.06	3.17	5.42
5–14	1	0.33	0.29	0.00	2.63	<1	2.74	1.33	0.00	0.00
15–24	2	1.17	1.12	2.02	***6.05**	2	0.81	0.64	3.18	4.31
25–44	4	***0.72**	0.92	1.62	***3.42**	1	1.01	1.03	***3.12**	***15.07**
45–64	2	0.77	1.21	2.56	***6.29**	1	1.09	0.68	2.10	***8.11**
65–74	1	1.09	1.88	0.62	0.00	1	0.32	0.84	6.66	0.00
75+	1	1.14	1.95	0.00	0.00	1	0.63	2.19	0.00	0.00
Total	. .	***0.80**	1.00	1.64	***4.06**	. .	0.91	1.02	***2.94**	***9.13**

* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).
(a) Expected deaths were calculated on the basis that Major Cities rates applied to the population in each ASGC Remoteness Area.

Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. Although the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.

Source: AIHW National Mortality Database.

Non-Indigenous population

There were 136, 31, 19, 4 and 3 deaths of non-Indigenous males per year and 64, 17, 6, 2 and 1 of non-Indigenous females in the five areas, respectively, as a result of interpersonal violence.

Death rates due to interpersonal violence were similar across most of the areas, but for males in Inner Regional areas the rate was 0.8 times the Major Cities rate (Table 2.3.5.2).

- For males there were 0.8 times as many deaths of non-Indigenous males as expected in Inner Regional areas, and about as many as expected in the other areas due to this cause.
- There were about as many deaths of non-Indigenous females as expected in each of the areas due to this cause.

Age-specific rates for non-Indigenous people living in Major Cities were similar to those for the total population living in Major Cities.

There were –8, –2, 1 and 2 'excess' deaths from interpersonal violence of non-Indigenous males annually, and –2, –3, 1 and 1 'excess' deaths of non-Indigenous females annually in the four areas outside Major Cities. There were fewer 'excess' deaths for most ages under 60 years in regional areas, with little or no 'excess' in the older age groups.

Table 2.3.5.2: The ratio of observed deaths to those expected[(a)] as a result of interpersonal violence, Indigenous and non-Indigenous people, 1997–99

	Male						Female					
		Non-Indigenous				Indig-enous		Non-Indigenous				Indig-enous
		IR	OR	R	VR			IR	OR	R	VR	
Age group (years)	MC rate	Standardised Mortality ratio					MC rate	Standardised Mortality ratio				
0–4	2	0.74	0.18	0.00	0.00	3.7	1	0.50	1.78	0.47	7.83	5.3
5–14	1	0.38	0.35	0.00	6.48	1.5	<1	2.78	0.00	0.00	0.00	6.7
15–24	2	1.25	1.02	2.13	2.68	***5.4**	2	0.77	0.22	0.01	0.00	***6.6**
25–44	3	***0.68**	0.79	0.68	1.94	***6.2**	1	1.03	0.63	1.93	2.06	***20.0**
45–64	2	0.74	1.17	2.67	2.24	***9.6**	1	1.10	0.52	1.02	3.94	***11.1**
65–74	1	1.10	1.90	0.64	0.00	0.0	1	0.32	0.85	6.95	0.00	0.0
75+	1	1.14	1.96	0.00	0.00	0.0	1	0.64	2.21	0.00	0.00	0.0
Total	. .	***0.79**	0.92	1.20	2.10	***5.6**	. .	0.91	0.71	1.39	2.40	***11.3**
0–64	. .	***0.76**	0.86	1.23	2.18	***5.7**	. .	0.99	0.61	1.10	2.59	***11.6**

* Significantly different from 1 (that is, rates are significantly different from those for non-Indigenous people in Major Cities).

(a) Expected deaths were calculated on the basis that Major Cities non-Indigenous rates applied to the non-Indigenous population in each ASGC Remoteness Area and to the Indigenous population.

Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates for non-Indigenous persons are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. Ratios for Indigenous people are for SA, WA, NT and Qld.
4. Although the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.
5. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution.

Source: AIHW National Mortality Database.

2.3.6 Risk taking

Summary of findings

Males in Inner and Outer Regional and remote (Remote and Very Remote) areas were, respectively, 1.04, 1.07 and 1.19 times as likely and females from these areas were, respectively, 0.83, 1.03 and 1.12 times as likely to report engaging in personally risky behaviour as their counterparts from Major Cities.

Males in Inner and Outer Regional, and remote (Remote and Very Remote) areas were, respectively, 1.29, 1.17 and 1.08 times as likely and females from these areas were, respectively, 1.36, 1.19 and 1.25 times as likely to report engaging in socially risky behaviour as their counterparts in Major Cities.

Personally risky behaviour is defined here as working, swimming, boating, driving or operating hazardous machinery in the past 12 months while intoxicated with alcohol or an illicit drug.

Socially risky behaviour is defined here as creating a public disturbance, damaging property, stealing or verbally or physically abusing someone in the past 12 months while intoxicated with alcohol or an illicit drug.

Background

Are people who live in regional and remote areas more likely to take health risks?

Risk-taking behaviour increases the likelihood of accident or of chronic disease. Understanding inter-regional differences in the prevalence of risk taking behaviour could be useful in developing strategies to reduce rates of accident or chronic disease in non-metropolitan areas.

Data presented here are from the 2001 AIHW National Drug Strategy Household Survey (NDSHS), which is the most comprehensive survey concerning licit and illicit drug use ever undertaken in Australia. Almost 27,000 people aged 14 years and over provided information on their drug use patterns, attitudes and behaviours, including their risk-taking behaviour. This survey asked respondents whether they had engaged in certain behaviours in the previous 12 months while intoxicated with alcohol or an illicit drug.

Respondents self-reported working, swimming, boating, driving or operating hazardous machinery in the past 12 months while intoxicated with alcohol or an illicit drug—primarily a risk to the person concerned (personally risky) although others may also be harmed. They also self-reported creating a public disturbance, damaging property, stealing or verbally or physically abusing someone in the past 12 months, while intoxicated with alcohol or an illicit drug—primarily a risk to others (socially risky) although not without some personal risk.

The sample was based on households, therefore homeless and institutionalised persons were not included in the survey. Previous surveys conducted in 1985, 1988, 1991, 1993, 1995 and 1998 were much smaller. Details of Indigenous status were not available, and so analysis has been restricted to the total population only.

Standard errors were not provided with the data; consequently it is not possible to comment on the statistical significance of the results. In the absence of standard errors, the reliability of any of the estimates, particularly those for remote areas, is unclear. Moreover, the estimate for remote areas is based on smaller numbers than the estimates for either the Inner or Outer Regional areas, and is consequently less reliable than in these other areas.

Crude percentages are presented as descriptive statistics, and age-standardised percentages can be used to compare the probability of engaging in risky behaviour in each area. The rate ratios compare the age-standardised percentages in each area with those in Major Cities. Age standardisation is by the direct method (see Methods section—page 302).

Detailed results

Table 2.3.6.1: Proportion of the population aged 14 years and over who undertook personally risky behaviour[(a)] while under the influence of alcohol or other drugs, 2001

	MC	IR	OR	R & VR	Total
			(per cent)		
Males					
14–19 years	21.0	21.5	20.1	28.8	21.5
20–29 years	43.6	48.3	46.6	56.5	45.7
30–39 years	31.7	35.2	39.4	36.7	33.4
40 years and over	16.8	15.4	16.1	17.2	16.5
Total	24.8	24.9	25.8	29.2	25.3
Age-standardised rate[(b)]	25.7	26.8	27.5	30.5	26.4
Rate ratio[(c)]	*1.00*	*1.04*	*1.07*	*1.19*	*1.03*
Females					
14–19 years	16.5	13.4	16.1	23.4	16.4
20–29 years	24.6	21.7	29.7	25.4	24.7
30–39 years	14.9	14.9	16.1	16.7	15.1
40 years and over	6.9	4.3	5.1	7.4	6.2
Total	12.5	9.6	11.8	14.7	12.0
Age-standardised rate[(b)]	13.2	11.0	13.6	14.8	12.9
Rate ratio[(c)]	*1.00*	*0.83*	*1.03*	*1.12*	*0.98*
Persons					
14–19 years	18.8	17.4	18.2	25.8	19.0
20–29 years	34.1	35.9	38.4	40.8	35.3
30–39 years	23.1	25.3	26.4	26.2	24.1
40 years and over	11.7	9.7	10.2	12.5	11.2
Total	18.6	17.2	18.5	21.9	18.5
Age-standardised rate[(b)]	19.4	19.1	20.1	22.6	19.6
Rate ratio[(c)]	*1.00*	*0.98*	*1.04*	*1.16*	*1.01*

(a) Personally risky behaviour includes one or more of the following behaviours in the past 12 months: went to work; went swimming; operated a boat; drove a motor vehicle; operated hazardous machinery.

(b) Rate has been directly age-standardised to the 1991 Australian population for the four age groups.

(c) Rate ratio in this table is the percentage in the area divided by the percentage in Major Cities.

Source: 2001 National Drug Strategy Household Survey.

In 2001, 25% of males and 12% of females aged 14 years and over had gone to work, gone swimming, operated a boat, driven a motor vehicle or operated hazardous machinery (referred to hereafter as 'personally risky behaviour') while under the influence of alcohol or other drugs during the previous 12 months.

Males in Inner and Outer Regional, and remote (Remote and Very Remote) areas were, respectively, 1.04, 1.07 and 1.19 times as likely and females from these areas were, respectively, 0.83, 1.03 and 1.12 times as likely to report engaging in personally risky behaviour as their counterparts from Major Cities. Standard errors for the data were not available, as noted previously, and it has not been possible to calculate the level of significance for these estimates.

Table 2.3.6.2: Proportion of the population aged 14 years and over who undertook socially risky behaviours[(a)] while under the influence of alcohol or other drugs, 2001

	MC	IR	OR	R & VR	Total
			(per cent)		
Males					
14–19 years	26.2	24.8	25.1	25.7	25.8
20–29 years	19.1	29.4	24.8	24.1	21.8
30–39 years	8.2	10.5	10.4	11.1	9.0
40 years and over	3.3	4.6	3.8	1.9	3.5
Total	9.7	11.7	10.8	10.0	10.2
Age-standardised rate[(b)]	10.2	13.2	11.9	11.0	11.0
Rate ratio[(c)]	*1.00*	*1.29*	*1.17*	*1.08*	*1.08*
Females					
14–19 years	16.8	23.6	21.4	17.3	18.6
20–29 years	9.9	13.6	11.5	13.0	10.9
30–39 years	3.4	5.6	4.3	5.9	4.1
40 years and over	1.4	1.2	1.2	1.6	1.3
Total	4.9	6.1	5.1	6.6	5.3
Age-standardised rate[(b)]	5.3	7.2	6.3	6.6	5.9
Rate ratio[(c)]	*1.00*	*1.36*	*1.19*	*1.25*	*1.11*
Persons					
14–19 years	21.7	24.2	23.3	21.0	22.3
20–29 years	14.5	22.1	18.4	18.5	16.4
30–39 years	5.7	8.1	7.0	8.4	6.5
40 years and over	2.3	2.9	2.4	1.7	2.4
Total	7.3	8.9	7.8	8.3	7.7
Age-standardised rate[(b)]	7.8	10.3	9.0	8.7	8.4
Rate ratio[(c)]	*1.00*	*1.32*	*1.15*	*1.12*	*1.08*

(a) Socially risky behaviour includes one or more of the following behaviours in the past 12 months: created a public disturbance or nuisance; caused damage to property; stole money, goods or property, verbally abused someone, physically abused someone.

(b) Rate has been directly age-standardised to the 1991 Australian population for the four age groups.

(c) Rate ratio in this table is the percentage in the area divided by the percentage in Major Cities.

Source: 2001 National Drug Strategy Household Survey.

For males, the greatest inter-regional differences occurred in the 20–29-year age group, followed by the 30–39-year age group; for females, the greatest inter-regional differences were evident in the 20–29-year age group.

In 2001, 10% of males and 5% of females aged 14 years and over had engaged in socially risky behaviour (specifically creating a public disturbance or nuisance, caused damage to property, stealing money, goods or property, verbally or physically abusing someone) while under the influence of alcohol or other drugs during the previous 12 months.

Males in Inner and Outer Regional, and remote (Remote and Very Remote) areas were, respectively, 1.29, 1.17 and 1.08 times as likely and females from these areas were, respectively, 1.36, 1.19 and 1.25 times as likely to report engaging in socially risky behaviour as their counterparts in Major Cities. Standard errors for the data were not available, and it has not been possible to calculate the level of significance for these estimates.

Males from the youngest age group were the most likely to engage in socially risky behaviour, but the greatest inter-regional differences occurred in the 20–29-year age group, followed by the 30–39-year age group. Females from the youngest age group were the most likely to engage in socially risky behaviour, and it was this age group that exhibited the greatest inter-regional differences, with those from Inner and Outer Regional areas being, respectively, 1.4 and 1.3 times as likely to engage in such behaviour. There were also substantial inter-regional differences in the percentage of 20–29 and 30–39-year-old females engaging in this behaviour.

2.3.7 Tenure

Summary of findings

In 2001, households in regional and Remote areas (40–42%) were about as likely to own their dwellings as households in Major Cities (40%) and those in Very Remote areas (31%) were less likely to own them.

Households in Inner Regional areas (28%), were about as likely to be purchasing their dwellings as those in Major Cities (27%), but those in Outer Regional (23%), Remote (17%) and Very Remote (8%) areas were less likely to be purchasing theirs.

Households in Inner Regional areas (26%) were slightly less likely to be renting than those in Major Cities (28%), and those in Outer Regional (29%), Remote (34%) and Very Remote (44%) areas were more likely to be doing so.

Indigenous households were less likely to own or be purchasing their dwelling, and more likely to be renting than non-Indigenous households. The likelihood of Indigenous households owning or purchasing their dwelling was about 40% in Major Cities and regional areas, decreasing to 27% and 10% in Remote and Very Remote areas. Correspondingly, the percentage renting increased from about 50% in Major Cities and Inner Regional areas to 80% in Very Remote areas.

About 40% of non-Indigenous households in each Remoteness area owned their own dwelling, the percentage purchasing decreased with remoteness outside Inner Regional areas, whereas the percentage renting correspondingly increased slightly.

Some households, particularly those in remote areas, did not state their tenure. However, this is unlikely to substantially alter the pattern described here, although it does make comparisons between censuses less certain.

Background

Home ownership provides families with a greater sense of control over their own lives and a greater sense of permanency. Renting can be a practical and economic alternative to purchasing, especially in regional or remote areas, where a new job may require relocating to a distant town.

Data from the 1996 and 2001 ABS Censuses have been used to describe the percentage of households in each tenure category (those who own outright, those still purchasing, those who rent, and those in 'other' categories) in each area:

- 'purchasing' includes houses still under mortgage and dwellings being purchased under a rent/buyback scheme
- 'owning' includes dwellings owned outright and those being occupied under a life-tenure scheme
- 'renting' includes dwellings rented or being occupied rent-free
- 'other' includes other tenure types
- 'not stated/not applicable'.

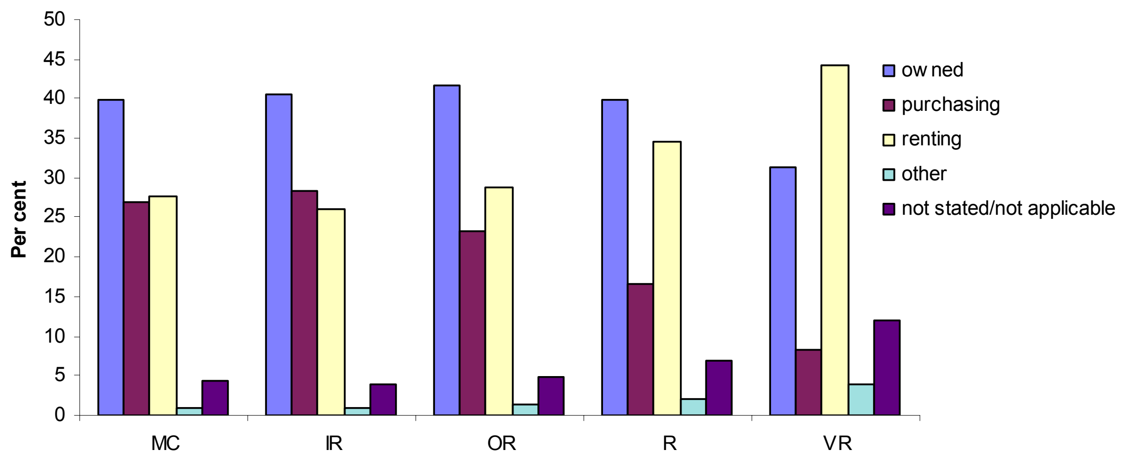
In 2001, 4%, 4%, 5%, 7% and 12% of dwellings in Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas, respectively, were classified as having a tenure type of 'not stated or not applicable', and in 1996, 2%, 2%, 2%, 3% and 8% of dwellings in those areas were so recorded. This uneven distribution of unstateds may affect inter-regional comparisons, especially those involving Very Remote areas. It is unclear whether the records 'not stated/not applicable' are evenly distributed between the three categories 'owned', 'being purchased' and 'rented'. These values have the potential to substantially affect the inter-regional or inter-census comparison of the percentage of dwellings owned, being purchased and rented, because the percentages of responses in this category are substantially higher in remote areas than in the other areas.

Between 1996 and 2001, the total number of dwellings increased by 7%, 8%, 6%, 13% and 24%, respectively, in Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas.

Because home ownership is strongly age-dependent (older people have had greater opportunity to purchase a dwelling), and to allow for the different age structures of the five Remoteness areas, percentages have been standardised by the age of the reference person in each dwelling using national age-specific percentages as the standard (direct age-standardisation—see statistical methods, page 302).

The crude percentage has also been calculated. The standardised percentage describes the probability of renting, owning and purchasing, and the crude percentage describes the actual percentage who are renting, owning and purchasing in an area.

Detailed results



Note: Percentages have been directly age-standardised to the to the national population of households in 2001. The age of the reference person in each household was used as the basis for standardisation.

Source: ABS Census 2001.

Figure 2.3.7.1: Percentage of occupied private dwellings in each ASGC Remoteness Area by tenure type, 2001

Data from the 1991 Census have not been used due to differences between the nature of occupancy classification used in the 1991 Census and the tenure type classification used in the 1996 and 2001 Censuses.

Crude percentages

Compared with Major Cities, a higher percentage of dwellings in regional areas and a lower percentage in Very Remote areas were owned; a lower percentage were owned in Remote areas (Table 2.3.7.1). Of dwellings in Major Cities, 41% were owned by the occupants, compared with 44% and 45% in Inner and Outer Regional areas, 36% in Remote areas and 26% in Very Remote areas.

A higher percentage of dwellings in remote areas were rented than in the other areas (29%, 26%, 30%, 41% and 52% of dwellings in the five areas).

Age-standardised percentages

Age-standardised percentages (Table 2.3.7.1 and Figure 2.3.7.1) show that households in regional and Remote areas (40–42%) were about as likely to own their dwellings as those in Major Cities (40%), and those in Very Remote areas (31%) were less likely to own them.

Households in Inner Regional areas (28%) were as likely as those in Major Cities (27%) to be purchasing their dwelling, whereas those in Outer Regional (23%), Remote (19%) and Very Remote (8%) areas were less likely.

Table 2.3.7.1: Number of occupied private dwellings in each ASGC Remoteness Area by tenure type, all persons, 2001

	MC	IR	OR	R	VR	Total
			(number)			
Owned	1,825,677	630,034	320,564	45,898	16,801	*2,838,974*
Being purchased	1,272,319	401,917	171,023	21,265	5,054	*1,871,578*
Rented	1,297,669	368,415	214,304	44,394	26,912	*1,951,694*
Other	43,061	14,214	9,815	2,601	2,292	*71,983*
Not stated/not applicable	202,982	57,997	37,277	8,493	7,113	*313,862*
Total	**4,438,726**	**1,414,580**	**715,706**	**114,158**	**51,059**	**6,734,229**
			(crude per cent)			
Owned	41	44	45	36	26	42
Being purchased	27	27	22	19	13	26
Rented	29	26	30	41	52	29
Other	1	1	1	1	2	1
Not stated/not applicable	2	2	2	3	8	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
			(age-standardised per cent)			
Owned	40	41	42	40	31	40
Being purchased	27	28	23	17	8	27
Rented	28	26	29	34	44	28
Other	1	1	1	2	4	1
Not stated/not applicable	4	4	5	7	12	4
Total	**100**	**100**	**100**	**100**	**100**	**100**

Note: Age-standardised percentages have been directly age-standardised to the national population of households in 2001. The age of the reference person in each household was used as the basis for standardisation.

Source: ABS Census 2001.

Table 2.3.7.2: Percentage of non-Indigenous and Indigenous households[(a)] in each ASGC Remoteness Area by tenure type, 2001

	MC	IR	OR	R	VR	Total
			(per cent)			
Non-Indigenous						
Owned	40	41	43	42	38	41
Being purchased	27	29	24	17	10	27
Rented	27	25	28	32	34	27
Other	1	1	1	2	4	1
Not stated/not applicable	4	4	5	7	13	4
Total	**100**	**100**	**100**	**100**	**100**	**100**
Indigenous						
Owned	21	23	20	16	7	19
Being purchased	20	20	16	11	3	17
Rented	52	51	56	62	80	56
Other	1	1	1	2	3	1
Not stated/not applicable	6	5	7	9	8	6
Total	**100**	**100**	**100**	**100**	**100**	**100**

(a) An Indigenous household is a family household where any family in the household is defined as an Indigenous family or a lone-person household where the lone person is of Aboriginal and/or Torres Strait Islander origin. An Indigenous family is one where either the reference person and/or spouse/partner is of Aboriginal and/or Torres Strait Islander origin.

Note: Age-standardised percentages have been directly age-standardised to the national population of households in 2001. The age of the reference person in each household was used as the basis for standardisation.

Source: ABS Census 2001.

Age-standardised rates also show that households in Inner Regional areas (26%) were slightly less likely to be renting their dwelling as those in Major Cities (28%), and those in Outer Regional (29%), Remote (34%) and Very Remote (44%) areas were more likely to be doing so.

The percentages of households owned, being purchased and rented are likely to be greater than described here, particularly in Remote and Very Remote areas, where, respectively, 7% and 12% of households did not state their tenure.

Because the proportions of households in Major Cities, Inner Regional and Outer Regional areas having unstated tenure are similar (Table 2.3.7.3), comparisons between Major Cities and regional areas are unlikely to be affected. Even though the percentage of records with unstated tenure are greater in remote areas, it is clear that the percentages owning, purchasing and renting their dwelling were, respectively, lower, lower and higher in these areas than in Major Cities.

In 2001, Indigenous people were less likely to own (19%) or be purchasing (17%) their dwelling and are more likely to be renting (56%) than their non-Indigenous counterparts (41%, 27% and 27%, respectively) (Table 2.3.7.2).

Regional differences were apparent for Indigenous people. In 2001, slightly more than 40% of Indigenous households in Major Cities and Inner Regional areas owned or were purchasing their dwelling, and slightly more than 50% were renting. The percentage that owned or were purchasing their dwelling was lower in Outer Regional (36%) and especially Remote (27%) and Very Remote (10%) areas. Uncertainty about the cases in which tenure was not stated is unlikely to fundamentally alter this inter-regional pattern.

Inter-regional differences for non-Indigenous households were less apparent than for Indigenous households. Non-Indigenous households were about as likely in each area to own their dwelling (about 40%). Of non-Indigenous households in Major Cites and Inner Regional areas, 27% and 29% were purchasing their dwelling, decreasing to 24% in Outer Regional, and 17% and 10% in Remote and Very Remote areas, respectively. The percentage renting was similar in Inner (25%) and Outer (28%) Regional areas to that in Major Cities (27%), and slightly higher in Remote (32%) and Very Remote (34%) areas. Uncertainty about the cases in which tenure was not stated means there is greater opportunity to alter these inter-regional comparisons than for the Indigenous population of households, although the broad pattern is unlikely to be fundamentally altered.

Table 2.3.7.3 compares tenure in 1996 with that in 2001. However, because of the relatively small differences between the years and the relatively large numbers of dwellings for which tenure is not stated or not applicable, inferences about changes over time should be made with caution.

Table 2.3.7.3: Percentage of households in each ASGC Remoteness Area by housing tenure type, 1996 and 2001

	MC	IR	OR	R	VR	Total
			(per cent)			
Owned						
1996	43	45	46	42	32	43
2001	40	41	42	40	31	40
Being purchased						
1996	26	27	22	17	11	26
2001	27	28	23	17	8	27
Rented						
1996	28	26	29	37	47	28
2001	28	26	29	34	44	28
Other						
1996	1	1	1	1	2	1
2001	1	1	1	2	4	1
Not stated/not applicable						
1996	2	2	2	3	8	2
2001	4	4	5	7	12	4
Total						
1996	100	100	100	100	100	100
2001	100	100	100	100	100	100

Note: Age-standardised percentages have been directly age-standardised to the national population of households in 2001. The age of the reference person in each household was used as the basis for standardisation.

Source: ABS Census 1996, 2001.

2.3.8 Crowding

Summary of findings

In 2001, households in Very Remote areas were much more likely to be crowded than those in less remote areas: 3%, 2%, 2%, 3% and 14% of households were crowded, respectively, in Major Cities, Inner and Outer Regional, Remote and Very Remote areas. The higher level of crowding in Very Remote areas largely reflects the high levels of crowding in Indigenous households.

In 2001, 8%, 8%, 11%, 17% and 40% of Indigenous households were crowded in the five areas, respectively. This compares with 3%, 2%, 2%, 2% and 3% of non-Indigenous households, respectively.

The percentage of households that are crowded has decreased between 1996 and 2001 in most areas, although there has been a slight increase in Very Remote areas as a result of an increase in the number of Indigenous households.

Background

The greater the degree of crowding in households, the greater risk of communicable diseases, accidents and poor mental health (Gray 2001).

This indicator describes levels of household crowding in each of the Remoteness Areas, for Indigenous and non-Indigenous people, in 1996 and 2001.

The data have been sourced from the 1996 and 2001 ABS Censuses.

The Canadian National Occupancy Standard has been used to define crowding (Gray 2001). This standard assesses the number of bedrooms required on the basis that:

- there should be no more than two persons per bedroom
- children under 5 years of different sexes may reasonably share a bedroom
- children 5 years or over of opposite sex should not share a bedroom
- children under 18 years and of the same sex may reasonably share a bedroom
- household members 18 years or over should have a separate bedroom, as should parents or couples.

On this basis, the algorithm used to calculate the number of bedrooms required for each household was:

The number of bedrooms required = ceiling of ((1×single adults) + (1×adult couples) + (children under 5/2) + (boys 5–17/2) + (girls 5–17/2)).

For each household, if the number of bedrooms was less than the number required, then the dwelling was defined as crowded.

The concept of crowding is complex, and may be influenced by time actually spent in the home, cultural differences and the condition of housing. Although data are presented using one single model across Australia, it can be argued that some groups may have different requirements or may use dwellings differently.

Detailed results

In 2001, about 2% of households in regional areas were crowded, compared with about 3% in Major Cities and Remote areas (Table 2.3.8.1 and Figure 2.3.8.1). This compares with 14% of households in Very Remote areas—almost entirely a consequence of crowding in Indigenous households.

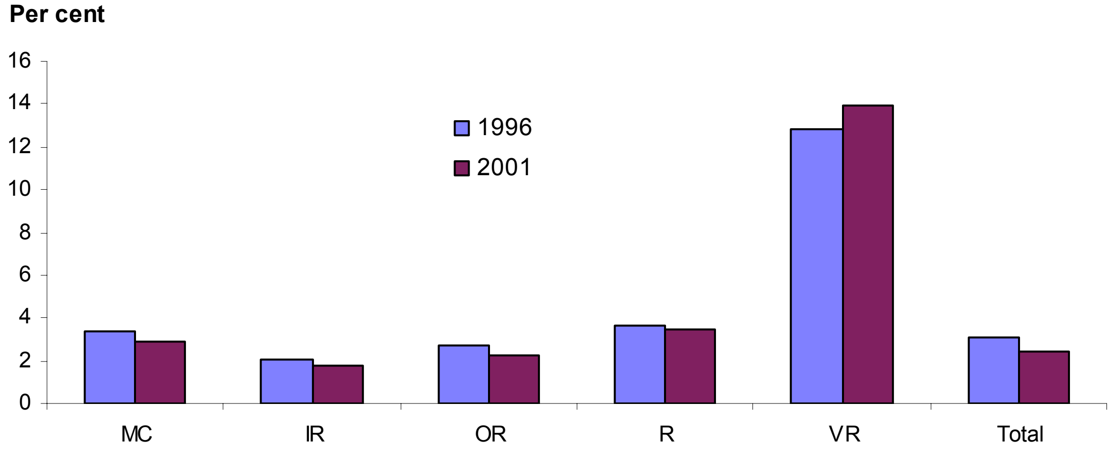
Table 2.3.8.1: Percentage of, Indigenous[(a)], non-Indigenous and total households that are crowded, ASGC Remoteness Area, 1996 and 2001

	MC	IR	OR	R	VR	Total
2001			(per cent)			
Indigenous household						
Crowded[(b)]	8	8	11	17	40	12
Just right	30	28	29	30	24	29
Under-occupied[(b)]	62	64	59	53	36	59
Total	100	100	100	100	100	100
Non-Indigenous						
Crowded	3	2	2	2	3	2
Just right	20	15	16	17	20	18
Under-occupied	78	83	82	81	77	79
Total	100	100	100	100	100	100
Total						
Crowded	3	2	2	3	14	3
Just right	20	15	16	18	21	18
Under-occupied	77	83	81	78	65	79
Total	100	100	100	100	100	100
1996						
Indigenous household						
Crowded	9	9	14	19	44	14
Just right	33	31	32	32	24	32
Under-occupied	57	61	54	50	33	55
Total	100	100	100	100	100	100
Non-Indigenous						
Crowded	3	2	2	2	3	3
Just right	22	18	19	20	23	21
Under-occupied	75	80	79	78	75	76
Total	100	100	100	100	100	100
Total						
Crowded	3	2	3	4	13	3
Just right	22	18	19	21	23	21
Under-occupied	74	80	78	75	64	76
Total	100	100	100	100	100	100

(a) An Indigenous household is a household where a family within the household contains a reference person or spouse who is of Aboriginal/Torres Strait Islander origin, or a lone-person household where the lone person is of Aboriginal/Torres Strait Islander origin.

(b) Crowding and under-occupancy have been defined using the following criteria. Each single adult requires one bedroom. An adult couple requires one bedroom. Two children under 5 years require one bedroom. Two children aged 5–17 years of the same sex require one bedroom. Two children aged 5–17 years of different sex require two bedrooms. Where the number of bedrooms meet these requirements the household is just right. Where the number of bedrooms exceed these requirements the household is under-occupied. Where the number of bedrooms are below these requirements the dwelling is crowded.

Source: ABS Census 1996, 2001.



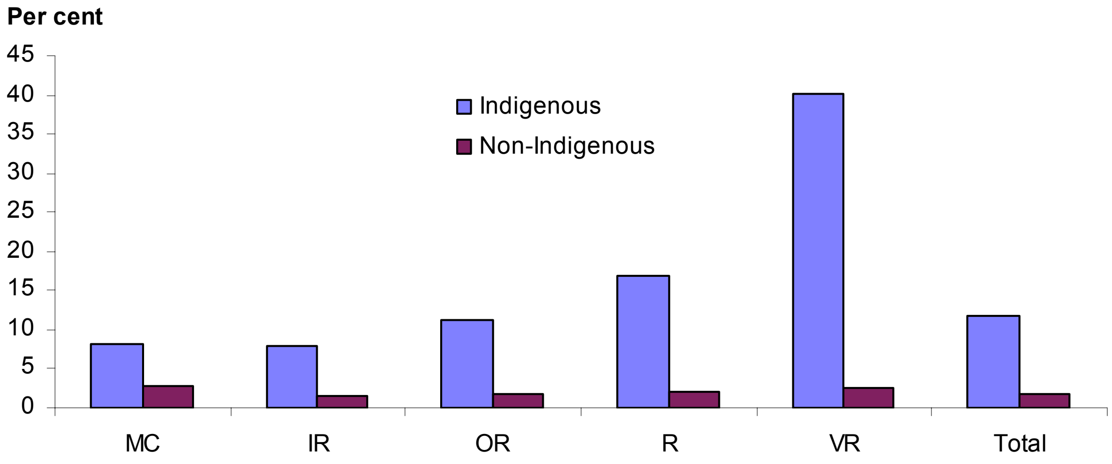
Note: Crowding has been defined using the following criteria. Each single adult requires one bedroom. An adult couple requires one bedroom. Two children under 5 years require one bedroom. Two children aged 5–17 years of the same sex require one bedroom. Two children aged 5–17 years of different sex require two bedrooms. Where the number of bedrooms is below these requirements then the household is crowded.

Source: ABS Census 1996, 2001.

Figure 2.3.8.1: Percentage of households that are crowded, 1996 and 2001

Overall, Indigenous households (12%) were more likely to be crowded than non-Indigenous households (2.5%) (Table 2.3.8.1 and Figure 2.3.8.2). However, while there was little inter-regional difference in the percentage of non-Indigenous households that were crowded, there were substantial inter-regional differences for Indigenous households. In 2001, 8% of Indigenous households in Major Cities and Inner Regional areas were crowded, increasing with remoteness to 11%, 17% and 40%, respectively, in Outer Regional, Remote and Very Remote areas.

The percentage of houses that were crowded was lower in 2001 than in 1996 (Table 2.3.8.1 and Figure 2.3.8.1). Overall, the percentage crowded decreased from 3.1% in 1996 to 2.7% in 2001; decreases were observed in all areas, except in Very Remote areas. In Very Remote areas there was a decrease in the percentage of both Indigenous and non-Indigenous households that were crowded. However, when the increased number of Indigenous households between 1996 and 2001 is factored in, the result was a slight increase in the overall percentage that were crowded.



Notes

1. Crowding has been defined using the following criteria. Each single adult requires one bedroom. An adult couple requires one bedroom. Two children under 5 years require one bedroom. Two children aged 5–17 years of the same sex require one bedroom. Two children aged 5–17 years of different sex require two bedrooms. Where the number of bedrooms is below these requirements then the household is crowded.
2. An Indigenous household is a household where a family within the household contains a reference person or spouse who is of Aboriginal/Torres Strait Islander origin, or a lone-person household where the lone-person is of Aboriginal/Torres Strait Islander origin.

Source: ABS Census 2001.

Figure 2.3.8.2: Percentage of Indigenous and non-Indigenous households that are crowded, 2001

2.3.9 Motor vehicles

Summary of findings

For non-Indigenous households in 2001, each motor vehicle, on average, was shared among 1.3 people of driving age. For Indigenous households there was less access: each motor vehicle was shared among 1.9 people.

For Indigenous households in Major Cities and regional areas, there were between 1.6 and 1.8 adults of driving age per motor vehicle; in Remote and Very Remote areas there were 2.2 and 4.7 adults of driving age per motor vehicle.

For non-Indigenous households in 2001, there were slightly fewer people sharing a motor vehicle in regional and remote areas than in Major Cities (i.e. access was better for those outside Major Cities than for those inside Major Cities).

Indigenous households overall (76%) were less likely to have a vehicle than non-Indigenous households (90%), and those in Remote (70%) and Very Remote (47%) areas were substantially less likely to have a vehicle than non-Indigenous households in any area.

Non-Indigenous households in regional (92%), Remote (93%) and Very Remote (90%) areas were more likely to have a vehicle than those in Major Cities (88%).

Access to private motor vehicles, as expressed both by the number of driving age adults sharing a motor vehicle and by the percentage of households having at least one car, has increased between 1991 and 2001, particularly for Indigenous people.

Background

For people who live in regional and remote areas, access to motor vehicles may be more important than for those who live in Major Cities. Public transport in regional and remote areas is either limited or non-existent, and access to work, goods, health care and other services may require people to travel large distances. For people in remote areas especially, poor access to a vehicle is likely to reduce their access to the wider range of job opportunities.

The basic data from which this indicator has been calculated are from the 1991, 1996 and 2001 ABS Censuses.

Access to motor vehicles has been examined in two ways in this indicator:

1. The ratio of the number of people of driving age and the number of motor vehicles in each household. This is a measure of mobility for individual adults.
2. The percentage of households with at least one vehicle. This is a measure of a basic level of access for people living in a household.

These measures of mobility do not take into account whether vehicles are operational.

Detailed results

For non-Indigenous households in 2001, each motor vehicle, on average, was shared among 1.3 people of driving age (Table 2.3.9.1). For Indigenous households there was less access: each motor vehicle was shared among 1.9 people.

For households in Inner Regional, Outer Regional and Remote areas, there were 1.2 adults of driving age sharing each motor vehicle, and in Very Remote areas there were 1.8 sharing each motor vehicle, compared with 1.4 in Major Cities.

This pattern is strongly influenced by levels of access in Indigenous and non-Indigenous households. For non-Indigenous households in regional and remote areas there were 1.1–1.2 adults of driving age sharing each vehicle, compared with 1.3 in Major Cities. For Indigenous households, there were 1.6–1.8 adults of driving age for each motor vehicle in Major Cities and regional areas, with 2.2 and 4.7 in Remote and Very remote areas, respectively.

These findings are similar to those for 1991 and 1996, although access has improved as ratios of adults to vehicles have tended to become lower over time.

Table 2.3.9.1: Ratio of persons aged 17 years and over in occupied private dwellings to vehicles, 1991, 1996 and 2001

	MC	IR	OR	R	VR	Total
2001						
Non-Indigenous households	1.3	1.2	1.1	1.1	1.2	1.3
Indigenous households	1.7	1.6	1.8	2.2	4.7	1.9
Total	1.4	1.2	1.2	1.2	1.8	1.3
1996						
Non-Indigenous households	1.4	1.2	1.2	1.2	1.3	1.3
Indigenous households	1.8	1.7	2.0	2.2	4.8	2.0
Total	1.4	1.3	1.2	1.2	1.7	1.3
1991						
Non-Indigenous households	1.4	1.3	1.3	1.2	1.3	1.4
Indigenous households	2.0	2.0	2.3	2.7	5.2	2.3
Total	1.4	1.3	1.3	1.3	1.7	1.4

Note: Indigenous households are households where a family within the household contains a reference person or spouse who is of Aboriginal/Torres Strait Islander origin, or a lone-person household where the lone person is of Aboriginal/Torres Strait Islander origin.

Source: ABS, 1991, 1996 and 2001 Census.

In 2001, 89% of households had at least one vehicle (88% in Major Cities, 91% in regional and Remote areas, and 79% in Very Remote areas) (Table 2.3.9.2).

Non-Indigenous households in regional (92%), Remote (93%) and Very Remote (90%) areas were more likely to have a vehicle than those in Major Cities (88%).

Indigenous households overall (76%), were less likely to have a vehicle than non-Indigenous households (90%). About 80% of Indigenous households in Major Cities and regional areas had a vehicle, whereas only 70% and 47% of Indigenous households in Remote and Very Remote areas, respectively, had a vehicle.

This is similar to the patterns in 1991 and 1996, although the percentage of households with a vehicle has increased each year, especially in Indigenous households. The percentage of non-

Indigenous households having a vehicle increased from 87% in 1991 to 90% in 2001, and that for Indigenous households increased from 67% to 76%.

Table 2.3.9.2: Proportion of households[(a)] with at least one vehicle, 1991, 1996 and 2001

	MC	IR	OR	R	VR	Total
			(per cent)			
Non-Indigenous households						
2001	88	92	92	93	90	90
1996	87	90	91	92	90	88
1991	86	90	90	92	89	87
Indigenous households						
2001	80	80	77	70	47	76
1996	74	77	71	67	46	71
1991	72	74	68	63	43	67
Total						
2001	88	91	91	91	79	89
1996	87	90	90	90	79	88
1991	86	90	90	90	79	87

Note: Indigenous households are households where a family within the household contains a reference person or spouse who is of Aboriginal/Torres Strait Islander origin, or a lone-person household where the lone person is of Aboriginal/Torres Strait Islander origin.

(a) Households here include only those having at least one person aged 17 years or over.

Source: ABS, 1991, 1996 and 2001 Census.

2.3.10 Cost of living

Summary of findings

Food prices increased with remoteness—on average in 1990, they rose by 1.57% for each unit increase in the ARIA index. This means that, on average, food prices in Very Remote areas (ARIA scores between 9.08 and 12.0), were between 14% and 19% higher than in the Australian capital cities.

Fuel prices increased with remoteness. For each unit increase in the ARIA index, the cost of a litre of unleaded petrol rose by 0.95 cents on average in 2001, and for diesel the rise was 0.56 cents. On average in Very Remote areas, unleaded petrol prices were between 8.6 and 11.4 cents per litre higher than in the Australian capital cities, and diesel prices were between 5.1 and 6.7 cents per litre higher.

The cost of housing decreased with remoteness. In 2001, rents were 0.75, 0.7 and 0.6 times as high in regional, Remote and Very Remote areas as they were in Major Cities, and mortgages were 0.8 times as high in regional and Remote areas, and 0.7 times in Very Remote areas as they were in Major Cities in 2001.

Background

This indicator provides an indication of the day-to-day costs experienced by people living in regional and remote areas compared with those in Major Cities.

It is not possible to make inter-regional comparisons of the cost of living using the consumer price index (CPI), because it is based on charges in the eight capital cities, allowing comparison between the years only (not between regions).

In lieu of an overall cost-of-living statistic, this indicator compares the prices of three basic commodities:

- food
- petrol
- housing.

The last national comparison of regional food prices was conducted by the ABS in 1991 (ABS 1991). Interregional differences had been shown to be consistently similar to those reported in previous surveys, and the survey was discontinued in 1991. Some states have recently assessed regional food prices (Queensland Health 2000, Rae et al. 2001), and these are used in support of the older (1991) findings.

Retail fuel prices are monitored by Informed Sources Pty Ltd for the Australian Competition and Consumer Commission (ACCC). Aggregated data provided by Informed Sources Pty Ltd are used here to compare the inter-regional price of unleaded petrol and diesel.

The cost of housing is approximated by weekly expenditure on rent and monthly expenditure on mortgages, as reported in the ABS Census.

Food and fuel prices are reported for towns. ARIA scores (between 0 and 12) have been allocated on the basis of the average ARIA score of the SLA to which each town belongs. This method is not exact, but likely to be highly representative.

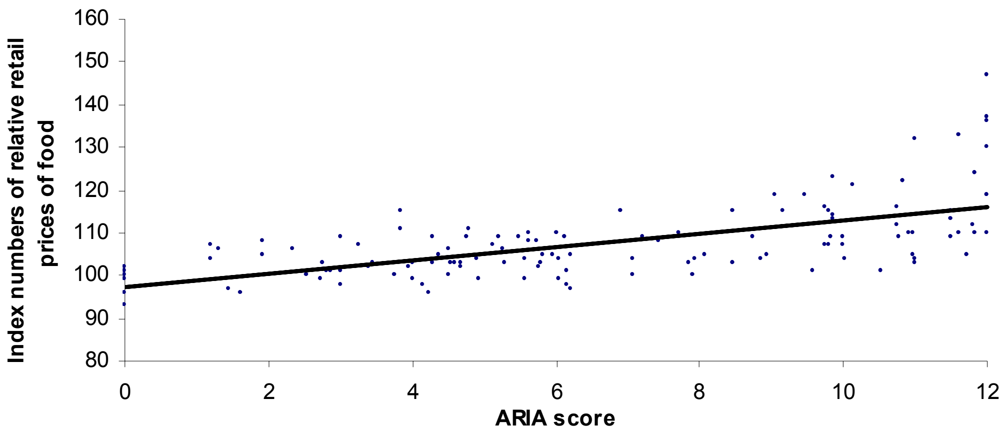
Cost-of-housing data has been 'bedroom standardised'. On the basis that the (rent or mortgage) cost of housing is related to the size of the dwelling, and on the basis that regional and remote households are, on average, larger than those in Major Cities, 'bedroom standardising' reduces the opportunity for error associated with the larger requirements of regional and remote area housing.

Detailed results

Relative retail prices of food

This indicator compares average differences in price levels between Australian cities and towns for a common basket of basic food items, as reported in the ABS standard report *Indexes of relative retail prices of food, Australian cities and towns 1984 to 1990* (ABS 1991). The information is presented in the form of spatial price index numbers which represent the deviation from 100, the base weighted average of eight capital cities.

The index measures relative retail prices of food in the various cities and towns as at 15 May 1990. This is the last year for which data are available before the national survey was discontinued. The index numbers are compiled using actual prices of over-the-counter purchases, including any items that may have been 'on special' at that time. The retail outlets selected in each location include supermarkets, butchers, confectioners, cafes, and mixed businesses, and were chosen to be representative of the outlets from which households purchase food items.



Note: The equation for the regression line is y=1.57 x +97.2. R^2 for the regression is 0.39.
Source: ABS 1991.

Figure 2.3.10.1: Index numbers of relative retail prices of food by ARIA score, 1990

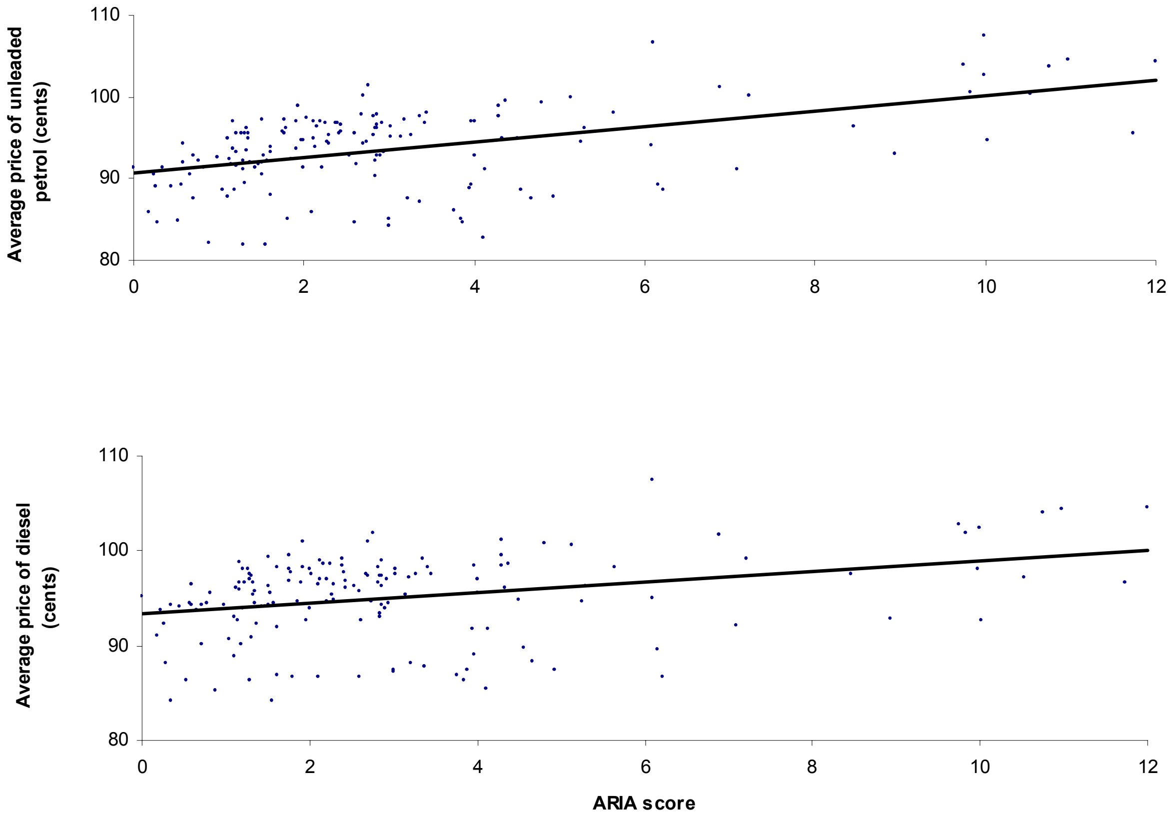
The surveyed items include dairy products, cereal products, meat and seafood, fruit and vegetables, soft drinks and confectionary and other foods such as coffee, eggs and baby food.

The difference between price levels in a particular town and price levels for the weighted average of the eight capital cities, expressed in percentage terms, is given directly by subtracting 100 from the town's index number. For example, an index number of 120 indicates a price level of 20% above that for the capital cities, and an index of 96 indicates a level 4% below the capital city average.

The ARIA scores for a range of locations from 0 in capital cities to 12 for very remote areas were plotted against the relative retail price index for 126 towns (Figure 2.3.10.1). Price indexes ranged from 93 in Adelaide to 147 on Lord Howe Island. ARIA remoteness score was found to account for 39% of the variance in food prices; other factors such as town size, relationship to main transport routes, competition and so on are also likely to affect prices.

Food prices rose by 1.57% for each unit increase in the ARIA index. This means that, on average, food prices in Very Remote areas (ARIA scores between 9.08 and 12.0) were between 14% and 19% higher than in the capital cities.

Fuel prices



Notes

1. For unleaded petrol, the equation for the regression line is y=0.95x+90.6. R^2 for the regression is 0.23.
2. For diesel, the equation for the regression line is y=0.56x+93.3. R^2 for the regression is 0.10.

Source: Informed Sources Pty Ltd.

Figure 2.3.10.2: Average fuel prices by ARIA score, 2001

The pattern across regions is in line with that found in recent studies conducted in Queensland and the Northern Territory. The 2000 Healthy Food Access Basket Survey (Queensland Health 2000) found that people in rural and remote areas in Queensland paid more for basic healthy food than those living in urban and metropolitan regions. Costs were much higher in Remote and Very Remote areas (31% higher in Very Remote areas of Queensland). In the Northern Territory survey, the cost of food was found to be much higher, particularly in remote Northern Territory communities, than in Southern Australian cities (Rae et al. 2001). These studies also showed that the variety of food decreased with remoteness.

This indicator compares average fuel prices between Australian cities and towns in the period from 1 January to 31 December 2001. The ARIA scores for 157 locations were plotted against the average retail price for unleaded petrol and for diesel. Prices of unleaded petrol ranged from 81.8 cents per litre in Warwick, Queensland, to 107.4 cents per litre in Norseman, Western Australia. Diesel prices ranged from 84.1 cents per litre in Gympie and in Ipswich, Queensland, to 107.5 cents in Alice Springs.

Figure 2.3.10.2 shows an overall trend for petrol and diesel prices to increase with remoteness score. Diesel prices increased less sharply than unleaded petrol. Remoteness, as measured by ARIA, accounted for 23% and 10% of the variation in petrol and diesel prices, respectively.

For each unit increase in the ARIA index, the cost of a litre of unleaded petrol rose by 0.95 cents, and for diesel the rise was 0.56 cents. This means that, on average, unleaded petrol prices in Very Remote areas were between 8.6 and 11.4 cents per litre higher than in the capital cities. On average, diesel prices in Very Remote areas were between 5.1 and 6.7 cents per litre higher than in the capital cities.

Cost of housing

Table 2.3.10.1 compares crude mean weekly rent paid by tenants in each of the ASGC Remoteness Areas as reported in the censuses of 1991, 1996 and 2001.

Table 2.3.10.1: Crude mean weekly rent, 1991, 1996 and 2001

	MC	IR	OR	R	VR	Total
			($)			
2001						
Indigenous households[(a)]	173	145	141	138	96	148
Non-Indigenous households	207	156	155	151	147	191
Total	206	155	154	148	122	189
1996						
Indigenous households[(a)]	123	105	95	84	51	103
Non-Indigenous households	152	118	114	97	84	140
Total	151	118	112	95	71	138
1991						
Indigenous households[(a)]	106	83	75	68	47	83
Non-Indigenous households	130	97	89	75	63	118
Total	130	96	88	74	58	113

(a) Indigenous households are households where a family within the household contains a reference person or spouse who is of Aboriginal/Torres Strait Islander origin, or a lone-person household where the lone person is of Aboriginal/Torres Strait Islander origin.

Note: Dollar amounts have not been adjusted for inflation.

Source: ABS 1991, 1996 and 2001 Census.

There are three major points to be made from Table 2.3.10.1.

- Rents decreased with remoteness in all three years. In 2001, rents in regional, Remote and Very Remote areas, were 0.75, 0.7, and 0.6 times those in Major Cities.
- Rents increased over time. The overall increase between 1991 and 2001 was 1.6 times in Major Cities and Inner Regional areas, 1.75 in Outer Regional areas, and at least twice in remote areas.
- In 2001, rent by non-Indigenous people was about 1.2, 1.1, 1.1 and 1.5 times as high in Major Cities, regional, Remote and Very Remote areas as it was for Indigenous people in those areas.

Table 2.3.10.2 compares crude mean monthly mortgage payments made by households that were purchasing their dwelling in each of the ASGC Remoteness Areas as reported in the censuses of 1991, 1996 and 2001.

Table 2.3.10.2: Crude mean monthly housing loan repayments, 1991, 1996 and 2001

	MC	IR	OR	R	VR	Total
			($)			
2001						
Indigenous households[(a)]	918	762	728	752	614	823
Non-Indigenous households	986	814	777	788	604	927
Total	985	813	775	786	605	926
1996						
Indigenous households[(a)]	804	694	653	630	532	729
Non-Indigenous households	868	728	709	681	485	821
Total	867	728	707	678	489	820
1991						
Indigenous households[(a)]	576	506	464	493	423	528
Non-Indigenous households	673	565	548	535	430	640
Total	672	564	546	533	430	639

(a) Indigenous households are households where a family within the household contains a reference person or spouse who is of Aboriginal/Torres Strait Islander origin, or a lone-person household where the lone person is of Aboriginal/Torres Strait Islander origin.

Note: Dollar amounts have not been adjusted for inflation.

Source: ABS 1991, 1996 and 2001 Census.

There are two major points to be made from Table 2.3.10.2.

- Mortgage payments generally decreased with remoteness. In 2001, in regional, Remote and Very Remote areas, they were, respectively, 0.8, 0.8 and 0.6 times what they were in Major Cities. Inter-regional comparisons were broadly similar in 1991 and 1996.
- Between 1991 and 2001, mortgage payments increased over 1.4 times in all areas.

2.4 Health behaviours

2.4.1 Tobacco

Summary of findings

In 2001, people in regional areas were more likely to smoke than those in Major Cities.

Males in Inner and Outer Regional areas were, respectively, equally as likely and 1.18 times as likely to smoke as those in Major Cities. Younger males in Outer Regional areas were 1.30 times as likely and older males in regional areas were 0.68 times as likely to smoke as those in Major Cities.

Females in Inner and Outer Regional areas were 1.15 and 1.27 times as likely to smoke as those in Major Cities. Younger females in regional areas were up to 1.31 times as likely to smoke as their counterparts in Major Cities.

In 2001, people in Major Cities were 0.94 times as likely to smoke as their counterparts in 1995. In regional areas, there was no significant difference (at the 95% level of confidence) between the proportions who smoked in 1995 and 2001. However, at a slightly lower level of confidence, females in regional areas were 1.12 times as likely to smoke in 2001 as their counterparts in 1995. The upshot is that the relative difference between Major Cities and regional areas appears to have become greater, particularly for females.

The pattern for the non-Indigenous population was similar to that for the total population (although the differences between Outer Regional areas and Major Cities were smaller).

Sample size issues prevent reporting of regional differences in Indigenous smoking rates. However, overall, 51% of Indigenous people smoked in 2001, compared with 24% for non-Indigenous Australians.

Background

Smoking is a major personal risk factor for poor health and premature death, and the greatest cause of drug-related deaths and hospitalisations in Australia (AIHW: Miller & Draper 2001). It is responsible for about 12% of the total burden of disease in males and 7% in females (AIHW: Mathers et al 1999) mainly through its effect in elevating rates of death from cardiovascular disease, respiratory diseases such as chronic obstructive pulmonary disease and several cancers (including lung cancer).

Results from the 1995 and 2001 ABS National Health Surveys (NHS) and the 2001 National Drug Strategy Household Survey (NDSHS) are presented to describe inter-regional differences in the prevalence of tobacco smoking.

The ratios and percentages presented for each age group are unadjusted, and those for the total population in each area have been age-standardised to largely remove any distorting effects of the different age structure of the various populations.

The basic data from which these indicators have been calculated were provided by the Australian Bureau of Statistics from the 1995 and 2001 NHS. About 54,000 and 26,000 people participated in these face-to-face surveys respectively (ABS 2002b and ABS 1997b). The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres.

Data presented here are from the 2001 AIHW National Drug Strategy Household Survey (NDSHS), which is the most comprehensive survey concerning licit and illicit drug use ever undertaken in Australia. Almost 27,000 people aged 14 years and over provided information on their drug use patterns, attitudes and behaviours. The sample was based on households, therefore homeless and institutionalised persons were not included in the survey. Previous surveys conducted in 1985, 1988, 1991, 1993, 1995 and 1998 were much smaller.

The results for the NHS have been indirectly age-standardised, include an estimate of statistical significance (at the 95% level) and use a simple ratio to compare the number of people who were found to smoke with the number that would have been expected if Major Cities rates had applied in each area. The results for the NDSHS have been directly age-standardised, do not include an estimate of statistical significance and are presented as percentages of the sample that were found to smoke in each area.

NHS results have also been presented for non-Indigenous people, because of the likely effect of higher overall smoking rates for Indigenous people and their greater representation in regional (especially Outer Regional) areas. The numbers of Indigenous people in the sample were too small for inter-regional comparisons.

Three sets of results have been provided in each of the two NHS tables:

- 2001 survey results, age-standardised to the rates in the 2001 Major Cities population
- 1995 survey results, age-standardised to the rates in the 1995 Major Cities population
- a comparison of rates in 2001 with those in 1995 (last row of the table). The presented values are 2001 survey results, age-standardised to the rates calculated for each area in 1995. A ratio greater than 1 indicates an increase between the years, and a ratio less than 1 indicates a decrease between the years.

For example (from Table 2.4.1.1), females in regional areas were:

- 1.19 times as likely to smoke in 2001 as those in Major Cities in that year
- 1.06 times as likely to smoke in 1995 as their counterparts in Major Cities in that year
- 1.06 times as likely to smoke in 2001 as their counterparts in regional areas in 1995 (however, this difference was not statistically significant at the 95% level of confidence).

In most cases, individual comparisons are not statistically significantly different (that is, it is not certain that the difference calculated from the sample, is indicative of the difference in the population). Significance, where found, is indicated in the table.

Detailed results

National Health Survey

In 2001, people in regional areas were 1.11 times as likely to smoke as people in Major Cities (Table 2.4.1.1).

Males in Inner Regional areas were equally as likely to smoke, but males in Outer Regional areas were 1.18 times as likely to smoke, as those in Major Cities. Males aged 25–44 years in Outer Regional areas were 1.30 times as likely to smoke, whereas those who were 65 years and over in regional areas generally were 0.68 times as likely to smoke as their counterparts in Major Cities.

Females in Inner and Outer Regional areas were, respectively, 1.15 times and 1.27 times as likely to smoke as those in Major Cities. There was no significant difference between rates in Major Cities and those in regional areas for women who were 45 years and over. However, 18–24 year-old-regional females were 1.31 times as likely to smoke and 25–44-year-old females in Inner and Outer Regional areas were, respectively, 1.20 and 1.31 times as likely to smoke as their counterparts in Major Cities.

Results from the 1995 National Health Survey showed that males and females in Outer Regional areas were, respectively, 1.10 and 1.07 times as likely to smoke as males and females in Major Cities. In a similar pattern to 2001, 25–44-year-old females in Outer Regional areas were (1.14 times) more likely to smoke than their Major Cities counterparts that year. Also in a similar pattern to 2001, rates were lower for older people in regional areas than in Major Cities, whereas rates for 18–24-year-old people in Outer Regional areas were (1.14 times) higher than in Major Cities.

In 2001, males and females in Major Cities were 0.95 and 0.93 times as likely to smoke as their Major Cities counterparts were in 1995. Conversely, in regional areas there was no statistically significant change at the 95% level of confidence, although rates for females in Outer Regional areas were 1.12 times what they were in 1995 (at a slightly lower level of confidence).

Rates for non-Indigenous people (Table 2.4.1.2) are similar to those for the total population (i.e. smoking was more prevalent outside Major Cities), although rates in Outer Regional areas were slightly lower than they were for the total population in those areas. For example, non-Indigenous males in Outer Regional areas were 1.15 times as likely to smoke as those in Major Cities in 2001 (compared with 1.18 times for all males in Outer Regional areas), and non-Indigenous females in Outer Regional areas were 1.20 times as likely to smoke (compared with 1.27 times for all females in Outer Regional areas).

The difference in Outer Regional areas between smoking rates for non-Indigenous and 'all' people can be substantial, although not necessarily statistically significant. However, the difference does reflect high smoking rates found among Indigenous people—51% of whom smoked in 2001, compared with 24% of non-Indigenous Australians (ABS & AIHW 2003)—and their greater representation in Outer Regional areas.

National Drug Strategy Household Survey

Results from the 2001 National Drug Strategy Household Survey (NDSHS) are presented in Table 2.4.1.3. With a sample of 26,744, this survey was a similar size to the ABS National Health Survey (sample size of 26,900), and assessed the smoking status of people down to the age of 14 years (AIHW 2002a).

Although there are some differences between the NHS and the NDSHS, they both show that people living in regional areas were more likely to smoke than those in Major Cities, and that the magnitude of the difference is approximately the same. The NHS shows that Inner Regional males were equally as likely to smoke and Outer Regional males were 1.18 times as likely to smoke as those in Major Cities. Results from NDSHS estimate that rates for males were 1.11 and 1.13 times higher in Inner and Outer Regional areas than in Major Cities. Similarly, the NHS estimates that females in Inner and Outer Regional areas were 1.15 and 1.27 times as likely to smoke as those in Major Cities, whereas results from the NDSHS estimate the rates to be 1.23 and 1.14 times those in Major Cities, respectively.

Results in remote areas are based on relatively small numbers, may be affected by sampling bias and are likely to have large confidence intervals. Therefore, they should be treated with caution.

Table 2.4.1.1: Ratio of the number of people who smoke to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
18–24	35	1.00	1.11	1.00	1.07	25	1.00	1.30	1.33	***1.31**	30	1.00	1.18	1.14	1.17
25–44	33	1.00	1.03	***1.30**	***1.13**	26	1.00	***1.20**	***1.31**	***1.24**	29	1.00	***1.11**	***1.30**	***1.18**
45–64	24	1.00	0.92	1.14	1.01	18	1.00	1.07	1.22	1.12	21	1.00	0.99	1.18	1.05
65+	12	1.00	***0.62**	0.78	***0.68**	7	1.00	0.85	1.08	0.92	9	1.00	***0.72**	0.90	***0.78**
Total	28	1.00	0.98	***1.18**	1.05	20	1.00	***1.15**	***1.27**	***1.19**	24	1.00	1.05	***1.22**	***1.11**
1995 (using 1995 MC rates as standard)															
18–24	35	1.00	0.93	1.19	1.02	31	1.00	1.08	1.08	1.08	33	1.00	1.00	***1.14**	1.05
25–44	34	1.00	0.96	1.10	1.02	26	1.00	1.12	1.17	***1.14**	30	1.00	1.03	***1.13**	***1.07**
45–64	25	1.00	0.95	1.09	1.01	18	1.00	1.01	0.91	0.97	22	1.00	0.98	1.02	1.00
65+	15	1.00	0.98	0.94	0.97	10	1.00	0.73	0.89	0.78	12	1.00	***0.86**	0.92	***0.88**
Total	29	1.00	0.96	***1.10**	1.01	22	1.00	1.05	***1.07**	***1.06**	25	1.00	1.00	***1.09**	***1.03**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	***0.95**	0.96	1.01	0.98	..	***0.93**	1.03	1.12	1.06	..	***0.94**	0.99	1.06	1.02

See notes on page 33.

Source: ABS National Health Survey, 1995 and 2001.

Table 2.4.1.2: Ratio of the number of non-Indigenous people who smoke to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
18–24	35	1.00	1.06	0.91	1.07	25	1.00	1.27	1.31	***1.31**	30	1.00	1.15	1.07	1.12
25–44	33	1.00	1.04	***1.27**	***1.13**	25	1.00	***1.22**	1.22	***1.24**	29	1.00	***1.12**	***1.25**	***1.17**
45–64	23	1.00	0.92	1.13	1.01	17	1.00	1.06	1.15	1.12	20	1.00	0.99	1.14	1.04
65+	12	1.00	***0.61**	0.75	***0.68**	7	1.00	0.85	1.08	0.92	9	1.00	***0.72**	0.88	***0.77**
Total	27	1.00	0.97	***1.15**	1.05	20	1.00	***1.15**	***1.20**	***1.19**	24	1.00	1.05	***1.17**	***1.09**
1995 (using 1995 MC rates as standard)															
18–24	35	1.00	0.93	1.18	1.01	31	1.00	1.07	1.00	1.05	33	1.00	0.99	1.10	1.03
25–44	34	1.00	0.95	1.05	0.99	25	1.00	1.12	1.11	1.12	30	1.00	1.02	***1.07**	***1.04**
45–64	25	1.00	0.96	1.07	1.00	18	1.00	1.02	0.87	0.97	22	1.00	0.98	0.99	0.99
65+	15	1.00	0.98	0.86	0.94	10	1.00	0.73	0.84	0.77	12	1.00	***0.87**	***0.85**	***0.86**
Total	29	1.00	***0.95**	1.06	0.99	22	1.00	1.05	1.01	1.03	25	1.00	0.99	1.04	1.01

See notes on page 33.

Source: ABS National Health Survey, 1995 and 2001.

Table 2.4.1.3: Daily smoking, percentage of the population aged 14 years and over, 2001

	MC	IR	OR	R & VR	Total
			(per cent)		
Males					
14–19 years	13.4	14.6	17.4	14.5	14.1
20–29 years	28.0	28.8	29.5	31.1	28.5
30–39 years	26.3	29.9	29.8	24.8	27.3
40 years and over	17.1	19.6	19.6	19.2	18.0
Total	20.3	22.5	22.9	21.9	21.1
Age-standardised rate[(a)]	20.7	22.9	23.4	22.2	21.5
Rate ratio[(b)]	**1.00**	**1.11**	**1.13**	**1.07**	**1.04**
Females					
14–19 years	16.3	14.6	20.0	15.4	16.2
20–29 years	22.1	27.7	26.4	26.0	23.7
30–39 years	23.1	32.2	22.6	17.7	24.3
40 years and over	13.5	16.2	16.0	14.5	14.4
Total	17.2	20.5	19.2	17.4	18.0
Age-standardised rate[(a)]	17.5	21.6	19.9	17.6	18.5
Rate ratio[(b)]	**1.00**	**1.23**	**1.14**	**1.01**	**1.06**
Persons					
14–19 years	14.8	14.6	18.7	15.0	15.1
20–29 years	25.1	28.3	28.0	28.5	26.1
30–39 years	24.7	31.0	25.8	21.1	25.7
40 years and over	15.2	17.8	17.7	16.9	16.1
Total	18.7	21.5	20.9	19.7	19.5
Age-standardised rate[(a)]	19.1	22.2	21.5	19.9	20.0
Rate ratio[(b)]	**1.00**	**1.16**	**1.13**	**1.04**	**1.05**

(a) Rate has been directly age-standardised to the 1991 Australian population.

(b) Rate ratio in this table is the percentage in the area divided by the percentage in Major Cities.

Note: Statistical significance has not been supplied, and is not presented.

Source: 2001 National Drug Strategy Household Survey.

2.4.2 Alcohol

Summary of findings

In 2001, males in regional areas were about 30% more likely to engage in risky or high-risk alcohol consumption (hereafter referred to as risky alcohol consumption) than males in Major Cities.

The situation for females is less clear. The ABS National Health Survey shows that females in regional areas were about as likely to engage in risky alcohol consumption as those in Major Cities. Against this, the AIHW National Drug Strategy Household Survey shows that females in regional areas were about 1.25 and 1.15 times as likely as those in Major Cities to drink alcohol in quantities sufficient to risk short- and long-term harm, respectively, to health.

Males and females in Major Cities were substantially (30%) more likely to engage in risky alcohol consumption in 2001 than they were in 1995. Males and females in regional areas also appear to have become more likely to engage in risky alcohol consumption by at least the same amount.

Prevalence of risky alcohol consumption for non-Indigenous people was almost identical to that for the total population and so data for non-Indigenous people have not been presented.

Overall, Indigenous people were equally as likely as non-Indigenous people to have risky alcohol consumption, but males aged between 25 and 55 years appeared to be more likely than their non-Indigenous counterparts to engage in risky alcohol consumption. Indigenous people were also more likely than non-Indigenous people to abstain from drinking alcohol.

Background

Alcohol is the second greatest cause of drug-related deaths and hospitalisations in Australia after smoking. In 1998, the number of deaths attributed to alcohol consumption was estimated to be 3,271 (AIHW: Miller & Draper 2001) and the number of hospital separations attributable to that cause was about 43,000 (AIHW: Ridolfo & Stevenson 2001). Alcohol affects health in a number of ways; for example, by increasing the risk of injury and liver cirrhosis.

Results from the 1995 and 2001 ABS National Health Surveys (NHS) and the 2001 National Drug Strategy Household Survey (NDSHS) are presented to describe inter-regional differences in the prevalence of risky alcohol consumption.

The definitions of harmful drinking in the NHS and the NDSHS are different:

- The NHS defines risky/high-risk alcohol consumption as the consumption of more than 25 ml of alcohol per day for females, and 50 ml per day for males, and is based on NHMRC risk levels for harm in the long-term.
- The NDSHS defines risk of harm in the short term (e.g. motor vehicle accidents) as at least one episode of alcohol consumption per week of 7 standard drinks or more for males, and 5 standard drinks or more for females. Risk of harm in the long term (e.g. liver cirrhosis) is defined as average weekly consumption of alcohol over the past 12 months that exceeded 29 standard drinks for males and 15 standard drinks for females.

The ratios and percentages presented for each age group are unadjusted, and those for the total population in each area have been age-standardised to remove any distorting effects of the different age structure of the various populations.

The results of the NHS have been indirectly age-standardised, include an estimate of statistical significance (at the 95% level) and use a simple ratio to compare the number of people who were found to engage in risky alcohol consumption with the number that would have been expected if Major Cities rates had applied in each area. The results for the NDSHS have been directly age-standardised, do not include an estimate of statistical significance and are presented as percentages of the sample that were found to engage in risky alcohol consumption in each area.

NHS results have not been presented for non-Indigenous people, because results for the non-Indigenous and the total populations in each area are almost identical. The number of Indigenous people in the sample was too small for inter-regional comparisons. Data for Indigenous people were not available from the NDSHS.

Three sets of results have been provided in Table 2.4.2.3:

- 2001 survey results, age-standardised to the rates in the 2001 Major Cities population
- 1995 survey results, age-standardised to the rates in the 1995 Major Cities population
- a comparison of rates in 2001 with those in 1995 (last row of the table). The presented values are 2001 survey results, age-standardised to the rates calculated for each area in 1995. A ratio greater than 1 indicates an increase between the years, and a ratio less than 1 indicates a decrease between the years.

For example (from Table 2.4.2.3), males in regional areas were:

- 1.33 times as likely in 2001 to engage in risky alcohol consumption as those in Major Cities in that year
- 1.31 times as likely in 1995 to engage in risky alcohol consumption as their counterparts in Major Cities in that year
- 1.31 times as likely in 2001 to engage in risky drinking as their counterparts had been in 1995.

In most cases, individual comparisons are not statistically significantly different (that is, it is not certain that the difference calculated from the sample is indicative of the difference in the population). Significance, where found, is indicated in the table.

Detailed results

National Health Survey

In 2001, 11% of Australians (13% of males and 8% of females) engaged in risky alcohol consumption (ABS 2002b).

Males in regional areas were 1.33 times as likely to engage in risky alcohol consumption as those in Major Cities (Table 2.4.2.3).

Males in regional areas who were 25-44-years-old were 1.52 times as likely to engage in risky alcohol consumption as those in Major Cities. Males from the other age groups also appeared more likely to engage in risky alcohol consumption, but the differences were not statistically significant at the 95% level.

Females in regional areas were about as likely to engage in risky alcohol consumption as those in Major Cities.

Results from the 1995 National Health Survey showed similar patterns: males in regional areas were 1.31 times as likely to engage in risky alcohol consumption (1.57 times as likely for 25–44-year-olds), and regional females were about as likely to engage in risky alcohol consumption as their counterparts in Major Cities.

The bottom row of Table 2.4.2.3 compares rates in 1995 and 2001, and shows that males and females in Major Cities were 1.26 and 1.36 times as likely, respectively, to engage in risky alcohol consumption in 2001 as in 1995. In 2001, males and females were 1.36 and 1.35 times in Inner Regional and 1.22 and 1.69 times in Outer Regional areas as likely to self-report risky alcohol consumption as in 1995. Previously published work (ABS 2002b) concluded that the percentage who had engaged in risky/high-risk alcohol consumption was the same in 2001 as it had been in 1989–90. From the work presented here, rates presumably declined between 1989–90 and 1995, then rose again between 1995 and 2001.

Results for non-Indigenous people have not been presented because they are almost identical to those for the total population.

Overall, similar proportions of the Indigenous (12%) and non-Indigenous (11%) populations consumed alcohol at risky levels (ABS 2002a). However, although young (18–24-year-old) and elderly (55 years and over) Indigenous males were less likely to consume alcohol at risky levels than non-Indigenous males, those who were between these two ages appeared more likely to consume at these levels (although the statistical significance of the difference was not stated). The age-specific pattern of risky alcohol consumption for Indigenous females was similar to that for non-Indigenous females (ABS 2002a).

Paradoxically, Indigenous adults were less likely (42%) than non-Indigenous adults (62%) to have consumed alcohol at all in the week prior to interview (ABS 2002a). Those who did, however, were more likely to do so at risky levels.

National Drug Strategy Household Survey

Results from the 2001 National Drug Strategy Household Survey (NDSHS) are presented in Tables 2.4.2.1 and 2.4.2.2. The NDSHS differentiates between risk in the short-term (e.g. increased risk of motor vehicle accidents, interpersonal violence) and long-term risk (e.g. liver cirrhosis, oesophageal cancer).

With a sample of 26,744, this survey was a similar size to the 1995 ABS National Health Survey (sample size of 26,900), and assessed the drinking status of people down to the age of 14 years (AIHW 2002a). People participating in the NDSHS were recruited and interviewed by telephone. It is possible that lower telephone ownership rates in more remote areas may have biased results towards wealthier people, whose pattern of alcohol consumption may be different from the rest of the population.

Because of differences in the definition of risky alcohol consumption, and because the NDSHS considers risk in both the short and long terms, results from the two surveys are not strictly comparable. However, they both show that people living in regional areas were more likely to have risky alcohol consumption than those in Major Cities, and they both show that (except for females) the magnitude of the difference is approximately the same.

Males in Inner and Outer Regional areas were 1.24 and 1.35 times as likely to consume alcohol at a level constituting a risk to health in the long term, and 1.20 and 1.41 times as likely to consume alcohol at a level constituting a short-term risk as those in Major Cities.

Females in Inner and Outer Regional areas were 1.13 and 1.15 times as likely to consume alcohol at a level constituting a risk in the long term, and 1.25 and 1.27 times as likely to consume alcohol at a level constituting a short-term risk as those in Major Cities.

NDSHS data were not accompanied by estimates of standard error, and so it has not been possible to determine whether regional differences are statistically significant or not.

However, irrespective of the differences in the definition(s) of risky drinking, NDSHS results for females do appear to be at odds with results for females from the National Health Survey, which showed little difference across the areas for females, or only slightly (and not significantly) elevated values in regional areas.

Results in remote areas are based on relatively small numbers, may be affected by sampling bias and are likely to have large confidence intervals. Therefore they should be treated with caution.

Table 2.4.2.1: Alcohol consumption: risk of harm in the short term[(a)], proportion of the population aged 14 years and over, and rate ratio, by ASGC Remoteness Area, 2001

	MC	IR	OR	R & VR	Total
			(per cent)		
Males					
14–19 years	10.8	6.3	9.3	7.0	9.6
20–29 years	14.0	15.8	18.5	13.2	14.6
30–39 years	6.8	10.1	10.1	7.3	7.8
40 years and over	5.7	8.0	9.9	5.4	6.6
Total	8.0	9.4	11.3	7.4	8.5
Age-standardised rate[(b)]	8.2	9.8	11.6	7.6	8.8
Rate ratio[(c)]	**1.00**	**1.20**	**1.41**	**0.93**	**1.07**
Females					
14–19 years	11.5	10.8	15.9	11.8	11.8
20–29 years	9.0	11.4	8.3	9.3	9.3
30–39 years	3.9	5.8	8.2	6.2	4.8
40 years and over	2.6	3.7	3.0	3.9	2.9
Total	4.9	5.9	5.9	6.4	5.3
Age-standardised rate[(b)]	5.2	6.5	6.6	6.4	5.7
Rate ratio[(c)]	**1.00**	**1.25**	**1.27**	**1.23**	**1.10**
Persons					
14–19 years	11.1	8.6	12.5	9.7	10.7
20–29 years	11.5	13.8	13.6	11.2	12.0
30–39 years	5.3	8.0	9.0	6.7	6.3
40 years and over	4.1	5.8	6.2	4.7	4.7
Total	6.4	7.7	8.5	6.9	6.9
Age-standardised rate[(b)]	6.7	8.2	9.0	7.0	7.2
Rate ratio[(c)]	**1.00**	**1.22**	**1.34**	**1.04**	**1.07**

(a) Risk of harm in the short term is defined as at least one episode of alcohol consumption per week that exceeded NHMRC risk thresholds. The thresholds are 7 or more standard drinks for males and 5 or more standard drinks for females.

(b) Rate has been directly age-standardised to the 1991 Australian population for the four age groups.

(c) Rate ratio in this table is the percentage in the area divided by the percentage in Major Cities.

Source: 2001 AIHW National Drug Strategy Household Survey.

Table 2.4.2.2: Alcohol consumption: risk of harm in the long term[(a)], proportion of the population aged 14 years and over, and rate ratio, by ASGC Remoteness Area, 2001

	MC	IR	OR	R & VR	Total
			(per cent)		
Males					
14–19 years	9.7	5.8	9.7	7.5	8.9
20–29 years	13.2	16.9	21.1	12.3	14.5
30–39 years	8.0	10.9	11.3	7.1	8.8
40 years and over	8.7	11.6	11.0	11.0	9.7
Total	9.5	11.7	12.6	10.2	10.2
Age-standardised rate[(b)]	9.6	11.9	13.0	10.1	10.4
Rate ratio[(c)]	**1.00**	**1.24**	**1.35**	**1.05**	**1.08**
Females					
14–19 years	13.0	14.2	21.7	20.6	14.6
20–29 years	15.0	14.5	15.9	13.8	14.9
30–39 years	8.2	8.5	9.9	11.1	8.6
40 years and over	6.5	8.7	6.2	7.1	7.0
Total	9.0	10.1	9.7	10.9	9.4
Age-standardised rate[(b)]	9.3	10.5	10.7	10.9	9.8
Rate ratio[(c)]	**1.00**	**1.13**	**1.15**	**1.17**	**1.05**
Persons					
14–19 years	11.3	10.1	15.5	14.9	11.7
20–29 years	14.1	15.8	18.6	13.1	14.7
30–39 years	8.1	9.7	10.5	9.2	8.7
40 years and over	7.6	10.1	8.4	9.1	8.3
Total	9.2	10.9	11.1	10.5	9.8
Age-standardised rate[(b)]	9.5	11.2	11.7	10.6	10.1
Rate ratio[(c)]	**1.00**	**1.18**	**1.23**	**1.12**	**1.06**

(a) Risk of harm in the long term is defined as average weekly consumption of alcohol over the past 12 months that exceeded NHMRC risk thresholds. The thresholds are 29 or more standard drinks for males and 15 or more standard drinks for females.

(b) Rate has been directly age-standardised to the 1991 Australian population for the four age groups.

(c) Rate ratio in this table is the percentage in the area divided by the percentage in Major Cities.

Source: 2001 AIHW National Drug Strategy Household Survey.

Table 2.4.2.3: Ratio of the number of people who have risky/high-risk alcohol consumption to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
18–24	13	1.00	1.46	1.05	1.33	8	1.00	1.11	1.12	1.12	11	1.00	1.33	1.08	1.25
25–44	12	1.00	***1.36**	***1.78**	***1.52**	9	1.00	0.86	1.30	1.03	10	1.00	1.14	***1.58**	***1.31**
45–64	14	1.00	1.18	1.11	1.15	10	1.00	1.12	0.70	0.98	12	1.00	1.16	0.96	1.08
65+	7	1.00	1.36	1.27	1.33	5	1.00	1.49	1.49	1.49	6	1.00	1.42	1.37	***1.40**
Total	12	1.00	***1.30**	***1.39**	***1.33**	8	1.00	1.06	1.09	1.07	10	1.00	***1.20**	***1.27**	***1.22**
1995 (using 1995 MC rates as standard)															
18–24	10	1.00	1.25	1.05	1.17	7	1.00	1.54	1.57	1.55	9	1.00	***1.36**	***1.25**	***1.32**
25–44	10	1.00	***1.46**	***1.74**	***1.57**	6	1.00	1.09	1.12	1.10	8	1.00	***1.33**	***1.52**	***1.40**
45–64	10	1.00	1.02	1.38	1.17	7	1.00	1.10	***0.48**	0.86	8	1.00	1.05	1.05	1.05
65+	7	1.00	0.87	0.83	0.86	6	1.00	0.65	0.70	***0.67**	6	1.00	***0.76**	***0.76**	***0.76**
Total	10	1.00	***1.22**	***1.45**	***1.31**	6	1.00	1.06	0.91	1.00	8	1.00	***1.16**	***1.24**	***1.19**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	***1.26**	***1.36**	***1.22**	***1.31**	..	***1.36**	***1.35**	***1.69**	***1.45**	..	***1.30**	***1.36**	***1.35**	***1.36**

See notes on page 33.

Source: ABS National Health Survey, 1995 and 2001.

2.4.3 Illicit drugs

Summary of findings

In 2001, people in Inner Regional areas appeared to be equally as likely to have recently used cannabis as their counterparts in Major Cities. People in Outer Regional areas appeared to be 1.08 times as likely (i.e. more likely) as their counterparts in Major Cities. The situation for people in remote areas is less clear.

People in regional and remote areas appeared less likely than those in Major Cities to have recently used illicit drugs other than cannabis. Males in Inner and Outer Regional and remote areas, were 0.75, 0.98 and 0.78 times as likely, respectively, to have recently used other illicit drugs than were their counterparts in Major Cities. Corresponding figures for females were 0.76, 0.90 and 0.85, also indicating lower likelihoods of using illicit drugs other than cannabis than their counterparts in Major Cities.

Background

Illicit drugs described here exclude tobacco and alcohol, but include cannabis, prescription drugs used for non-medical purposes, hallucinogens, amphetamines, opiates including heroin and methadone, ecstasy, cocaine and inhalants.

Data presented here are from the 2001 AIHW National Drug Strategy Household Survey (NDSHS), which is the most comprehensive survey concerning licit and illicit drug use ever undertaken in Australia (AIHW 2002a). Almost 27,000 people aged 14 years and over provided information on their drug use patterns, attitudes and behaviours. The sample was based on households, therefore homeless and institutionalised persons were not included in the survey. Previous surveys conducted in 1985, 1988, 1991, 1993, 1995 and 1998 were much smaller.

Details of Indigenous status were not available, and so analysis has been restricted to the total population only.

Standard errors were not provided with the data; consequently it is not possible to comment on the statistical significance of the results.

The estimate for remote areas is based on smaller numbers than the estimates for either the Inner or Outer Regional areas, and is consequently less reliable. In the absence of standard errors, the reliability of any of the estimates, particularly in remote areas, is unclear.

Detailed results

Cannabis

In 2001, 14% of people aged 14 years and over had used cannabis during the previous 12 months (Table 2.4.3.1). Males (17%) were more likely to have used cannabis during the previous 12 months than females (11%).

Males in Inner and Outer Regional areas appeared to be 1.06 and 1.10 times as likely to have used cannabis recently as those in Major Cities. Females in Inner and Outer Regional areas appeared to be 0.89 and 1.08 times as likely as those in Major Cities.

The net effect of these two patterns was that there were similar proportions of recent cannabis use by people in Major Cities and Inner Regional areas, but people in Outer Regional areas were 1.08 times as likely.

Table 2.4.3.1: Recent use of cannabis[(a)], proportion of the population aged 14 years and over, by ASGC Remoteness Area, 2001

	MC	IR	OR	R & VR	Total
			(per cent)		
Males					
14–19 years	26.8	26.9	26.9	23.0	26.6
20–29 years	34.8	35.7	34.7	37.2	35.1
30–39 years	20.2	21.8	21.8	21.6	20.8
40 years and over	5.1	6.1	7.7	3.1	5.4
Total	15.8	15.9	16.9	14.8	15.8
Age-standardised rate[(b)]	16.7	17.7	18.3	16.1	17.0
Rate ratio[(c)]	**1.00**	**1.06**	**1.10**	**0.96**	**1.02**
Females					
14–19 years	22.2	21.9	27.1	22.8	22.6
20–29 years	24.8	16.9	22.5	23.2	23.2
30–39 years	11.2	12.2	12.9	14.3	11.7
40 years and over	2.6	3.0	3.4	4.2	2.8
Total	10.2	8.7	10.2	12.2	10.0
Age-standardised rate[(b)]	11.1	9.9	12.0	12.3	11.1
Rate ratio[(c)]	**1.00**	**0.89**	**1.08**	**1.11**	**1.00**
Persons					
14–19 years	24.6	24.3	27.0	22.9	24.6
20–29 years	29.8	26.9	28.7	30.1	29.3
30–39 years	15.6	17.1	16.9	17.7	16.1
40 years and over	3.8	4.5	5.4	3.6	4.1
Total	12.9	12.3	13.4	13.5	12.9
Age-standardised rate[(b)]	13.9	13.9	15.0	14.1	14.0
Rate ratio[(c)]	**1.00**	**1.00**	**1.08**	**1.01**	**1.01**

(a) Recent cannabis use is defined as use in the previous 12 months.

(b) Rate has been directly age-standardised to the 1991 Australian population.

(c) Rate ratio in this table is the percentage in the area divided by the percentage in Major Cities.

Source: 2001 AIHW National Drug Strategy Household Survey.

Other illicit drugs

In 2001, 9% of people aged 14 years and over had used illicit drugs other than cannabis during the previous 12 months (Table 2.4.3.2). Males (10%) were more likely to have used other drugs recently than females (8%).

Males in Inner and Outer Regional areas appeared to be 0.76 and 0.86 times as likely to have used other illicit drugs recently as those in Major Cities.

Females in Inner and Outer Regional areas appeared to be 0.75 and 0.98 times as likely to have used other illicit drugs recently as those in Major Cities.

Males and females in remote areas also appeared to be less likely to have used other illicit drugs recently than their counterparts in Major Cities.

Table 2.4.3.2: Recent use of any illicit drug[(a)] other than cannabis, proportion of the population aged 14 years and over, by Remoteness Area, 2001

	MC	IR	OR	R & VR	Total
			(per cent)		
Males					
14–19 years	11.7	7.2	5.4	10.2	10.2
20–29 years	23.4	17.6	17.2	24.9	21.9
30–39 years	10.8	6.2	8.7	11.5	9.8
40 years and over	4.0	4.5	6.0	1.9	4.1
Total	9.6	7.1	8.3	8.7	8.9
Age-standardised rate[(b)]	10.2	7.8	8.8	9.5	9.6
Rate ratio[(c)]	**1.00**	**0.76**	**0.86**	**0.93**	**0.94**
Females					
14–19 years	13.3	11.2	14.7	12.2	12.9
20–29 years	17.5	10.5	14.4	13.1	15.8
30–39 years	7.5	4.5	5.0	5.3	6.5
40 years and over	3.2	3.6	4.8	2.3	3.4
Total	7.6	5.5	7.1	6.2	7.0
Age-standardised rate[(b)]	8.1	6.1	7.9	6.3	7.7
Rate ratio[(c)]	**1.00**	**0.75**	**0.98**	**0.78**	**0.95**
Persons					
14–19 years	12.5	9.2	9.8	11.3	11.5
20–29 years	20.4	14.3	15.8	19.0	18.9
30–39 years	9.1	5.4	6.6	8.2	8.1
40 years and over	3.6	4.0	5.4	2.1	3.8
Total	8.6	6.3	7.7	7.5	8.0
Age-standardised rate[(b)]	9.2	7.0	8.3	7.8	8.6
Rate ratio[(c)]	**1.00**	**0.76**	**0.90**	**0.85**	**0.93**

(a) Recent illicit drug use is defined as use in the previous 12 months.

(b) Rate has been directly age-standardised to the 1991 Australian population.

(c) Rate ratio in this table is the percentage in the area divided by the percentage in Major Cities.

Source: 2001 AIHW National Drug Strategy Household Survey.

2.4.4 Physical inactivity

Summary of findings

In 2001, people in Inner and Outer Regional areas were as likely and 1.13 times as likely, respectively, to be sedentary as those in Major Cities.

Sedentary is defined here as doing no physical activity for exercise, recreation or fitness. This definition excludes other physical activity (e.g. work and active transport).

This pattern is broadly reflective of the pattern in 1995. The percentage of the Major Cities population who were sedentary decreased between 1995 (33%) and 2001 (30%). This difference was clear for males and females in Major Cities and males in regional areas, but changes to the rates for females in regional areas were less clear.

In 2001, 43% of Indigenous people in non-remote areas were sedentary, compared with 30% of non-Indigenous people; it is unclear what percentage of Indigenous people in remote areas were sedentary. The inter-regional comparisons for non-Indigenous people were very similar to those for the total population.

Background

Physical inactivity is the second largest contributor, after smoking, to the burden of disease in Australia (AIHW: Mathers et al. 1999).

Details of sedentary levels of physical activity are available from the 1995 and 2001 ABS National Health Surveys (NHS), and from the 1998 AIHW Physical Activity Survey. The ABS data relate to physical activity for exercise, recreation or fitness, and exclude other forms of activity. The AIHW Physical Activity Survey includes a wider range of physical activity (e.g. work and active transport).

The basic data from which these indicators have been calculated were provided by the Australian Bureau of Statistics from the 1995 and 2001 ABS NHS. About 54,000 and 26,000 people participated in these face-to-face surveys, respectively. The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres. The Indigenous supplement to the NHS collected details of physical activity in non-remote areas, but not in remote areas.

The 'physical activity' definition used in the 1998 Physical Activity Survey is more recent than the definition used in the NHS. This is a preferred definition because it includes details of physical activity that are part of day-to-day living (pers. comm.. Tim Armstrong, AIHW). However, the Physical Activity Survey was conducted by phone, was a smaller survey, and had limited representation of rural and remote areas, reducing its value for analyses in this report.

Three sets of results have been provided in Table 2.4.4.1:

- 2001 survey results, age-standardised to the rates in the 2001 Major Cities population
- 1995 survey results, age-standardised to the rates in the 1995 Major Cities population
- a comparison of rates in 2001 with those in 1995 (last row of the table). The presented values are 2001 survey results, age-standardised to the rates calculated for each area in 1995. A ratio greater than 1 indicates an increase between the years, and a ratio less than 1 indicates a decrease between the years.

For example (from Table 2.4.4.1), males in regional areas were:

- 1.09 times as likely to be sedentary in 2001 as those in Major Cities in that year
- 1.10 times as likely to be sedentary in 1995 as their counterparts in Major Cities in that year
- 0.89 times as likely to be sedentary in 2001 as their counterparts in regional areas in 1995.

In most cases, individual comparisons are not statistically significantly different (that is, it is not certain that the difference calculated from the sample is indicative of the difference in the population). Significance, where found, is indicated in the table.

Detailed results

Nationally in 2001, 31% of males and 32% of females were classified as sedentary; that is, they engaged in no exercise for recreation, sport or fitness (ABS 2002b).

In 2001, people in Inner and Outer Regional areas were as likely and 1.13 times as likely, respectively, to be sedentary as those in Major Cities.

- Males in Outer Regional areas were 1.15 times as likely to be sedentary as those in Major Cities.
- Females in regional areas were no more likely to be sedentary than those in Major Cities (at the 95% level of confidence), but at a slightly lower level of statistical significance, females in Outer Regional areas were 1.11 times as likely to be sedentary as those in Major Cities.

In 1995, males in Inner and Outer Regional areas were, respectively, 1.08 and 1.15 times as likely to be sedentary as those in Major Cities. Females in Inner and Outer Regional areas were, respectively, 0.95 times as likely, and equally as likely to be sedentary as those in Major Cities.

When the analyses are repeated for non-Indigenous people, the inter-regional patterns remained identical in Inner Regional areas and very similar in Outer Regional areas (with the likelihood of being sedentary slightly, but not significantly, lower than for the total population).

In 2001, 43% of Indigenous people in non-remote areas were sedentary, compared with 30% of non-Indigenous people. Overall, 27% of non-remote Indigenous people and 40% of non-Indigenous people had a low exercise level (as opposed to being sedentary) (ABS 2002a).

People were less likely to be sedentary in 2001 than they had been in 1995. In 2001, males and females in Major Cities were each about 0.9 times as likely to be sedentary as their counterparts had been in 1995 (33% of all people in Major Cities were sedentary in 1995, compared with 30% in 2001). Males in Inner and Outer Regional areas were also about 0.9 times as likely to be sedentary in 2001 as they had been in 1995. Females in Inner Regional areas were also about 0.9 times as likely to be sedentary as they had been in 1995, and for females in Outer Regional areas there was no clear change.

Table 2.4.4.1: Ratio of the number of people who were sedentary[(a)] to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
15–24	18	1.00	1.24	1.07	1.18	26	1.00	0.78	1.04	0.87	22	1.00	0.98	1.05	1.00
25–44	30	1.00	0.95	1.12	1.02	29	1.00	0.92	1.08	0.98	30	1.00	0.93	1.10	1.00
45–64	32	1.00	1.07	1.20	1.12	31	1.00	1.00	1.08	1.03	31	1.00	1.04	1.14	1.08
65+	34	1.00	1.14	1.12	1.13	45	1.00	1.06	1.22	1.11	40	1.00	1.09	1.18	***1.12**
Total	29	1.00	1.06	***1.15**	***1.09**	32	1.00	0.96	1.11	1.01	30	1.00	1.01	***1.13**	***1.05**
1995 (using 1995 MC rates as standard)															
15–24	21	1.00	1.02	1.07	1.04	26	1.00	0.83	1.04	0.91	24	1.00	***0.92**	1.05	0.97
25–44	32	1.00	1.08	1.08	1.08	33	1.00	0.96	0.93	0.95	33	1.00	1.02	1.01	1.01
45–64	37	1.00	1.05	1.18	1.10	37	1.00	0.89	0.95	0.92	37	1.00	0.97	***1.07**	1.01
65+	36	1.00	1.15	1.35	***1.21**	46	1.00	1.07	1.25	1.13	42	1.00	***1.10**	***1.29**	***1.16**
Total	32	1.00	***1.08**	***1.15**	***1.10**	35	1.00	***0.95**	1.02	0.98	33	1.00	1.01	***1.08**	***1.04**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	***0.90**	***0.88**	***0.89**	***0.89**	..	***0.91**	***0.93**	0.99	0.95	..	***0.91**	***0.91**	***0.94**	***0.92**

(a) Sedentary is defined as doing no physical activity for exercise, recreation or fitness.

See notes on page 33.

Source: ABS National Health Survey, 1995 and 2001.

2.4.5 Nutrition

Summary of findings

In 2001, males and females in Inner and Outer Regional areas were 1.6 times as likely as their Major Cities counterparts to eat four or more serves of vegetables per day.

People in Inner Regional areas were about as likely, and those in Outer Regional areas were 0.94 times as likely as those in Major Cities to eat two or more serves of fruit per day.

The pattern for non-Indigenous people was almost identical to that for the total population.

Indigenous people overall were slightly less likely to have a medium to high fruit intake, but slightly more likely to have a medium to high vegetable intake than non-Indigenous people.

Background

The *Australian Guide to Healthy Eating* (Smith et al. 1998) recommends that adolescents aged 12–18 years consume at least four serves (300 grams) and adults five serves (375 grams) of vegetables and legumes each day. It also recommends consumption of at least two serves of fruit per day (300 grams).

The basic data from which these indicators have been calculated were from the 1995 and 2001 ABS National Health Surveys (NHS). About 54,000 and 26,000 people participated in these face-to-face surveys, respectively (ABS 2002b and ABS 1997b). The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres. The Indigenous supplement to the NHS collected details about nutrition in non-remote areas, but not in remote areas.

In the 2001 NHS, respondents calculated their serves with the aid of a prompt card with colour photographs of six different single serves of vegetables. Additional information was also provided to interviewers to help them assist respondents in their calculation of serves. In 1995 respondents were only able to read the questions in the self-enumerated Food Frequency Questionnaire. Comparisons between 1995 and 2001 may therefore be subject to inconsistencies and are not included in this report.

Percentages in this report are of those who ate four or more serves of vegetables per day. Data on those who ate five or more serves per day (the recommended minimum daily intake for adults) were not available from the surveys.

Detailed results

In 2001, 26% of males and 33% of females ate four or more serves of vegetables per day, and 47% of males and 58% of females ate two or more serves of fruit per day (ABS 2002b).

In 2001, people in regional areas were 1.58 times as likely to eat at least four serves of vegetables per day as their Major Cities counterparts (Table 2.4.5.1). This substantially higher likelihood in Inner and Outer Regional areas was apparent for males and females in essentially all age groups.

Males and females in Inner Regional areas were about as likely to consume two or more serves of fruit per day as those in Major Cities (Table 2.4.5.1). People in Outer Regional areas were 0.94 times as likely to have eaten two or more serves of fruit per day.

The inter-regional pattern for non-Indigenous people was almost identical to that for the total population.

In 2001, 42% of Indigenous people in non-remote areas were estimated to have a medium to high fruit intake, compared with 52% of the non-Indigenous population (ABS 2002a). In the same year, 83% of Indigenous people in non-remote areas were estimated to have a medium to high vegetable intake, compared with 77% of non-Indigenous people.

Table 2.4.5.1: Ratio of the number of people who ate 'sufficient' fruit and vegetables to the number expected, 2001

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
'Sufficient' vegetables (4–5 serves or more per day)															
15–24	19	1.00	1.25	1.45	***1.31**	20	1.00	***1.42**	***1.63**	***1.50**	20	1.00	***1.34**	***1.54**	***1.40**
25–44	19	1.00	***1.66**	***1.89**	***1.75**	26	1.00	***1.53**	***1.53**	***1.53**	23	1.00	***1.59**	***1.68**	***1.62**
45–64	26	1.00	***1.52**	***1.52**	***1.52**	34	1.00	***1.52**	***1.29**	***1.45**	30	1.00	***1.52**	***1.40**	***1.48**
65+	30	1.00	***1.36**	***1.53**	***1.42**	34	1.00	***1.50**	***1.38**	***1.46**	32	1.00	***1.44**	***1.45**	***1.44**
Total	22	1.00	***1.49**	***1.63**	***1.54**	29	1.00	***1.51**	***1.43**	***1.48**	26	1.00	***1.50**	***1.52**	***1.51**
'Sufficient' fruit (2 serves or more per day)															
15–24	42	1.00	1.07	0.86	1.00	50	1.00	1.04	0.95	1.01	46	1.00	1.06	0.91	1.01
25–44	42	1.00	0.95	0.93	0.94	52	1.00	1.03	0.94	0.99	47	1.00	1.00	0.94	0.97
45–64	50	1.00	***0.88**	1.02	0.93	65	1.00	1.03	0.91	0.99	58	1.00	0.97	0.96	0.97
65+	62	1.00	1.02	0.85	0.96	68	1.00	1.05	1.00	1.03	65	1.00	1.03	0.93	1.00
Total	47	1.00	0.96	0.94	***0.95**	58	1.00	1.04	0.95	1.00	53	1.00	1.00	***0.94**	0.98

See notes on page 33.

Source: ABS National Health Survey, 2001.

2.5 Person-related factors

2.5.3 Overweight/obesity

Summary of findings

In 2001, males and females in regional areas were, respectively, 1.05 and 1.10 times as likely to be overweight or obese as their Major Cities counterparts.

The inter-regional patterns for non-Indigenous males and females were similar to those for the total population.

In 1995, males in regional areas were as likely to be overweight/obese as those in Major Cities, and females in regional areas were 1.12 times as likely as their Major Cities counterparts to be overweight/obese.

In 2001, males and females from Major Cities were 1.10 and 1.18 times as likely to be overweight/obese as their Major Cities counterparts were in 1995. People in regional areas were also more likely to be overweight in 2001 compared with 1995—males and females were, respectively, 1.14 and 1.16 times as likely to be overweight/obese as their regional counterparts were in 1995.

About 50% of non-Indigenous people were overweight, compared with about 60% of Indigenous people.

Background

People who are overweight or obese are more likely to suffer from ill health — diseases and conditions such as coronary heart disease, heart failure, stroke, type 2 diabetes, osteoarthritis and sleep apnoea (AIHW 2001b).

The basic data from which rates of overweight and obesity have been calculated were provided by the Australian Bureau of Statistics from the 1995 and 2001 ABS National Health Surveys (NHS). About 54,000 and 26,000 people participated in these face-to-face surveys, respectively. The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres.

Classification of a respondent as overweight or obese is based on a measure of body mass index (BMI), itself calculated from self-reported height and weight. BMI is equal to weight (kg) divided by the square of height (m). Overweight is defined as a BMI of 25.0 to less than 30.0, and obese is defined as a BMI of 30.0 or greater.

Self-reported height and weight tend to be, respectively, higher and lower than height and weight measured with instruments (Flood et al. 2000). BMI calculations based on self-assessed height and weight are therefore likely to be lower than their actual values, consequently reported estimates of the percentage of the population who are overweight/obese will be lower than the actual value. This problem does not affect inter-regional comparisons of the observed and expected numbers of people who are overweight/obese (unless there is a relationship between the accuracy of self-assessment and remoteness).

In the 2001 NHS, 6% of men and 10% of women declined to give their height and/or weight. Details of these have not been provided in data obtained from ABS, and so crude percentages of the population who are overweight/obese cannot be provided. However, if we can validly assume that the probability of 'no response' to the question was the same in each area, then this problem does not affect the calculation of ratios of observed to expected numbers of people who are overweight/obese (again, unless there is a relationship between response and remoteness).

Three sets of results have been provided in Table 2.5.3.1:

- 2001 survey results, age-standardised to the rates in the 2001 Major Cities population
- 1995 survey results, age-standardised to the rates in the 1995 Major Cities population
- a comparison of rates in 2001 with those in 1995 (last row of the table). The presented values are 2001 survey results, age-standardised to the rates calculated for each area in 1995. A ratio greater than 1 indicates an increase between the years, and a ratio less than 1 indicates a decrease between the years.

For example (from Table 2.5.3.1), females in regional areas were:

- 1.10 times as likely to be overweight or obese in 2001 as those in Major Cities in that year
- 1.12 times as likely to be overweight or obese in 1995 as their counterparts in Major Cities in that year
- 1.16 times as likely to be overweight or obese in 2001 as their counterparts in regional areas in 1995.

In most cases, individual comparisons are not statistically significantly different (that is, it is not certain that the difference calculated from the sample is indicative of the difference in the population). Significance, where found, is indicated in the table.

Detailed results

Results published by ABS indicate that in 2001, 58% of males and 42% of females were overweight or obese, which is substantially higher than in 1995, when 52% of males and 37% of females were overweight or obese (ABS 2002b).

People living in regional areas were more likely to be overweight/obese than their Major Cities counterparts.

In 2001, males in regional areas were 1.05 times as likely to be overweight/obese and females were 1.10 times as likely to be as their counterparts in Major Cities.

Females in regional areas aged 15–24 years were 1.34 times as likely and those aged 45–64 years were 1.12 times as likely to be overweight/obese as similar aged females in Major Cities.

In 1995, males in regional areas were about as likely to be overweight/obese as those in Major Cities. Females in regional areas were 1.12 times as likely to be overweight/obese as those in Major Cities, and those aged 25–44 years old in regional areas were 1.19 times as likely to be overweight/obese as those in Major Cities.

Between 1995 and 2001, the likelihood of males and females being overweight/obese increased across all areas. In 2001, males and females in Major Cities were 1.10 and 1.18 times as likely to be overweight/obese as their Major Cities counterparts were in 1995. In 2001, males and females in regional areas were, respectively, 1.14 and 1.16 times as likely to be overweight/obese as their regional counterparts were in 1995.

The pattern for non-Indigenous people was almost identical to that for the total population.

Indigenous people appeared more likely to be overweight or obese (60% in both remote and non-remote areas in 2001) than non-Indigenous people (50%) (ABS 2002a).

Table 2.5.3.1: Ratio of the number of people overweight/obese to the number expected, 2001 and 1995

	Males					Females					Persons				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
2001 (using 2001 MC rates as standard)															
15-24	..	1.00	0.84	1.00	0.89	..	1.00	1.23	1.54	***1.34**	..	1.00	0.97	1.18	1.04
25-44	..	1.00	1.06	***1.15**	***1.10**	..	1.00	1.09	1.06	1.08	..	1.00	1.07	***1.11**	***1.09**
45-64	..	1.00	1.03	1.05	1.04	..	1.00	***1.13**	1.12	***1.12**	..	1.00	1.07	1.08	***1.08**
65+	..	1.00	1.05	0.99	1.03	..	1.00	1.02	0.97	1.00	..	1.00	1.03	0.98	1.01
Total	..	1.00	1.03	1.08	***1.05**	..	1.00	***1.10**	1.09	***1.10**	..	1.00	***1.06**	***1.08**	***1.07**
1995 (using 1995 MC rates as standard)															
15-24	..	1.00	0.99	1.05	1.01	..	1.00	0.99	1.37	1.13	..	1.00	0.99	***1.17**	1.05
25-44	..	1.00	1.06	1.03	1.05	..	1.00	***1.19**	1.21	***1.19**	..	1.00	***1.10**	***1.09**	***1.10**
45-64	..	1.00	0.98	1.03	1.00	..	1.00	1.08	1.17	1.11	..	1.00	1.02	***1.08**	***1.04**
65+	..	1.00	0.91	1.07	0.96	..	1.00	0.95	1.08	0.99	..	1.00	***0.93**	1.08	0.98
Total	..	1.00	1.00	1.04	1.01	..	1.00	***1.08**	***1.18**	***1.12**	..	1.00	***1.03**	***1.09**	***1.06**
Comparison of rates in 2001 with those in 1995 (using 1995 rates in each area as the standard)															
Total	..	***1.10**	***1.14**	***1.13**	***1.14**	..	***1.18**	***1.20**	1.09	***1.16**	..	***1.13**	***1.16**	***1.12**	***1.15**

See notes on page 33.

Note: Reporting of percentages is not possible, as information about the number who did not state their height and/or weight was excluded from data provided by ABS.

Source: ABS National Health Survey, 1995 and 2001.

3 Health system performance

3.1 Effectiveness

3.1.1 Immunisation

Summary of findings

In 2002, 91%, 92%, 90%, 89% and 90% of 12–15-month-old children were fully immunised in, respectively, Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas.

In 2002, 88%, 90%, 90%, 88% and 85% of 24–27-month-old children were fully immunised in the five areas respectively.

Immunisation rates for the two age groups combined were higher in Inner Regional areas (91%) than in Major Cities (89%), but lower in Outer Regional (90%), Remote (88%) and Very Remote (87%) areas.

Background

Prior to universal immunisation, notifications of childhood infectious diseases like measles, diphtheria and pertussis were dramatically more numerous than they are today (NCIRS 2000). The number of deaths caused by diphtheria, pertussis, tetanus, poliomyelitis and measles 'declined by more than 99% from 9,300 in the decade 1926–1935 to 64 in the decade 1986–1995' (NCIRS 2000) as a consequence of the development and introduction of vaccines. Immunisation protects the individual child who has been immunised and also those around through 'herd immunity' (it is more difficult for the disease to spread when it meets so many immune children) (NHMRC 2000).

Because of the success of immunisation in drastically reducing the incidence of childhood infectious diseases, few parents have seen these diseases. Now, some parents fear the rare side-effects of the immunisation more than the diseases themselves, and may consequently choose not to have their children immunised.

A successful immunisation program requires large numbers of children to be vaccinated with viable vaccines. The viability of the vaccine is affected by the quality of the cold chain (the storage and handling of the vaccines at the correct temperature during transport and prior to vaccination). The further vaccines are transported in remote locations, the greater the care that needs to be taken with the cold chain and the greater the opportunity for vaccines to be less viable when administered.

Data have been provided by the Australian Childhood Immunisation Register (ACIR), maintained by the Health Insurance Commission (HIC). Children are enrolled on the database at birth and their immunisation status is updated with data provided by the doctor or nurse providing the immunisation. ACIR data are considered to be accurate. Percentages reported here are simple percentages.

Detailed results

Table 3.1.1.1: Immunisation rates as at 30 June 2002 by ASGC Remoteness Area

	MC	IR	OR	R	VR	Total
Age of child			(per cent)			
12–15 months	90.6	92.0	89.8	88.8	90.3	90.8
24–27 months	88.1	90.3	89.7	88.0	84.5	88.7
12–27 months	**89.3**	**91.2**	**89.8**	**88.4**	**87.3**	**89.7**

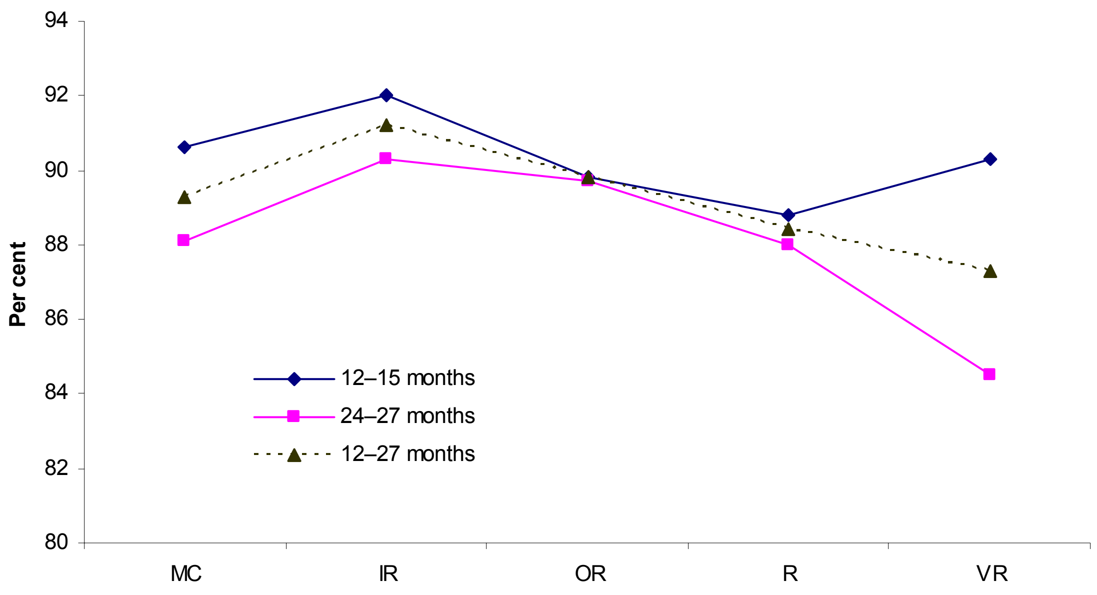
Source: Australian Childhood Immunisation Register.

As at 30 June 2002, 91% of children aged 12–15 months and 89% of children aged 24–27 months had been fully immunised against vaccine preventable diseases (Table 3.1.1.1 and Figure 3.1.1.1).

For children aged 12–15 months there was little difference between Remoteness Areas, with 91%, 92%, 90%, 89% and 90% fully immunised in Major Cities, Inner Regional, Outer Regional, Remote and Very Remote areas, respectively.

Slightly lower percentages of children aged 24–27 months were fully immunised, with 88%, 90%, 90%, 88% and 85% fully immunised, respectively, in the five areas.

Immunisation rates for the two age groups combined were higher in Inner Regional areas (91%) than in Major Cities (89%), declining in Outer Regional (90%), Remote (88%) and Very Remote (87%) areas.



Source: Australian Childhood Immunisation Register.

Figure 3.1.1.1: Immunisation rates as at 30 June 2002 by ASGC Remoteness Area

3.1.2 Breast cancer and cervical screening participation rate

Summary of findings

In 2001, women in regional areas were 1.10 times as likely as their counterparts in Major Cities to have had a mammogram in the previous 2 years.

Women in Inner and Outer Regional areas were 1.10 times as likely, and equally as likely, respectively, as those in Major Cities, to have had a Pap smear test within the previous 2 years.

The regional patterns for non-Indigenous women are indistinguishable from the pattern for all women.

Indigenous women in non-sparsely settled areas were about 0.9 times as likely as other women to have had a mammogram or a Pap smear test. Data were not available for sparsely settled areas.

Lack of data prevents a description of screening rates in remote areas generally.

The inter-regional pattern of screening for breast cancer broadly reflects that for death rate due to breast cancer. Breast cancer death and screening rates for Indigenous women are indistinguishable from those for non-Indigenous women.

Although the inter-regional pattern of Pap smear testing broadly reflects that for death rate due to cervical cancer in non-Indigenous women, this is not the case for the total population in each area, reflecting much higher cervical cancer death rates for Indigenous women. Indigenous women in non-sparsely settled areas were only slightly less likely (0.9 times as likely) to have regular Pap smear tests than non-Indigenous women, but they were much more likely (6.5 times as likely) to die as a result of cervical cancer. It is possible, but speculative, that screening rates for Indigenous women in sparsely settled areas may be lower than for those in non-sparsely settled areas, which could at least partly explain the higher overall cervical cancer death rate among Indigenous women.

Background

A number of substantial studies have demonstrated that early detection of breast cancer can reduce associated death rates, and consequently, a national program to implement breast cancer screening began in 1991 (AIHW 1998).

A major aim of the BreastScreen Australia Program is to maximise the early detection of breast cancer in women aged 50–69 years (AIHW 2000a) by screening at 2-yearly intervals.

A national cervical screening program began in Australia in 1991. Morbidity and mortality from invasive squamous cell cancer of the cervix has been shown to be considerably reduced by cervical cancer screening (AIHW 1998).

The aim of the National Cervical Screening Program is to 'reduce morbidity and deaths from cervical cancer by detecting treatable pre-cancerous lesions before their progression to cancer'. The program targets women who are between 20 and 69 years of age (AIHW 2003c) and recommends screening every 2 years.

The basic data from which these indicators have been calculated were provided by the Australian Bureau of Statistics from the 2001 ABS National Health Survey (NHS). About 26,000 people participated in this face-to-face survey. The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres. NHS data for 1995 was not provided.

Responses relating to mammography and to Pap smear tests were elicited from a supplementary questionnaire, which approximately 90% of female respondents completed. Because of the way in which data have been provided by ABS, it is not possible to calculate the percentage of women in Major Cities in each category; instead, where percentages are reported here, they are national percentages calculated and reported by ABS in their literature.

Detailed results

Mammogram

In 2001, women in regional areas were 1.10 times as likely to have had a mammogram in the previous two years as those in Major Cities (Table 3.1.2.2). They were as likely as those in Major Cities to have been screened more than 2 years previously, and were 0.67 times as likely to fit into the broad group 'never been screened/refused to answer the question/not stated'. Nationally, 30% of women 18 years and over had regular mammograms (usually, but not necessarily within the previous 2 years) (ABS 2002b). Specifically, 74% of women aged 50–59 years and 60–69 years, and 41% of those 70 years and over, had regular mammograms (ABS 2002b).

Results for non-Indigenous women were indistinguishable from those reported above.

In 2001, the NHS indicated 43% of Indigenous women aged 40 years and over in non-sparsely settled areas (i.e. typically non-remote areas) reported having regular mammograms, compared with 46% of non-Indigenous women of this age (ABS 2002a).

In 1997–99, death rates in Inner and Outer Regional areas due to breast cancer (AIHW 2003a) were similar to those in Major Cities; rates in remote areas were similar or possibly lower (Table 3.1.2.1). Death rates for Indigenous women due to breast cancer appeared to be similar to rates for non-Indigenous women. These rates are broadly reflective of relatively similar rates of mammography in each area. It is interesting to note that breast cancer death rates increase with age, but that women over 70 years have relatively low rates of mammography.

Pap smear tests

In 2001, women in Inner Regional areas were 1.10 times as likely and women in Outer Regional areas were equally as likely as those in Major Cities to have had a Pap smear test in the previous two years (Table 3.1.2.2). Specifically, women in Inner Regional areas who were 18–24-years-old were 1.47 times as likely to have had a recent Pap smear test as their counterparts in Major Cities.

Women in Inner and Outer Regional areas were 1.17 and 1.21 times as likely to have been screened more than 2 years previously; they were also 0.66 and 0.83 times as likely to fit into the broad group 'never been screened/refused to answer the question/not stated'. Nationally, 61% of women 18 years and over had regular Pap smear tests (usually, but not necessarily within the previous 2 years). The proportion having regular tests was highest in the 30–39-year age group (82%) and lowest in the 70 years and over group (18%) (ABS 2002b).

Results for non-Indigenous women were indistinguishable from those reported above.

Published results from the NHS (ABS 2002a) indicated that 50% of Indigenous women aged 18 years and over in non-sparsely settled areas (i.e. typically non-remote areas) reported having regular Pap smear tests, compared with 55% of non-Indigenous women of this age (ABS 2002a). The method for calculating these published figures is different from that used above, but the results do indicate that screening rates for Indigenous women were slightly lower (by 5 percentage points) than for non-Indigenous women.

'Regular' cervical screening rates of 41% have been reported for 20–69-year-old Indigenous women living in 13 discrete rural and remote Indigenous communities in Queensland in 1999–2001 (Coory et al. 2002). This rate was 30% lower than for other similar aged women in Queensland. Importantly, this paper noted substantial inter-community variation in participation rates, from 20% to 64%. The higher rates were in communities where cervical screening was seen as part of primary health care. This suggests substantial opportunity for increasing rates in other communities.

In 1997–99, death rates in Inner and Outer Regional areas due to cervical cancer (AIHW 2003a) were, respectively, similar to and 1.3 times those in Major Cities; rates in remote areas were up to 3.3 times as high as those in Major Cities (Table 3.1.2.1). Rates for non-Indigenous women in regional and remote areas were indistinguishable from those in Major Cities.

From the 2001 NHS data, women in regional areas were slightly more likely to be screened regularly than those in Major Cities. This is in contrast to mortality data which shows similar rates of cervical cancer death in Inner Regional areas and rates that are 30% higher in Outer Regional areas. The pattern for screening of non-Indigenous women, on the other hand, was reflective of regional patterns in cervical cancer death rates. This implies that death rates for Indigenous women were much higher than their screening rates would lead one to expect.

More specifically, the overall rate of Pap smear testing in Indigenous women could lie somewhere between the 0.7 of the non-Indigenous rate recorded for those in 13 Indigenous Communities in Queensland (Coory et al. 2002) and the 0.9 recorded by the NHS for all Indigenous women (except those living in sparsely settled areas). Given the inter-community variation, and the low rates in some communities, the overall rate could be even lower. The cervical cancer death rate for Indigenous women was 6.5 times higher, overall, than for non-Indigenous women (AIHW 2003a). The apparent disparity requires further investigation. Possible reasons may include:

- lower screening rates for Indigenous women in sparsely settled areas
- greater likelihood of positive results in Indigenous women generally
- for Indigenous women who tested positive, rates of follow-up treatment that may be lower as a result of cultural issues, or financial or physical access.

Table 3.1.2.1: The ratio of observed deaths to those expected if Major Cities rates applied in each ASGC Remoteness Area, breast and cervical cancer, females, 1997–99

	IR	OR	R	VR	total
Age group (years)			**(ratio)**		
Breast cancer					
Total population	0.99	0.99	0.89	0.81	1.00
Non-Indigenous	0.99	0.99	0.86	0.73	1.00
Indigenous	n.a.	n.a.	n.a.	n.a.	1.15
Cervical cancer					
Total population	0.95	***1.27**	1.53	***3.32**	1.04
Non-Indigenous	0.94	1.18	1.15	1.07	1.01
Indigenous	n.a.	n.a.	n.a.	n.a.	***6.47**

* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. Major Cities rates are expressed as deaths per 100,000 population per year. Total (crude) rates for Major Cities are largely meaningless and are not included in this table.

Source: AIHW National Mortality Database.

Table 3.1.2.2: Ratio of the number of women who participated in breast cancer and cervical screening to the number expected, 2001

	Screened within last 2 years					Screened longer than 2 years previously					Never screened, refused or not stated				
Age	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**	**MC%**	**MC**	**IR**	**OR**	**Regional**
Mammography															
18–24	..	1.00	2.03	3.40	2.49	..	1.00	1.06	1.06	1.06	..	1.00	***0.33**	***0.11**	***0.26**
25–44	..	1.00	1.13	1.34	1.21	..	1.00	1.02	0.99	1.01	..	1.00	***0.66**	***0.65**	***0.66**
45–64	..	1.00	***1.11**	0.99	1.07	..	1.00	0.94	1.02	0.96	..	1.00	***0.52**	1.01	***0.69**
65+	..	1.00	1.09	1.04	1.07	..	1.00	1.06	0.99	1.04	..	1.00	***0.69**	0.94	***0.77**
Total	..	1.00	***1.11**	1.06	***1.10**	..	1.00	1.02	1.01	1.02	..	1.00	***0.60**	***0.80**	***0.67**
Pap smear test															
18–24	..	1.00	***1.47**	1.23	***1.39**	..	1.00	2.24	***1.24**	1.91	..	1.00	***0.53**	0.79	***0.62**
25–44	..	1.00	1.07	1.06	1.06	..	1.00	1.26	1.33	***1.29**	..	1.00	***0.56**	***0.58**	***0.57**
45–64	..	1.00	1.04	0.93	1.00	..	1.00	1.18	1.15	1.17	..	1.00	***0.62**	1.11	***0.78**
65+	..	1.00	1.19	0.95	1.11	..	1.00	1.06	1.20	1.11	..	1.00	0.85	0.88	***0.86**
Total	..	1.00	***1.10**	1.02	***1.07**	..	1.00	***1.17**	***1.21**	***1.18**	..	1.00	***0.66**	***0.83**	***0.72**

See notes on page 33.
Note: The percentage in each category has not been reported for Major Cities, because ABS data included non-responses among those who had never been screened. Subsequent calculation of percentages will therefore not agree with previously reported ABS statistics. This issue does not affect the calculation of ratios described in the table.

Source: ABS National Health Survey, 2001.

3.2 Appropriateness

3.2.1 Female general practitioners

Summary of findings

In 2001, about 35% of all GPs were female. However, whereas 37% and 40% of GPs in Major Cities and Very Remote areas were female, lower proportions (28% to 33%) of GPs in regional and remote areas were female.

Female GPs tended to be younger than male GPs by around 7 years, on average. Both male and female GPs in regional and remote areas were 5% and 10% younger, respectively, than those in Major Cities. The average age of male and female GPs decreased with remoteness.

The average hours worked by both male and female GPs increased with remoteness. Female GPs in Major Cities worked 32 hours per week on average and those in regional, Remote and Very Remote areas worked, respectively, 35–36, 38 and 51 hours per week.

The ratio of female GPs to females in the population was greater in Major Cities (86 per 100,000 females) than in regional (56–58), Remote (54) and Very Remote (73) areas.

Inter-regional comparison of female GP full-time equivalents (FTEs) to females showed a similar pattern, but with higher rates of female GP 'supply' in Very Remote areas, because of the longer hours worked by GPs generally in those areas.

Background

Some women may prefer to visit a female rather than a male GP, particularly for female-specific health conditions. Lack of local access to a female GP may necessitate a long trip to a location where one is available, consultation with a male GP or lack of consultation for that health condition.

This indicator describes the percentage of GPs and hospital non-specialists who are female, and the ratio of these workers to the population requiring them.

Data has been drawn from the 2001 AIHW Medical Labour Force Survey. Survey results are collected when medical practitioners register each year. The response rate in 2001 was 64.5%, and the results presented here have been adjusted to allow for non-respondents.

Detailed results

Females as a percentage of the GP workforce

Of all Australian GPs, 35% were female, this proportion varying from 37% of those in Major Cities to 28%, 31%, 33% and 40% in Inner Regional, Outer Regional, Remote and Very Remote areas respectively (Table 3.2.1.1).

The age distributions of male and female GPs were quite different. Whereas male GPs were more likely to be 45 years and over, there were relatively few older female GPs, with the bulk aged 35–54 years (Table 3.2.1.1 and Figure 3.2.1.1). Females made up more than half of 25–34-year-old GPs, the proportion declining with age to 17% of those 55 years and over.

Female GPs were, on average, 7 years younger than male GPs (between 4.5 and 6.5 years younger in regional and remote areas). Both male and female GPs were, on average, 5%

younger in regional and 10% younger in remote areas than those in Major Cities (Table 3.2.1.2). In terms of age structure, female GPs in regional and remote areas were more likely to be younger than 45 years (Table 3.2.1.1 and Figure 3.2.1.1) than female GPs in Major Cities.

Table 3.2.1.1: Age and sex of employed general practitioners, by ASGC Remoteness Area, 2001

	Per cent in each age group					
	< 25	25–34	35–44	45–54	55+	All ages
Males						
Major Cities	..	7	24	31	37	100
Inner Regional	..	8	31	34	26	100
Outer Regional	..	11	30	32	27	100
Remote	..	17	29	31	22	100
Very Remote	..	18	45	12	24	100
Unknown	..	6	20	29	45	100
Australia	..	8	26	31	34	100
Females						
Major Cities	..	16	39	31	14	100
Inner Regional	..	18	43	29	10	100
Outer Regional	..	23	41	29	7	100
Remote	..	28	39	25	7	100
Very Remote	..	33	48	17	2	100
Unknown	..	29	37	14	19	100
Australia	..	17	40	30	13	100
Females as a percentage of GPs						
Major Cities	..	55	49	37	18	37
Inner Regional	..	45	34	24	13	28
Outer Regional	..	48	38	28	11	31
Remote	..	45	40	28	14	33
Very Remote	..	55	42	47	6	40
Unknown	..	72	51	22	19	36
Australia	..	53	45	34	17	35

Notes

1. Excludes Tasmania.
2. Excludes those who provided insufficient information to allocate a Remoteness category, or who did not state their sex, or their age.

Source: AIHW Medical Labour Force Survey, 2001.

Females made up a greater percentage of the GP workforce in Major Cities than they did in regional or remote areas in practically every age group (Table 3.2.1.1 and Figure 3.2.1.2).

Ratio of female GPs to resident females

Table 3.2.1.3 and Figure 3.2.1.2 describe numbers and full-time equivalents (FTEs) of female GPs and hospital non-specialists in each area in relation to all workers, the population of resident females, and the total number of expected consultations for residents in each area.

Expected female consultations are the number of consultations that would occur if females in each age group in each area consulted a GP at the same rate as females in Major Cities. Expected consultations do not reflect demand or need in an area; they simply (in this indicator) attempt to account for the differences in the age structures of the five remoteness areas compared here.

Table 3.2.1.2: Average age of male and female GPs in each ASGC Remoteness Area, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Males	51.3	48.6	48.5	45.3	45.4	54.6	50.6
Females	44.3	43.0	41.8	40.8	39.0	43.6	43.9
Persons	48.7	47.0	46.4	43.8	42.8	50.7	48.3

Notes

1. Excludes Tasmania.
2. Excludes those who provided insufficient information to allocate a Remoteness category, or who did not state their sex, or their age.

Source: AIHW Medical Labour Force Survey, 2001.

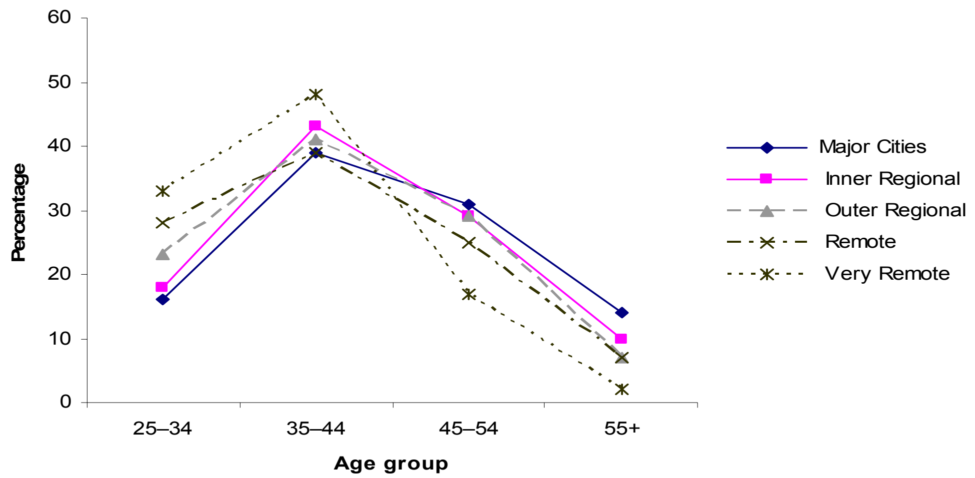
FTEs are calculated as the total number of hours worked each week, divided by 35 (the ABS definition of the number of hours in a standard full-time working week).

Like their male counterparts, female GPs worked longer hours in regional (35–36 hours), Remote (38 hours) and Very Remote (51 hours) areas, compared with those in Major Cities (32 hours).

Between 40% and 50% of all hospital non-specialists were female, and although there were differences between areas, there was no consistent systematic change with remoteness.

The ratio of female GPs to females in the population was greater in Major Cities (86 per 100,000 females) than in regional (56–58), Remote (54) and Very Remote (73) areas (Table 3.2.1.4 and Figure 3.2.1.3). Inter-regional comparison of rates using FTEs showed a similar pattern, but with higher rates of female GP 'supply' in Very Remote areas, because of the longer hours worked by GPs generally in those areas (Section 3.9.3).

The ratio of hospital non-specialists to females in the population was greater in Major Cities (27 per 100,000 females) than in regional (12–14), Remote (18) and Very Remote (17) areas (Table 3.2.1.4).

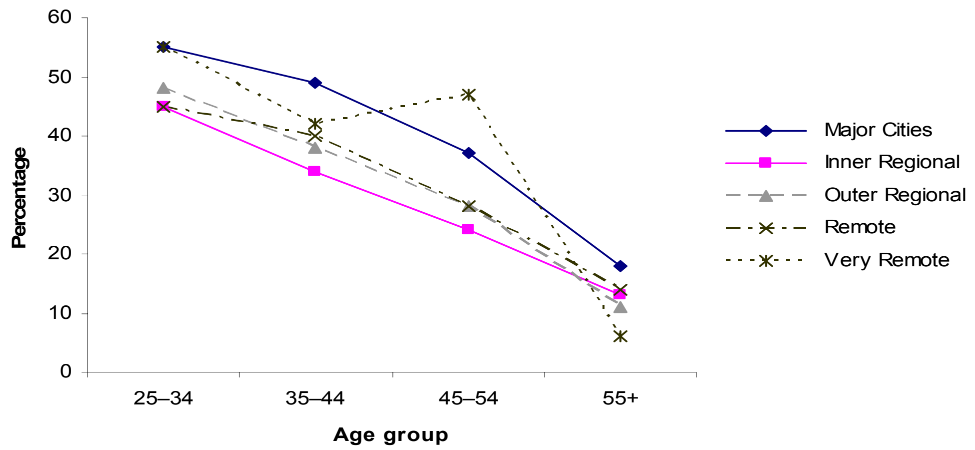


Notes

1. Excludes Tasmania.
2. Results from the 2001 survey have been weighed-up to account for non-responders.
3. Temporary resident doctors are not included in this table.
4. Records have been excluded from the analysis if sex and age were not reported, or information to allocate ASGC Remoteness Area is insufficient.

Source: AIHW Medical Labour Force Survey, 2001; Medicare GP consultations, 2001.

Figure 3.2.1.1: The age distribution of female GPs, within each ASGC Remoteness Area, 2001



Notes

1. Excludes Tasmania.
2. Results from the 2001 survey have been weighed-up to account for non-responders.
3. Temporary resident doctors are not included.
4. Records have been excluded from the analysis if sex and age were not reported, or information to allocate ASGC Remoteness Area is insufficient.

Source: AIHW Medical Labour Force Survey, 2001; Medicare GP consultations, 2001.

Figure 3.2.1.2: The percentage of GPs who are female, in each age group and ASGC Remoteness Area, 2001

Table 3.2.1.3: Female GPs and hospital non-specialists (HNSs), by ASGC Remoteness Area, 2001

	MC	IR	OR	R	VR	Unknown	Total
			Number of workers				
Female GPs	5,591	1,052	531	81	59	253	7,567
Female HNSs	1,743	259	110	26	14	153	2,306
All GPs	15,170	3,706	1,718	248	145	684	21,671
All HNSs	3,872	669	231	56	39	302	5,169
			Females as a percentage of workers				
GPs	37	28	31	33	40	37	35
HNSs	45	39	48	47	35	51	45
			FTEs				
Female GPs	5,094	924	500	86	85	129	6,818
Female HNSs	2,208	301	148	36	22	132	2,846
All GPs	17,563	4,125	2,064	319	212	405	24,688
All HNSs	5,143	795	308	78	62	256	6,641
			Female FTEs as a percentage of all FTEs				
GPs	29	22	24	27	40	32	28
HNSs	43	38	48	46	35	52	43

Notes

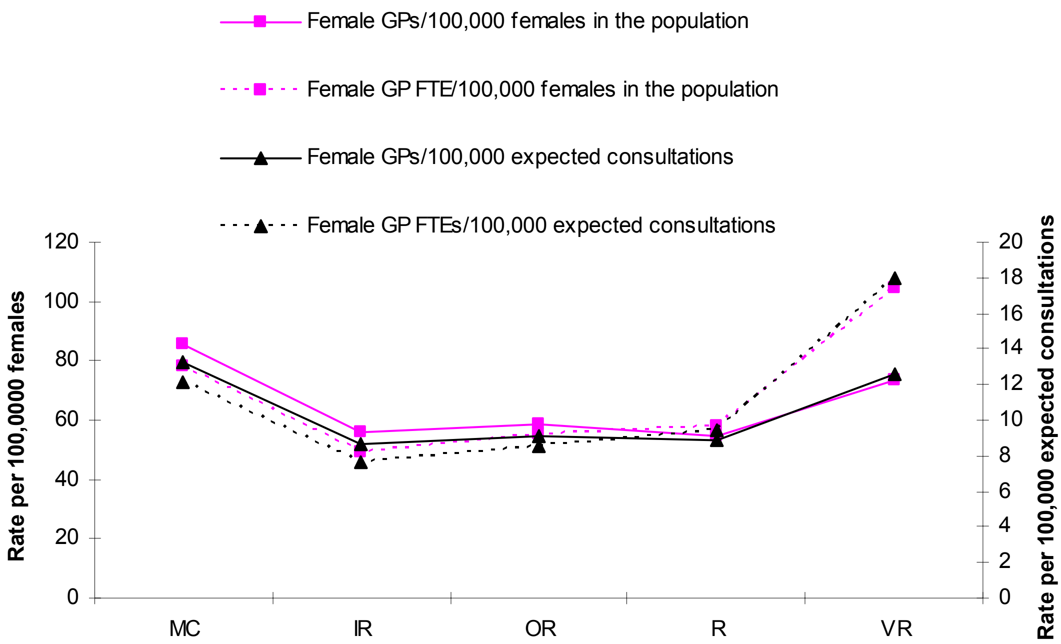
1. Excludes Tasmania.
2. Results from the 2001 survey have been weighed-up to account for non-responders.
3. FTEs are calculated as the total number of hours worked by practitioners based in each area, divided by 35.
4. Expected consultations are the number expected in each area in 2001, if age- and sex-specific consultation rates evident in Major Cities in 2001 were experienced. Rates of consultation in Major Cities in 2001 were calculated using Medicare data.
5. Temporary resident doctors are not included in this table.
6. Records have been excluded from the analysis if sex and hours worked are not reported, or if information to allocate ASGC Remoteness Area is insufficient.

Source: AIHW Medical Labour Force Survey, 2001; Medicare GP consultations, 2001.

Table 3.2.1.4: Prevalence of female GPs and HNSs, by ASGC Remoteness Area, 2001

	MC	IR	OR	R	VR	Unknown	Total
			Population of females living in each area				
	6,527,307	1,876,118	908,980	148,756	80,894		9,542,055
			Annual expected female GP consultations				
	42,139,234	12,176,460	5,820,041	908,543	471,424		61,515,702
			Rate per 100,000 resident females				
Female GPs	86	56	58	54	73	n.a.	79
Female GP FTEs	78	49	55	58	105	n.a.	71
Female HNSs	27	14	12	18	17	n.a.	24
Female HNS FTEs	34	16	16	24	27	n.a.	30
			Rate per 100,000 expected female GP consultations				
Female GPs	13	9	9	9	13	n.a.	12
Female GP FTEs	12	8	9	9	18	n.a.	11

See notes for Table 3.2.1.3.
Source: AIHW Medical Labour Force Survey, 2001; Medicare GP consultations, 2001.



See notes for Table 3.2.1.3.
Source: AIHW Medical Labour Force Survey, 2001; Medicare GP consultations, 2001.

Figure 3.2.1.1: The ratio of female GPs to females resident in each ASGC Remoteness Area, 2001

3.2.2 Hospital procedures

Summary of findings

For all of the hospital procedures reviewed, inter-regional differences in the rate of separation were evident, but the patterns were not consistent from procedure to procedure.

Rates of coronary artery bypass graft and coronary angioplasty were lower among people from regional and especially remote areas, whereas the reverse was the case for death rates due to coronary heart disease, which were higher in regional and especially remote areas.

Rates of diagnostic gastrointestinal endoscopy and myringotomy were also lower for residents of regional areas and substantially lower for residents of remote areas than for those in Major Cities.

Rates of appendectomy and lens insertion were higher for residents of regional and remote areas than residents of Major Cities.

Rates of cholecystectomy, hip replacement, revision of hip replacement, knee replacement, hysterectomy, tonsillectomy and arthroscopic procedures were typically higher for residents of regional areas and lower for residents of remote areas than for residents of Major Cities.

These findings were consistent in the 2 years for which inter-regional comparisons were made, 2001–02 and 2002–03.

Background

This indicator explores differences in the rate at which residents of each of the areas are admitted to hospital for various hospital procedures.

Poorer health outcomes in regional and especially remote areas may be due to increased risk factors (e.g. higher rates of smoking) or due to poorer access to health services. For example, higher rates of death due to circulatory diseases outside Major Cities may reflect lower levels of use of health services, or higher rates of smoking, or both.

This indicator essentially compares the rates of specific procedures for residents of each area with rates for residents of Major Cities.

The comparison statistic draws on the standardised separation rate ratios presented in *Australian Hospital Statistics 2001–02* (AIHW 2003e) and *Australian Hospital Statistics 2002–03* (AIHW 2004b).

The source data are routinely collected data on hospital-admitted patients, compiled as each patient completes an episode of care, generally at discharge or if the patient dies or is transferred. It captures all episodes from all public and most private hospitals.

The ratios presented in Table 3.2.2.1 are calculated as the SRR (standardised separation rate ratio) for residents of each area divided by the SRR for residents of Major Cities. The ratio for an area is said to be significantly different from that in Major Cities (1.00) if the 95% confidence intervals for the two ratios do not overlap.

Detailed results

There was considerable variation between areas (Table 3.2.2.1), but the inter-regional patterns for each procedure were similar in both 2001–02 and 2002–03, this consistency lending support to the overall findings.

For some types of procedures, separation rates were higher for residents of regional and remote areas than for residents of Major Cities; for example, appendectomy and lens insertion (although for the latter, the higher rates in remote areas were at a lower level of significance).

For others, the rate of separation was higher for residents of regional areas and lower for residents of remote areas than for residents of Major Cities. Examples are cholecystectomy, hip replacement, revision of hip replacement, knee replacement, hysterectomy, tonsillectomy, and arthroscopic procedures (including arthroscopies).

In others there was little difference in the rates of separation between the five areas. In the case of prostatectomy, rates for residents were similar in regional areas, lower (at a lower level of significance) in Remote areas, and significantly lower in Very Remote areas only in 2001–02.

For others, the rate of separation was lower for residents of regional and remote areas than for those in Major Cities, examples being coronary artery bypass graft, coronary angioplasty, myringotomy, and diagnostic gastrointestinal endoscopy.

With the exception of appendectomy and lens insertion, rates of separation for all of the selected procedures were lower for residents of Very Remote areas than for residents of Major Cities.

This was mirrored to some extent in Remote areas for the same conditions plus arthroscopic procedures.

In regional areas, rates of separation were higher for most of the selected procedures, being lower only for coronary angioplasty, diagnostic gastrointestinal endoscopy and myringotomy. In regional areas, rates for coronary artery bypass graft were similar to, or lower than, those in Major Cities.

The patterns for both coronary artery bypass graft (CABG) and coronary angioplasty are particularly noteworthy; separation rates for both of these procedures were lower for residents of areas outside Major Cities, and decreased with remoteness. Rates of separation for bypass graft were similar or slightly lower in Outer Regional areas, and 25–40% lower in remote areas, rates for angioplasty were 15–40% lower in regional areas and up to 40% lower in remote areas (Figure 3.2.2.1) than in Major Cities.

Coronary heart disease is the greatest contributor to higher death rates in regional and remote areas (AIHW 2003a). Death rates from coronary heart disease were 10% higher in areas outside Major Cities and 30% higher in Very Remote areas (Figure 3.2.2.1). This differential would be greater except for the low rates among older people in remote areas compared with those for their counterparts in Major Cities and regional areas (possibly a consequence of the migration of the frail aged to less remote areas to access services).

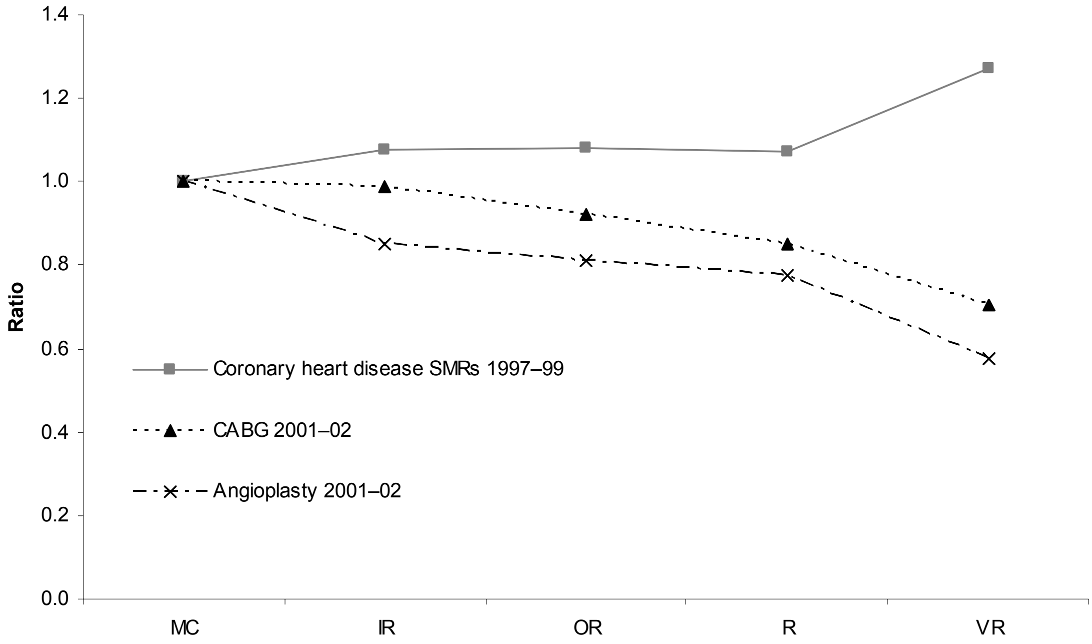
Higher coronary heart disease death rates in regional and remote areas may be related to lower levels of use of health services (for example CABG and angioplasty) and/or to the poorer health risk factor profile of residents of these areas. This indicator does not identify which has the greater effect, but both the poorer risk factor profile and lower rate of procedure have the potential to increase death rates in areas outside Major Cities.

Table 3.2.2.1: Ratio of the separation rate for selected procedures, by ASGC Remoteness Area of usual residence, 2001–02 and 2002–03

Procedure	Year	MC	IR	OR	R	VR
		Ratio				
Appendectomy	2001–02	1.00	***1.18**	***1.21**	***1.29**	1.06
	2002–03	1.00	***1.18**	***1.22**	***1.23**	1.09
Coronary artery bypass graft	2001–02	1.00	0.99	***0.92**	***0.85**	***0.70**
	2002–03	1.00	1.04	0.98	***0.86**	***0.76**
Coronary angioplasty	2001–02	1.00	***0.85**	***0.81**	***0.77**	***0.58**
	2002–03	1.00	***0.85**	***0.80**	***0.75**	***0.66**
Cholecystectomy	2001–02	1.00	***1.08**	***1.04**	0.94	***0.88**
	2002–03	1.00	***1.09**	***1.05**	0.96	***0.87**
Diagnostic gastrointestinal endoscopy	2001–02	1.00	***0.92**	***0.84**	***0.72**	***0.60**
	2002–03	1.00	***0.90**	***0.82**	***0.68**	***0.57**
Hip replacement	2001–02	1.00	***1.14**	***1.10**	1.08	***0.68**
	2002–03	1.00	***1.14**	***1.11**	0.96	***0.58**
Revision of hip replacement	2001–02	1.00	***1.23**	1.14	0.93	***0.49**
	2002–03	1.00	***1.21**	1.14	1.13	0.63
Hysterectomy, females aged 15–69	2001–02	1.00	***1.21**	***1.16**	0.99	***0.77**
	2002–03	1.00	***1.23**	***1.19**	1.09	***0.83**
Lens insertion	2001–02	1.00	***0.96**	***1.07**	1.00	1.05
	2002–03	1.00	0.98	***1.08**	1.05	1.06
Tonsillectomy	2001–02	1.00	***1.16**	***0.95**	***0.88**	***0.54**
	2002–03	1.00	***1.15**	***0.96**	***0.85**	***0.53**
Myringotomy	2001–02	1.00	***0.90**	***0.72**	***0.78**	***0.50**
	2002–03	1.00	***0.90**	***0.76**	***0.71**	***0.52**
Knee replacement	2001–02	1.00	***1.22**	***1.11**	1.10	***0.71**
	2002–03	1.00	***1.19**	***1.16**	1.02	***0.77**
Prostatectomy	2001–02	1.00	1.02	1.00	0.93	***0.73**
	2002–03	1.00	1.00	1.02	0.90	0.87
Arthroscopic procedures (includes arthroscopies)	2001–02	1.00	***1.16**	***1.11**	***1.24**	***0.73**
	2002–03	1.00	***1.17**	***1.17**	***1.25**	***0.80**

Note: The presented statistic is the ratio of the standardised separation rate ratio (SRR) for each area, divided by the SRR for Major Cities. In essence, a ratio greater than 1 indicates a higher rate of separation in the area than in Major Cities; a ratio less than 1 indicates a lower rate of separation in the area than in Major Cities. An asterisk indicates where rates of separation are significantly different from those in Major Cities.

Source: AIHW Australian Hospital Statistics 2001–02 and 2002–03.



Note: Coronary heart disease SMRs are calculated as the number of observed deaths divided by the number expected if Major Cities age-specific rates applied in each area (see indicator 1.4.3). The plots for coronary artery bypass graft (CABG) and Coronary angioplasty are calculated as the ratio of the standardised prevalence ratio (SRR) for each area, divided by the SRR for Major Cities. In essence, a ratio greater than 1 indicates a higher rate of separation in the area than in Major Cities; a ratio less than 1 indicates a lower rate of separation in the area than in Major Cities.

Source: AIHW Australian Hospital Statistics 2001–02 and 2002–03, AIHW mortality database, 1997–99.

Figure 3.2.2.1: Comparison of separation rates for CABG and coronary angioplasty procedures (2001–02), and SMRs for coronary heart disease (1997–99), by ASGC Remoteness Area of usual residence

3.5 Accessibility

3.5.2 Supply of health workers

Summary of findings

Overall, health professionals were less prevalent in regional and especially remote areas than in Major Cities.

Two types of numerator have been used in comparisons:

- the number of health workers in each area
- the number of full-time equivalents (FTEs) in each area.

Two types of denominator have been used in comparisons:

- the number of people in the population in each area
- the expected number of consultations that would have taken place if Major Cities age/sex-specific rates of consultation had been experienced everywhere.

Generally, comparisons of numbers of health workers and numbers of people in each area yield the greatest inter-regional differences.

Use of FTEs as the numerator reduces the inter-regional differences because health workers in regional and remote areas generally work longer hours than those in Major Cities.

Use of the 'expected number of consultations' as the denominator generally yields even smaller inter-regional differences (at least for differences between remote areas and the others), because young people are more prevalent in regional and especially remote areas than in Major Cities, and they generally have less need for health professionals.

The following comparisons make no allowance for possible poorer health/greater need in regional and remote areas, fragmentation of regional and especially remote area populations, possible differences in the need for health professionals to spend time travelling between communities, or the lack of information on temporary resident doctors working in Australia.

General practitioners (GPs) were 0.75–0.85 times as prevalent in regional areas as in Major Cities, 0.65–0.75 times in Remote areas, and 0.7–0.95 times as prevalent in Very Remote areas.

Hospital non-specialists were 0.55 and 0.4 times as prevalent in regional areas as in Major Cities, and 0.6 and 0.7–0.85 times as prevalent in Remote and Very Remote areas, respectively.

Specialists were 0.45 and 0.3 times as prevalent in Inner and Outer Regional areas, respectively, as in Major Cities, and less prevalent again in remote areas. The same general pattern is apparent for specialists-in-training. For some specialists, for example paediatricians, general surgeons and orthopaedic surgeons, prevalence in Inner Regional areas was 0.6–0.85 that in Major Cities, and lower still (but not by much for general surgeons) in Outer Regional areas. Table 3.5.2.1 summarises the inter-regional differences for selected specific specialties.

Enrolled nurses were about 1.6–1.8 times as prevalent in regional and Remote areas as they were in Major Cities, and 1.2 times as prevalent in Very Remote areas.

Registered nurses were about 0.9–0.95 times as prevalent in Inner Regional areas, 0.8–0.85 times as prevalent in Outer Regional and Remote areas, and 0.85–0.9 times as prevalent in Very Remote areas as in Major Cities.

Table 3.5.2.1: Ratio of the prevalence of selected specialists in each area to that in Major Cities, ASGC Remoteness Areas, 2001

Speciality	MC	IR	OR	R	VR
			(Ratio)		
Cardiology	1.00	0.27	0.09	0.13	0.00
Paediatrics	1.00	0.61	0.48	0.50	0.00
General surgery	1.00	0.84	0.78	0.37	0.22
Orthopaedics	1.00	0.73	0.34	0.07	0.00
Anaesthetics	1.00	0.50	0.34	0.09	0.00
Radiology	1.00	0.59	0.26	0.00	0.00
Obstetrics & gynaecology	1.00	0.54	0.44	0.18	0.00
Ophthalmology	1.00	0.39	0.17	0.07	0.54
Psychiatry	1.00	0.33	0.19	0.02	0.13

Note: Measures of prevalence are based on numbers of clinicians per 100,000 population and on main location of work.
Source: AIHW Medical Labour Force Survey, 2001.

Pharmacists were 0.75, 0.6–0.7, 0.45–0.55, and 0.35–0.4 times as prevalent in Inner and Outer Regional, Remote and Very Remote areas, respectively, as in Major Cities.

Podiatrists were 0.75–0.85 times as prevalent in Inner Regional areas, 0.35 times as prevalent in Outer Regional areas, 0.35–0.5 times in Remote areas, and 0.15–0.25 times in Very Remote areas as in Major Cities.

Physiotherapists were 0.6–0.65 times as prevalent in Inner Regional areas, 0.55–0.6 times in Outer Regional and Remote areas, and 0.2–0.25 times as prevalent in Remote and Very Remote areas as in Major Cities.

Occupational therapists were 0.6–0.65 times as prevalent in Inner Regional areas, 0.55–0.6 times in Outer Regional, 0.55–0.8 times in Remote and 0.25 times as prevalent in Very Remote areas as in Major Cities.

Background

This indicator of accessibility relates to the supply of health professionals.

Details presented here about the numbers of health workers are taken from the AIHW's national health labour force surveys. At registration renewal, health workers are asked to complete a labour force survey form. Response rates vary, but generally range from 60% to over 90%. Counts of workers provided by the state registration boards are used to 'weight-up' the results from the survey so that the total count is equal to the number registered. Only professions that have a registration process are currently surveyed by AIHW, as the registration boards provide both the vehicle for distribution of the survey forms and the information required to adjust for non-responders.

The less than 100% response rate, and the need to adjust for non-responders means that the results derived from the surveys are indicative rather than absolute. The adjustment process assumes that response rates are the same in metropolitan, regional and remote areas and that non-responders have the same characteristics as responders in the corresponding age and sex groups.

Comparative statistics other than the number of clinicians per 100,000 population are presented where possible so as to overcome at least some of the following problems:

1. The age and sex structures of the populations in each of the five areas are different, with remote area populations having higher proportions of younger people, proportionally fewer older people, and proportionally more males than females than is the case in Major Cities. Clinicians may be more likely to treat people of one sex or from some age groups than others. For example, females are three times as likely as males to consult a podiatrist, and people over 75 years of age are over thirty times more likely to visit a podiatrist than people under 15 years old (unpublished AIHW analysis of 2001 ABS National Health Survey data).
2. In order to try to meet the demand for services, clinicians in some areas will work longer hours than those in other areas. Some of these hours may be spent travelling
3. The need for services may be greater in some areas than others because of a greater underlying burden of disease.
4. The population in regional and remote areas is distributed over a very large area, but is concentrated in a number of (frequently small) settlements.

The first two of these problems (i.e. 1 and 2) can be solved by:

- using 'expected consultations' as the denominator, rather than the number of people in the population. The number of 'expected consultations' is the number of consultations that would be expected if males and females from each age group in each area consulted the clinician as often as did those from a standard population (in this report, those from Major Cities). The advantage of this approach is that it takes the age and sex structures of the different populations into account, a factor that is particularly important when describing the supply of clinicians such as GPs and podiatrists, who are more likely to be seen by older people than younger people, and by females rather than males.
- using 'full time equivalents' as well as numbers of clinicians as the numerator in comparisons of 'supply' (numbers of clinicians or FTEs) and 'demand' (numbers of people or expected consultations). Comparison of FTEs (the hours worked in an area divided by the length of a standard week, variously defined as 35, 38 or 40 hours) allows comparison of approximately equivalent amounts of clinician 'effort' between areas. Use of FTEs may better describe the 'volume' of services available to the population in an area, but it should always be interpreted with reference to the numbers of available clinicians and the average hours worked by those clinicians in each area. Substantial numbers of FTEs may be a consequence of clinicians working long hours to meet people's health needs, rather than of high numbers of clinicians.

The last two issues above (i.e. 3 and 4) cannot readily be resolved.

- Areas with greater health needs are likely to require greater supply of clinical input (e.g. more GPs). Health outcomes are poorer outside Major Cities (AIHW 2003a), and it is therefore likely that, all other things being equal, there is a need for greater access to clinicians for people who live in regional and remote areas than in Major Cities. What is not clear, however, is how much more. At this stage, no one measure of health is known to validly reflect the size of any unmet need for each type of clinician in country areas.
- In any given area, the ratio of clinicians to population (basically an average between all the settlements and surrounding areas) may be considered 'adequate'. However,

although immediate access may be excellent for people in the same town as the clinician, for those living in the next town (without a clinician) access will be poor. This is not an issue in a Major City, because the population and clinicians live and work in areas that are contiguous and of limited geographical extent, and where transport is more available (see section 2.3.9). The upshot of this is that measures of average supply are likely to overstate availability for much of the population in areas outside Major Cities, particularly in remote areas.

Interpretation of statistics regarding regional supply of clinicians should especially take into account these two issues of 'need' and 'fragmentation'.

In comparing supply of health workers between areas, it may, in some cases, be unreasonable to expect a similar prevalence of workers in each area. For example, whereas it may be reasonable to expect similar levels of supply of generalist medical workers (e.g. nurses and GPs), it may not be reasonable to expect similar levels of specialist workers (e.g. some allied health and the less common medical specialists). This is because specialists require a large population base to provide enough patients for economic viability, and that some may require specialist infrastructure and support staff. It may be more possible to improve equity of access to health workers by other means than improving equity of geographical distribution.

The surveys for each the profession records the location of up to two places where work was conducted, as well as the time spent working there. Where possible, this information is used to report work effort in each location.

Other issues, such as differences in the roles of specific clinicians (e.g. GPs and nurses) in each area may also be relevant, and are discussed later.

Detailed results

Caution

These comparative statistics should be interpreted with caution. Although they reflect the relative supply of health workers to population or the number of consultations that would be expected if Major Cities rates applied, they make no allowance for:

- potentially poorer health and potentially greater need for health workers outside Major Cities
- the fragmentation of regional and remote populations, which reduces levels of access to health workers—for example, although a certain prevalence of health workers provides a certain level of access for people living in Major Cities, the same average prevalence in remote areas is likely to provide a lower level of access, simply because of the distances involved for most of the residents
- the possible presence of proportionally greater numbers of temporary resident doctors in more remote areas
- the need to spend time on travel rather than on treating patients.

The comparisons also do not take into consideration the fact that some health workers may perform different work in response to need. With or without formal endorsement, country nurses and GPs, respectively, may perform some of the functions of GPs and of some specialists (e.g. obstetricians and psychiatrists) to a greater extent than nurses and GPs in Major Cities.

Medical practitioners

Results presented here are restricted to those employed mainly as clinicians in 2001, and are derived from the 2001 AIHW Medical Labour Force Survey (AIHW 2003f). Those employed mainly as researchers, administrators and other non-clinical workers are not included.

Details are presented for GPs/primary care medical practitioners, hospital non-specialists, specialists (including some selected specialities), and specialists-in-training.

These details include the numbers of doctors and of FTEs, as well as the ratio of these to the population in each area. For GPs/primary care medical practitioners (hereafter referred to generically as GPs), the number of doctors and FTEs per 100,000 expected consultations (based on the age and sex structure of the population) have also been presented. This last comparison has not been possible for the other medical groups with currently available data.

Expected consultations are calculated by applying the Major Cities GP Medicare consultation rate for each age group and sex to the population who live in each area. In essence, the expected number of consultations is the number of consultations that would take place if people in each area went to the GP as often as people from Major Cities. It should be understood that the number of expected consultations presented here is not affected in any way by the needs of people in regional and remote areas; it is simply a reflection of the age and sex structure of these populations and the rate of consultation in Major Cities.

GPs/primary care medical practitioners

Table 3.5.2.2: Numbers of employed GPs and other primary care medical practitioners, working in more than one ASGC Remoteness Area, 2001

	Other location						
Main location	MC	IR	OR	R	VR	No other location	Total
MC	**4,679**	179	24	14	5	**10,281**	15,181
IR	156	**814**	97	1	–	**2,638**	3,706
OR	11	83	**392**	22	12	**1,201**	1,721
R	4	3	8	**53**	12	**168**	248
VR	1	–	4	8	**28**	**104**	145
Total	4,851	1,079	525	98	57	**14,393**	21,002

Note: 669 respondents did not state the post code of any location where they practised. Details of a third location for a relatively small number of doctors have not been included.

Source: AIHW Medical Labour Force Survey, 2001

Table 3.5.2.2 describes the numbers of GPs who work in more than one location, including the number who work at a location with a different level of remoteness. For example, a total of 1,721 GPs had the main location of their practice in Outer Regional areas: of these, 1,201 worked only at one location, 392 worked at two locations in Outer Regional areas, 11 also worked in Major Cities, 83 in Inner Regional areas, 22 in Remote areas, and 12 in Very Remote areas. In addition, there were another 133 (525 - 392) GPs who worked in Outer Regional areas as their second location, for whom the main location of their practice was outside Outer Regional areas (24 from Major Cities, 97 from Inner Regional areas, 8 and 4 from Remote and Very Remote areas respectively.

Table 3.5.2.3: Numbers of employed GPs and other primary care medical practitioners, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Number of GPs (main location of practice)	15,170	3,706	1,718	248	145	684	21,671
GPs per 100,000 population	118	92	85	76	81	n.a.	112
GPs per 100,000 expected consultations	21.0	16.1	15.2	14.3	15.9	n.a.	19.9
FTE (main location of practice)	17,563	4,629	2,233	327	214	412	25,377
Rate FTE per 100,000 population	136	115	111	101	120	n.a.	131
Rate FTE per 100,000 expected consultations	24.3	20.1	19.7	18.8	23.5	n.a.	23.2
FTE (main and second locations of practice)[(a)]	17,334	4,599	2,215	325	218	686	25,377
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

(a) FTE in main and secondary locations does not include 208 FTE spent working in a third location (which are included among the 'Unknown').

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the 2001 survey have been weighted-up to account for non-responders. For an estimated 684 GPs, insufficient information was provided to allow the allocation of a Remoteness category to the main location of their practice.
3. Expected consultations are the number expected in each area in 2001 if age- and sex-specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using Medicare data.
4. Temporary resident doctors are not included in this table. It is possible that their absence from the data may exacerbate the differences between Major Cities and the other areas.

Source: AIHW, Medical Labour Force Survey, 2001.

Several comparisons are presented in Table 3.5.2.3., each of which should be treated with caution. In addition to the issues raised as points 3 and 4 on page 253, this analysis does not take into account a number of other factors:

- Travel time: country GPs may need to travel between towns to see patients, whereas it is unclear how long metropolitan GPs spend in traffic during their working day.
- Numbers of temporary-residence doctors: these are conditionally registered, and are not required to complete a survey form by the state registration boards. Many work in areas of shortage (for example, remote areas). It is likely that the number of GPs working in more remote areas is therefore greater than that described here, but it is unclear how much greater.

The number of FTEs has been calculated using two methods. The first method, by which most of the comparisons in Table 3.5.2.3 are made, is based on the total number of hours worked by GPs in their main location of practice. This method ignores the fact that for some of these GPs, a proportion of their work is conducted in another area. The second method is based on the number of hours reportedly worked in each area. The estimates are very similar, however, and are both presented in the table.

Comparison of the number of GPs with the number of people in each area shows considerable disparity between Major Cities, regional and remote areas:

1. The ratio of GPs to population was highest in Major Cities, and was 0.78, 0.72, 0.65 and 0.69 times the Major Cities rate in Inner and Outer Regional, and Remote and Very Remote areas, respectively.
2. When the number of GPs is compared with the number of 'expected' consultations, the pattern remains the same as in method 1 above in regional areas (i.e. 0.8 and 0.7 times the Major City ratio), but in remote areas the ratios were closer to those in Major Cities (0.7 and 0.75 times the Major Cities rate) than in method 1 above. These higher ratios in remote areas reflect the younger population in these areas and (all other things being equal) their lower per capita need to consult a GP.
3. When the number of FTEs is compared with the population in each area, the ratios in the four regional and remote areas were 0.84, 0.81, 0.74 and 0.88 times those in Major Cities. The differences between Major Cities and regional/remote areas were smaller than in method 1 above, because GPs in regional and remote areas work longer hours.
4. When the number of FTEs is compared with the number of expected consultations, the ratios in the four regional and remote areas were 0.83, 0.81, 0.77 and 0.97 times those in Major Cities—similar to rates in method 3 above, but with a substantially smaller difference between Major Cities and Very Remote areas than in the other methods (because the population is younger, a higher percentage is male, and the GPs in regional and especially remote areas work longer hours than their Major Cities counterparts).

In summary:

- the supply of GPs in regional areas was 0.7–0.8 times the Major City rate (longer GP working days reducing the disparity to 0.8–0.85 times the MC rate)
- the supply of GPs in remote areas was 0.65–0.75 times the Major City rate. In Remote areas, the ratio remained within this range irrespective of the method used to calculate it, whereas in Very Remote areas the consequence of long hours worked by GPs and recognition that younger, and predominantly male, populations typically consult GPs at a lower rate, suggest a higher supply of GP effort equivalent to 0.9–0.95 times that in Major Cities.

This summary should be considered with caution. As stated earlier, these comparisons do not take into account a possible higher need in regional and especially remote areas, or the fragmented nature of settlement in these areas. A comparison taking these issues into account may show greater disparity between the areas than has been shown here.

It is also possible that if temporary resident doctors were included in the analysis, supply in regional and remote areas would probably increase (but it is unclear by how much).

Hospital non-specialists

Table 3.5.2.4 compares the numbers of hospital non-specialists (e.g. resident medical officers and interns) in each area. These doctors are mainly employed in a salaried position in a hospital, and do not have a recognised specialist qualification.

It is not currently possible to describe the number of expected consultations for these clinicians because sex- and age-specific rates of use in Major Cities are unknown.

Table 3.5.2.4: Numbers of employed hospital non-specialist clinicians, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Number of hospital non-specialists (main location of practice)	3,872	669	231	56	39	302	5,169
Hospital non-specialists per 100,000 population	30	17	11	17	22	n.a.	27
FTE (main location of practice)	5,143	903	318	78	62	256	6,760
Rate FTE per 100,000 population	40	22	16	24	35	n.a.	35
FTE (main and second locations of practice)[(a)]	5,098	897	316	78	60	286	6,736
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

(a) FTE in main and secondary locations does not include 24 FTE spent working in a third location (which are included among the 'Unknown').

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the 2001 survey have been weighted-up to account for non-responders.
3. Temporary resident doctors are not included in this table. It is possible that their absence from the data may exacerbate the differences between city and country.

Source: AIHW Medical Labour Force Survey, 2001.

Caution regarding interpretation of the numbers for hospital non-specialists is basically the same as for GPs presented previously (that is, these figures do not take into account the population's need, dispersed patterns of settlement or the possible presence of temporary resident doctors).

Table 3.5.2.4 shows:

- The ratio of hospital non-specialists to population was highest in Major Cities, and was 0.55, 0.38, 0.58 and 0.73 times the Major Cities rate in Inner and Outer Regional, and Remote and Very Remote areas, respectively.
- When the number of FTEs is compared with the population in each area, the ratios in the four regional and remote areas were 0.56, 0.40, 0.60 and 0.87 times those in Major Cities. The differences between Major Cities and regional/remote areas were smaller than in method 1, because, like GPs, hospital non-specialists, in remote areas especially, work longer hours.

Specialists

Table 3.5.2.5 compares the numbers of specialists in each area. Specialists are medical practitioners with postgraduate vocational qualifications in various branches of medicine (such as various types of surgery, pathology and internal medicine.

Caution regarding interpretation is basically the same as for GPs presented previously (that is, these figures do not take into account the population's need, dispersed patterns of settlement or the possible presence of temporary resident doctors).

Table 3.5.2.5 shows that the ratio of specialists to population was highest in Major Cities, and was 0.44, 0.28, 0.15 and 0.06 times the Major Cities rate in Inner and Outer Regional, and Remote and Very Remote areas. Comparison of the ratio of FTEs to population shows the same pattern.

Table 3.5.2.5: Numbers of employed specialists, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Number of specialists (main location of practice)	13,845	1,922	604	51	12	691	17,124
Specialists per 100,000 population	108	48	30	16	7	n.a.	88
FTE (main location of practice)	18,845	2,733	845	74	18	563	23,078
Rate FTE per 100,000 population	146	68	42	23	10	n.a.	119
FTE (main and second locations of practice)[(a)]	18,090	2,705	871	74	18	1,320	23,078
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

(a) FTE in main and secondary locations does not include 672 FTEs spent working in a third location (which are included among the 'Unknown').

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the 2001 survey have been weighted-up to account for non-responders.

Source: AIHW Medical Labour Force Survey, 2001.

From Table 3.5.2.6, about 3% of specialists whose main location is in Major Cities also worked in another location outside Major Cities, and about 5% of those whose main location was in Inner Regional areas also worked in more remote areas (and 5% also worked at another location in Major Cities).

Table 3.5.2.6: Numbers of employed specialists, working across ASGC Remoteness Areas, 2001

	Other location						
Main location	**MC**	**IR**	**OR**	**R**	**VR**	**No other location**	**Total**
MC	**7,497**	304	91	9	3	**6,021**	13,924
IR	119	**691**	95	2	–	**1,018**	1,924
OR	17	19	**170**	4	2	**391**	604
R	–	–	–	**4**	6	**42**	51
VR	3	–	3	1	**–**	**5**	12
Total	7,636	1,014	359	20	10	**7,477**	16,515

Notes

1. 609 respondents did not state the post code of any location where they practiced.
2. Details of a third location for a relatively small number of doctors have not been included.

Source: AIHW Medical Labour Force Survey, 2001.

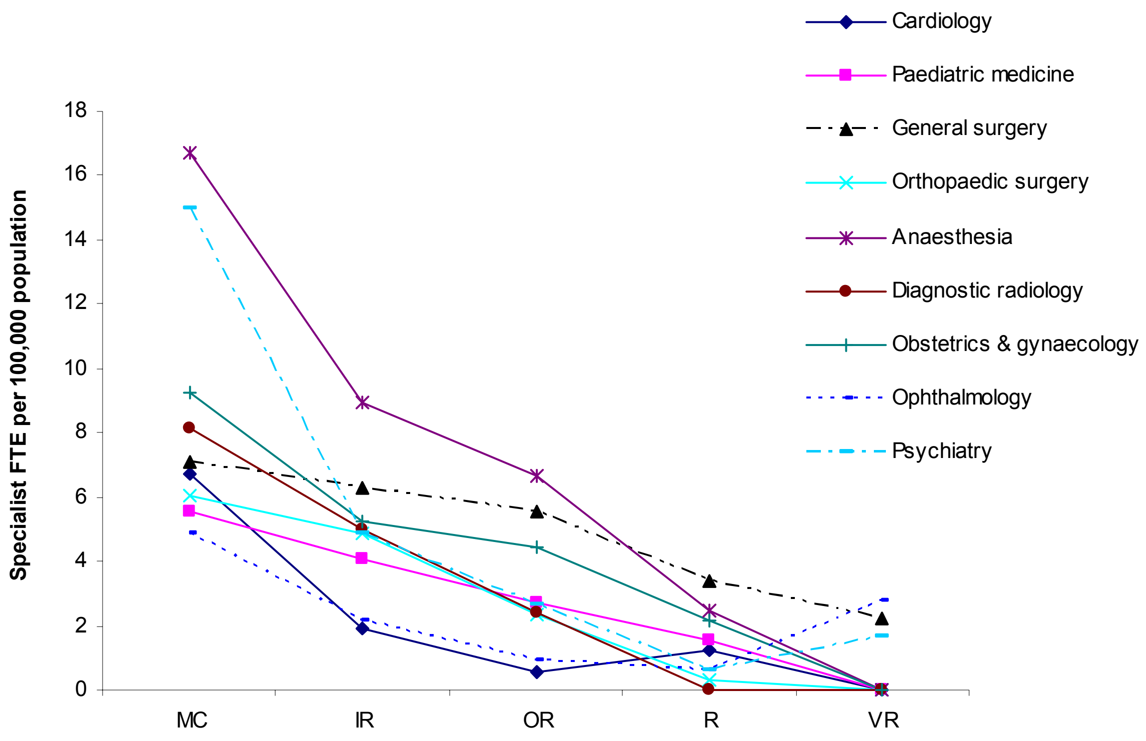
Selected specialities

Some specialists (e.g. cardiothoracic surgeons) are unlikely to be found outside Major Cities due to the nature of their work and the supporting infrastructure required. Others (e.g. pathologists) may often not need to have direct access to the patient. On the basis of factors such as these and focusing on the largest specialities, nine have been selected for presentation here. These are:

- cardiologists
- paediatricians
- general surgeons
- orthopaedic surgeons
- anaesthetists
- radiologists
- obstetricians and gynaecologists
- ophthalmologists
- psychologists.

From Figure 3.5.2.1 and Table 3.5.2.7, the general tendency was for ratios of specialists to population to decrease with remoteness. For some specialities (e.g. paediatrics and general surgery), the decrease was relatively gentle, with at least moderate representation in regional areas; for others (e.g. cardiology and psychiatry), representation was low even in regional areas.

Comparison of 'FTE worked in each area' to the 'population living in each area' shows a similar pattern in most cases (except for paediatricians). The ratio of paediatricians to population in Outer Regional and Remote areas was about half that in Major Cities; the ratio of paediatric FTE worked in Remote areas to the population living there was about one-quarter that in Major Cities.



Note: Full time equivalents (FTE) are based on a 35-hour week.
Source: AIHW Medical Labour Force Survey, 2001.

Figure 3.5.2.1: Specialist FTE per 100,000 population in each ASGC Remoteness Area, 2001

Table 3.5.2.7: Selected specialities: numbers of employed specialists by main location, FTE by area where the service was provided, 2001

	MC	IR	OR	R	VR	Unknown	Total
Numbers of clinicians							
Cardiology	573	49	9	2	–	17	649
Paediatric medicine	565	107	43	7	–	22	744
General surgery	633	167	76	6	2	39	924
Orthopaedic surgery	533	121	28	1	–	20	703
Anaesthesia	1,709	264	91	4	–	130	2,197
Diagnostic radiology	874	160	37	–	–	63	1,135
Obstetric & gynaecology	870	150	60	4	–	39	1,123
Ophthalmology	528	64	15	1	4	29	642
Psychiatry	1,656	168	49	1	3	60	1,937
FTE for clinicians							
Cardiology	865	76	11	4	–	16	972
Paediatric medicine	716	163	55	5	–	21	960
General surgery	913	252	112	11	4	34	1,326
Orthopaedic surgery	776	195	47	1	–	25	1,044
Anaesthesia	2,148	361	134	8	–	133	2,784
Diagnostic radiology	1,049	202	49	–	–	63	1,363
Obstetric & gynaecology	1,194	212	89	7	–	29	1,531
Ophthalmology	625	86	19	2	5	16	753
Psychiatry	1,929	196	54	2	3	47	2,231
Clinicians per 100,000 population							
Cardiology	4.5	1.2	0.4	0.6	–	..	3.3
Paediatric medicine	4.4	2.7	2.1	2.2	–	..	3.8
General surgery	4.9	4.1	3.8	1.8	1.1	..	4.8
Orthopaedic surgery	4.1	3.0	1.4	0.3	–	..	3.6
Anaesthesia	13.3	6.6	4.5	1.2	–	..	11.3
Diagnostic radiology	6.8	4.0	1.8	–	–	..	5.8
Obstetric & gynaecology	6.8	3.7	3.0	1.2	–	..	5.8
Ophthalmology	4.1	1.6	0.7	0.3	2.2	..	3.3
Psychiatry	12.9	4.2	2.4	0.3	1.7	..	10.0
FTE per 100,000 population							
Cardiology	6.7	1.9	0.5	1.2	–	..	5.0
Paediatric medicine	5.6	4.0	2.7	1.5	–	..	4.9
General surgery	7.1	6.3	5.6	3.4	2.2	..	6.8
Orthopaedic surgery	6.0	4.8	2.3	0.3	–	..	5.4
Anaesthesia	16.7	9.0	6.7	2.5	–	..	14.3
Diagnostic radiology	8.2	5.0	2.4	–	–	..	7.0
Obstetric & gynaecology	9.3	5.3	4.4	2.2	–	..	7.9
Ophthalmology	4.9	2.1	0.9	0.6	2.8	..	3.9
Psychiatry	15.0	4.9	2.7	0.6	1.7	..	11.5

Notes

1. FTE are based on the number of hours worked in the main and second location. A number of FTE worked in a third location are omitted.
2. Full time equivalents (FTE) are based on a 35-hour week.
3. ASGC Remoteness Area is that of the main location of the specialist's practice.

Source: AIHW Medical Labour Force Survey, 2001.

With the exception of cardiologists, psychiatrists and obstetricians/gynaecologists, selected specialists based in Inner Regional areas worked longer hours that those in Major Cities (Table 3.5.2.8).

Table 3.5.2.8: Selected specialities: average hours worked by employed specialists based in each area, 2001

Specialty	MC	IR	OR	R	VR	Unknown	Australia
Cardiology	**55**	**54**	41	62	..	29	54
Paediatric medicine	**46**	**55**	**44**	33	..	29	47
General surgery	**54**	**55**	**51**	67	64	22	52
Orthopaedic surgery	**53**	**57**	**58**	24	..	43	54
Anaesthesia	**46**	**48**	**51**	72	..	37	46
Diagnostic radiology	**45**	**47**	**47**	..	..	26	44
Obstetric & gynaecology	**50**	**50**	**50**	66	..	19	49
Ophthalmology	**44**	**45**	**38**	31	44	16	43
Psychiatry	**42**	**40**	**36**	54	35	23	41

Notes

1. ASGC Remoteness Area is that of the main location of the specialist's practice.
2. Averages in bold font are based on 10 or more specialists in that area. Where there are fewer than 10 specialists in an area, the average is not bold.

Source: AIHW Medical Labour Force Survey, 2001.

Inner Regional-based paediatricians worked an average 9 hours longer each week than those based in Major Cities, orthopaedic surgeons 4 hours, anaesthetists and radiologists 2 hours, and general surgeons and ophthalmologists 1 hour longer. Obstetricians/gynaecologists worked about 50 hours per week whether based in Major Cities, Inner Regional or Outer Regional areas.

Of the selected specialists based in Outer Regional areas, only orthopaedic surgeons, anaesthetists and radiologists worked longer hours than those based in Major Cities (5, 5 and 2 hours respectively).

Ratios of specialists per 100,000 expected consultations have not been presented because the necessary information required to calculate these (e.g. Major Cities rates of consultation and rate of procedure for each specialty by 5-year age group and sex) is not available. However, it is clear that for specialties such as paediatrics and obstetrics and gynaecology, rates calculated using expected consultations as the denominator may show greater disparity between Major Cities and regional/remote areas because of the relatively greater numbers of children and higher fertility rates in regional and remote areas (see sections 2.3.1 (demography) and 2.3.4 (fertility)). For other specialities, such as cardiology, where patients are typically older, use of expected consultations as the denominator may reduce the apparent differences between Major Cities and regional/remote areas. Further work in this area is needed.

Reduced access to specialists such as paediatricians, obstetricians and psychiatrists, may increase the demand on regional and remote area GPs to service these needs in addition to providing GP services.

So as to access specialists, it is necessary (to a greater or lesser extent depending on the specialty) for people living in regional and remote areas to travel substantial distances. Costs of travel and accommodation during treatment (for both the patient and possibly the accompanying carer), disruption to work and family life, and in many cases the extra burden of negotiating a city environment are likely to reduce access by residents of regional and remote areas. Financial assistance is provided under such schemes as the NSW Isolated Patients' Travel and Accommodation Assistance Scheme (IPTAAS) (NSW Health 2003) to relieve these problems.

Specialists-in-training

Table 3.5.2.9 compares the numbers of specialists-in-training in each area.

It is not currently possible to describe the number of expected consultations for these clinicians because sex- and age-specific rates of use in Major Cities are unknown.

Table 3.5.2.9: Numbers of employed specialists-in-training, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Number of specialists-in-training (main location of practice)	4,646	355	165	16	2	246	5,429
Specialists-in-training per 100,000 population	36	9	8	5	1	n.a.	28
FTE (main location of practice)	6,665	539	240	26	3	261	7,734
Rate FTE per 100,000 population	52	13	12	8	2	n.a.	40
FTE (main and second locations of practice)[(a)]	6,598	534	239	25	5	333	7,734
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

(a) FTE in main and secondary locations does not include 29 FTE spent working in a third location (which are included among the 'Unknown').

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the 2001 survey have been weighted-up to account for non-responders.

Source: AIHW Medical Labour Force Survey, 2001.

Cautions pertaining to interpretation are basically the same as for GPs presented previously (that is, these figures do not take into account the population's need, dispersed patterns of settlement or the possible presence of temporary resident doctors).

Table 3.5.2.9 shows that the ratio of specialists-in-training to population was highest in Major Cities, and was 0.24, 0.23, 0.14 and 0.02 times the Major Cities rate in Inner and Outer Regional, and Remote and Very Remote areas, respectively. Comparison of the ratio of FTEs to population shows the same pattern.

Nurses

The most recent national data describing nurses are provided by the 2001 AIHW Nursing Labour Force Survey (AIHW 2003g).

Altogether, there were 267,575 registered and enrolled nurses, of whom 228,230 were working in Australia as nurses. Most (88.4%) of these nurses worked as clinicians, the rest worked in administration, in research, education or other non-clinical roles.

Table 3.5.2.10 describes the number of nurses working in each broad ASGC Remoteness Area. Of all registered or enrolled nurses, 77.1% responded to the survey, and of those who responded, about 9% provided insufficient information to allow reporting by Remoteness Area.

From Table 3.5.2.10, the supply of nurses in regional and remote areas was similar to, or slightly lower than supply in Major Cities. There was a greater per capita supply of enrolled nurses (ENs) in regional and remote areas than in Major Cities, but a lower supply of registered nurses (RNs).

In Inner Regional, Outer Regional, Remote and Very Remote areas, based on the number of nurses per 100,000 population, the prevalence of:

- nurses was 1.05, 1.00, 0.98 and 0.90 times that in Major Cities respectively
- ENs was 1.58, 1.76, 1.76 and 1.16 times that in Major Cities respectively
- RNs was 0.94, 0.85, 0.83 and 0.85 times that in Major Cities respectively.

Each week, on average:

- nurses worked 30.5 hours in Major Cities, 30 hours in regional and Remote areas, and 33 hours in Very Remote areas
- ENs worked 30 hours in Major Cities, 28–29 hours in regional and Remote areas, and 32 hours in Very Remote areas
- RNs worked 31 hours in Major Cities, 30.5 hours in regional areas, 31 hours in Remote areas, and 34 hours in Very Remote areas.

Table 3.5.2.10: Numbers of employed nurses, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Registered nurses							
Number of nurses (main location of work)	114,068	33,643	15,160	2,371	1,350	16,631	183,223
Nurses per 100,000 population	886	836	753	731	756	n.a.	944
Nurses per 100,000 expected consultations	2,821	2,551	2,312	2,269	2,342	n.a.	2,965
FTE (main location of work)	100,698	29,302	13,243	2,103	1,305	14,676	161,328
Rate FTE per 100,000 population	782	728	658	648	731	n.a.	831
Rate FTE per 100,000 expected consultations	2491	2222	2020	2012	2263	n.a.	2611
Enrolled nurses							
Number (nurses by main location of work)	22,191	10,996	6,104	984	357	4,373	45,005
Nurses per 100,000 population	172	273	303	303	200	n.a.	232
Nurses per 100,000 expected consultations	549	834	931	942	619	n.a.	728.3
FTE (main location of work)	18,914	9,053	5,056	779	323	3,622	37,748
Rate FTE per 100,000 population	147	225	251	240	181	n.a.	194
Rate FTE per 100,000 expected consultations	468	687	771	746	560	n.a.	611
All nurses							
Number of nurses (main location of work)	136,259	44,639	21,264	3,355	1,707	21,003	228,227
Nurses per 100,000 population	1,059	1,109	1,056	1,035	956	n.a.	1,176
Nurses per 100,000 expected consultations	3,370	3,385	3,243	3,210	2,961	n.a.	3693.3
FTE (main location of work)	119,623	38,361	18,303	2,884	1,629	18,320	199,133
Rate FTE per 100,000 population	929	953	909	889	912	n.a.	1026
Rate FTE per 100,000 expected consultations	2,959	2,909	2,792	2,759	2,824	n.a.	3,222
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the survey have been weighted-up to account for non-responders.
3. Expected consultations are the number expected in each area in 2001 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey.

Source: AIHW Medical Labour Force Survey, 2001.

Dentists

Dental labour force data is held by the Dental Statistics and Research Unit in Adelaide. The latest published dental statistics available are for 2000 (Teusner and Spencer 2003). Published data use the older geographic classification, RRMA, rather than ASGC Remoteness Areas, and report for capital cities and 'rest of state'.

In 2000, there were 10,609 dentists registered in Australia, of whom 8,991 were employed in Australia. Of these, 97% worked as clinicians.

The prevalence of dentists was higher in capital cities, where there were 55.7 dentists per 100,000 population, compared with areas outside capital cities, where there were 31.4 dentists per 100, 000 population.

Pharmacists

The most recent national data describing pharmacists are provided by the 1999 AIHW Pharmacy Labour Force Survey (AIHW 2003h).

Altogether, there were 18,853 registered pharmacists, of whom 14,717 were working in Australia as pharmacists.

Table 3.5.2.11 describes the number of pharmacists working in each broad ASGC Remoteness Area. Of the 76.3% of pharmacists who responded to the survey (14,391 altogether), 19% provided insufficient information to allow reporting by Remoteness Area.

Table 3.5.2.11: Numbers of employed pharmacists, by ASGC Remoteness Areas, 1999

	MC	IR	OR	R	VR	Unknown	Australia
Number of pharmacists (main location of work)	10,284	2,446	1,037	120	49	781	14,717
Pharmacists per 100,000 population	82	63	52	37	28	n.a.	78
Pharmacists per 100,000 expected consultations	76	59	49	35	26	n.a.	72
FTE (main location of practice)	10,914	2,518	1,164	151	60	551	15,359
Rate FTE per 100,000 population	87	64	58	47	34	n.a.	81
Rate FTE per 100,000 expected consultations	80	61	55	44	32	n.a.	75
FTE (based on hours worked in main and second locations of practice)	10,874	2,515	1,161	152	59	593	15,354
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the survey have been weighted-up to account for non-responders.
3. Expected consultations are the number expected in each area in 1999 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey. The total number of FTEs in Australia, presented by location of main practice and based on the number of hours worked in the main and in the second location, should be identical. Discrepancies are due to incomplete information on the hours worked in the main and the second location in a small number of records.

Source: AIHW Pharmacy Labour Force Survey, 1999.

By all of the comparison statistics, the supply of pharmacists was lower in regional and remote areas than it was inside Major Cities.

Comparison of pharmacists with population shows that ratios were lower outside Major Cities (0.76, 0.63, 0.45 and 0.34 times in the four Remoteness Areas) than in Major Cities.

The same pattern held for the other comparison statistics, but the longer hours worked by pharmacists in Remote and Very Remote areas are reflected in higher ratios of FTEs to population and to expected consultations in these areas (0.54 and 0.39 times the rate in Major Cities, respectively). Pharmacists worked an average of 38 and 37 hours per week in Major Cities and Inner Regional areas, and 41 and 44 hours per week in Outer Regional and remote areas, respectively.

Podiatrists

The most recent national data describing podiatrists is provided by the 1999 AIHW Podiatry Labour Force Survey (AIHW 2002b). These data exclude the Northern Territory (where podiatry is not a registrable profession).

Altogether, there were 2,239 registered podiatrists, of whom 2,011 were working in Australia as podiatrists. Most (98%) of these podiatrists were clinicians; the rest worked in administration, research, education or other roles.

Table 3.5.2.12 describes the number of podiatrists working in each broad ASGC Remoteness Area. A total of 1,448 podiatrists (64.7%) responded to the survey. Of these, 15% provided insufficient information to allow reporting by Remoteness Area.

Table 3.5.2.12: Numbers of employed podiatrists, by ASGC Remoteness Areas, 1999

	MC	IR	OR	R	VR	Unknown	Australia
Number of podiatrists (main location of practice)	1,417	359	80	13	3	140	2,011
Podiatrists per 100,000 population	11.3	9.2	4.0	4.1	1.6	n.a.	10.6
Podiatrists per 100,000 expected consultations	45.3	34.9	16.3	20.4	9.9	n.a.	42.5
FTE (main location of practice)	1,394	352	79	13	3	136	1,977
Rate FTE per 100,000 population	11.1	9.0	4.0	4.1	1.6	n.a.	10.4
Rate FTE per 100,000 expected consultations	44.6	34.27	16.08	20.39	9.93	n.a.	41.73
FTE (main and second locations of practice)	1,366	399	79	14	3	107	1,909
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the survey have been weighted-up to account for non-responders.
3. Expected consultations are the number expected in each area in 1999 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey. The total number of FTEs in Australia, presented by location of main practice and based on the number of hours worked in the main and in the second location, should be identical. Discrepancies are due to incomplete information on the hours worked in the main and the second location in a small number of records.

Source: AIHW Podiatry Labour Force Survey, 1999.

All of the comparison statistics show a lower supply of podiatrists in regional and remote areas than in Major Cities.

Comparison of podiatrists with population shows that ratios in Inner Regional areas (9.2) were slightly lower than those in Major Cities (11.3), those in Outer Regional (4.0) and Remote (4.1) areas were about one-third, and those in Very Remote areas (1.6) about one-seventh those in Major Cities. The pattern for the other comparison statistics is similar. Use of 'expected consultations' as the denominator tended to improve the ratios in remote areas, a reflection of the relatively large numbers of children and small numbers of elderly people living there.

Podiatrists worked an average of 34–36 hours per week in Major Cities and regional areas, and an average of 39–41 hours per week in remote areas.

Physiotherapists

The most recent national data describing podiatrists is provided by the 1998 AIHW Physiotherapy Labour Force Survey (AIHW 2000b).

Altogether, there were estimated to be 14,722 registered physiotherapists, of whom 11,304 were working in Australia as physiotherapists. Most (96%) of these physiotherapists were clinicians; the rest worked in administration, research, education or other roles.

Table 3.5.2.13 describes the number of physiotherapists working in each broad ASGC Remoteness Area (excluding those from ACT and Tasmania). The response rate to this survey was approximately 76% (excluding ACT and Tasmania). Of those employed physiotherapists who responded, about 8% provided insufficient information to allow reporting by Remoteness area.

Table 3.5.2.13: Numbers of employed physiotherapists, by ASGC Remoteness Areas, 1998

	MC	IR	OR	R	VR	Unknown	Australia
Number of physiotherapists (main location of practice)	7,703	1,456	643	121	24	813	10,760
Physiotherapists per 100,000 population	61.5	37.2	32.3	37.5	13.7	n.a.	56.9
Physiotherapists per 100,000 expected consultations	120.1	78.6	68.7	77.5	29.7	n.a.	114.0
FTE (main location of practice)	7,034	1,317	597	103	21	724	9,796
Rate FTE per 100,000 population	57.6	36.5	32.6	32.7	12.0	n.a.	54.0
Rate FTE per 100,000 expected consultations	109.7	71.0	63.8	65.9	25.2	n.a.	103.8
FTE (main and second locations of practice)	6,721	1,258	571	96	15	810	9,471
Population ('000s)	12,214	3,610	1,829	315	171	n.a.	18,139

Notes

1. Estimates and population data excludes data from ACT and Tasmania.
2. Full time equivalents (FTEs) are based on a 35-hour week.
3. Results from the survey have been weighted-up to account for non-responders.
4. Expected consultations are the number expected in each area in 1998 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey. The total number of FTEs in Australia, presented by location of main practice and based on the number of hours worked in the main and in the second location, should be identical. Discrepancies are due to incomplete information on the hours worked in the main and the second location in a small number of records.

Source: AIHW Physiotherapy Labour Force Survey, 1998.

All of the comparison statistics indicate that the supply of physiotherapists was lower in regional and remote areas than in Major Cities. Comparison of physiotherapists with population shows that ratios in regional and Remote areas were 0.6 times those in Major Cities, and those in Very Remote areas were 0.2 times those in Major Cities. The patterns for the other comparison statistics are almost identical.

Physiotherapists worked an average of 34–36 hours per week in Major Cities, regional and Remote areas, and an average of 46 hours per week in Very Remote areas.

Occupational therapists

The most recent national data describing occupational therapists are provided by the 1998 AIHW Occupational Therapy Labour Force Survey and relates to all jurisdictions except New South Wales, South Australia and Tasmania, where the survey was not distributed (AIHW 2001d).

Altogether, there were estimated to be 3,688 registered occupational therapists in 1998, of whom 3,115 were working in Australia as occupational therapists. Most (89%) of these were clinicians; the rest worked in administration, research, education or other roles.

Table 3.5.2.14 below describes the number of occupational therapists working in each broad ASGC Remoteness Area. The response rate to this survey was approximately 62%. Of those employed occupational therapists who responded, about 4% provided insufficient information to allow reporting by Remoteness Area.

Table 3.5.2.14: Numbers of employed occupational therapists, by ASGC Remoteness Areas, 1998

	MC	IR	OR	R	VR	Unknown	Australia
Number of occupational therapists (main location of practice)	2,181	436	219	57	12	104	3,009
Occupational therapists per 100,000 population	31.7	20.6	18.7	24.9	8.3	n.a.	28.5
Occupational therapists per 100,000 expected consultations	411.8	261.5	238.2	317.1	105.1	n.a.	367.9
FTE (main location of practice)	2,019	386	197	46	10	55	2,713
Rate FTE per 100,000 population	29.3	18.2	16.8	19.9	6.9	n.a.	25.7
Rate FTE per 100,000 expected consultations	381.2	231.6	214.2	253.8	87.7	n.a.	331.7
FTE (main and second locations of practice)	2,005	385	196	46	10	71	2,713
Population ('000s)	6,879	2,114	1,171	230	149		10,543

Notes

1. Estimates and population data excludes data from NSW, SA and Tasmania.
2. Full time equivalents (FTEs) are based on a 35-hour week.
3. The number of respondents did not provide sufficient information to allocate a Remoteness category.
4. Results from the survey have been weighted-up to account for non-responders.
5. Expected consultations are the number expected in each area in 1998 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey.

Source: AIHW Occupational Therapy Labour Force Survey, 1998.

All of the comparison rates described in Table 3.5.2.14 indicate that the supply of occupational therapists was lower in country areas than it was inside Major Cities. Comparison of occupational therapists with population shows that ratios in regional and Remote areas were 0.6 to 0.7 times those in Major Cities, and those in Very Remote areas were 0.25 times those in Major Cities. The patterns for the other comparison statistics are similar.

Occupational therapists worked an average of 32–33 hours per week in Major Cities and regional areas, and an average of 28–29 hours per week in remote areas.

3.5.5 Dental consultations

Summary of findings

A lack of information with which to calculate statistical significance has reduced the confidence with which these results can be reported. However, compared with their counterparts in Major Cities:

- males from regional areas consulted a dentist as often, or slightly more often
- females from regional areas consulted a dentist less often.

In line with other published results (ABS 2002b), people appear to have been more likely to visit a dentist in 2001 than in 1995. However, without some measure of statistical significance, it is unclear whether people in regional areas visit the dentist less than, more than or to the same extent as people in Major Cities.

Background

Compared with Major Cities, relatively low numbers of dentists in regional areas (Teusner & Spencer 2003) and relatively low incomes (page 146) may affect the opportunity for people in regional areas to consult a dentist.

The basic data from which these indicators have been calculated were the 1995 and 2001 ABS National Health Survey (NHS). About 54,000 and 26,000 people participated in these face-to-face surveys, respectively. The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres.

Values of standard error for estimates of the mean number of times a dentist was consulted annually were not available. This prevents discussion of the statistical significance of the differences.

The age-standardisation process was direct, and involved applying the age-specific averages from each sex and area to the 2001 Australian population in each age group. The resultant total 'expected' number of dental visits was then divided by the total 2001 Australian population, to give a direct age-standardised average (see page 302—statistical methods section).

Detailed results

In 2001, males and females consulted a dentist 1.8 and 2.1 times on average during the year.

Without a measure of statistical significance, it is unclear whether ABS NHS data presented here indicate real regional differences.

However, 2001 survey data suggest that males and females in regional areas consulted a dentist slightly more frequently and slightly less frequently, respectively, than those in Major Cities.

Results from the 1995 survey show lower average numbers of consultations for females in regional areas (similar to the pattern in 2001), and lower average numbers of consultations for males in regional areas (in contrast to the pattern in 2001).

The average number of consultations for non-Indigenous people was similar to that for the total population, except in Outer Regional areas where the average for females was slightly lower than for the total female population.

The 2001 NHS survey results suggested that Indigenous people were slightly less likely than non-Indigenous people to consult a dentist in the 2 weeks prior to the survey, but it is not clear that likelihoods for the two groups were statistically significantly different (ABS 2002a).

Table 3.5.5.1: Direct age-standardised mean number of annual dental consultations by ASGC Remoteness Area, 1995 and 2001

	Males				Females			
	MC	IR	OR	Australia	MC	IR	OR	Australia
2001 total population	1.7	2.0	1.9	1.8	2.2	1.8	1.7	2.1
2001 non-Indigenous	1.7	2.0	1.9	1.8	2.2	1.8	1.8	2.1
1995 total population	1.8	1.5	1.6	1.7	1.9	1.8	1.7	1.9
1995 non-Indigenous	1.8	1.6	1.6	1.7	1.9	1.8	1.8	1.9

Note: Directly age-standardised to the Australian population in 2001.

Source: ABS National Health Survey, Australia, 1995 and 2001.

3.8 Capability

3.8.1 Public hospitals

Summary of findings

The percentage of hospital establishments that are accredited was lower in regional and remote areas than in Major Cities, even when comparison is made across hospital peer groups.

There were more beds per 1,000 population in regional areas (2.6 and 3.4 beds) and especially remote areas (5.2 and 5.0 beds) than in Major Cities (2.5 beds). Hospitals in regional and especially remote areas tended to have fewer beds than those in Major Cities.

Hospital beds in Major Cities tended to be mainly in principal referral hospitals, women's and children's hospitals, and other large hospitals, whereas those in regional areas were in principal referral hospitals, other large hospitals, medium hospitals and small acute hospitals, and those in remote areas were mostly in small acute hospitals, sub- and non-acute hospitals, and 'un-peered and other acute' hospitals.

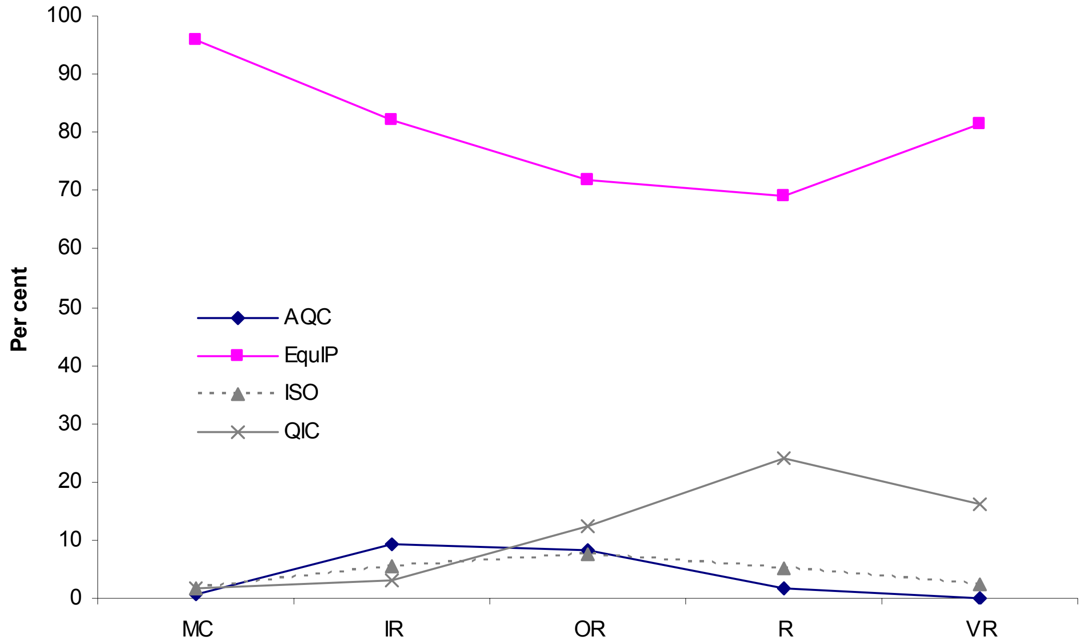
Many hospitals in regional and remote areas had, on average, fewer than 30 beds. However, there were a number (33) of large hospitals in regional (mainly Inner Regional) areas with 100–300 beds.

Background

In this section, national data describing the location of public hospitals by hospital 'peer group' (i.e. group of hospitals with similar activity) are presented for the financial year 2002–03. Details of hospital accreditation are also provided.

The source of the data is the AIHW National Hospitals Establishment Database. Information about private hospitals is not included; this indicator refers only to public hospitals and includes public psychiatric hospitals.

Accreditation of hospitals can be through one of several accreditation programs. Most hospitals are accredited through the Australian Council on Healthcare Standards (ACHS) Evaluation and Quality Improvement Program (EquIP), and others through programs administered by the Australian Quality Council (AQC), the Quality Improvement Council (QIC) and the International Standards Organisation (ISO). The different standards used in each program may affect inter-regional comparisons, although the magnitude of the effect is assumed to be small. Figure 3.8.1.1 shows that EquIP accreditation is less prevalent in regional and remote areas; AQC and ISO accreditation are both more common in regional hospitals than in the other areas; and QIC accreditation is more common in remote areas.



Note: Accreditation programs include the EquIP program, and others administered by the Australian Quality Council, the Quality Improvement Council and the International Standards Organisation.

Source: AIHW Hospital Establishments Database.

Figure 3.8.1.1: The percentage of hospital accreditations allocated under each accreditation program, by ASGC Remoteness Area, 2002–03

Peer groups (see Table 3.8.1.1) are groups of hospitals with similar activity and geography. They have been used here for convenience to group broadly similar types of hospitals for inter-regional comparison.

Detailed results

Hospitals in regional areas typically have fewer beds, and whereas the several large hospitals in a major city are likely to be easily accessed by the city's residents, the scattered, smaller hospitals of regional and especially remote areas may be geographically close for some, but distant for many other residents.

Interpretation of tables should take into account the following issues:

- Regional and remote area residents may have to access a 'Principal referral hospital' or other large hospital in a Major City for specialist interventions and care. Comparisons of the ratio of beds to population presented in the tables do not take this into account.
- Residents of Major Cities are very unlikely to access a regional or remote area hospital.
- Patterns of service in regional and remote area hospitals are likely to be different from those in Major Cities, which is reflected in their peer grouping. For example, although small regional/remote area hospitals may have to be able to deal with serious trauma, many of their beds may act as accommodation for nursing home-type patients.

Table 3.8.1.2 describes the number of public hospital establishments that are accredited in each peer group, in each ASGC Remoteness Area.

As would be expected, hospitals in regional and especially remote areas were found to have fewer beds than those in Major Cities. However, there were a substantial number of large hospitals in regional (especially Inner Regional) areas, and of small acute hospitals in regional and remote areas. A proportion of hospitals in regional areas and a large proportion of hospitals in remote areas were categorised as 'un-peered and other'.

Compared with Major Cities hospitals, a smaller proportion of regional and remote area hospitals were accredited: 94% of hospitals in Major Cities were accredited, 84% and 71% were accredited in Inner and Outer Regional areas, respectively, and just over 60% in remote areas. Almost all large hospitals were accredited, but some of the small acute hospitals were not, and typically only about half of the sub- and non-acute hospitals, and those classified as 'un-peered and other', were accredited.

Table 3.8.1.3 describes the number of hospital beds in each ASGC Remoteness Area that are in accredited hospitals of each peer group.

Just over 60% of hospital beds were in hospitals located in Major Cities, and almost 70% of these were in principal referral hospitals or specialist women's and children's hospitals. Almost half of hospital beds in Inner Regional areas were in principal referral or large hospitals, 25% in medium and 16% in small acute hospitals. Only 21% of hospital beds in Outer Regional areas were in principal referral or large hospitals, compared with 25% in medium and 16% in small acute hospitals. In remote areas, larger proportions of beds were in small acute hospitals (59%), sub- and non-acute hospitals (18%) and 'un-peered and other' hospitals (14%).

The percentage of all beds that are in accredited hospitals was lower in regional and remote areas than in Major Cities where 98% of all beds were in accredited hospitals. Beds in larger hospitals (e.g. small acute hospitals and larger) were more likely to be in accredited hospitals than those in sub- and non-acute hospitals.

Table 3.8.1.4 describes the average number of beds per hospital establishment, the ratio of beds to population in each peer group and ASGC Remoteness Area.

As would be expected, there were, on average, fewer beds in Inner (55) and Outer (30) Regional and Remote (18) and Very Remote (13) area hospitals than those in Major Cities hospitals (190).

There were 2.5 hospital beds per 1,000 Major Cities residents, and 2.6, 2.4, 5.2 and 5.0 hospital beds per 1,000 residents in Inner and Outer Regional, Remote and Very Remote areas, respectively.

Table 3.8.1.1: Hospital peer group classification

Peer group	Definition
Principal referral and specialist women's and children's hospitals	A1 Major city hospitals with > 20,000 acute casemix-adjusted separations and Regional hospitals with > 16,000 acute casemix-adjusted separations per annum.
	A2 Specialised acute women's and children's hospitals with > 10,000 acute casemix-adjusted separations per annum.
Large hospitals	B1 Major city acute hospitals treating > 10,000 acute casemix-adjusted separations per annum.
	B2 Regional acute hospitals treating > 8,000 acute casemix-adjusted separations per annum and remote hospitals with > 5,000 casemix-weighted separations.
Medium hospitals	C1 Medium acute hospitals in Regional and Major Cities areas, treating between 5,000 and 10,000 acute casemix-adjusted separations per annum.
	C2 Medium acute hospitals in Regional and Major Cities areas, treating between 2,000 and 5,000 acute casemix-adjusted separations per annum, and acute hospitals treating < 2,000 casemix-adjusted separations per annum but with > 2,000 separations per annum.
Small acute hospitals	Small Regional acute hospitals (mainly small country town hospitals) acute hospitals treating < 2,000 separations per annum, and with less than 40% non-acute and outlier patient-days of total patient-days.
	Small remote hospitals (< 5,000 acute casemix weighted separations but not 'Multi-purpose service' and not 'Small non-acute'). Most are < 2,000 separations.
Sub-acute and non-acute hospitals	For this category, a majority of patient-days are generally accounted for by rehabilitative, palliative care and non-acute patients:
	Small non-acute hospitals, treating < 2,000 separations per annum, and with more than 40% non-acute and outlier patient-days of total patient-days.
	Multi-purpose services
	Hospices
	Rehabilitation
	Mothercraft
Other non-acute hospitals	For example, geriatric treatment centres combining rehabilitation and palliative care with a few acute patients.
Un-peered and other hospitals	Prison medical services, special circumstance hospitals, Major Cities hospitals with < 2,000 acute casemix-adjusted separations, hospitals with < 200 separations, etc.
Psychiatric hospitals	

Source: Australian Hospital Statistics 2002–03 Appendix 4 (AIHW 2004b).

Table 3.8.1.2: The number of public hospitals, and those accredited, by peer group, in each ASGC Remoteness Area, 2002–03

Peer group		Number of accredited establishments						Total number of establishments						Per cent of establishments accredited					
Group name	**Key**	**MC**	**IR**	**OR**	**R**	**VR**	**Total**	**MC**	**IR**	**OR**	**R**	**VR**	**Total**	**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Principal referral	A1	44	11	3	—	—	58	45	11	3	—	—	59	98	100	100	..	..	98
	A2	11	—	—	—	—	11	11	—	—	—	—	11	100	..	..	..	..	100
Large hospitals	B1	26	—	—	—	—	26	26	—	—	—	—	26	100	..	..	..	..	100
	B2	—	16	3	2	—	21	—	17	3	2	—	22	..	94	100	100	..	95
Medium hospitals	C1	13	9	8	—	—	30	13	9	10	—	—	32	100	100	80	..	..	94
	C2	7	38	18	—	—	63	9	41	24	—	—	74	78	93	75	..	..	85
Small hospitals																			
Regional acute		—	33	37	—	—	70	—	37	47	—	—	84	..	89	79	..	..	83
Non-acute		7	29	44	12	4	96	7	40	52	16	6	121	100	73	85	75	67	79
Remote acute		—	—	—	12	15	27	—	—		20	22	42	..	..	..	60	68	64
Sub- and non-acute hospitals																			
Multipurpose services		—	5	20	13	3	41	—	5	37	21	8	71	..	100	54	62	38	58
Hospices		3	—	—	—	—	3	3	1	—	—	—	4	100	..	..	..	..	75
Rehabilitation		6	2	—	—	—	8	6	2	—	—	—	8	100	100	..	..	..	100
Mothercraft		7	—	—	—	—	7	9	—	—	—	—	9	78	..	..	..	..	78
Other non-acute		13	7	1	—	—	21	13	8	1	—	1	23	100	88	100	..	..	91
Other hospitals																			
Psychiatric		16	3	2	—	—	21	16	7	2	—	—	25	100	43	100	..	..	84
Un-peered and other		6	8	23	19	21	77	12	14	45	33	33	137	50	57	51	58	64	56
Total		**159**	**161**	**159**	**58**	**43**	**580**	**170**	**192**	**224**	**92**	**70**	**748**	**94**	**84**	**71**	**63**	**61**	**78**

Notes

1. For an interpretation of Key categories, see Table 3.8.1.1.
2. The number of hospitals reported can be affected by administrative and/or reporting arrangements and is not necessarily a measure of the number of physical hospital buildings or campuses.

Source: AIHW Hospital Establishments Database.

Table 3.8.1.3: The number of beds in public hospitals, and the percentage in accredited hospitals, by peer group, by ASGC Remoteness Area, 2002–03

Peer group		Total number of beds						Per cent of beds in accredited hospitals					
Group name	**Key**	**MC**	**IR**	**OR**	**R**	**VR**	**Total**	**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Principal referral	A1	19,360	2,866	1,000	..	..	23,226	98	100	100	..	..	99
	A2	2,397	..	..	..	..	2,397	100	..	..	..	..	100
Large hospitals	B1	4,135	..	..	..	..	4,135	100	..	..	..	..	100
	B2	..	2,249	436	250	..	2,935	..	96	100	100	..	97
Medium hospitals	C1	1,349	759	817	..	..	2,925	100	100	81	..	..	95
	C2	697	1,912	1,223	..	..	3,832	93	94	70	..	..	86
Small hospitals													
Regional acute		..	767	1,029	..	..	1,796	..	88	83	..	..	85
Non-acute		302	897	1,294	434	126	3,053	100	79	85	80	54	83
Remote acute		..	..	..	485	465	950	..	..	..	72	81	76
Sub- and non-acute hospitals													
Multipurpose services		..	56	467	318	134	975	..	100	49	56	40	53
Hospices		191	..	..	..	..	191	100	..	..	..	..	100
Rehabilitation		365	47	..	..	..	412	100	100	..	..	..	100
Mothercraft		226	..	..	..	..	226	73	..	..	..	..	73
Other non-acute		1,330	319	23	..	3	1,675	100	90	100	..	..	98
Other hospitals													
Psychiatric		1,751	630	118	..	..	2,499	100	75	100	..	..	94
Un-peered and other		115	133	365	204	158	975	47	71	58	80	70	65
Total		**32,218**	**10,634**	**6,772**	**1,691**	**885**	**52,200**	**98**	**93**	**81**	**76**	**69**	**94**

Note: For an interpretation of key categories, see Table 3.8.1.1.

Source: AIHW Hospital Establishments Database.

Table 3.8.1.4: The average number of beds per hospital and the ratio of beds to population in each peer group and ASGC Remoteness Area, 2002–03

Peer group		Average number of beds per public hospital						Average number of beds per 1,000 residents					
Group name	**Key**	**MC**	**IR**	**OR**	**R**	**VR**	**Total**	**MC**	**IR**	**OR**	**R**	**VR**	**Total**
Principal referral	A1	430	261	333	..	..	394	1.50	0.71	0.50	—	—	1.20
	A2	218	..	..	..	..	218	0.19	—	—	—	—	0.12
Large hospitals	B1	159	..	..	..	..	159	0.32	—	—	—	—	0.21
	B2	..	132	145	125	..	133	—	0.56	0.22	0.77	—	0.15
Medium hospitals	C1	104	84	82	..	..	91	0.10	0.19	0.41	—	—	0.15
	C2	77	47	51	..	..	52	0.05	0.47	0.61	—	—	0.20
Small hospitals													
Regional acute		..	21	22	..	..	21	—	0.19	0.51	—	—	0.09
Non-acute		43	22	25	27	21	25	0.02	0.22	0.64	1.34	0.71	0.16
Remote acute		..	..	..	24	21	23	—	—	—	1.50	2.60	0.05
Sub- and non-acute hospitals													
Multipurpose services		..	11	13	15	17	14	0.00	0.01	0.23	0.98	0.75	0.05
Hospices		64	0	..	..	..	48	0.01	—	—	—	—	0.01
Rehabilitation		61	24	..	..	..	52	0.03	0.01	—	—	—	0.02
Mothercraft		25	..	..	..	..	25	0.02	—	—	—	—	0.01
Other non-acute		102	40	23	..	3	73	0.10	0.08	0.01	—	0.02	0.09
Other hospitals													
Psychiatric		109	90	59	..	..	100	0.14	0.16	0.06	—	—	0.13
Un-peered and other		10	10	8	6	5	7	0.01	0.03	0.18	0.63	0.88	0.05
Total		**190**	**55**	**30**	**18**	**13**	**70**	**2.50**	**2.64**	**3.36**	**5.21**	**4.96**	**2.69**

Note: For an interpretation of Key categories, see Table 3.8.1.1.

Source: AIHW Hospital Establishments Database.

3.9 Sustainability

3.9.1 Students commencing health-related tertiary education

Summary of findings

With some exceptions, young people from regional and remote areas are generally less likely, or much less likely to commence a health-related degree than young people from Major Cities.

In 1997, young people aged 17–20 years from regional and remote areas were 0.4 or 0.3 times as likely to commence a degree in medicine as those from Major Cities. By 2002, young people from Outer Regional and Remote areas were as likely to commence a degree in medicine as those from Major Cities, but those from Inner Regional and Very Remote areas were 0.6 and 0.4 times as likely, respectively.

Young people from Inner and Outer Regional areas were slightly more, and slightly less likely, respectively, to commence a degree in nursing than their counterparts from Major Cities; those from remote areas were 0.8 and 0.4 times as likely.

Young people from Inner and Outer Regional areas were 0.7 and 0.6 times as likely, respectively, as their counterparts from Major Cities to commence a degree in a selected allied health discipline; those from remote areas were less likely.

Young people from regional areas were one-tenth as likely as their counterparts from Major Cities to commence a degree in dentistry; those from remote areas were even less likely.

Young people from Inner and Outer Regional areas were 0.5 and 0.6 times as likely, respectively, as their counterparts from Major Cities to commence a degree in pharmacy; those from Remote and Very Remote areas were 0.4 and 0.3 times as likely, respectively.

Young people from Inner and Outer Regional areas were 0.2 and 0.3 times as likely, respectively, as their counterparts from Major Cities to commence a degree in optometry; those from remote areas were even less likely.

Background

Many health professions are under-represented in regional and remote areas. Students from regional and remote areas are believed to be more likely to work in those areas when they graduate than are those in Major Cities (Strasser 1992). Greater representation of students from regional and remote areas is likely to lead to better representation of the health professions in these areas.

The data presented here are from the Department of Education, Science and Training (DEST) Higher Education Enrolments database. Identification of the area from which students come is based on the postcode of their home address. Analysis has been restricted to 17–20-year-old Australian citizens and permanent residents commencing a bachelor's degree, on the basis that the home address (rather than the university residential address) of students of this age is likely to be that of their parents. It is assumed that this typically reflects the broad region in which they grew up. The great majority of these students are aged 18 years.

'Commencements' data has been selected rather than 'completions' data, because it is more likely that postcode of home address in the students' first year of study will reflect their parents' address and therefore the remoteness area in which the student grew up.

The classification of the field of study changed in 2001. While health-related courses were successfully concorded between the two classifications, this change may still have had a small effect on the results.

Details of postgraduate and degree commencements other than bachelor (e.g. associated diploma, diploma) have not been reported. Postgraduate degrees are likely to be started when students are older than the 17–20-year age group used here. In the health field, certificates, diplomas, associate degrees and so on constitute a small percentage (2%) of the overall courses started, and usually involve people who are older than 17–20 years.

In calculating the rates at which young people from each area commence study in each discipline, a substitute for the average number of children aged 12 years (based on the average number of 10–14-year-olds) resident in each remoteness area 6 years previously has been used as the denominator. This denominator is not perfect, but its choice does avoid one major problem. The number of people in the 15–19-year age group in each area outside Major Cities is likely to be affected by young people who migrate to Major Cities for work, as well as those who do so to study. The use of the number of 10–14-year-olds six years previously as the denominator avoids this problem. Sensitivity analysis suggests that this approach yields robust answers.

With the aim of broadening the knowledge base and communication skills of clinicians from a number of disciplines, there has been a move by some faculties to enrol graduates from other disciplines rather than high school leavers. For the later years, introduction of graduate enrolment in some courses may complicate comparisons between areas.

There is a clear difference between the regions in the level of courses commenced, with levels other than bachelor and postgraduate degrees (e.g. certificate, diploma) constituting about a third of commencements for people from Very Remote areas, which may indicate difficulties in accessing higher level courses (Table 3.9.1.1).

Table 3.9.1.1: Proportion of commencements in health-related courses by course level, students of all ages, 1997 and 2002

	MC	IR	OR	R	VR	Total
	Per cent					
1997						
Post graduate	37	28	29	30	29	35
Bachelor	61	70	66	60	37	63
Other tertiary	2	2	4	10	34	2
Total	100	100	100	100	100	100
2002						
Post graduate	37	25	28	34	35	34
Bachelor	62	71	66	56	35	64
Other tertiary	1	4	8	10	30	3
Total	100	100	100	100	100	100

Source: DEST Higher Education Enrolments data, 1997 and 2002.

Detailed results

There are substantial and sustained differences between the rate at which school leavers (17–20-year-olds) from each of the areas commence studies in a range of health disciplines (Figures 3.9.1.1–3.9.1.6).

Medicine

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 0.6, 1.2, 1.0 and 0.4 times as likely, respectively, to commence medicine as those from Major Cities (Figure 3.9.1.1). This represents a substantial change since 1997, when the ratios were lower (0.4, 0.3, 0.3 and 0.0). In 2000, there was a substantial increase in the rate at which young people from Outer Regional and Remote areas commenced medicine, an increase that was sustained through 2001 and 2002.

Possible contributors to the dramatic increase in Outer Regional and Remote areas include:

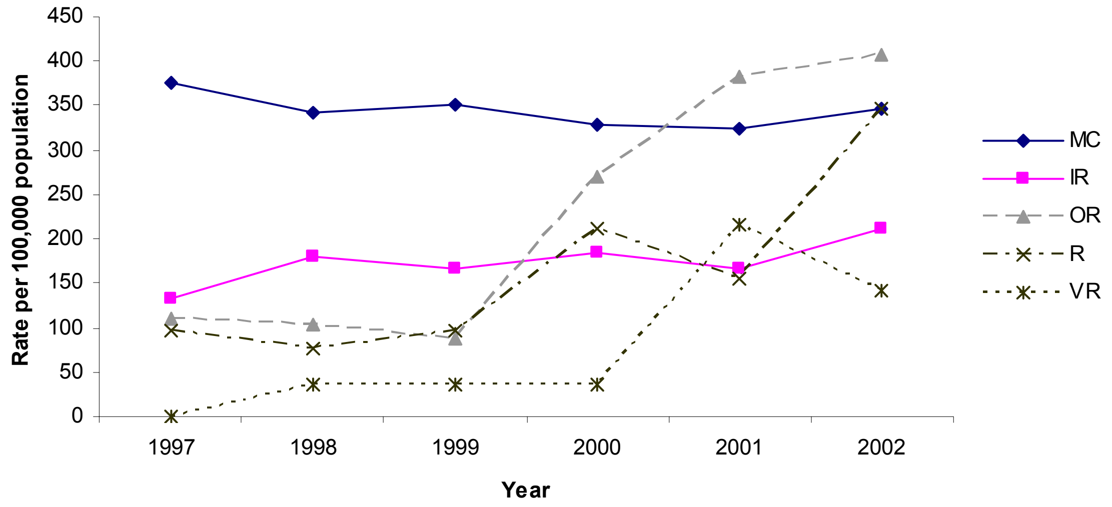
1. The introduction of the Rural Australia Medical Undergraduate Scheme (RAMUS) in the 1999–2000 Federal Budget with the first scholarships awarded in 2000. It provides $10,000 per year to students from a rural background and with a demonstrated financial need, to help with their travel and accommodation costs while studying for a medical degree. Scholarship holders' ties to rural Australia are reinforced through a rural doctor mentorship program which is an integral part of the scholarship scheme, as well as membership of their university's rural health club. The scheme has 500 scholarships with approximately 130 new scholarships available each year. There is strong competition for the scholarships with requests for scholarships exceeding the number available each year.
2. The Rural Undergraduate Support and Coordination (RUSC) Program. This commenced operation following the 1993–94 Commonwealth Budget and is an initiative to increase the number of medical graduates adopting a career in rural medicine. The Program provides targeted funding to Australian medical schools to facilitate and enhance change in three key areas: rural student selection, the enhancement of support systems for students and rural GP educators, and the coordination of rural curriculum placements for medical students.
3. The first intake of medical students to the James Cook University, Townsville, in 2000. Many of these are likely to have been sourced from regional/remote areas.
4. The efforts of rural-based health training units and university departments of rural health in encouraging rural high school students to consider a career in medicine.

Nursing

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 1.2, 0.9, 0.8 and 0.4 times as likely to commence nursing as those from Major Cities (Figure 3.9.1.2). There has been little change in these ratios for Inner Regional and Very Remote areas since 1997, but the rate at which young people from Outer Regional and Remote areas commence nursing has increased progressively; the corresponding ratios for these areas in 1997 were, respectively, 0.8 and 0.6.

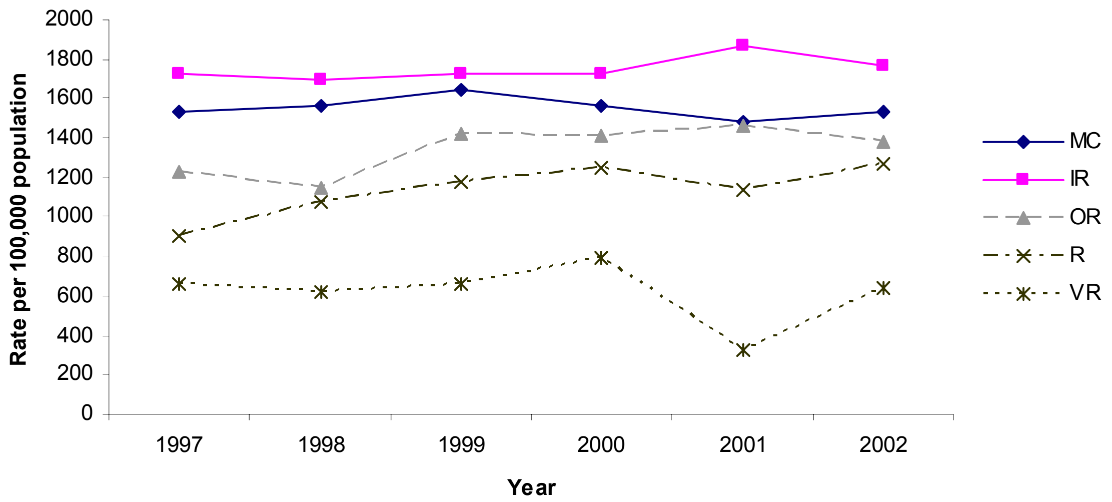
Allied health

In 2002, the rate at which young people from Major Cities commenced studies in the selected allied health fields (physiotherapy, occupational therapy, podiatry, radiography, speech pathology and nutrition/dietetics) increased overall since 1997 (Figure 3.9.1.3). The rate at which young people from Inner and Outer Regional areas commence studies increased correspondingly. There is no clear increase in the rate at which young people from remote areas commence a degree in allied health. In 2002, young people from Inner Regional, Outer Regional, Remote and Very Remote areas were 0.7, 0.6, 0.3 and 0.1 times as likely to commenced a bachelor's degree in an allied health discipline as those from Major Cities.



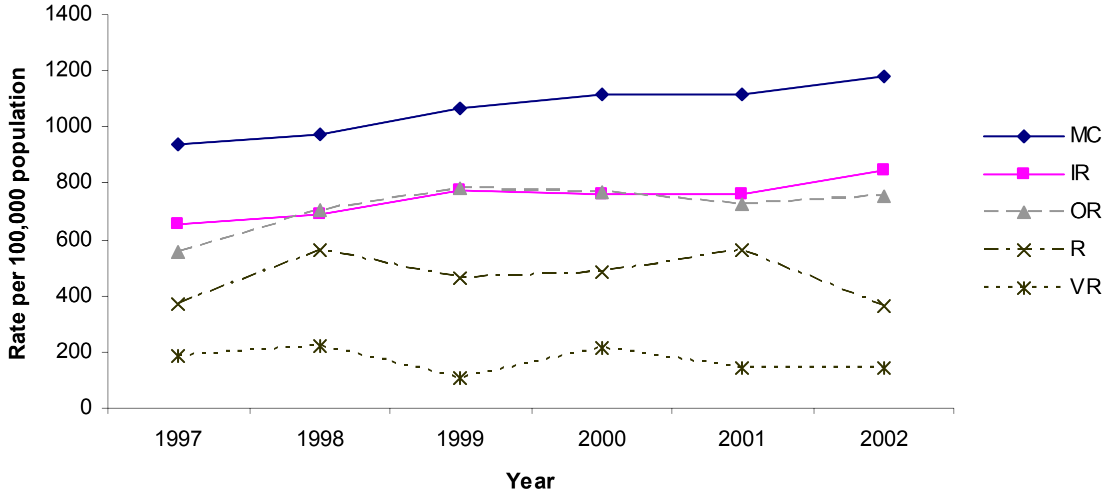
Source: DEST Higher Education Enrolments database.

Figure 3.9.1.1: Undergraduate commencement rate for medicine, 17–20-year-olds from each area, 1997–2002



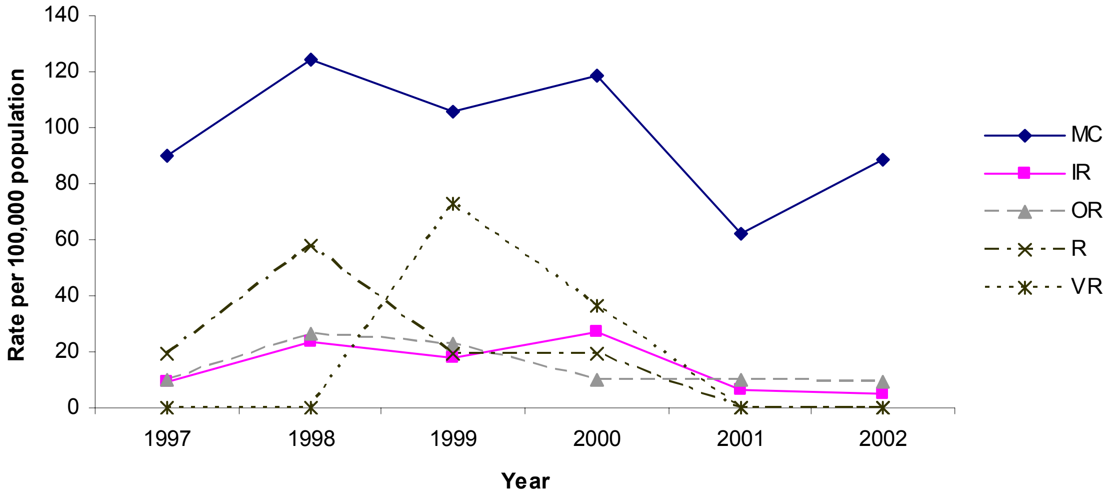
Source: DEST Higher Education Enrolments database.

Figure 3.9.1.2: Undergraduate commencement rate for nursing, 17–20-year-olds from each area, 1997–2002



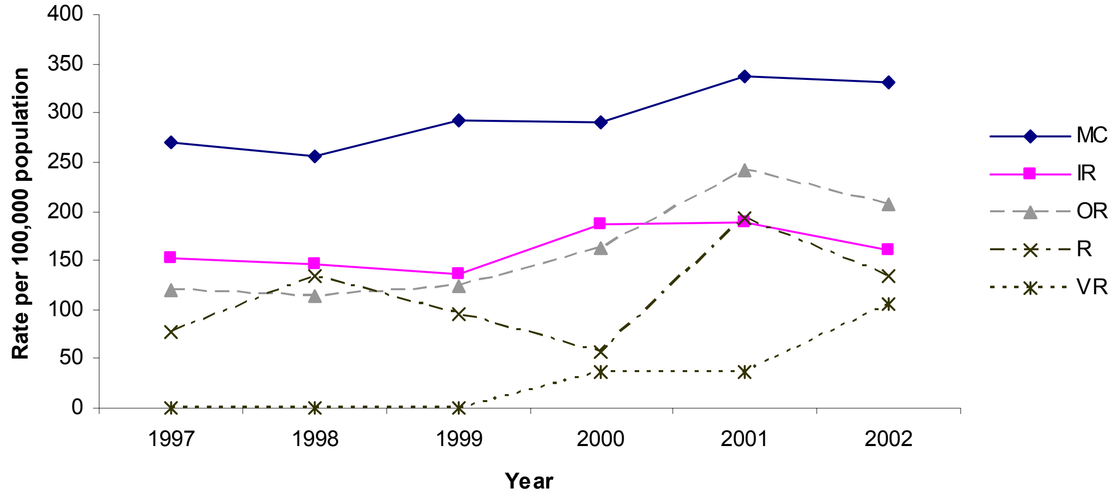
Source: DEST Higher Education Enrolments database.

Figure 3.9.1.3: Undergraduate commencement rate for selected allied health disciplines, 17–20-year-olds from each area, 1997–2002



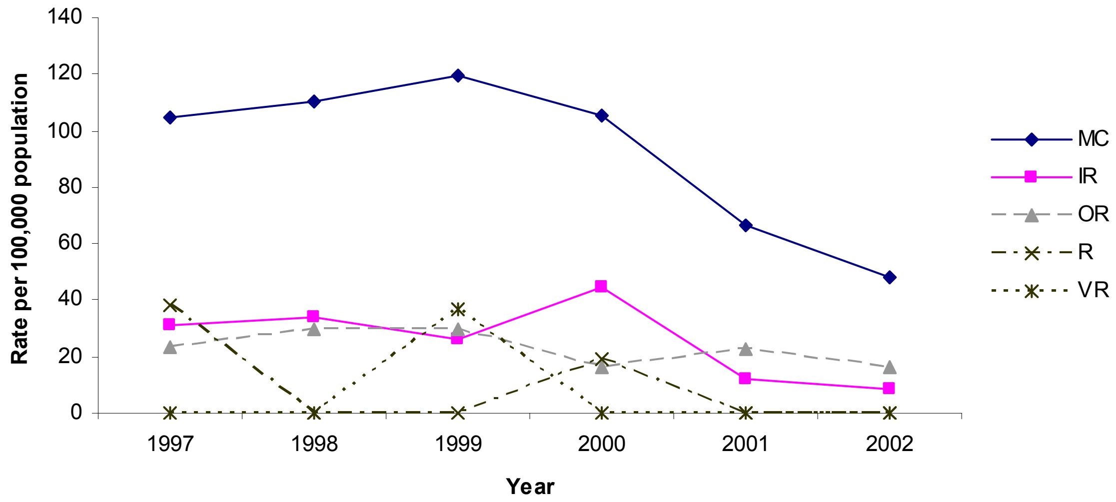
Source: DEST Higher Education Enrolments database.

Figure 3.9.1.4: Undergraduate commencement rate for dentistry, 17–20-year-olds from each area, 1997–2002



Source: DEST Higher Education Enrolments database.

Figure 3.9.1.5: Undergraduate commencement rate for pharmacy, 17–20-year-olds from each area, 1997–2002



Source: DEST Higher Education Enrolments database.

Figure 3.9.1.6: Undergraduate commencement rate for optometry, 17–20-year-olds from each area, 1997–2002

Dentistry

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 0.1, 0.1, 0.0 and 0.0 times as likely to commence a bachelor's degree in dentistry as those from Major Cities (Figure 3.9.1.4). This pattern is similar to that in previous years. The introduction of graduate entry is likely to be responsible for the overall decline in the rate at which young people commence a bachelor's degree in the field, but it is unlikely that this has had any impact on the very low representation of regional and remote students among them.

The numbers in remote areas fluctuate substantially from year to year, with some young people from these areas commencing dentistry in 1997–2000, but none in 2001 and 2002.

Pharmacy

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 0.5, 0.6, 0.4 and 0.3 times as likely to commence a bachelor's degree in pharmacy as those from Major Cities (Figure 3.9.1.5).

In 2002, the rate of commencement for young people from Major Cities was 1.23 times what it had been in 1997. Rates of commencement have also increased for young people from the other areas, such that the relative difference between Major Cities and Outer Regional/remote areas has decreased slightly (in 1997, young people from Outer Regional, Remote and Very Remote areas were, respectively, 0.4, 0.3 and 0.0 times as likely to commence a bachelor's degree in pharmacy).

Optometry

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 0.2, 0.3, 0.0 and 0.0 times as likely to commence a bachelor's degree in optometry as those from Major Cities (Figure 3.9.1.6). These ratios are based on relatively small numbers, but are indicative of the relatively lower rates of commencement for young people from regional and remote areas.

Overall rates of commencement by 17–20-year-olds have decreased from 1999, presumably as a consequence of the introduction of graduate enrolment.

Closing comments

Lower rates of commencement for health-related courses may be due to a number of factors (Heaney 1999):

- Educational disadvantage resulting from less experienced teachers, limited curricula as a result of smaller school size and lower levels of positive peer pressure, professional role models, and career information and advice.
- Financial concerns. Additional costs associated with attending university associated with the need to live away from home, but accentuated by lower average incomes in regional and remote areas than in Major Cities.
- Lower levels of motivation to compete for a place in health-related courses because of self-perceived disadvantage in relation to successful completion (marks) and money.

A study by Fraser et al. (2003) has shown that, when local health services form partnerships with high school careers advisers in order to promote health-related courses, the result, when supported by scholarships and rural entry schemes alone, can be a threefold increase in the number of local students commencing a medical degree.

Table 3.9.1.2: The rate at which school leavers commence selected health-related bachelor's degrees, 1997–2002

	MC	IR	OR	R	VR	Total
			Students per 100,000 population[(a)]			
Medicine						
1997	376	133	110	96	—	283
1998	342	179	103	77	37	270
1999	352	167	89	96	36	271
2000	329	184	270	211	36	285
2001	324	167	383	154	215	291
2002	347	211	407	345	142	322
Nursing						
1997	1,536	1,722	1,224	905	662	1,536
1998	1,565	1,700	1,144	1,080	621	1,565
1999	1,641	1,726	1,424	1,173	657	1,641
2000	1,562	1,724	1,410	1,249	794	1,562
2001	1,478	1,865	1,460	1,137	323	1,478
2002	1,533	1,763	1,380	1,267	639	1,533
Selected allied health[(b)]						
1997	941	655	557	366	184	811
1998	974	692	706	559	219	862
1999	1,063	777	784	461	109	943
2000	1,115	761	767	481	217	970
2001	1,116	758	728	559	144	966
2002	1,177	844	756	365	142	1,023
Dentistry						
1997	90	9	10	19	—	60
1998	124	23	27	58	—	87
1999	106	18	23	19	73	75
2000	119	27	10	19	36	83
2001	62	7	10	—	—	42
2002	89	5	10	—	—	58

(Continued)

Table 3.9.1.2 : (continued): The rate at which school leavers commence selected health-related bachelor's degrees, 1997–2002

Pharmacy						
1997	269	152	120	77	—	220
1998	256	145	113	135	—	236
1999	292	137	125	96	—	230
2000	290	187	162	58	36	245
2001	337	189	242	193	36	288
2002	332	161	208	134	107	274
Optometry						
1997	105	31	23	39	—	77
1998	111	34	30	—	—	80
1999	119	26	30	—	36	84
2000	106	45	16	19	—	78
2001	67	12	23	—	—	47
2002	48	8	16	—	—	34

(a) School leavers are defined here as students aged 17–20 years.

(b) Selected allied health here comprises physiotherapy, occupational therapy, podiatry, radiography, speech pathology and nutrition/dietetics.

Note: The denominator is the average number of children in a one-year cohort of 10–14 year olds in the area six years prior to the year in question. The use of one year age group as the denominator is based on the premise that an individual will have time to complete only one degree between the age of 17 and 20 years of age. The 10–14 year age group is used as the basis for the denominator, because school leavers tend to move to the cities to obtain either work or to commence study—use of the number of 15–19 year olds as the basis for the denominator is likely to understate the number in the cohort.

Source: DEST Higher Education Enrolments database, 1997–2002.

3.9.3 Hours worked, and age of health workers

Summary of findings

Hours worked

It was characteristic of all health workers, broadly, to work longer hours outside Major Cities, especially in remote areas.

On average, **GPs** worked 10% longer in regional areas, and 26% longer in Very Remote areas, than those in Major Cities—14% of Major Cities GPs worked 60 hours or more per week; 22–25% of regional GPs and 27–40% of remote area GPs worked these hours.

Hospital non-specialists worked similar hours in Major Cities and Inner Regional areas, but 4% longer in Outer Regional and Remote areas, and 17% longer in Very Remote areas. There were higher proportions working 60 hours or more in Remote and Very Remote areas (30% and 43%, respectively), than in Major Cities (18%).

Specialists worked 4% longer in regional areas, and 7–9% longer in remote areas than in Major Cities—55% of Major Cities specialists worked 50 hours or more each week; about 60% worked these hours in regional areas, rising to about 70% in remote areas.

Specialists-in-training in regional and Remote areas worked 10% longer that those in Major Cities; the very small number in Very Remote areas all worked 60 hours per week or longer.

Enrolled nurses worked slightly fewer hours per week in regional and Remote areas than those in Major Cities, but slightly more hours per week in Very Remote areas.

The hours worked by **registered nurses** was about the same in all areas, except in Very Remote areas where they worked longer**.**

Pharmacists worked similar hours in Major Cities and Inner Regional areas, 8% longer hours in Outer Regional areas, and 16% longer hours in remote areas. About 25% of pharmacists in Major Cities and Inner regional areas worked 50 hours or more per week, and 34%, 40% and 50% worked these hours in Outer Regional, Remote and Very Remote areas, respectively.

Podiatrists worked 14% longer hours in Very Remote areas than those in the other areas.

Physiotherapists worked slightly longer in Outer Regional and Remote areas than in Major Cities and Inner Regional areas, but 35% longer in Very Remote areas, where almost 50% worked 50 hours or more per week (compared with 14% in Major Cities).

Occupational therapists worked fewer hours in remote areas than those in Major Cities and regional areas.

Age

The average age of specialists and specialists-in-training did not vary significantly with remoteness, whereas that of GPs decreased with remoteness and that of hospital non-specialists increased with remoteness.

The average age of **GPs** was greatest in Major Cities (49 years), lower in regional areas (46–47 years), and lowest in remote areas (43–44 years).

Hospital non-specialists in Major Cities (34 years) were slightly younger on average than those in regional areas (33–36 years), and younger again than those in remote areas (36–39 years).

Specialists in Major Cities (50 years) were a similar age on average to those in regional (50 and 51 years) and remote areas (47–52 years).

Specialists-in-training in Major Cities (33 years) were a similar age on average to those in Inner and Outer Regional (33 years) and Remote areas (32 years).

The age of **enrolled** and **registered nurses** did not vary substantially with remoteness, ranging from 42 to 43 years.

Pharmacists in regional (48 years) and remote (48 years) areas were, on average, slightly older than those in Major Cities (45 years).

The average age of **podiatrists** decreased with increasing remoteness, from 38 years in Major Cities, to 35 years in Very Remote areas.

The average age of **physiotherapists** decreased with increasing remoteness, from 39 years in Major Cities, to 35 years in remote areas.

Compared with those in Major Cities and Inner Regional areas (36–37 years), the average ages of **occupational therapists** in Outer Regional and Remote areas were low (35 and 32 years), and the age of those in Very Remote areas was relatively high (39 years).

Background

This indicator describes the hours worked and age of general practitioners, hospital non-specialists, specialists, specialists-in-training, enrolled and registered nurses, selected allied health workers and pharmacists working in each area . These features may be relevant to retention in, and therefore sustainability of, these professions outside Major Cities.

The use of full-time workload equivalent (FWE) was also considered. FWE (based on receipts from Medicare for each GP) could be used as an estimate of workload, with those earning more from Medicare than a standard amount (e.g. $185,000) considered to be 'overworked'.

The indicator used in this indicator is based on hours worked (not income earned) and consequently was thought to be a better measure. A potential complication of using the FWE definition is that rural and remote GPs may need to travel more (therefore reducing the opportunity to earn), and it is possible that, for some GPs, Medicare may be only one source of income.

Data are taken from the AIHW health labour force surveys (AIHW 2000b, AIHW 2001d, AIHW 2002b, AIHW 2003f, AIHW 2003g, AIHW 2003h) described previously (Section 3.5.2—numbers of health workers, page 252). Where respondents have not reported the number of hours worked or their age, they have been excluded from the analysis. The age and sex of general practitioners in each Remoteness Area is also described under Section 3.2.1—female GPs, page 242.

The total number of hours worked on call by medical practitioners is not available, but rather is included among the total hours worked and reported here. It is not possible from the data to determine the number of nights or weekends that were spent off-duty for medical practitioners in each area.

The hours reported here are those worked by each practitioner classified according to the main work location. That is, hours do not reflect where they were worked; rather they reflect the hours worked by professionals in the area in which they are based.

Regional comparisons of hours worked and age of dentists has not previously been published by the Dental Research Statistics Unit (Teusner & Spencer 2003).

Detailed results

Hours worked

Table 3.9.3.1: Hours worked by employed medical clinicians, by ASGC Remoteness Area, 2001

			Percentiles		Distribution of working hours (%)						
Remoteness	Mean	Median	25th	75th	0–19	20–29	30–39	40–49	50–59	60+	Total
GPs											
Major Cities	40.7	40	30	50	11	12	18	25	20	14	100
Inner Regional	44.1	45	34	55	8	10	14	24	22	22	100
Outer Regional	45.8	48	36	60	7	9	12	23	23	25	100
Remote	46.9	45	37	60	4	7	16	26	19	27	100
Very Remote	51.5	55	40	60	5	2	7	26	20	40	100
Unknown	41.9	44	30	55	11	12	18	25	20	14	100
Hospital non-specialists											
Major Cities	46.8	48	40	55	4	5	8	34	31	18	100
Inner Regional	47.4	50	40	55	4	8	5	31	29	23	100
Outer Regional	48.8	50	40	55	1	1	4	41	37	17	100
Remote	48.6	50	44	60	3	3	6	27	31	30	100
Very Remote	55.0	55	50	60	—	—	7	15	35	43	100
Unknown	47.8	47	40	56	4	5	8	34	31	18	100
Specialists											
Major Cities	48.0	50	40	60	5	6	10	24	26	29	100
Inner Regional	49.9	50	41	60	5	5	7	22	29	32	100
Outer Regional	49.8	50	42	60	5	4	6	23	31	31	100
Remote	52.3	55	48	63	5	9	2	12	35	37	100
Very Remote	51.6	60	40	60	10	—	12	10	10	57	100
Unknown	45.8	50	40	58	5	6	10	24	26	29	100
Specialists-in-training											
Major Cities	50.5	50	43	56	—	3	4	35	33	24	100
Inner Regional	54.9	55	45	65	1	1	7	25	20	47	100
Outer Regional	51.1	50	45	60	—	—	3	33	36	28	100
Remote	55.6	50	50	60	—	—	—	21	45	34	100
Very Remote	80.0	80	80	80	—	—	—	—	—	100	100
Unknown	51.1	50	43	60	—	3	4	35	33	24	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify the number of hours they worked.

Source: AIHW Medical Labour Force Survey, 2001.

On average, **general practitioners** (GPs) worked 10% longer hours in regional areas, 15% longer hours in Remote and 26% longer hours in Very Remote areas than those in major Cities.

Regional and remote area GPs were, compared with Major Cities GPs:

- less likely to work fewer than 40 hours per week
- as likely to work 40–49 hours per week
- more likely to work 50–59 hours per week
- substantially more likely to work 60 hours or more per week.

For example, whereas 14% of Major Cities GPs worked 60 hours or more each week, 22–25% of regional area GPs and 27–40% of Remote and Very Remote area GPs worked these hours.

On average, **hospital non-specialists** in Inner Regional areas worked similar hours to those in Major Cities, but those in Outer Regional and Remote areas worked 4% longer and those in Very Remote areas worked 17% longer hours.

Hospital non-specialists in Inner Regional areas worked roughly similar hours to those in Major Cities (although they were slightly more likely than those in Major Cities to work 60 hours or more per week).

In Outer Regional areas, a higher proportion (78%) of hospital non-specialists worked 40–59 hours per week than in Major Cities (65%), and similar proportions (about 18% in both areas) worked 60 hours or more per week.

In remote areas, fewer hospital non-specialists worked less than 40 hours per week than those in Major Cities. In Remote and Very Remote areas 30% and 43%, respectively, worked 60 hours or more per week. This compares with 18% working these hours in Major Cities.

On average, **specialists** in regional areas worked 4% longer, and those in Remote and Very Remote areas worked 7% and 9% longer hours, respectively, than those in Major Cities.

Specialists in regional and remote areas were less likely to work fewer than 50 hours per week, and more likely to work 50 hours or more per week. For example, 55% of specialists in Major Cities worked 50 hours or more per week, but 61%, 62%, 71% and 68% worked these hours in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively.

Details of the average hours worked by selected specialties are presented under Section 3.5.2—numbers of health workers, page 260.

On average, **specialists-in-training** in regional and Remote areas worked up to 10% longer, and the very few in Very Remote areas worked 60% longer hours than those in Major Cities.

Specialists-in-training in regional and remote areas were less likely to work fewer than 50 hours per week, and more likely to work 50 hours or more per week than those in Major Cities.

While 57% worked 50 hours or more per week in Major Cities, 65% worked these hours in regional areas, and 80% worked these hours in Remote areas. All of the small number who worked in Very Remote areas worked 60 hours or more per week.

Table 3.9.3.2: Hours worked by employed nurses, by ASGC Remoteness Area, 2001

			Percentiles		Distribution of working hours (%)					
Remoteness	Mean	Median	25th	75th	0–19	20–29	30–39	40–49	50+	Total
ENs										
Major Cities	29.8	32	22	38	17	24	38	19	2	100
Inner Regional	28.8	30	21	38	16	30	36	17	1	100
Outer Regional	29.0	32	20	38	17	27	37	17	1	100
Remote	27.7	30	20	38	23	26	34	16	1	100
Very Remote	31.6	38	24	40	10	26	36	26	2	100
Unknown	29.0	31	20	38	21	23	35	19	2	100
RNs										
Major Cities	30.9	34	24	38	16	20	40	23	1	100
Inner Regional	30.5	32	24	38	14	25	39	21	1	100
Outer Regional	30.6	32	24	38	15	23	39	22	1	100
Remote	31.0	38	24	38	17	18	40	23	1	100
Very Remote	33.8	38	30	40	12	12	43	32	2	100
Unknown	30.9	32	24	40	17	19	38	25	2	100
All nurses										
Major Cities	30.7	32	24	38	16	21	39	22	1	100
Inner Regional	30.1	32	24	38	14	26	39	20	1	100
Outer Regional	30.1	32	24	38	16	24	39	20	1	100
Remote	30.1	33	20	38	19	20	39	21	1	100
Very Remote	33.4	38	28	40	11	15	42	31	2	100
Unknown	30.5	32	24	40	18	20	37	23	2	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify the number of hours they worked.

Source: AIHW Nursing Labour Force Survey, 2001.

Enrolled nurses, on average, worked slightly fewer hours per week in regional (29 hours) and Remote (28 hours) areas than those in Major Cities (30 hours), but worked longer (32 hours) in Very Remote areas.

Registered nurses, on average, worked about 31 hours per week in Major Cities, regional and Remote areas, but 34 hours per week in Very Remote areas.

There were no very strong inter-regional differences in the percentage of enrolled and registered nurses who worked short or long weeks, apart from those in Very Remote areas. Of those nurses who worked in Very Remote areas, 11% worked 0–19 hours per week, compared with 16% in Major Cities; and 33% worked 40 hours or more, compared with 23% in Major Cities.

Table 3.9.3.3: Hours worked by employed other health workers, by ASGC Remoteness Area, 1998 and 1999

			Percentiles		Distribution of working hours (%)					
Remoteness	Mean	Median	25th	75th	0–19	20–29	30–39	40–49	50+	Total
Pharmacists										
Major Cities	37.8	40	27	48	15	11	17	33	24	100
Inner Regional	37.5	40	26	50	16	12	17	30	26	100
Outer Regional	41.0	45	35	50	12	7	14	32	34	100
Remote	44.4	47	40	54	9	4	10	38	40	100
Very Remote	43.8	47	38	55	12	—	16	22	50	100
Unknown	31.2	36	16	44	28	14	15	31	12	100
Podiatrists										
Major Cities	35.2	38	25	45	15	13	26	30	16	100
Inner Regional	36.0	40	30	45	15	9	26	36	15	100
Outer Regional	34.0	38	25	44	23	10	17	33	16	100
Remote	40.3	40	30	42	—	11	37	29	23	100
Very Remote	38.5	38	37	40	—	—	50	50	—	100
Unknown	29.7	30	16	40	27	21	16	24	11	100
Physiotherapists										
Major Cities	34.2	38	20	40	21	13	24	27	14	100
Inner Regional	33.5	38	20	40	21	15	23	29	11	100
Outer Regional	35.8	38	23	41	19	13	27	26	16	100
Remote	34.7	36	22	40	13	23	32	19	13	100
Very Remote	46.4	40	20	50	22	16	8	8	47	100
Unknown	35.7	36	20	40	25	12	24	26	13	100
Occupational therapists										
Major Cities	32.7	38	24	40	18	13	36	30	3	100
Inner Regional	31.6	36	22	40	18	15	38	26	3	100
Outer Regional	32.1	38	23	40	19	13	36	28	4	100
Remote	28.0	38	16	38	27	9	51	13	—	100
Very Remote	29.2	36	18	38	32	9	45	13	—	100
Unknown	26.2	26	16	38	27	25	26	17	5	100

Note: Excludes those who provided insufficient information to allocate Remoteness, and those who did not specify the number of hours they worked.

Source: AIHW Pharmacy (1999), Podiatry (1999), Physiotherapy (1998) and Occupational Therapy (1998) Labour Force Surveys.

Pharmacists worked about 38 hours per week on average, both in Major Cities and Inner Regional areas, but longer in Outer Regional (41 hours) and remote (44 hours) areas.

In Major Cities and Inner Regional areas, there were similar percentages of pharmacists working short or long weeks. However, in Outer Regional and remote areas, pharmacists were less likely to work fewer than 40 hours, and more likely to work 40 hours or more; and substantially more likely to work 50 hours or more. For example, whereas 24% and 26% of pharmacists in Major Cities and Inner Regional areas worked 50 hours or more per week, 34%, 40% and 50% of those in Outer Regional, Remote and Very Remote areas, respectively, worked these hours.

Podiatrists worked roughly similar hours in Major Cities (35), Inner Regional (36) and Outer Regional (34) areas, but longer hours in Remote and Very Remote areas (40 and 39 hours per week, respectively).

There were no very strong inter-regional differences in the percentage of podiatrists who worked short or long weeks.

Physiotherapists worked about 34 hours per week in Major Cities and Inner Regional areas, slightly longer in Outer Regional and Remote areas (36 and 35 hours, respectively), but much longer (46 hours) in Very Remote areas.

The percentage of physiotherapists in Major Cities, regional and (to a lesser extent) Remote areas who worked short and long weeks was similar. Of those in Very Remote areas, 47% (7 out of 15 who supplied information about hours worked) worked 50 hours or more. This compares with 14% in Major Cities.

Occupational therapists worked, on average, similar hours in Major Cities (33 hours) and regional areas (32 hours), with those in remote areas working fewer (28–29) hours per week.

The percentage of occupational therapists in Major Cities and regional areas who worked short and long weeks is similar. Those in remote areas were more likely to work 0–19 hours and 30–39 hours, and less likely to work longer hours.

Working hours for **dentists** outside Major Cities have not been published (Teusner & Spencer 2003).

Age

Table 3.9.3.4: Age of employed medical clinicians, by ASGC Remoteness Area, 2001

			Percentiles		Age distribution (%)					
Remoteness	**Mean**	**Median**	**25th**	**75th**	**< 25**	**25–34**	**35–44**	**45–54**	**55+**	**Total**
GPs										
Major Cities	48.7	48	40	56	—	10	30	31	29	100
Inner Regional	47.0	46	39	53	—	11	35	33	21	100
Outer Regional	46.4	45	38	52	—	15	33	31	21	100
Remote	43.8	42	36	50	—	21	32	29	17	100
Very Remote	42.8	41	35	49	—	24	46	14	15	100
Unknown	50.7	49	39	61	—	15	26	23	36	100
Hospital non-specialists										
Major Cities	33.7	29	27	39	2	63	21	9	5	100
Inner Regional	35.8	31	27	42	1	59	18	12	10	100
Outer Regional	33.3	30	26	37	1	66	19	10	4	100
Remote	36.1	34	26	43	8	48	24	15	5	100
Very Remote	38.7	37	32	45	—	41	31	14	14	100
Unknown	32.2	29	27	34	5	73	11	8	3	100
Specialists										
Major Cities	49.6	48	41	57	—	4	34	30	32	100
Inner Regional	49.8	49	42	56	—	3	32	35	30	100
Outer Regional	50.6	50	42	58	—	2	29	33	36	100
Remote	46.6	43	39	51	—	—	57	22	20	100
Very Remote	51.9	50	49	54	—	14	—	64	22	100
Unknown	52.2	51	41	61	—	5	30	24	41	100
Specialists-in-training										
Major Cities	33.0	32	30	34	—	76	19	5	—	100
Inner Regional	33.0	32	29	35	—	73	22	4	—	100
Outer Regional	33.0	32	30	35	—	74	21	5	—	100
Remote	31.5	31	28	32	—	93	—	7	—	100
Very Remote					—	—	—	—	—	100
Unknown	33.8	32	30	36	1	70	21	9	—	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify their age.

Source: AIHW Medical Labour Force Survey, 2001.

GPs in Major Cities (49 years) were older on average than those in regional areas (46–47 years), and even older than those in remote areas (43–44 years).

GPs working in regional and especially remote areas were more likely to be younger, and less likely to be older, than those in Major Cities. For example, 40% of Major Cities GPs were younger than 45 years, but the corresponding percentages in Inner Regional, Outer Regional, Remote and Very Remote areas were 46%, 48%, 54% and 71%, respectively. Whereas 29% of Major Cities GPs were 55 years and over, the corresponding percentages in Inner Regional, Outer Regional, Remote and Very Remote areas are 21%, 21%, 17% and 15%, respectively.

Hospital non-specialists in Major Cities (34 years) were younger than those in remote areas (36–39 years), and were slightly younger on average than those in regional areas (33–36 years).

The age structure of hospital non-specialists working in Major Cities and regional areas was similar (although those in Inner Regional areas were slightly more likely to be 45 years and over). Those in remote areas were less likely to be aged 25–34 years (48% and 41%) than those in Major Cities (63%), and more likely to be 35 years and over (44% and 59%), than those in Major Cities (35%).

Specialists in Major Cities (50 years) were a similar age on average to those in Inner and Outer Regional (50 and 51 years) and Remote and Very Remote areas (47 and 52 years).

Specialists-in-training in Major Cities (33 years) were a similar age on average to those in Inner and Outer Regional (33 years in both areas) and Remote areas (32 years).

Table 3.9.3.5: Age of employed nurses, by ASGC Remoteness Area, 2001

			Percentiles		Age distribution (%)					
Remoteness	**Mean**	**Median**	**25th**	**75th**	**< 25**	**25–34**	**35–44**	**45–54**	**55+**	**Total**
ENs										
Major Cities	42.3	43	36	49	4	17	38	31	10	100
Inner Regional	42.4	42	37	48	2	16	42	32	8	100
Outer Regional	42.9	43	38	48	2	15	42	32	9	100
Remote	42.7	43	37	48	1	16	43	31	9	100
Very Remote	41.6	42	35	47	3	20	38	30	8	100
Unknown	42.9	43	37	49	3	17	36	33	11	100
RNs										
Major Cities	41.8	42	33	49	4	23	31	29	12	100
Inner Regional	43.4	44	37	50	3	17	35	33	13	100
Outer Regional	43.1	43	36	50	3	19	34	31	14	100
Remote	42.8	43	35	50	2	22	32	30	14	100
Very Remote	41.8	42	34	49	3	24	35	27	12	100
Unknown	40.6	41	32	48	7	26	30	25	12	100
All nurses										
Major Cities	41.9	42	34	49	4	22	32	30	12	100
Inner Regional	43.2	43	37	50	3	16	36	33	12	100
Outer Regional	43.0	43	37	50	2	18	36	31	13	100
Remote	42.8	43	36	50	2	20	35	30	12	100
Very Remote	41.8	42	34	49	3	23	35	27	11	100
Unknown	41.1	41	32	49	6	24	32	26	12	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify the number of hours they worked.

Source: AIHW Medical Labour Force Survey, 2001.

The age distributions and average ages of **enrolled** and **registered nurses** showed little variation across all areas.

Table 3.9.3.6: Age of employed other health workers, by ASGC Remoteness Area, 1998 and 1999

			Percentiles		Age distribution (%)					
Remoteness	**Mean**	**Median**	**25th**	**75th**	**< 25**	**25–34**	**35–44**	**45–54**	**55+**	**Total**
Pharmacists										
Major Cities	45.3	45	34	56	3	23	23	23	29	100
Inner Regional	47.8	48	38	59	2	17	23	23	34	100
Outer Regional	47.6	47	38	58	2	17	25	21	35	100
Remote	48.0	47	37	61	3	19	20	20	38	100
Very Remote	47.6	48	36	59	—	14	30	19	38	100
Unknown	48.5	49	36	61	4	18	20	17	41	100
Podiatrists										
Major Cities	37.8	35	28	43	8	41	28	13	11	100
Inner Regional	36.2	33	27	41	12	41	28	8	11	100
Outer Regional	36.9	34	28	40	13	40	28	7	12	100
Remote	33.9	27	25	41	17	51	12	—	20	100
Very Remote	34.5	35	29	40	—	50	50	—	—	100
Unknown	40.3	37	30	49	1	40	29	17	13	100
Physiotherapists										
Major Cities	38.5	38	30	45	7	33	33	18	9	100
Inner Regional	39.2	39	32	45	7	25	41	19	8	100
Outer Regional	37.6	37	30	43	7	32	41	14	7	100
Remote	35.2	35	28	40	7	39	41	11	2	100
Very Remote	35.4	38	28	41	—	46	49	5	—	100
Unknown	38.8	38	28	46	8	35	30	16	12	100
Occupational therapists										
Major Cities	35.7	34	27	43	11	42	26	16	4	100
Inner Regional	37.4	37	29	44	12	28	37	18	5	100
Outer Regional	35.4	34	26	43	18	33	28	17	5	100
Remote	32.1	30	26	39	11	56	30	3	—	100
Very Remote	39.0	41	28	45	18	22	28	22	9	100
Unknown	38.4	39	29	45	5	27	40	25	3	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify the number of hours they worked.

Source: AIHW Medical Labour Force Survey, 2001.

The average age of **pharmacists** was higher in regional and remote areas (48 years) than in Major Cities (45 years).

A lower proportion of pharmacists in regional and remote areas were young (< 34 years), and a higher proportion were aged 55 years and over than those in Major Cities. One-quarter of Major Cities pharmacists were younger than 35 years, but only one-fifth of regional and Remote area pharmacists, and one-seventh of Very Remote area pharmacists were in this age group. Whereas 30% of Major Cities pharmacists were 55 years and over, 35% of regional area pharmacists and 40% remote area pharmacists were in this age group.

The average age of **podiatrists** in regional (36–37 years) and remote (34–35 years) areas was less than that in Major Cities (38 years). The age distribution of podiatrists in each of the areas was roughly similar, but with a tendency for those in remote areas to be slightly younger.

The average age of **physiotherapists** was similar (39 years) in Major Cities and Inner Regional areas, slightly lower (38 years) in Outer Regional areas, and lower again (35 years) in remote areas.

In Regional areas, a higher proportion of physiotherapists were aged 35–44 years than in Major Cities.

In remote areas, a higher proportion of physiotherapists were aged 25–45, and a lower proportion were aged 45 years and over.

There was no clear tendency for the average age of **occupational therapists** to increase or decrease with remoteness. Those in Major Cities and Inner Regional areas were, on average, 36–37 years old, those in Outer Regional and Remote areas were 35 and 32 years respectively, and those in Very Remote areas (39 years) were older, on average, than those in any of the other areas.

The age distribution for occupational therapists was not uniform across the areas.

A description of ages for **dentists** outside Major Cities has not been published (Teusner & Spencer 2003).

Statistical methods

Where possible, crude rates and simple averages and percentages have been used in this report to describe rural health issues. However, in a number of situations, simple statistics such as these could be misleading. For example, because the risk of death is age-related, direct comparisons of the crude mortality rates between remote areas and Major Cities could be misleading because of the younger age distribution of people in remote areas. Consequently, comparison statistics have usually been age-standardised to largely remove the distorting effects that can result from differences in the age structure of the populations in each of the areas.

The other major statistical issue is the statistical significance of the results. For example, compared with Major Cities, are rates, averages and percentages *really* different in regional or remote areas, or is the apparent difference a consequence of chance only? This issue mainly pertains to survey data, but can also be an issue for census-type data (e.g. mortality data).

Census-type data

Comparison of rates calculated from census-type data (i.e. data sets that capture all events occurring in a certain period—e.g. the ABS mortality database) is typically unambiguous. For example, it may be apparent that in the period 1997–99 death rates were 1.19 times as high in hypothetical area A as in area B.

However, in this example, whereas the rate in area A may have been based on 1,000 deaths that occurred in the period, the rate in area B may have been based on only 10 (supposing area A has a much large population than area B). Is the true underlying risk of death in area B really 1.19 times that in area A, or could chance have played a part?

It is possible that this comparison does not exactly reflect reality over a longer time span. Deaths within a population do not occur regularly (e.g. on a particular date of each month), and so the death rate calculated over different time periods but within the same population will vary; the smaller the population, the greater the potential for variation.

It is entirely possible that, in the following 3-year period (2000–02), without any fundamental change in the likelihood of death, and due to chance alone, there could have been 1,012 deaths in area A and 7 deaths in area B. In the total 6-year period 1997–2002, there would therefore have been 2,012 deaths in area A and 17 in area B. Based on the longer period, the calculated rate in area B may now be 0.99 times that in area A—at odds with the comparison for the period 1997–99 (1.19 times that in area A). For this reason, inter-regional comparisons of rates have used 95% confidence intervals where possible. The values inside the 95% confidence interval are plausible values for the true underlying risk ratio, and the reader can be 95% sure that significant differences identified within these boundaries are likely to be true differences, and not differences that have occurred by chance.

Survey data

Survey data describe rates for a group of people believed to be representative of a larger population (usually, the national or state population), and may not as effectively reflect the population within specific areas (e.g. Inner Regional areas).

Also, the limited size of the sample increases the variability of the calculated rate. For this reason (unless standard errors were unavailable), all inter-regional comparisons in this report based on sample data use 95% confidence intervals to identify potentially significant differences. To avoid cumbersome expression in the text, where rates, percentages or means are significantly different at the 95% level of confidence, they have been described simply as 'significantly' different.

The problem of multiple comparisons

Significant differences identified in this report are best viewed as different and 'worthy of further investigation', not necessarily as unambiguous evidence of inter-regional differences. One of the problems with making many comparisons in the absence of an initial hypothesis is that, on average, 1 in 20 of the significantly different results will be different simply because of chance. Significant results should be interpreted with this in mind and as part of the overall weight of evidence, somewhat in line with Sir Austin Bradford Hill's nine criteria for assessing causation (Bradford Hill 1967). For example, a comparison indicating a significantly higher rate in one area over another, echoed in other related comparisons and demonstrated in analyses of other data sets is more likely to indicate a truly higher rate than if the comparison is not supported in this manner. Interpretations of this 'hypothesis generating' work should be made with this in mind.

Indirect age-standardisation

This method has been used in this report to make inter-regional comparisons of death rates, non-hospital specialist consultations and a raft of National Health survey and other ABS survey data.

Description of the relative rates of death in the different areas was made by comparing the number of deaths that actually occurred with the number that would have been expected if Major Cities rates had applied in each area. 'Excess' deaths have been expressed as the difference between the number of deaths observed and the number expected (Armitage & Berry 1987: 403–5).

When reporting age-standardised rates, it is usual for AIHW to directly age-standardise rates to the Australian population as it was in 2001. This involves applying the rates of disease or death for each sex and age group in the population of interest to the number of people in the whole Australian population in 2001; the total number is then expressed as a rate. This approach works well when the population of interest is large, but works less well with small populations (such as those in remote areas), especially if the event of interest is relatively rare. In such situations it is better to use indirect rather than direct age-standardisation.

For this report, the indirect method of standardisation has been used, where possible, because several of the populations of interest are small and the counts of events or services in these areas are also relatively small. This method involves the following steps:

- calculation of age-specific rates for the standard population (usually the contemporary Major Cities population)
- calculation of the number of events (e.g. deaths) expected to occur, if the standard age-specific rates applied to the population in each area
- comparison of the total number of events (e.g. deaths) observed in the population of each area to the number expected (i.e. the ratio of observed to expected events).

Because the ratio of the observed to expected deaths is exactly the same as the ratio of the 'indirect age-standardised rates' in each area to that in Major Cities, the difference between the mortality in one area and that in Major Cities can be expressed either as:

- one rate is 'so many times as high as another'; or

- there are 'so many times more events (e.g. deaths or consultations) than expected'.

For example, if 2,000 GP consultations were observed in an area, and 1,000 were expected, then there were 2 times as many consultations as expected, or the adjusted rate of consultation in the area was 2 times that in Major Cities.

Confidence intervals

Confidence intervals for indirect age-standardised rates (ratios of observed to expected cases) have been calculated using the two methods described below.

Where confidence intervals overlap, the rates are assumed to be not significantly different, but where they miss each other completely, the differences are considered to be 'significant'.

Calculation of confidence intervals for census-type (e.g. mortality) data

Confidence intervals for death rates were calculated on the basis of the number of observed deaths using the square-root transform described in Breslow and Day (Breslow and Day 1987: 70–1).

This method has been used where observed and expected cases have been actual counts.

Calculation of confidence intervals for expanded survey data

This method has been used where the available data are weighted estimates based on survey data (e.g. National Health Survey and Survey of Mental Health and Wellbeing of Adults).

The standard error of the estimate for O/E (Kendall & Stuart 1969) is calculated as:

$$SE=\sqrt{[([(O/E)^2 \times VAR_e]+VAR_o)/E^2]}$$

where:

O/E = the ratio of the observed to expected number of cases

O = the number of synthetic observed rates. The ABS provided weighted estimates of the total number of cases (synthetic numbers), based on the number of cases in the survey and a weighting factor

E = the number of synthetic expected cases (based on the numbers of synthetic observed cases)

VAR_o = the variance for the synthetic total number of observed cases.

The variance is the square of the standard error associated with the observed or expected number, calculated by the ABS and provided with the base data they had provided.

$$VAR_e=\sum(pop/POP)^2 \times (SE_e)^2$$

where:

pop = the population in each area in a specific age group

POP = the standard population in a specific age group

SE_e = the standard error of the expected synthetic number of cases in the area in a specific age group.

The lower 95% confidence limit (L95%CL) = (O/E) - (1.96*SE)

The upper 95% confidence limit (U95%CL) = (O/E) + (1.96*SE)

These estimates of the upper and lower confidence limits are approximations, but have been used for simplicity. Confidence limits calculated using Fieller's theorem are identical to these estimates to the third decimal place.

Other statistical methods

A range of other statistical methods were used throughout the report.

Direct age-standardised rates

This method of age standardisation was used for indicator 3.5.4—Primary care medical consultations, because of the need to sum consultations from different sources (this would not have been possible using the indirect method). Fortunately, the large number of consultations that occurred in all of the Remoteness Areas meant that the method remained robust in all of these areas.

The method involves:

- calculation of local age-specific rates (in this case, of GP consultation)
- application of these rates to the numbers of people in each age group in the total Australian population in 2001 to yield a total standardised number (essentially the number expected if local rates had applied to the Australian population in 2001)
- division of the total standardised number for each local area by the total Australian population in 2001 to yield rates (direct age-standardised rates).

Direct age-standardised percentages

This method of age-standardisation was used for indicators 1.1.6—Birthweights and 2.2.4—Employment.

Direct age-standardised percentages were calculated by applying the age-specific percentages exhibiting a certain characteristic in each area to each age group of the 1991 or 2001 Australian population. The resultant 'expected' numbers of people exhibiting the characteristic in each age group in the 2001 Australian population were summed for all age groups. This total 'expected' number exhibiting the characteristic was then divided by the total 2001 Australian population to yield the direct age-standardised percentage. In effect, the direct age-standardised percentage is a weighted percentage.

Direct age-standardised means

This method of age-standardisation was used for indicators 1.2.2—Reduced activity due to illness and 3.5.4—Dental consultations.

Direct standardised means are weighted averages of age-specific means, with weights equal to the proportion of the 2001 Australian population in each age group.

Death rate time trends

The slopes of trend lines for describing the change in death rates over time were calculated using weighted least squares. Confidence intervals for the slope were calculated using the standard error of the slope.

The relative contributions of each of the broad causes of death to the overall decrease in the death rate were calculated using linear regression of the number of 'excess' deaths attributed to each cause, over time, using the method described in Armitage & Berry (1987: 143–150).

Life expectancy

Life expectancy was calculated using life tables (Pollard et al. 1975: 30–47).

Glossary

Age standardisation A method of removing the influence of age when comparing populations with different age structures. This is usually necessary because the rates of many diseases vary strongly (usually increasing) with age. The age structures of the different populations are converted to the same 'standard' structure, then the disease rates that would have occurred with that structure are calculated and compared. Age standardisation can be achieved by either the direct or indirect methods (see methods section on page 302).

ARIA (categoric) (Accessibility/Remoteness Index of Australia) A five-level classification of geographical remoteness, based on road distance from service centres developed by the Commonwealth Department of Health and Ageing, based on GISCA's continuous ARIA classification.

ARIA (continuous) A continuous measure of accessibility/remoteness, ranging from 0 (most accessible/least remote) to 12 (least accessible/most remote) derived by GISCA.

ARIA+ An improved continuous measure of accessibility/remoteness, ranging from 0 (most accessible/least remote) to 15 (least accessible/most remote) derived by GISCA.

ASGC (Australian Standard Geographic Classification) An ABS classification which provides a hierarchy of geographic area codes used to classify a wide range of social and economic data. The ASGC 'Main Structure' code to which a locality is coded has nine digits. It comprises codes representing the top four hierarchical levels of the 'Main Structure':

State/Territory (S/T)

Statistical Division (SD)

Statistical Subdivision (SSD)

Statistical Local Area (SLA).

In this structure, the SLAs aggregate to form SSDs which in turn aggregate to form SDs and the SDs aggregate to form S/Ts. All levels cover the whole of Australia without gaps or overlaps.

The ASGC also classifies locations according to 'Section of state' and 'Remoteness' (ASGC Remoteness Areas).

Details of the ASGC are available in the publication *Australian Standard Geographical Classification* (ASGC) (cat. no. 1216.0).

ASGC Remoteness Areas A five-level classification of geographical remoteness, based on road distance from service centres developed by the Australian Bureau of Statistics, based on GISCA's continuous ARIA+ classification.

BEACH (Bettering the Education and Care of Health) A rolling survey of GP activity conducted by the AIHW General Practice Statistics and Classification Unit.

BMI—body mass index The most commonly used method of assessing whether a person is normal weight, underweight, overweight or obese. It is calculated by dividing the person's weight (in kilograms) by their height (in metres) squared, that is, kg ÷ m^2. For both men and women, underweight is a BMI below 18.5, acceptable weight is from 18.5 to less than 25, overweight is 25 to less than 30, and obese is 30 and over.

Bulk-billed doctor consultations A practitioner who bulk bills and undertakes to accept the relevant Medicare benefit as full payment for the service. The patient eligible for a benefit under the Medicare program assigns his or her right to the benefit to the practitioner. The practitioner then bills the Health Insurance Commission (HIC) instead of the patient. This was previously referred to as 'direct billing'.

CD (census collectors district) The smallest geographical area defined in the Australian Standard Geographical Classification (ASGC). CDs serve as the basic building block in the ASGC and are used for the aggregation of statistics to larger ASGC areas, such as statistical local areas (SLAs).

The area and population delimited by a CD boundary must be small enough to allow one collector to deliver and collect census forms within about 10 days. It should be readily identifiable on the ground and be defined in terms of permanent features; and it should conform where possible to existing/gazetted suburb boundaries, must not cross statistical local area (SLA) boundaries and contain, where possible, at least 100 persons at the next census.

Cold chain A system of protection against high environmental temperatures (generally involving refrigerators and eskies) for vaccines, serums and other biological preparations. Typically the cold chain is the system of transporting and storing vaccines within the temperature range of 2°C to 8°C from the place of manufacture to the point of vaccination.

Confidence interval A statistical term describing a range (interval) of values within which we can be 'confident' that the true value lies, usually because it has a 95% or higher chance of doing so.

Coronary artery bypass graft (CABG) A surgical procedure using blood vessel grafts to bypass blockages in the coronary arteries and restore adequate blood flow to the heart muscle.

Crowding Dwellings with insufficient bedrooms. Of the several crowding standards available, the Canadian National Occupancy Standard has been used to define crowding in this report (see technical details on page 199).

Dependency ratio The ratio of the number of either children to adults (childhood dependency ratio) or of the number of elderly people to adults (aged dependency ratio) in a population.

DVA patient A patient who is an Australian war veteran, or their spouse or dependent who is eligible for medical services billed to the Commonwealth Department of Veterans' Affairs.

DVA-billed consultation A medical consultation that is billed to the Department of Veterans' Affairs, on behalf of the patient who is an Australian war veteran, their spouse or dependent.

Enrolled nurse A nurse who is on the roll maintained by the state or territory nurses' board or nursing council to practise nursing in that state or territory. The minimum educational requirement for an enrolled nurse is a 1-year diploma from a tertiary institution or equivalent from a recognised hospital-based program. It is necessary for a nurse to have practised for a specified minimum period in the past 5 years to maintain enrolment. Enrolled nurses include mothercraft and dental nurses where the educational course requirements may be greater than 1 year but less than a 3-year degree course or equivalent.

Episode of care The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only one care type.

Equivalised after-tax household income What is left of the household income, after tax has been paid, adjusted on the basis of the number of adults and children in the household.

Fertility rate The number of live births per 1,000 women (generally expressed for women aged 15–49).

Foetal death The death of a foetus of at least 20 weeks gestation or 400 grams weight before birth. Sometimes referred to as stillbirth.

Full-time equivalent (FTE) The number of practitioners multiplied by the average weekly hours worked, divided by the number of hours in a 'standard' full-time working week. Although a 35-hour or 38-hour week is the standard in many industries, the 'typical' working week varies between occupations. In this report, the 35-hour standard has been adopted.

GP (VRGP—vocationally registered general practitioner) A primary care practitioner who has been registered by the Health Insurance Commission as a recognised general practitioner.

Hospital non-specialist Medical practitioners mainly employed in a salaried position in a hospital who do not have a recognised specialist qualification and who are not undertaking a training program to gain a recognised specialist qualification. They include resident medical officers (RMOs) and interns, as well as career and other salaried hospital practitioners.

Household A group of two or more related or unrelated people who usually reside in the same dwelling, who regard themselves as a household and who make common provision for food or other essentials for living; or a person living in a dwelling who makes provision for his/her own food and other essentials for living, without combining with any other person.

Indigenous (identification) A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal person and/or Torres Strait Islander and is accepted as such by the community with which he or she is associated.

Life expectancy An indication of how long a person can expect to live. Technically it is the number of years of life remaining to a person at a particular age if death rates do not change.

Mammogram An X-ray of the breast. It may be used to assess a breast lump or as a screening test in women with no evidence of cancer.

Medicare A national, government-funded scheme that subsidises the cost of personal medical services for all Australians and aims to help them afford medical care.

Medicare-billed A medical consultation that is billed to Medicare, either directly (when a medical practitioner bulk bills), or indirectly (when the patient pays the medical practitioner and then claims the rebate for the consultation from Medicare).

Mortality Death.

Neonatal Pertaining to or occurring in the 28-day period after birth.

Non-remote areas Those areas classified as Major Cities, Inner Regional and Outer Regional areas under the ASGC Remoteness Area structure.

Occasion of service Occurs when a patient receives some form of service from a functional unit of the hospital, but is not admitted.

Outpatient Another term for non-admitted hospital patient.

Pap-smear test Papanicolaou smear, a procedure to detect cancer and pre-cancerous conditions of the female genital tract.

Perinatal Pertaining to or occurring in the period shortly before or after birth (if after birth, usually 28 days afterwards).

Primary health care The first level contact with a health practitioner by people taking action to improve health.

Primary care medical practitioner A medical practitioner, such as a general practitioner (GP), consulted by people seeking primary health care.

Referred non-hospital consultations Typically a consultation with a specialist in-rooms, rather than in-hospital.

Registered nurse A nurse who is on the register maintained by the state or territory nurses board or nursing council to practise nursing in that state or territory. The minimum educational requirement for a registered nurse is a 3-year degree from a higher education institution, or equivalent from a recognised hospital-based program. To maintain registration, it is necessary for a nurse to have practised for a specified minimum period in the field of nursing in the preceding 5 years.

Remote areas Those areas classified as Remote or Very Remote under the ASGC Remoteness Area structure.

Separation (hospital separation) The formal process by which a hospital records the completion of treatment and/or care for an admitted patient.

Significant(ly) Statistically significant(ly) at the 95% level of confidence.

SMR (standardised mortality ratio) The ratio of the observed and expected numbers of deaths. The expected number of deaths is calculated as the number that would be expected if age-specific rates from the 'standard' population applied to the population of interest. The standard population is the one with which comparisons are to be made. Variations of the SMR are the SSR (standardised separation ratio), SNR (standardised notification ratio) and so on. Refer to statistical methods section, page 302).

Specialist A medical practitioner with a qualification awarded by, or which equates to that awarded by, the relevant specialist professional college in Australia to treat certain conditions.

Specialist-in-training A medical practitioner who has been accepted by a specialist medical college into a training position supervised by a member of the college.

Statistical local area (SLA) Areas defined in the Australian Standard Geographical Classification (ASGC) which consist of one or more collection districts (CDs). They can be based on legal local government areas (legal LGAs), or parts thereof, or any unincorporated area. They cover, in aggregate, the whole of Australia without gaps or overlaps.

Temporary resident doctor A citizen of another country who has an immigration visa allowing employment as a medical practitioner in Australia. The person's qualifications must be recognised for conditional registration by the relevant state medical board.

Vector (relating to vectorborne diseases) An insect or other organism that transmits infectious microorganisms from animal to human or human to human.

The Rural Health Information Framework

Notes to the Rural Health Information Framework (AIHW 2003b)

A number of issues can have a substantial effect on, or be affected by, health status, determinants of health and health system performance in a rural environment.

- An individual's sex and age affect the health status, the likelihood of engaging in risky behaviour and the use of health services. Older people may migrate to less remote centres so as to access services.
- Many Indigenous people have poor health outcomes and they constitute a large proportion of the population in more remote areas, and consequently strongly affect health statistics in those areas. Although it is important to describe any overall changes across geography of the population as a whole, it is also important to try to differentiate between the effects of Indigenous health and that of remoteness. In other words, is poorer health in more remote areas a result of poor Indigenous health or related to remoteness (or both)?

Consequently, indicators have been designed, where possible, to report:

- by broad geographical area such as ASGC Remoteness Area, ARIA or RRMA category
- over time
- by sex and age group
- by Indigenous status.

Other factors, frequently difficult to measure in health statistics (which have not been considered in the development of the indicators), need to be considered in the interpretation of indicator statistics:

- socioeconomic status
- population density (i.e. whether the local setting is a large regional centre or an isolated farm or a small and remote community).

In addition to these criteria, there are groups of people who should, where possible, be examined more closely because of the relevance of their characteristics to a rural health information framework:

- Indigenous people
- all age groups (especially the aged and youth)
- people with disabilities
- farmers and farm workers
- miners
- the health workforce.

Finally, in developing the indicators, we have specially taken care to cover the following areas:

- National Health Priority Areas (cardiovascular disease, cancer, diabetes, mental health, injury, asthma)
- specific rural health issues (occupational health, suicide, motor vehicle accidents, mental health)
- Indigenous health issues (renal disease, diabetes, early death).

The Rural Health Information Framework

Health status and outcomes **How healthy are Australians? Is it the same for everyone? Where is the most opportunity for improvement?**			
Health conditions	**Human function**	**Life expectancy and wellbeing**	**Deaths**
Prevalence of disease, disorder, injury or trauma or other health-related states. *Chronic diseases, injury, mental health, oral health, communicable diseases and birth outcomes.*	Alterations to body, structure or function (impairment), activities (activity limitation) and participation (restrictions in participation). *Disability and days away from usual activity sick.*	Broad measures of physical, mental and social wellbeing of individuals and other derived indicators such as disability-adjusted life expectancy (DALE). *Disability-adjusted life expectancy, life expectancy, disability-adjusted life years, self-assessed health status and self-assessed happiness.*	Age and/or condition-specific mortality rates. *Perinatal mortality, age-specific mortality, overall death rates, premature mortality, burden in each area.*

Determinants of health **Are the factors determining health changing for the better? Is it the same for everyone? Where and for whom are they changing?**				
Environmental factors	**Socioeconomic factors**	**Community capacity**	**Health behaviours**	**Person-related factors**
Physical, chemical and biological factors such as air, water, food and soil quality resulting from chemical pollution and waste disposal. *Water, sewerage, food availability, housing, recreational and cultural facilities, the workplace, environmental hazards.*	Socioeconomic factors such as education, employment, per-capita expenditure on health, and average weekly earnings. *Education, employment, after-tax income.*	Characteristics of communities and families such as population density, age distribution, health literacy, housing, community support services and transport. *Population characteristics, social issues and social capital, services, health literacy, perception of risk, housing, transport, cost of living, regional business health.*	Attitudes, beliefs, knowledge and behaviours, e.g. patterns of eating, physical activity, excess alcohol consumption and smoking. *Smoking, alcohol consumption, illicit drugs, physical activity, nutrition, sexual practices, driving practices.*	Genetic-related susceptibility to disease and other factors such as blood pressure, cholesterol levels and body weight. *Genetically determined diseases, specific birth defects, blood pressure, cholesterol and body weight.*

(continued)

The Rural Health Information Framework (continued)

Health system performance How well is the health system performing in delivering quality health actions to improve the health of all Australians? Is it the same for everyone?		
Effective	**Appropriate**	**Efficient**
Care, intervention or action achieves desired outcome. *Effectiveness of retrieval for victims of trauma, STI education, immunisation, breast cancer and cervical screening and medical/surgical intervention.*	Care/intervention/action provided is relevant to the client's needs and based on established standards. *Female GPs, surgical procedure, specialist consultations, post surgical care and rehabilitation, aged care, accreditation, waiting times for elective surgery, reasons for visiting a GP.*	Achieving desired results with most cost-effective use of resources. *Cost of providing services in each area, cost of providing services to people from each area, cost of screening in each area, ratio of expenditure to positive outcomes.*
Responsive	**Accessible**	**Safe**
Service provides respect for persons and is client-orientated and includes respect for dignity, confidentiality, participation in choices, promptness, quality of amenities, access to social support networks, and choice of provider. *Culturally appropriate, confidentiality, choice of GP, waiting times for elective surgery, response time in hospital emergency departments, bulk billing, waiting times to consult allied health workers and test results, closed books and level of satisfaction of the population.*	Ability of people to obtain health care at the right place and right time irrespective of income, physical location, cultural background, age and sex. *Physical distance to health services, reduced access due to discrimination, lack of access because of cost, ratio of health workers and health facilities to population, occasions of service per person per year, times when health services are not available.*	The avoidance or reduction of acceptable limits of actual or potential harm from health care management or the environment in which health care is delivered. *Rate of medical and surgical misadventure, survival rates in intensive care units.*
Continuous	**Capable**	**Sustainable**
Ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time. *Rate of case-care conferencing.*	An individual's or service's capacity to provide a health service based on skills and knowledge. *Accreditation and rates of admission for surgical medical misadventure (also covered under 'safe' dimension).*	System's or organisation's capacity to provide infrastructure such as workforce, facilities and equipment, and be innovative and respond to emerging needs (research, monitoring). *Health students from rural areas, recruitment and turnover of GPs, hours worked and time on call.*

Note: Based on the National Health Performance Framework. Text in italics refers to specific rural, regional and remote issues considered in the Rural Health Information Framework.

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