5 Health status

Introduction

Differences in social and economic circumstances have been illustrated in the previous chapters for areas of Australia. The maps and analysis in this chapter illustrate differences in the health status of residents of these areas.

The mapping technique is particularly useful in highlighting differences in the health status of the population (as measured by the indicators available) in areas across Australia, and in demonstrating associations with the socioeconomic status and health service utilisation patterns. The results of the correlation analysis (which show the extent of interdependence between the measures when mapped) are included in Chapter 8.

Background

Health has been defined by the World Health Organisation as 'a state of complete physical, mental and social well being and not merely the absence of disease or infirmity'. Health status "refers to the level of health experienced by an individual or a community by placing them along a continuum, from health through distress, disease and disability, to death" (SAHC 1988).

Data collected since early this century have shown a steady improvement in the health status of Australians, as measured by a range of indicators including life expectancy, infant mortality and overall death rates. However, as noted in the *Introduction* (page 1), there are overwhelming inequalities in health status for disadvantaged groups. For example, all cause mortality rates are, on average, around 50 per cent higher for people aged under 65 years and living in the lowest socioeconomic areas when compared to the population groups of the same age and sex living in the areas of highest socioeconomic status (**Table 5.1**).

These differentials exist for both males and females in all age groups studied, for all cause mortality and for a number of selected causes.

Table 5.1: Health status indicators by socioeconomic disadvantage of area and sex, Australia, late 1980s
Note: First quintile is high socioeconomic status and fifth quintile is low socioeconomic status

Age group (years)		Rate ratio for quintile of socioeconomic disadvantage of area			
		Males		Females	
		1st quintile	5th quintile	1st quintile	5th quintile
Children (0 to 14 years):	Mortality	1.00	1.46***	1.00	1.63***
	Serious chronic illness	1.00	1.25	1.00	1.18
	Reduced activity	1.00	1.36***	1.00	1.03
	Not breastfed: 0 to 4 yrs	1.00	1.46*	1.00	1.09
Youth (15 to 24 years):	Mortality	1.00	1.46***	1.00	1.49***
	Serious chronic illness	1.00	1.03	1.00	1.03
	Reduced activity	1.00	0.74***	1.00	0.95
	Fair/poor health	1.00	1.33	1.00	1.40
	Inactivity	1.00	1.07	1.00	1.34**
	Smoking: 18 yrs & over	1.00	1.24*	1.00	1.22
Adults (25 to 64 years):	Mortality	1.00	1.67***	1.00	1.49***
	Serious chronic illness	1.00	1.12	1.00	1.22**
	Reduced activity	1.00	1.56***	1.00	0.98
	Fair/poor health	1.00	1.61***	1.00	1.67***
	Overweight/obesity	1.00	0.99	1.00	1.23***
	Inactivity	1.00	1.26***	1.00	1.17**
	Smoking	1.00	1.43***	1.00	1.53***
	Alcohol risk	1.00	1.44***	1.00	0.95
Older people (65 & over):	Mortality	1.00	1.13***	1.00	1.10***
	Serious chronic illness	1.00	1.06	1.00	1.06
	Reduced activity	1.00	1.08**	1.00	1.22***
	Fair/poor health	1.00	1.34**	1.00	1.30**
	Overweight/obesity	1.00	1.05	1.00	1.17
	Inactivity	1.00	1.25	1.00	1.27**
	Smoking	1.00	1.47*	1.00	1.32
	Alcohol risk	1.00	1.12	1.00	1.05
All ages :	Mortality	1.00	1.23***	1.00	1.23***
	Serious chronic illness	1.00	1.11*	1.00	1.13**
	Fair/poor health	1.00	1.50***	1.00	1.51***
	Overweight/obesity	1.00	1.01	1.00	1.20***
	Inactivity	1.00	1.23***	1.00	1.21***
	Smoking: 18 yrs & over	1.00	1.34***	1.00	1.44***
	Alcohol risk: 18 yrs & over	1.00	1.34***	1.00	0.98

Statistical significance: the greater the number of * the higher the level of significance: * $p < 0.05$: ** $p < 0.01$: *** $p < 0.001$

Source: Mathers, C. Health Monitoring Series Nos. 1 to 4, Australian Institute of Health & Welfare, Canberra, 1994

Young people and adults from the lowest socioeconomic areas are also more likely to report their health as being 'fair' or 'poor' (in comparison with 'excellent' or 'good') than those living in the areas of highest socioeconomic status. The largest differential is that for 25 to 64 year old females: a differential of 67 per cent. Most risk factors, for example smoking, are also highly elevated for both men and women in the 'young' (by 24 per cent for males and 22 per cent for females) and 'adult' (by 43 per cent for males and 53 per cent for females) age groups living in the most disadvantaged areas. Male adult residents of these areas are also at high risk of poor health from high levels of alcohol consumption.

Despite overall decline in mortality rates between 1985-87 and 1995-97 for the majority of conditions, the differentials observed in the earlier period were still evident a decade later (Mathers in press). For example, during 1995-97 infants and children living in the most disadvantaged areas experienced the highest mortality rates for perinatal conditions and sudden infant death syndrome, and for injury and poisoning (**Table 5.2**) [1]. Similarly, males and females aged from 25 to 64 years residing in the most disadvantaged areas, experienced the highest death rates for all cause mortality; for specific causes such as circulatory, respiratory and digestive system diseases; and for selected causes, such as coronary heart disease and stroke, motor vehicle traffic accidents and pneumonia/bronchitis. Although data for the individual quintiles are not presented in the table, almost without exception, death rates for these quintiles exhibited a clear gradient from high to low socioeconomic status. These widening differentials give cause for concern.

For some conditions, the authors found an actual increase in the mortality rates over the decade. Among those aged 15 to 24, there was an increase in the rate of male suicide in the middle (third) and low (fifth) socioeconomic status quintiles, and a corresponding increase for females in the high (first) and middle socioeconomic status quintiles (and also in the rate ratio). Among males aged 25 to 64, mortality rates increased (or remained largely unchanged) for diabetes mellitus, suicide, and asthma/emphysema, and for females of the same age increases in death rates were evident for diabetes mellitus, lung cancer and asthma/emphysema.

Although not statistically significant, the large reductions in rate ratios for deaths of 15 to 24 year old males and females from causes of drug dependence may reflect an increase in deaths of residents of higher socioeconomic status areas from these causes.

[1]Age standardised mortality rates were calculated for males and females in the first (least disadvantaged), third, and fifth (most disadvantaged) quintiles of the ABS SEIFA Index of Relative Socio-Economic Disadvantage. Only the rate ratio of the fifth quintile to the first quintile is shown in the table.

Table 5.2: Rate ratio of mortality inequality by socioeconomic disadvantage of area, 1985-87 and 1995-97

Age group/Mortality type	Rate ratio [1]			
	Males		Females	
	1985-87	1995-97	1985-87	1995-97
0 to 14 years				
All Cause	1.50	1.62***	1.67	1.45***
Perinatal conditions	1.54	1.39***	1.90	1.41***
Sudden infant death syndrome	1.20	2.73***	1.69	3.24***
Injury and Poisoning	2.02	2.21**	1.84	1.75
MV Traffic Accident	1.53	2.49***	1.95	1.40***
15 to 24 years				
All Cause	1.49	1.78***	1.54	1.40***
Drug dependence	1.91	0.98	1.52	0.94
Injury and Poisoning	1.47	1.98***	1.66	1.49**
MV Traffic Accident	1.40	2.26***	1.56	1.83***
Suicide	1.35	1.75***	1.30	0.95***
25 to 64 years				
All Cause	1.68	1.64***	1.50	1.45***
Circulatory System	1.65	1.87***	1.97	2.01
Coronary HD	1.55	1.88***	2.22	2.34***
Stroke	2.10	2.07	1.71	1.70
Diabetes mellitus	1.73	2.07***	3.04	3.49***
Cancer	1.28	1.39***	1.10	1.14***
Lung cancer	1.60	1.98***	1.58	1.73***
Injury and Poisoning	1.96	1.76***	1.69	1.47***
Suicide	1.73	1.52***	1.42	1.15***
MV Traffic Accident	1.73	2.33***	1.66	2.21***
Respiratory System	2.31	2.49***	2.06	2.64***
Pneumonia, bronchitis	3.72	1.76***	4.24	2.80***
Asthma, emphysema	1.90	3.02***	1.43	2.94***
Digestive System	3.06	2.20***	2.26	2.21

[1]Ratio of Standardised Mortality Ratio for fifth quintile (low socioeconomic status) to first quintile (high socioeconomic status)
Note: Rate ratios of mortality inequality differ significantly from no inequality at significance level p<0.001
Asterisks indicate level of significance of the difference from the corresponding 1985-87 value: * p <0.05, ** p <0.01, *** p <0.001
Source: Mathers C. Australian Institute of Health and Welfare (in press)

Measurement of health status

Current situation

In the absence of accepted measures of good health as a positive entity, health status is largely indicated by measures of morbidity (sickness), mortality (death, in particular infant and other premature deaths, and life expectancy), disability, risk factors and, in some instances, utilisation of health services. Broader aspects of health, such as social and economic wellbeing, or of life satisfaction, are rarely measured in the administrative collections from which most health data are drawn. To be useful in describing health status at a local area level, datasets need to include descriptive information associated both with the particular event being recorded (eg. cause of death) and the person about whom it was recorded (eg. age, sex and place of usual residence).

The deaths 'data collections undertaken by the Australian Bureau of Statistics (ABS) have provided one of the few datasets to include such detail at a local area level. Therefore, mortality data have been the major indicator of health status used over the years in small area analyses. Data on the extent of morbidity (illness or disease), disability and risk factors in the community have generally not been available at the local area level, apart from proxy measures such as hospital admissions and for some States and Territories, cancer incidence data.

Use of Synthetic Predictions

Information on the levels of morbidity in the community has been collected by the ABS since 1977 in the five-yearly National Health Survey (NHS) (prior to 1989 called the Australian Health Survey, AHS). In these surveys, a sample of the Australian population is asked to report on medical conditions, diseases, etc. experienced in the two weeks prior to being interviewed. Information is also collected on personal attributes (eg. age, sex, height, weight, income and occupation), and on a number of lifestyle and behavioural factors including smoking and alcohol consumption.

In the 1989 AHS and 1995 NHS, a sample of the Australian population was asked to indicate its perception of its own health status, on a scale of 'excellent', 'very good' (only asked in the 1995 NHS), 'good', 'fair' and 'poor'. The purpose of this question was to obtain information about health status in a more subjective way, in order to provide an alternate measure to that derived solely from statistics of illness, death, or service use.

As a further development, the 1995 NHS also included the SF-36 (Ware et al. 1993), a survey questionnaire designed to provide general self-reported health status profiles of the population. The SF-36 provides an indicator across eight dimensions of health and well being: physical functioning; role limitations due to physical health problems; bodily pain; general health; vitality (energy/fatigue); role limitations due to emotional problems; and mental health (psychological stress and psychological well being). Two summary measures, a Physical Component Summary and a Mental Component Summary[2], can be calculated from the eight dimensions.

Data from the NHS are generally available only at the State and Territory level, or for large regional areas such as State health regions. In recognition of the importance of local area level data, the ABS was contracted (as part of this national atlas project) to produce estimates for two variables (the self-assessed health status of the population and the Physical Component Summary of the SF-36) for SLAs across Australia, using the synthetic prediction technique. The variables and the synthetic prediction technique are described on page 111.

This section also includes estimates of the number of people with a handicap, which were also produced using the synthetic prediction technique.

Data mapped

In this chapter, data have been mapped for a number of measures of health status. These include the measures, discussed above, from the NHS; the population with a handicap; premature deaths of males and females, selected causes of death and years of potential life lost; and the Total Fertility Rate. These variables are discussed in more detail in the introduction to the maps on each topic.

A comparison of the mapped distribution of these measures of health status with the distributions in other chapters indicates the possible extent of association at the local area level between health status, and socioeconomic status and health service use. The extent of association is supported by the results of the correlation analysis in Chapter 8.

Gaps and deficiencies in the data

Health status of Aboriginal and Torres Strait Islander people

Indigenous people have the poorest health of any group in Australia: they are also the group least well defined in statistical collections. **Table 3.6** in Chapter 3 documents problems in the counts of Indigenous Australians from the population Census. Data for the birth and death records for Indigenous people used in this chapter are similarly inaccurate.

Despite the inclusion of a question to identify Indigenous people on the death information statements and medical certificates of cause of death, they are under-reported in death records[3]. Over the past few years only the Northern Territory, Western Australia, South Australia and the Australian Capital Territory were considered to have had reasonably complete coverage. The coverage in other States has not improved since the early 1990s, with the exception of Queensland, which has been estimated to have moved close to complete coverage since 1996. However, between 1991 and 1996 there has been a largely unexplained increase in the population of Indigenous people: see pages 17 and 18 for further details. Thus, estimates of the completeness of Indigenous birth and death notifications for some States and Territories (which are, in part, based on Census counts) will need to be reviewed.

[2] Preliminary investigations by the ABS found that it was not possible to obtain a model capable of reliably predicting the Mental Component Summary.

[3] The death information statement is authorised by a relative or other person who has knowledge of the deceased and is usually filled out by a funeral director; the medical certificate of cause of death is completed by a medical practitioner or coroner.

Cancer incidence and notifications of communicable diseases are other important collections of relevance to the measurement of health status which also inadequately identify Indigenous people.

The Australian Bureau of Statistics and the Australian Institute of Health and Welfare (ABS/AIHW 1999) have identified that "among the most important issues relating to data quality is: the estimation of the size and composition of the Indigenous population; the identification of Indigenous people in administrative data collections; and issues related to the collection of survey data about Indigenous people. The availability of data are also affected by the number of Indigenous people included in surveys and the regularity with which the surveys are conducted". The ABS, AIHW, State and Territory health authorities and the heads of Aboriginal and Torres Strait Islander health organisations are currently working together to reduce the long term issues related to the accurate and appropriate collection of an Indigenous people identifier for demographic and health collections.

Influence of deaths of Indigenous people on ARIA results

results

There has been considerable discussion on the extent to which high death rates in the non-metropolitan areas of Australia result from the much higher mortality experience of Indigenous populations. A Queensland study, using the Rural, Remote and Metropolitan Areas classification (RRMA) has shown that across most major classes of diseases remote areas had higher rates than urban areas. Once the Indigenous component was taken out of the analysis, the differences between the RRMA groups were greatly reduced for most diseases. Significant differences remained for diseases of the circulatory and genitourinary systems and all causes (Miller, Ring & Kennedy 1998 unpublished).

An initial examination of data for deaths in 1997 of Indigenous people aged from 15 to 64 years was undertaken by the new Accessibility/Remoteness of Australia (ARIA) as part of the atlas project. Data were examined for Western Australia, South Australia and the Northern Territory, which are considered to have the best identification of Indigenous people in their deaths statistics. Preliminary findings suggest that, for the Northern Territory, death rates for all of the ARIA categories are likely to be affected by deaths identified as Indigenous. In South Australia, the affect on death rates is substantial in the Very Remote category and is also likely (although to a much lesser extent) to impact on results for the Remote category. In Western Australia, the affect on death rates in the Very Remote category is again substantial, and is also likely to be significant in the Moderately Accessible category (driven by the impact of male deaths) and the Remote category (driven by the impact of female deaths).

As this analysis was undertaken as the first volume of the atlas went to print, the data on which these initial findings were based were not able to be incorporated in the printed version. The data are, however, available on the atlas World Wide Web site, at www.publichealth.gov.au. It is planned to extend the analysis to include more years of data, and to use age standardised rates, rather than the age-specific rates as used in this initial analysis.

Health status and socioeconomic status

As noted in Chapter 2 (*Measurement of socioeconomic status*), most collections of health statistics do not include data items which directly allow for analysis of socioeconomic status at the local area level. This is a major deficiency in Australian health information.

Even the death notification form, which requires the inclusion of the deceased person's occupation (a potential indicator of socioeconomic status), is of limited value. The data available are of questionable quality and is not published by the ABS.

The area of usual residence of the person is therefore used here as a proxy measure of socioeconomic status in the absence of any direct measures. The validity of using the area of usual residence in this way is discussed in Chapter 2, *Methods* under the heading *Usual residence*.

Health status and the physical environment

There is limited information on the impact on the health of Australians of environmental factors, such as air quality and soil and water contamination (Peach 1997). Overseas studies have found a relationship between the levels of several pollutants in the air, and death rates or signs of sickness (such as hospital admissions or use of medications for respiratory system disease). Some relate an increase in signs of poor health with increased levels of sulphur dioxide and total suspended particulate matter in the air (Dept. of the Environment, Sport and Territories 1996).

However recent developments in Australia provide the potential to improve the range and quality of data available. In February 1998 the National Environment Protection Council agreed to establish the National Pollutant Inventory. The National Pollutant Inventory (NPI) is the first of a series of National Environment Protection Measures to be developed in Australia. When fully developed, the NPI will provide a national database of pollutant emissions and will be available on the Internet.

Since 1 July 1998, larger Australian industrial facilities that use more than a specified amount of the chemicals listed on the NPI have been required to estimate and report annually their emissions for the NPI. Estimates of emissions from facilities using less than the specified amount of the chemicals listed on the NPI and emissions from the community (such as nutrient emissions to waterways and air emissions from motor vehicles, lawn mowers etc.) will also be made available. Information regarding the composition of substances listed on the NPI, their uses, and the associated risks to human health and the environment, will be included on the database. The data from the first year of reporting are now expected to be available in 2003. In the first two reporting years for the NPI, facilities will be required to report their emissions to air, land and water (from 36 of the 90 chemicals listed on the NPI). In late 1999, a review of the NPI will consider whether reporting requirements should extend to the full list of chemicals.

The establishment of this inventory and its promulgation using the Internet will bring to a wide audience important data on pollutant emissions by type of emission and the location of the facility responsible for the emission. This spatial element will enable comparisons with data from other sources and will better inform the work in Australia on the impact of air quality and soil and water contamination on the health of Australians.

Other National Environment Protection Measures being developed include ambient air quality, movement of controlled waste across State and Territory borders and assessment of contaminated sites.

The homeless

Chamberlain (1999) has estimated that there were 105,000 homeless people in Australia on Census night in 1996. Where there are a disproportionately large number of homeless people in a city, a town or a regional area, they may also be represented disproportionately in the maps in this atlas. For example, if they are not captured in the population data for the same area of address that is given in administrative records following a hospital admission or a visit to a general medical practitioner, or on a death certificate, the rates for these events will be overstated for that area.

Rates of death and hospital admission in inner and near city suburbs in the capital cities are particularly likely to be affected, as many of those who live 'on the street' frequent these areas, and these SLAs are also the location of much of the sheltered accommodation and many of the low-cost boarding houses used by the homeless in general.

Other gaps and deficiencies

There are a number of important areas for which health status data are not available at the small area level. These include oral health, nutrition (including information on height and weight) and mental health and wellbeing, all of which are key areas affecting health status. Details of the incidence of cancer are also not available for all of Australia in a standard form suitable for mapping. For example, data are available for some States at the SLA level and for others at the postcode level. The National Cancer Statistics Clearing House has this small area data, although it has not been edited or used to date. Similarly, details are available from the State and Territory operations of the National Cervical Screening Program and Breast Screen Australia. As yet small area data are not held nationally, although the National Screening Information Project will eventually hold such information.

Although small area data could have been obtained from the individual States and Territories, this was not done because, for a number of jurisdictions, the data would have to be converted from postcode to SLA for mapping. This is an inexact process (see page 10) and could well produce rates that overstate the true incidence of cancer in an SLA (and possibly overstate the rate many times). Given the concerns that high rates estimated from these datasets at the small area level would evoke in the community (when the rate may well be inaccurate), a decision was taken not to map this data.

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Synthetic predictions of selected health status measures

Introduction

As noted above (page 107), some important data in Australia are only collected in household surveys such as the 1995 National Health Survey and the 1993 Survey of Disability and Ageing. Data from the these surveys are generally available only at the State and Territory level; in some instances (eg. for the largest States) they may also be available for large regional areas, such as State health regions. In recognition of the importance, for strategic planning and policy development, of local area level data for the measures included in these surveys, estimates were made for SLAs across Australia for selected variables from the NHS, using the synthetic prediction technique.

The variables are the self-assessed health status of the population and the Physical Component Summary of the SF-36. The ABS has previously produced estimates (using the synthetic prediction technique) at the SLA level of the number of people in the population with a disability and, of those, the number handicapped by that disability. The estimates of the population with a handicap are included in this section.

Description of the technique[4]

Synthetic predictions represent, in effect, a prorating of the Australian estimate (for the particular variable) across SLAs. The predictions are based on a model fitted to survey information, in which associations in the survey data for Australia are identified. For the purpose of the analysis, the survey data used in the model are limited to variables for which data are also available at the SLA level (these are the predictors). The model is then applied to the SLA counts of the predictors. The prediction is, effectively, the likely value for a typical area with those characteristics.

For example, in predicting the population with a disability (using data in the Survey of Disability and Ageing), the data variables were limited to those that were also available at the SLA level. These included variables from the 1991 Census, various socioeconomic (eg. unemployed, Indigenous) and demographic characteristics (age, sex, predominantly non-English speaking birthplace) and other sources (Disability Support Pensions). Relationships identified in the survey data (between levels of disability and age, sex, receipt of a Disability Support Pension) are then modelled in the SLA level data, and predictions produced of the number of a people with a disability.

The estimates were then age-sex standardised to remove variations (between SLAs) solely related to variations in age and sex.

Cautions

The synthetic predictions are intended as an indicator of regional distribution of the population with a handicap, where no other Australia-wide indicator exists (ABS 1996). Therefore, the extent to which the estimates reflect the number of people with a disability in any region will be, in part, dependent on the predictive value of the characteristics used in the model.

In making decisions based on the synthetic predictions, it is important to take into account any specific knowledge about a particular area (ie. the characteristics of its population) that is not incorporated into the model.

The synthetic predictions are also subject to sampling error because they are based on a model fitted to survey data. They are, however, fairly stable, most having sampling error comparable to the Australian estimates for the same variable from the survey (ie. lower than sampling error normally associated with survey estimates for small areas).

Users should note that the estimates will not necessarily agree with other (published) State estimates produced from the relevant surveys, as the predictions are based on Australian totals. Each of the surveys includes people in institutions such as hospitals, specialist long-term accommodation for people with a disability, gaols, etc.

Variables mapped

Physical Component Summary of the SF-36

As noted on page 111, the SF-36 (the Rand Short Form, 36 questions) is one of a number of multi-dimensional or general health status profiles under development in the world (Ware et al. 1993). Although it is becoming widely used, questions remain as to its validity as a measure of health and wellbeing. There are also concerns as to its applicability to particular population groups (such as Indigenous populations, children, or the elderly) and, in particular, to older people born overseas in countries where English is not the predominant language.

It has, however, been included in a number of major studies in the health field in Australia. In 1995 it was incorporated in the NHS. In the light of this general acceptance, one of the summary measures from the SF-36, the Physical Component Summary (PCS), has been estimated at the SLA level (using the synthetic prediction technique) and included in this atlas. The PCS is derived from a subset of items that ask respondents to the NHS aged 18 years and over, about their general physical health and wellbeing. A higher score indicates a better state of physical health and wellbeing.

Self-assessed health status

Self-assessed health status refers to a person's perception of their general health status. In the 1995 NHS, the population aged 18 years and over was asked to indicate its perception of its own health status, on a scale of 'excellent', 'very good', 'good', 'fair' and 'poor'. In the following analysis, details are shown of that proportion of the population who reported their health as being fair or poor. The ABS report that how people rated their health was strongly related to their illness experience (ABS 1997). This is consistent with the finding by McCallum et al. (1994) that people rate their health as poor on the objective basis of illness and disability. For Indigenous people, the factors associated with reporting fair or poor health have been examined using data from

[4] A more detailed description of the production of the synthetic estimates is in Appendix 1.5.

the 1994 National Aboriginal and Torres Strait Islander Survey (ABS/AIHW 1999). Among the factors most strongly associated with self-assessed health status were reported health conditions and recent health actions, age, main language spoken and labour force status (Cunningham, Sibthorpe & Anderson 1997).

Survey of Disability and Ageing

The 1993 Survey of Disability, Ageing and Carers (ABS 1993) provides estimates of the numbers of persons with disabilities and those who were handicapped by the disability and who were living in private dwellings. The following definitions apply:

- a person was recorded as having a disability if he/she had one or more of a group of selected limitations, restrictions or impairments which had lasted, or was likely to last, for six months or more.
- a handicap results from a disability which limits a person's ability to perform certain tasks associated with daily living. The limitations must be in relation to one or more tasks of self-care, mobility, verbal communication, schooling or employment.

These definitions of disability and handicap are based on the *International Classification of Impairments, Disabilities and Handicaps* published by the World Health Organisation (1980).

It was estimated from the 1993 Survey of Disability, Ageing and Carers that 3,176,700 Australians (18.0 per cent of the population) had a disability. Of these, 3,018,500 (17.1 per cent of the population) were living in 'households', with the remainder living in establishments such as nursing homes and hostels.

The majority (2,500,200, or 14.2 per cent of the population) of those with a disability had a handicap of varying levels of severity, ranging from profound (16.8 per cent of all people with a handicap), through severe (12.0 per cent) and moderate (18.2 per cent), to mild (37.7 per cent). The rate of disability per thousand population increased with age.

Following the release of the 1993 Survey results, the Australian Bureau of Statistics (ABS) produced a set of 'synthetic predictions' for the Heads of Disability Services of the Commonwealth and the States and Territories, for use as a component of assessing the demand for disability services at a regional level.

Estimates for the population with a disability and the number handicapped by that disability are included in the tables in Volume 1.1, however only the dataset for the population with a handicap has been mapped in this atlas.

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People reporting their health as fair or poor, 1995

Capital city comparison (Australia as the Standard)

The majority of Australians aged 18 years and over consider themselves to be in good health, with 83 per cent reporting their health status as good, very good or excellent (ABS 1997); similar proportions were reported by males and females. Self-assessed health status was, however, strongly related to age, with the proportion reporting their health as excellent or very good declining with age, and the proportion reporting fair or poor health increasing with age.

In 1995, the standardised ratios (SRs) recorded for people reporting their health as fair or poor, ranged from 109** in **Hobart** to 90** in **Perth**. The other capital cities with ratios below the level expected from the Australian rates were **Melbourne** (with an SR of 96**) and **Canberra** (98**). For the five cities with data recorded in both periods in **Table 5.3**, none of the changes in the ratios were very large. The largest changes were recorded in **Perth** (with a higher proportion reporting their health as fair or poor, relative to the Australian rate) and **Adelaide** (fewer people reporting their health as fair or poor, relative to the Australian rate).

Table 5.3: People reporting their health as fair or poor, capital cities
Standardised ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995	102**	96**	100	102**	90**	109**	105**	98**	99**
1989-90	104**	99**	97**	106**	85**	..	..	..	100

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Capital Cities

The number of people reporting their health as fair or poor in **Sydney** was elevated by more than 20 per cent in ***Fairfield-Liverpool*** (with an SR of 124**) and ***Inner Sydney*** (122**), the second and third highest ratios of any major urban centre Statistical Subdivision (SSD). Other elevated ratios were in ***Canterbury-Bankstown*** (113**), ***Central Western Sydney*** (112**) and ***Outer South Western Sydney*** (110**). The lowest ratios were recorded for residents in the SSDs of ***Hornsby-Ku-ring-gai*** (an SR of 77**), ***Northern Beaches*** (85**) and ***Lower Northern Sydney*** (86**). There were 47,603 people reporting their health as fair or poor in ***St George-Sutherland***, 41,838 in ***Canterbury-Bankstown*** and 40,477 in ***Fairfield-Liverpool***. In both **Wollongong** (108**; 32,871 people) and **Newcastle** (107**; 60,889 people), there were more people reporting their health as fair or poor than expected from the Australian rates.

The highest ratio in **Melbourne** was in ***Northern Inner Melbourne*** (with an SR of 112**), with relatively high ratios in ***Western Inner Melbourne*** (109**), ***Central Melbourne*** (108**), ***Western Outer Melbourne***, ***Northern Fringe Melbourne*** and ***South Eastern Inner Melbourne*** (each with 107**). The lowest ratios were estimated for ***Eastern Inner Melbourne*** (an SR of 81**) and ***Eastern Middle Melbourne*** (83**). The largest numbers of people estimated as reporting their health as fair or poor lived in ***Western Outer Melbourne*** (32,113 people), ***Eastern Outer Melbourne*** (32,059) and ***Eastern Middle Melbourne*** (28,807). In **Geelong**, 13,756 people reported their health as fair or poor, three per cent more than expected from the Australian rates (an SR of 103**).

More residents than expected from the Australian rates reported their health as fair or poor in five of the nine SSDs in **Brisbane**. The highest ratios were in ***Albert*** (an SR of 117**), ***Caboolture*** (111**) and ***Redcliffe*** (110**) and the lowest were in ***Pine Rivers*** (an SR of 91**) and ***Beaudesert*** (96). There were 95,664 people reporting fair or poor health resident in ***Brisbane City***, 16,543 in ***Logan*** and 13,103 in ***Ipswich-Moreton***. There were 12,628 people in **Townsville-Thuringowa** reporting fair or poor health (one per cent more than expected from the Australian rates, an SR of 101), and 46,846 in **Gold Coast-Tweed Heads** (103**).

In **Adelaide**, the number of people estimated as reporting their health as fair or poor was ten per cent above the level expected in ***Northern*** and ***Western*** (both with an SR of 110**), while the lowest ratio was in ***Eastern*** (93**). The largest numbers of people reporting their health as fair or poor were located in ***Northern*** (41,453 people) and ***Southern*** (37,518).

There were fewer people than expected reporting their health as fair or poor in each of the SSDs in **Perth**. The highest ratios were in ***South West Metropolitan*** and ***South East Metropolitan*** (both with an SR of 92**) and the lowest ratio was in ***Central Metropolitan*** (87**). There were 39,113 people reporting their health as fair or poor in ***North Metropolitan***, 27,664 in ***South West Metropolitan*** and 27,493 in ***South East Metropolitan***.

There were 24,786 people reporting their health as fair or poor in ***Hobart***, nine per cent more than expected from the Australian rates (an SR of 109**).

In **Darwin**, ratios for people reporting fair or poor health were elevated by 30 per cent in ***Palmerston-East Arm*** (an SR of 130** and the highest ratio of any major urban centre SSD; 1,284 people) and one per cent in ***Darwin City*** (101; 6,220 people).

Only ***Central Canberra*** SSD (with an SR of 104**) had more people reporting fair or poor health than expected from the Australian rates. Of the other SSDs in **Canberra**, the highest ratios were in ***Belconnen*** (an SR of 97*) and ***Tuggeranong*** (97**) and the lowest was in ***Weston Creek*** (90**). The largest numbers of people reporting their health as fair or poor lived in ***Belconnen*** (8,266 people), ***Central Canberra*** (7,583) and ***Tuggeranong*** (7,133).

Map 5.1: People reporting their health as fair or poor, major urban centres, 1995

Standardised Ratio: number of people in each Statistical Subdivision compared with the number expected*

Standardised Ratio (as an index)

- *110 and above*
- *105 to 109*
- *95 to 104*
- *90 to 94*
- *below 90*

*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Other major urban centres (SR)

Hobart	109
Newcastle	107
Wollongong	108
Geelong	103
Gold Coast-Tweed Heads	103
Townsville-Thuringowa	101

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

People reporting their health as fair or poor, 1995

State/Territory comparison

There was little difference in the levels of fair or poor health reported by residents of the capital cities and the *Rest of State/Territory* areas for Australia as a whole (**Table 5.4**). The most highly elevated standardised ratios (SRs) for people reporting their health as fair or poor in the non-metropolitan areas of Australia were in Tasmania (with an SR of 115**) and the Northern Territory (111**). Only in Western Australia (91**) and Victoria (95**) were the ratios below the level expected from the Australian rates. Responses given by Indigenous people are particularly relevant in non-metropolitan areas. After adjusting for age, Indigenous people in these areas were about twice as likely as their non-Indigenous counterparts to report their health as fair or poor (ABS 1999).

For the five States with data recorded in both periods, none of the changes in the ratios were very large. As for the capital cities, the largest changes were recorded in Western Australia (with a higher proportion reporting their health as fair or poor, relative to the Australian rate) and South Australia (fewer people reporting their health as fair or poor, relative to the Australian rate). For both these States the differential in the ratios from the Australian rate was twice that in their capital cities.

Table 5.4: People reporting their health as fair or poor, State/Territory
Standardised ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995									
Capital city	102**	96**	100	102**	90**	109**	105**	98**[1]	99**
Other major urban centres[2]	108**	103**	103**	..	..	..	..	..	105**
Rest of State/Territory	103**	95**	103**	101	91**	115**	111**	–[3]	101**
Whole of State/Territory	103**	96**	102**	102**	90**	112**	108**	97**	100
1989-90									
Rest of State/Territory	104**	97**	103**	110**	82**	..	..	..	101**

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Rest of Australia

Sixty per cent of SSDs in New South Wales had more residents than expected (from the Australian rates) reporting their health as fair or poor. The highest ratios were in ***Far West*** (an SR of 118**), ***Upper Darling*** (116**) and ***Macquarie-Barwon*** (114**), and the lowest ratios were in ***Snowy*** (88**) and ***Upper Murray*** (92**). The largest numbers of people reporting their health as fair or poor lived in the State's north coast SSDs of ***Richmond-Tweed SD Balance*** (21,086 people), ***Clarence*** (18,321) and ***Hastings*** (18,282).

In Victoria, there were elevated ratios for people reporting fair or poor health in ***La Trobe Valley*** (an SR of 105**) and ***Ballarat*** and ***Shepparton-Mooroopna*** (both with an SR of 101). Both ***Bendigo*** and ***Mildura,*** had SRs of 100. The lowest ratios were in ***West Mallee*** (with an SR of 87**) and ***South Loddon-Campaspe*** and ***Strzlecki*** (both 88**). The largest numbers of people reporting their health as fair or poor lived in ***Ballarat*** (10,235 people), ***East Barwon*** (9,348) and ***Bendigo*** (8,411).

There were elevated ratios for people estimated as reporting fair or poor health in the Queensland SSDs of ***Wide Bay-Burnett SD Balance*** (an SR of 110**), ***Bundaberg*** (107**), ***Sunshine Coast*** (106**) and ***Moreton*** and ***Far North SD Balance*** (both 104**). The lowest ratio was in ***Central West*** (92**). The largest numbers of people reporting fair or poor health in ***Darling Downs*** (22,620 people), ***Wide Bay-Burnett SD Balance*** (21,299) and ***Sunshine Coast*** (21,046).

In South Australia, there were elevated ratios in ***Whyalla*** (an SR of 115**), ***Flinders Ranges*** (111**) and ***Far North*** (110**). The lowest ratios were in ***Upper South East*** (90**) and ***Barossa*** (an SR of 92**). The largest numbers of people reporting their health as fair or poor were in ***Lower South East*** (4,653 people), ***Barossa*** (4,414), ***Riverland*** (4,161) and ***Murray Mallee*** (4,137).

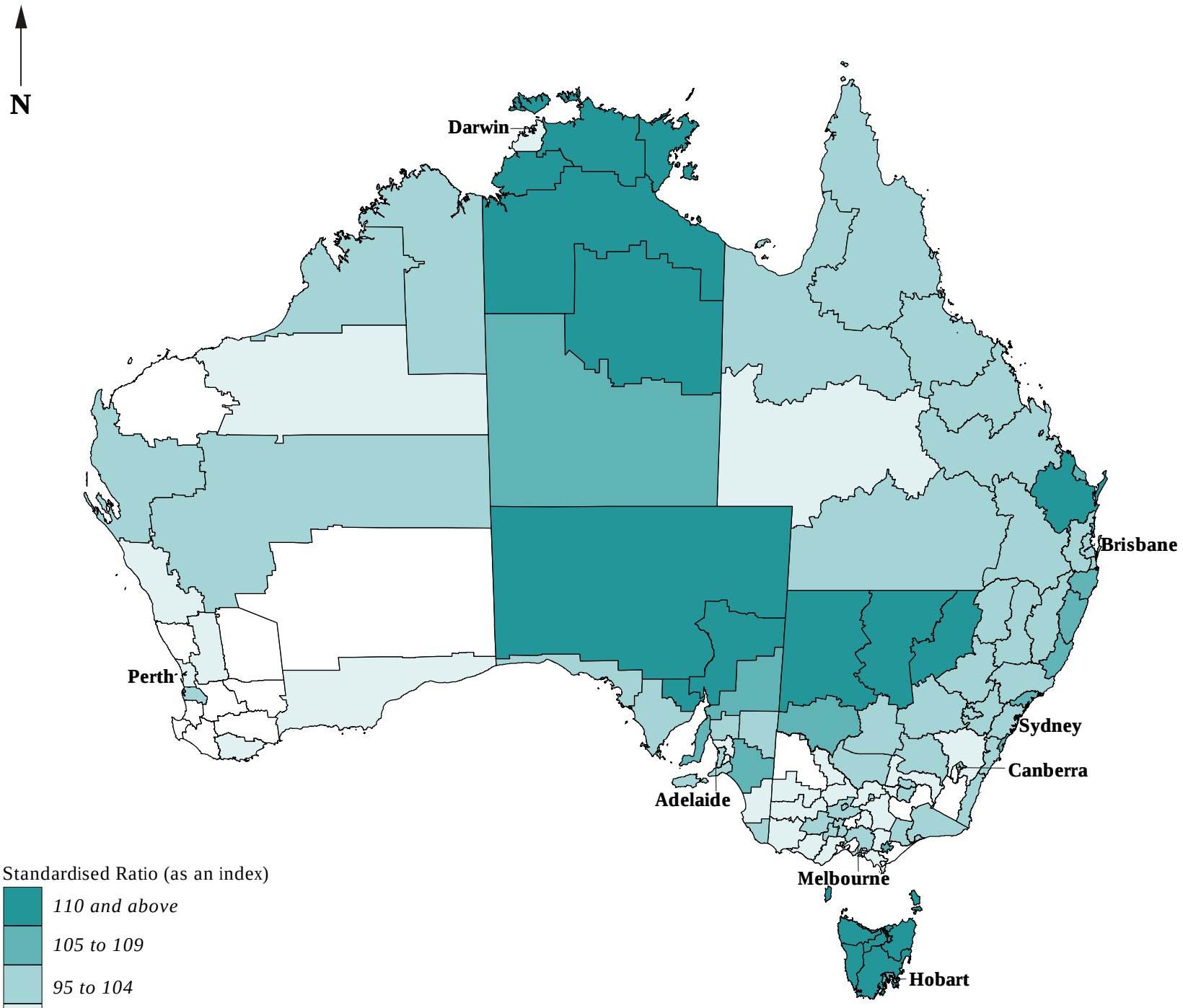
In Western Australia, people in ***Fitzroy*** (with an SR of 104), ***Dale*** and ***Ord*** (both 101) and ***Carnegie*** (100) reported similar levels of fair or poor health to the Australian rates. The lowest ratios were in ***Lakes*** (74**) and ***Fortescue*** (an SR of 81**). The largest numbers of people were recorded in ***Dale*** (6,570 people), ***Preston*** (6,403) and ***Greenough River*** (4,060).

The highest ratios in Tasmania were recorded in ***Lyell*** (with an SR of 124**), ***Southern*** and ***Burnie-Devonport*** (both with 117**) and the lowest in ***North Western Rural*** (111**). ***Launceston*** (13,087 people) and ***Burnie-Devonport*** (10,862) had the largest numbers of people reporting their health as fair or poor.

In the Northern Territory, there were elevated ratios for people reporting fair or poor health in ***Daly*** (an SR of 135**), ***Bathurst-Melville*** (133**), ***Barkly*** (124**) and ***Alligator*** (122**). These were the most highly elevated ratios in Australia for people reporting fair or poor health. Only in ***Darwin Rural Areas*** did fewer people than expected report their health as fair or poor. There were an estimated 3,207 people reporting their health as fair or poor in ***Central NT*** and 1,413 in ***Lower Top End NT***.

Map 5.2: People reporting their health as fair or poor, Australia, 1995

Standardised Ratio: number of people in each Statistical Subdivision compared with the number expected*

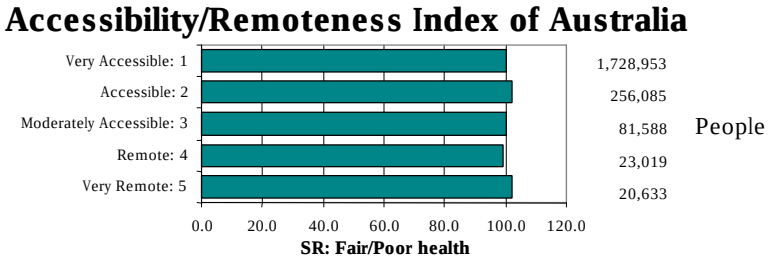


*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



There was only a marginal variation across the ARIA categories in people reporting their health as fair or poor. The range was from a standardised ratio of 102 in the Accessible and Very Remote categories (both with 2 per cent more people than expected from the Australian rates reporting their health as fair or poor) to 99 in the Remote areas (1 per cent fewer than expected).

Source: Calculated on ARIA classification, DHAC

Physical Component Summary, SF-36, 1995

Capital city comparison (Australia as the Standard)

The Physical Component Summary (PCS) is expressed as a mean score, with higher scores indicating better physical health. The PCS score for the Australian population aged 18 years and over was 49.7, ranging from a high of 53.1 for 18 to 24 year olds and 53.0 for 25 to 34 year olds, to 50.0 in the 45 to 54 year age group, before declining at each subsequent ten year age group to a mean score of 38.5 for people aged 75 years and over (ABS 1997). Males had a marginally higher score than females (49.8 compared with 49.6). Scores for males and females were the same at ages 55 to 64 years (a PCS score of 46.6), and higher for males at ages under 55 years, and lower at older ages (in the 65 to 74 years and 75 years and over age groups). The PCS score also varies by employment status, with employed males recording the highest mean score (52.2), with lower scores for the unemployed (51.0) and those not in the labour force (47.4). The major difference for males and females was recorded for females not in the labour force, with a score of 49.8, higher than that for males, with a score of 45.1. There are also notable variations for people reporting selected illness conditions such as cancer (those with cancer had a PCS score of 44.6, compared with those with no cancer, 49.3), heart disease (40.3, compared with 48.3), diabetes (44.0, compared with 49.9), asthma (47.3, compared with 50.0) and injury (45.9, compared with 50.2). There was a striking gradient in the PCS score for people reporting no serious physical conditions (a mean score of 53.1), when compared with those with one serious physical condition (49.8) and two or more such conditions (44.8).

The capital city scores varied over a narrow range (**Table 5.5**), from 49.4 in **Adelaide** to 50.2 in **Melbourne**.

Table 5.5: Physical Component Summary, capital cities, 1995
Standardised score

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
49.8	50.2	49.8	49.4	49.7	49.9	49.5	50.1	49.9

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3

Capital Cities

In **Sydney**, the highest PCS score (indicating better physical health) was estimated for residents (aged 18 years and over) of ***Hornsby-Ku-ring-gai***, with a mean score of 51.1 (the equal highest mean score with ***Eastern Inner Melbourne*** of any capital city or other major urban centre SSD in Australia). Relatively high scores were also recorded in ***Lower Northern Sydney*** (a PCS score of 50.7), ***Northern Beaches*** (50.6), ***St George-Sutherland*** (50.2) and ***Eastern Suburbs*** (50.1). The lowest PCS scores were recorded in the Statistical Subdivisions (SSDs) of ***Fairfield-Liverpool*** (a PCS score of 48.8) and ***Canterbury-Bankstown*** (49.2). The PCS score for residents of both **Wollongong** and **Newcastle** was estimated at 49.5.

The highest PCS score in **Melbourne** was recorded for residents of ***Eastern Inner Melbourne*** with a mean score of 51.1 (the equal highest mean score of any capital city or other major urban centre SSD in Australia), with high scores also recorded for ***Southern Inner Melbourne*** and ***Eastern Middle Melbourne*** (both with a PCS score of 50.8), ***Eastern Outer Melbourne*** (50.5) and ***Eastern Fringe Melbourne*** (50.4). The lowest scores were in ***Northern Inner Melbourne*** (a PCS score of 49.4), ***South Eastern Inner Melbourne*** (49.6) and ***Northern Fringe Melbourne*** (49.7). Residents (aged 18 years and over) of **Geelong** had a PCS score of 49.9.

The highest PCS score in **Brisbane** was recorded in ***Pine Rivers*** (a PCS score of 50.2), with high scores also recorded for ***Beaudesert*** and ***Brisbane City*** (both with a PCS score of 50.0). The lowest scores were recorded in ***Redcliffe*** and ***Albert*** (both with a PCS score of 49.1). The PCS score for residents of **Townsville-Thuringowa** was 49.9, with a lower mean score of 49.6 recorded for residents (aged 18 years and over) in **Gold Coast-Tweed Heads**.

In **Adelaide**, the highest mean score was recorded in ***Eastern*** (a PCS score of 49.9), with a score of 49.6 in ***Southern*** and 49.1 in ***Northern***. The lowest PCS score was in ***Western*** (48.9).

in **Perth**, ***Central Metropolitan*** recorded a PCS score of 50.0, while both ***North Metropolitan*** and ***South West Metropolitan*** SSDs had a PCS score of 49.7. The lowest scores were in the SSDs of ***South East Metropolitan*** and ***East Metropolitan*** (both with a PCS score of 49.6).

The Physical Component Summary score for residents (aged 18 years and over) in **Hobart** was 49.9.

In **Darwin**, there was a PCS score of 49.6 in ***Darwin City***, and a lower 48.7 for residents of ***Palmerston-East Arm***.

Weston Creek (with a PCS score of 50.4), ***Outer Canberra*** and ***Woden Valley*** (both with 50.3) had the highest mean scores (indicating better physical health) for **Canberra**. The lowest score was in ***Central Canberra*** (49.9).

Map 5.3: Physical Component Summary*, SF-36, major urban centres, 1995

mean Physical Component Summary (PCS) score* in each Statistical Subdivision

Standardised score*

- *50.5 or above*
- *50.0 to 50.4*
- *49.5 to 49.9*
- *49.0 to 49.4*
- *below 49.0*

*The PCS score has been age-sex standardised, based on Australian totals

Other major urban centres (score)

Hobart	49.9
Newcastle	49.5
Wollongong	49.5
Geelong	49.9
Gold Coast-Tweed Heads	49.6
Townsville-Thuringowa	49.9

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Physical Component Summary, SF-36, 1995

State/Territory comparison

The Physical Component Summary (PCS) is expressed as a mean score, with higher scores indicating better physical health. Details of variations in the PCS score by selected population characteristics are given on the previous page.

The scores in the non-metropolitan areas are all either the same as, or lower than, those in the capital cities (**Table 5.6**). The lowest PCS score was in the Northern Territory (a score of 49.3) and the highest in Victoria (50.2).

Table 5.6: Physical Component Summary, State/Territory, 1995
Standardised score

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	49.8	50.2	49.8	49.4	49.7	49.9	49.5	50.1[1]	49.9
Other major urban centres[2]	49.5	49.9	49.7	..	..	..	..	..	49.6
Rest of State/Territory	49.6	50.2	49.7	49.4	49.7	49.6	49.3	–[3]	49.7
Whole of State/Territory	49.7	50.2	49.7	49.4	49.7	49.8	49.4	50.1	49.8

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3

Rest of Australia

In New South Wales, the highest estimated PCS score (indicating better physical health) was recorded for residents (aged 18 years and over) of ***Snowy*** Statistical Subdivision (SSD), with a mean score of 50.4**. Relatively high scores were also recorded in ***Upper Murray***, ***Southern Tablelands*** and ***Central Murrumbidgee*** (each with a PCS score of 50.1), and ***Bathurst-Orange*** and ***Queanbeyan*** (both with 50.0). The lowest mean scores were recorded for people in ***Far West*** (a PCS score of 49.0), ***Macquarie-Barwon*** (49.1), ***Tweed Heads*** and ***Hastings*** (both with 49.2).

The highest mean scores recorded for residents (aged 18 years and over) for any non-metropolitan SSD in Australia were in Victoria, in the SSDs of ***Strzlecki*** (with a mean score of 50.6), ***South Loddon-Campaspe*** and ***East Barwon*** (both with a PCS score of 50.5). The lowest scores were in ***La Trobe Valley*** (a PCS score of 49.8) and ***Central Loddon-Campaspe***, ***West Central Highlands*** and ***Ballarat*** (each with 49.9).

Physical Component Summary scores in Queensland were highest in ***Central West*** and ***North West SSDs*** (both with a PCS score of 50.2), ***Gladstone*** and ***Mackay SD Balance*** (both with 50.1), and ***Fitzroy SD Balance*** (50.0). The lowest scores were in ***Wide Bay-Burnett SD Balance*** (with a PCS score of 49.2), ***Sunshine Coast*** (49.3) and ***Bundaberg*** (49.4).

In South Australia, the highest scores were recorded for residents (aged 18 years and over) in ***Lower South East***, ***Upper South East, Onkaparinga*** and ***Barossa*** (each with 49.8). The lowest mean scores were in ***Yorke*** (a PCS score of 48.9), ***Whyalla***, ***Flinders Ranges*** and ***Pirie*** (each with 49.0).

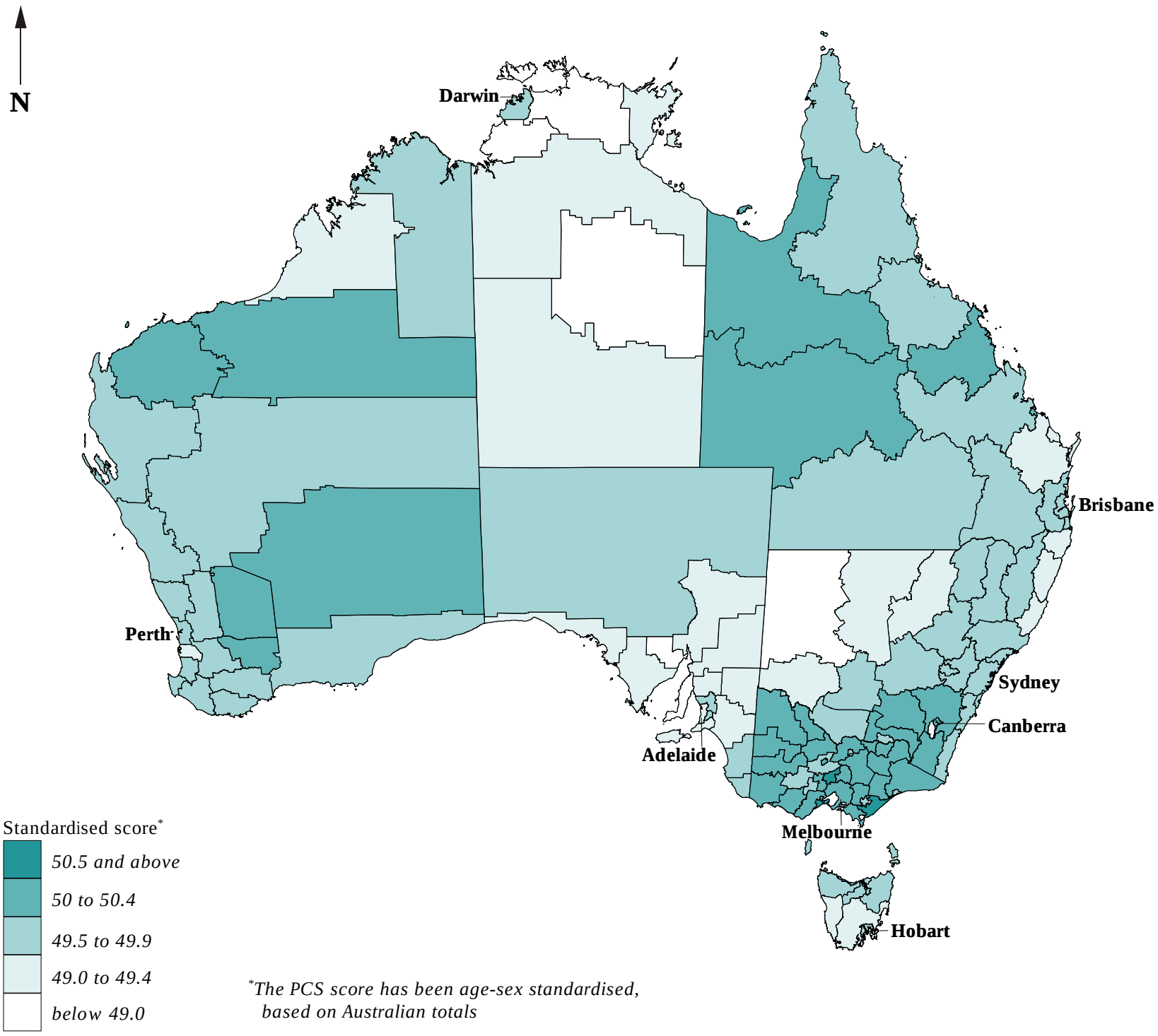
The highest scores in Western Australia were recorded for ***Fortescue*** and ***Lakes*** (both with a PCS score of 50.4), ***De Grey*** and ***Lefroy*** (both with 50.2) and ***Campion*** (50.0). The lowest scores were in ***Dale*** (a PCS score of 49.2), ***Fitzroy*** (49.4) and ***Ord*** (49.6).

In Tasmania, high mean scores were recorded in ***Launceston*** and ***North Western Rural*** (both with a PCS score of 49.8). The lowest score was in ***Southern SSD*** with a PCS score of 49.4.

In the Northern Territory**,** there were high mean scores recorded for ***Darwin Rural Areas*** (a PCS score of 49.9), ***Central NT*** (49.3) and ***East Arnhem*** (49.2). The lowest scores recorded for any non-metropolitan SSDs in Australia were for residents in ***Daly*** and ***Bathurst-Melville*** (both with a PCS score of 48.5).

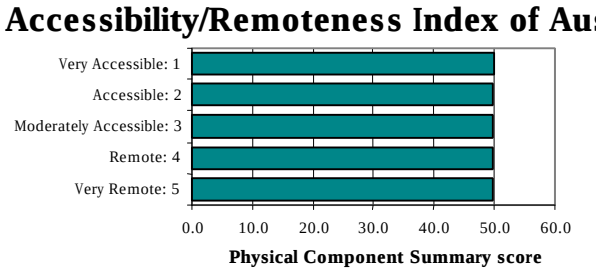
Map 5.4: Physical Component Summary*, SF-36, Australia, 1995

mean Physical Component Summary (PCS) score* in each Statistical Subdivision



Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



There is little differentiation in the Physical Component Summary scores across the ARIA categories although, with the exception of the areas in the Remote category, they do decline with increasing remoteness. The highest scores are in the Accessible and Very Remote categories (both with a PCS score of 49.8), with the lowest in the Very Remote category (49.6). The Accessible and Moderately Accessible areas both had a PCS score of 49.7.

Source: Calculated on ARIA classification, DHAC

Estimated number of people with a handicap, 1993

Capital city comparison (Australia as the Standard)

The estimates presented below do not include people living in institutional accommodation but do include those living more independently in, for example, community or group housing.

Age-sex Standardised Ratios (SRs) calculated from the 1993 Survey of Disability and Ageing of the estimated number of people with a handicap ranged from 14 per cent lower than expected (in relation to the Australian rates) in **Sydney** (86**) 13 8 per cent lower in **Darwin** (87**), to 11 per cent higher in **Perth** (111**). The ratios cover a wider range than those calculated from the 1988 Survey (**Table 5.7**). Most other capital cities had SRs in 1993 which were close to the level expected from the Australian rates.

Table 5.7: Estimated number of people with a handicap, capital cities
Standardised ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1993	86**	100	102**	110**	111**	102**	87**	97**	98**
1988	97**	100	93**	101**	104**	..	..	..	98**

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Capital Cities

In **Sydney**, all ratios were at or below the level expected, with the highest being in ***Inner Sydney*** (with an SR of 100**). Although there were fewer people with a handicap than expected, there were relatively high ratios in ***Gosford-Wyong*** (an SR of 93**), ***Central Western Sydney*** (89**) and ***Canterbury-Bankstown*** (91**) and ***Eastern Suburbs*** (both 87**). The lowest ratios were in ***Hornsby-Ku-ring-gai*** (79**) and ***Northern Beaches*** (82**). The largest numbers of people with a handicap were estimated to be in ***St George-Sutherland*** (46,315 people), ***Canterbury-Bankstown*** (35,746) and ***Gosford-Wyong*** (34,276). The estimated number of people with a handicap in both **Newcastle** (98**; 59,035 people) and **Wollongong** (90**; 29,065 people) were lower than expected from the Australian rates.

There were estimated to be more people with a handicap in **Melbourne** than expected from the Australian rates in just over one quarter (27.8 per cent) of the Statistical Subdivision (SSDs), with the highest ratios in ***Central Melbourne*** (an SR of 107**), ***Northern Inner Melbourne*** (116**) and ***Western Inner Melbourne*** (both 106**) and ***Northern Middle Melbourne*** (104**). The lowest ratios were in ***Eastern Middle Melbourne*** (90**) and ***Eastern Outer Melbourne*** (92**). The largest estimated numbers of people with a handicap were in ***Eastern Outer Melbourne*** (35,824 people, an SR of 94**)**, *Eastern Middle Melbourne*** (33,822; 92**) and ***Western Inner Melbourne*** (31,963; 129**). In **Geelong**, there were an estimated 16,042 people with a handicap (an SR of 104**).

The highest standardised ratio for people with a handicap in **Brisbane** was in ***Redcliffe*** and ***Caboolture Part A*** (both with an SR of 109**), with elevated ratios also estimated for ***Ipswich-Moreton*** (107**) and ***Albert Part A*** (105**). The lowest ratios were in ***Pine Rivers*** (94**) and ***Redland*** (98). There were an estimated 104,763 people with a handicap in ***Brisbane City***, 14,902 in ***Logan*** and 13,455 in ***Ipswich-Moreton***. Both **Gold Coast-Tweed Heads** (an SR of 102**; 47,471 people) and **Townsville-Thuringowa** (101, 13,276) had more people with a handicap than were expected from the Australian rates.

In **Adelaide**, standardised ratios for estimates of people with a handicap were elevated in each of the four SSDs, with the highest ratios in ***Western*** (113**) and ***Northern*** (111**). The lowest ratio was in ***Southern*** (107**). The largest numbers of people with a handicap were in ***Southern*** (44,300 people) and ***Northern*** (43,288 people).

The estimated number of people with a handicap in **Perth** was also higher than expected in each SSD. ***Central Metropolitan*** (with an SR of 114**) and ***South West Metropolitan*** (112**) had the highest ratios, with slightly lower ratios in ***East Metropolitan*** (111**), ***South East Metropolitan*** (110**) and ***North Metropolitan*** (109**). There were an estimated 46,419 people with a handicap in ***North Metropolitan*** and 34,808 in ***South East Metropolitan***.

In **Hobart**, there were an estimated 25,619 people with a handicap, one per cent fewer than expected (an SR of 102**).

Both of **Darwin's** SSDs had the same or fewer people than expected with a handicap, with 5,693 in ***Darwin City*** (an SR of 85**) and 762 in ***Palmerston-East Arm*** (100).

The highest ratios for people with a handicap in **Canberra** were in ***Outer Canberra*** (an SR of 107) and ***Central Canberra*** (104**), and the lowest was in ***Woden Valley*** (95**). The largest number of people with a handicap were in ***Belconnen,*** with an estimated 8,774 people, and ***Central Canberra,*** with 8,203.

Map 5.5
Estimated number of people with a handicap, major urban centres, 1993

Standardised Ratio: number of people in each Statistical Subdivision compared with the number expected*

Other major urban centres (SR)

Hobart	102
Newcastle	98
Wollongong	90
Geelong	104
Gold Coast-Tweed Heads	102
Townsville-Thuringowa	101

Standardised Ratio (as an index)

- *110 or above*
- *105 to 109*
- *95 to 104*
- *90 to 94*
- *below 90*

**Expected numbers were derived by indirect age-sex standardisation, based on Australian totals*

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Estimated number of people with a handicap, 1993

State/Territory comparison

The estimates presented below do not include people living in institutional accommodation but do include those living more independently in, for example, community or group housing.

At the *Whole of State/Territory* level, standardised ratios (SRs) calculated from the 1993 Survey of Disability and Ageing of the estimated number of people with a handicap ranged from a high of 112** in Western Australia and 110** in South Australia to a low of 91** in New South Wales (**Table 5.8**). There was a similar range across the non-metropolitan areas of the remaining States and the Northern Territory.

The SRs in the *Rest of State/Territory* areas were less variable in the later period shown (when compared with those calculated from the 1988 survey), with the highest ratios occurring in Western Australia and South Australia and the lowest in the Northern Territory.

Table 5.8: Estimated number of people with a handicap, State/Territory
Standardised ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1993									
Capital city	86**	100	102**	110**	111**	102**	87**	97**[1]	98**
Other major urban centres[2]	95**	131**	102**	..	..	..	..	..	101**
Rest of State/Territory	98**	106**	106**	112**	115**	103**	97*	–[3]	104**
Whole of State/Territory	91**	103**	104**	110**	112**	105**	92**	98**	100
1988									
Rest of State/Territory	98**	119**	96**	90**	99**	..	..	..	102**

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Rest of Australia

In New South Wales, there were estimated to be more people with a handicap than expected from the Australian rates in ***Far West*** (with an SR of 112**), ***Macquarie-Barwon*** (104*) and ***Hastings*** (103**). In ***Richmond-Tweed SD Balance*** and ***Central Macquarie*** the SRs were equal to 100. The lowest ratios were recorded for residents of ***Queanbeyan*** (85**) and ***Snowy*** (87**). The largest numbers of people with a handicap were in the north coast Statistical Subdivisions (SSDs) of ***Richmond-Tweed SD Balance*** (20,522), ***Hastings*** (18,348) and ***Clarence*** (17,921).

Only one SSD in Victoria (***South West Goulburn***, with an SR of 99) had fewer people with a handicap than expected from the Australian rates. The most highly elevated SRs were in ***Ballarat*** and ***Central Loddon-Campaspe*** (both with an SR of 112**), and ***West Central Highlands*** and ***Bendigo*** (both with 110**). There were an estimated 12,828 people with a disability in ***Ballarat***, 11,359 in ***East Barwon*** and 10,295 in ***Bendigo***.

The most highly elevated SR for people with a handicap in Queensland was in ***Wide Bay-Burnett SD Balance*** (113**), while there were relatively high ratios in ***Bundaberg*** (111**), and ***Darling Downs*** and ***Far North Balance*** (both with 108**). ***Gladstone*** was the only SSD where there were fewer people with a handicap than expected (an SR of 98). There were an estimated 26,651 people with a handicap resident in ***Darling Downs***, 22,206 in ***Wide Bay-Burnett SD Balance*** and 21,002 in ***Sunshine Coast***.

There were twelve SSDs in South Australia with standardised ratios for people with a handicap, which were elevated by 10 per cent or more. The highest ratio was in ***Yorke*** (119**), with relatively high ratios also in ***West Coast*** and ***Pirie*** (both with 117**), ***Murray Mallee*** (116**) and ***Far North*** (115**). The lowest ratio was in ***Onkaparinga*** (106**). The largest estimated numbers of people with a handicap were in ***Lower South East*** (5,883 people), ***Barossa*** (5,357) and ***Riverland*** (5,270).

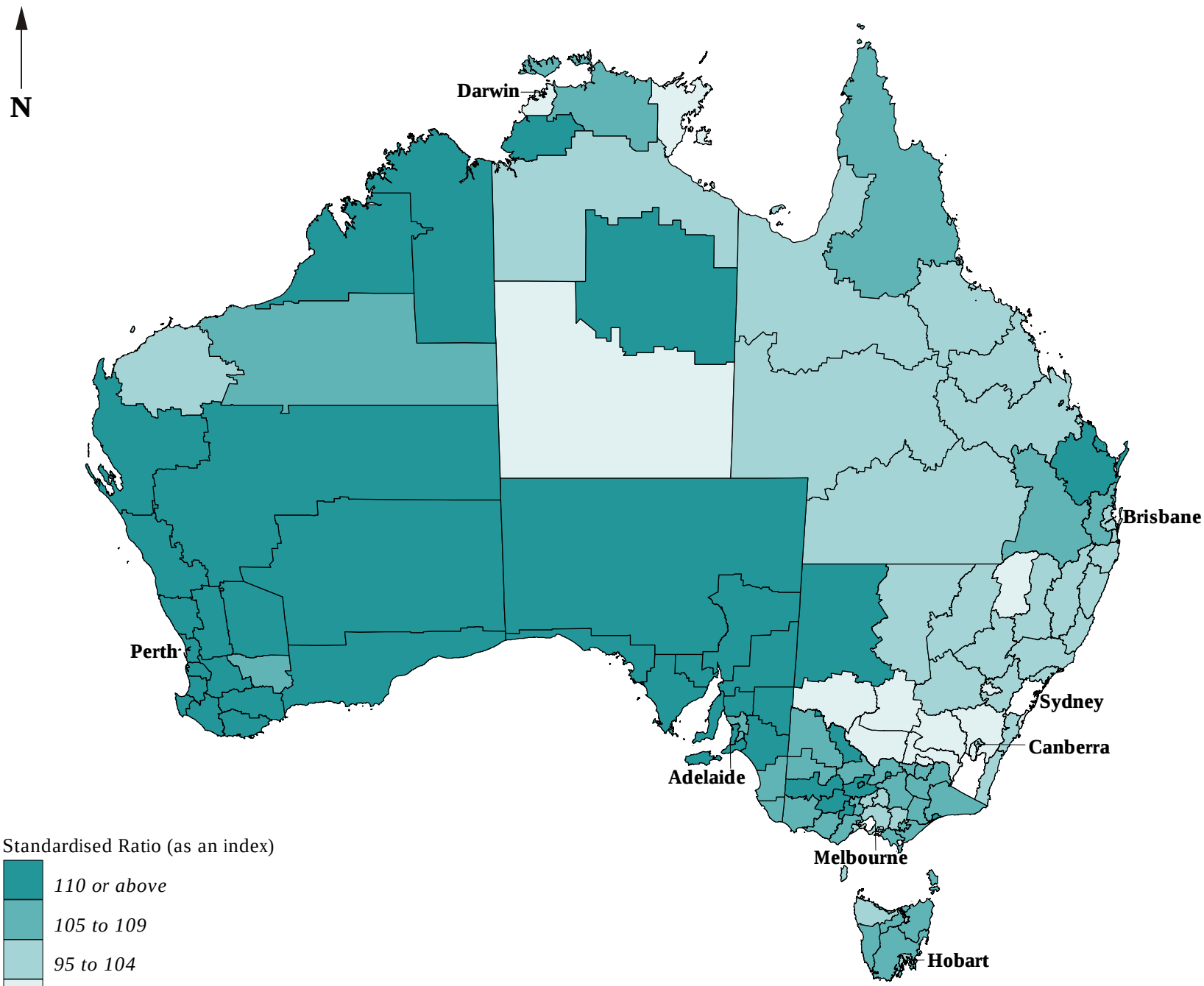
In the remote northern SSDs of Western Australia, the four most highly elevated ratios recorded in any of the non-metropolitan SSDs in Australia were in ***Ord*** (an SR of 139**), ***Fitzroy*** (133**) and ***Gascoyne*** and ***Carnegie*** (both with 122**). Thirteen other SSDs had ratios of between 110 and 120. The lowest ratios were recorded for residents of ***Fortescue*** (102) and ***De Grey*** (106**). The largest numbers of people with a handicap were in ***Preston*** (8,520 people), ***Dale*** (6,966) and ***Greenough River*** (5,492).

In Tasmania, all of the SSDs outside of **Hobart** had elevated ratios for people with a handicap. The highest ratios were in ***North Eastern*** and ***Burnie-Devonport*** (both with an SR of 107**). In the other SSDs, SRs varied from between one and six per cent above the level expected from the Australian rates. The largest numbers were estimated for the north coast SSDs of ***Launceston*** (13,110 people with a handicap) and ***Burnie-Devonport*** (11,295).

High standardised ratios for people with a handicap were estimated for ***Barkly*** (111*) and ***Daly*** (110) in the Northern Territory, while the lowest ratios were in ***Darwin Rural Areas*** (92**) and ***East Arnhem*** (93*). There were an estimated 2,845 people with a handicap resident in ***Central NT*** and another 1,316 in ***Lower Top End NT***.

Map 5.6
Estimated number of people with a handicap, Australia, 1993

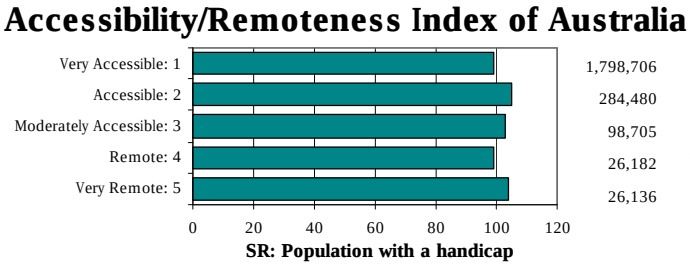
Standardised Ratio: number of people in each Statistical Subdivision compared with the number expected*



*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



There are only minor variations across the ARIA categories in standardised ratios (SRs) for the estimated number of people with a handicap. The range is from an SR of 99 in the Very Accessible areas (with one per cent fewer people than expected from the Australian rates estimated as having a handicap), to SRs of 105 in the Accessible (five per cent more than expected) and 104 in the Very Remote areas.

Source: Calculated on ARIA classification, DHAC

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Deaths

Introduction

Variations in death rates attributable to measures of equity (such as social class) are perhaps the most telling of all the indicators relevant to a social health analysis. The maps in this section include infant deaths and premature deaths of males and females, and by major cause of death. Details of years of potential life lost are also shown.

Variations in death rates by social class

Variations in death rates related to social class have been shown in a wide range of studies in overseas countries, and in some studies in Australia. The most detailed Australian work in this area is an analysis of deaths occurring in 1985, 1986 and 1987, undertaken for the National Health Strategy (1992) and published in more detail by the Australian Institute of Health and Welfare as part of their Health Monitoring Series (Mathers 1994) (**Table 5.1**). As noted above, Mathers has recently updated this work by adding the period 1995-97 (**Table 5.2**). Mathers' study is discussed in detail in Chapter 1 but shows that the differentials in mortality rates that were evident in 1985-87 have persisted over the decade. This analysis provides details of the extent of disparities in mortality rates according to the relative social disadvantage of the population, as measured by the ABS SEIFA Index of Relative Socio-Economic Disadvantage.

Both the NSW and Victorian governments have also recently released health reports that examine socioeconomic variations in death rates in some detail (NSW Health Department 1997; Department of Human Services Victoria, in press). In NSW over the period 1990 to 1994, premature deaths from all causes were inversely related (-0.59) to high socioeconomic status. Moreover, four out of the five areas with the highest mortality rates and the lowest socioeconomic status also had the highest percentage of Indigenous people. In Victoria in 1996, socioeconomic status was also found to be correlated with premature death, with socioeconomic disadvantage explaining 36 per cent of the variance in life expectancy of males and 30 per cent of the variance in females.

Changes in numbers and rates, 1986 to 1995

As Australia's population continues to grow and age, the number of deaths each year is expected to increase over the next several decades (AIHW 1998). Over the nine year period from 1986 to 1995 the number of deaths in Australia increased by 8.8 per cent, rising from 114,981 deaths in 1986 to 125,133 deaths in 1995. However, this trend was a reflection of the increased number of deaths experienced among people aged 65 years and over, which rose by 17.6 per cent over this period. In line with increasing life expectancy in Australia, the number of deaths declined in all other age groups. The most substantial decline was for infants (those aged under 12 months), for whom the number of deaths decreased by 32.7 per cent, from 2,154 deaths in 1986 to 1,449 deaths in 1995. This is largely due to a decline in deaths attributed to sudden infant death syndrome, which declined from 2.2 deaths per 1,000 live births in 1987 to 0.8 per 1,000 live births in 1996 (AIHW 1998). Deaths recorded for 15 to 64 year olds in Australia also declined, from 29,892 to 26,532 over this nine year period, a decrease of 11.2 per cent. Death rates have declined over this nine year period for all ages and in the age groups under 12 months (deaths per 1,000 live births), 15 to 64 years and 65 years and over (**Figure 5.1**).

Changes in death rates by cause, 1986 to 1995

Over the period from 1986 to 1995, death rates of people aged from 15 to 64 years have declined for all major causes of death, with the largest decline occurring for deaths from circulatory system diseases, a decrease of 43.1 per cent (**Figure 5.2**). Other large decreases were recorded for deaths from respiratory system diseases (28.3 per cent); accidents, poisonings and violence (16.7 per cent); and cancer (13.1 per cent).

Death by age group and sex, 1986 to 1995

Overall, premature death rates (ie. deaths of people aged from 15 to 64 years) declined at a greater rate for males (22.0 per cent fewer male deaths) than females (20.2 per cent fewer) over the years from 1986 to 1995. Male death rates from malignant neoplasms declined by 14.1 per cent over this nine year period, whereas female deaths from the same cause decreased by 11.7 per cent.

Death rates of males and females from accidents, poisonings and violence were similar, with male deaths down by 16.4 per cent and females by 16.6 per cent over the years studied. Female death rates for circulatory system diseases declined at a greater than for males, with decreases of 46.1 per cent and 41.7 per cent, respectively.

The biggest differential in the rates of change recorded for males and females occurred for deaths due to diseases of the respiratory system. Between 1986 and 1995, death rates among 15 to 64 year olds from these diseases declined by 34.9 per cent for males. In contrast, female death rates over this same time period declined less substantially, from 9.5 deaths per 100,000 population in 1986 to 8.0 in 1995, a decrease of 16.4 per cent.

Data mapped

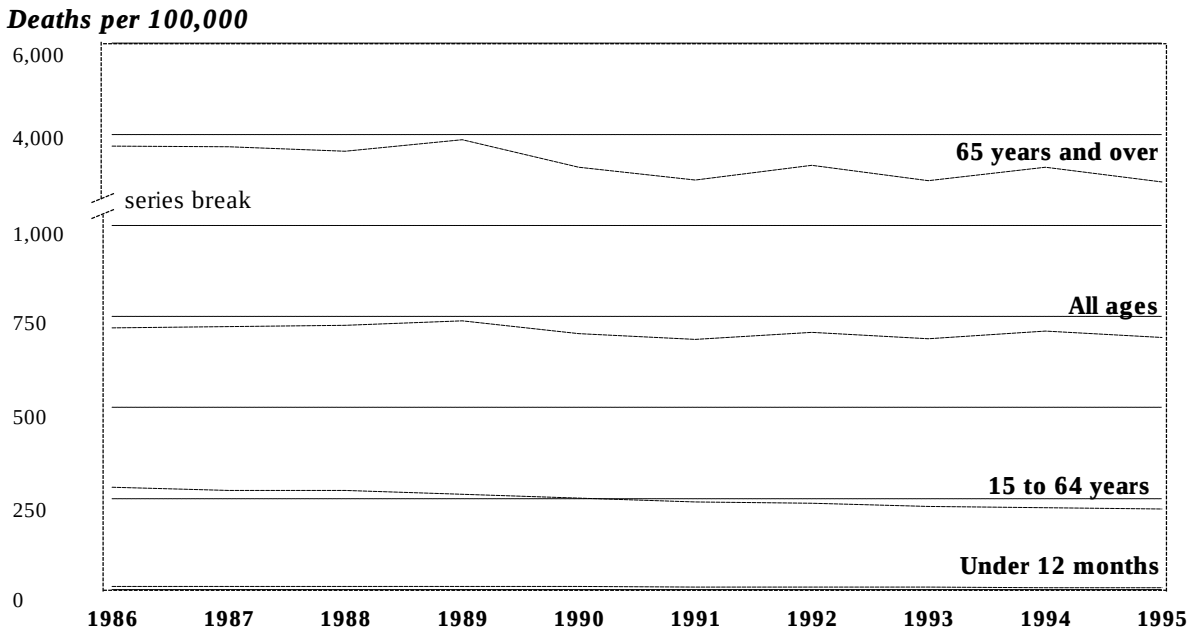
Age range

There are two main reasons for basing the analysis on the death rates of the 15 to 64 year age group: these are outlined below.

The population aged from 15 to 64 years can be considered to be of 'working' age, and examined as a group. Although in recent years the lower age of the 'working' age population has been set at 20 years in some analyses, fifteen years of age has been retained here mainly for consistency with the first edition. Note however, that participation of 15 to 19 year olds in the labour force has declined over the ten years from 1986 to 1996, from 52.9 per cent to 47.0 per cent for males, and from 55.5 per cent to 47.7 per cent for females.

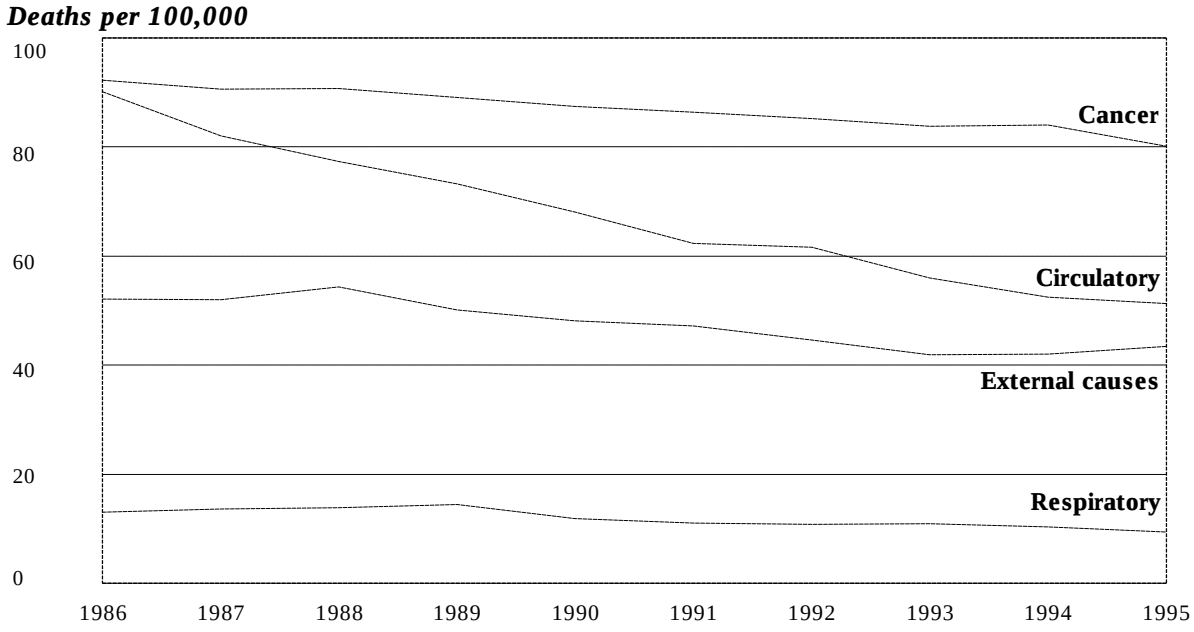
The exclusion of deaths of persons aged 65 years or more (which account for three quarters of all deaths) is important not only because of the focus on prematurity. A significant proportion of

Figure 5.1: Death rates by age group, Australia



Source: ABS Causes of Death bulletins, ABS Catalogue No. 3303.0, 1986 to 1995

Figure 5.2: Death rates of people aged from 15 to 64 years, by cause, Australia



Source: ABS Causes of Death bulletins, ABS Catalogue No. 3303.0, 1986 to 1995

people aged 65 years and over die while residents of nursing homes and other aged care facilities. Aged care facilities are unlikely to be located in the same area as the person's previous (domestic) home and are over-represented in capital cities compared with the non-metropolitan areas. Their inclusion would increase the rates for those Statistical Subdivisions (SSDs) in which nursing homes are largely concentrated and reduce the rates in other areas, thereby distorting the analysis. The concern is that deaths of people resident in aged care facilities may influence the rate for that SSD, when it is not necessarily the area, in terms of its socioeconomic profile, in which they would have lived throughout much of their life.

Residents of some nursing homes and other types of supported accommodation (such as hostels, boarding houses and shelters used by people with psychiatric conditions and community houses for those with an intellectual disability) are more likely than the population in general to die at ages below 65 years.

Since the mid-1980s (the period on which the analysis in the first edition of the atlas was based) the number of deaths occurring at ages from 15 to 64 years has declined, and the age of people dying in nursing homes has increased. It would have been possible, therefore, to increase the age range in this analysis to include deaths between the ages of 65 and 74 years (thereby increasing the number of cases and strengthening the analysis at the area level in the State and Territory analysis). To do so would, however, have reduced the possibility of comparison with the analysis in the first edition. On balance, it was considered to be more important to retain comparability than to boost the numbers.

Measure mapped

Age-sex standardised ratios (Standardised Death Ratios, SDRs) have been calculated and mapped for a range of causes of death, by place of usual residence, to illustrate the extent of variation in death rates between the populations in the areas mapped. A brief description of the technique of standardisation, its purposes, and method of calculation is in Appendix 1.3. For infant deaths, the more traditional infant death rate (infant deaths per 1,000 live births) has been mapped.

Variables mapped

Only a selection of the total number of causes of death of the population aged from 15 to 64 years have been mapped. These include deaths from all causes (separately for females and males) and from four major cause groups – deaths from diseases of the circulatory system, diseases of the respiratory system, from all cancers (and separately for deaths from lung cancer) and from the external causes of accidents, poisonings and violence. **Table 5.9** shows the number of deaths for the age groups and causes for which data were analysed and mapped.

Table 5.9: Deaths by cause and age, Australia, 1992 to 1995

Age at death	Cancers	Circulatory system diseases	Respiratory system diseases	Accidents, poisonings & violence	All other causes	Total deaths
Infant (under 1 year)	**45**	**55**	**150**	**149**	**5,996**	**6,395**
15 to 64 years	**39,659**	**25,984**	**4,889**	**20,148**	**16,370**	**107,050**
males	22,000	18,956	2,913	15,623	11,139	70,631
females	17,659	7,028	1,976	4,525	5,231	36,419
Other ages	**94,249**	**189,776**	**33,620**	**8,544**	**56,134**	**382,323**
All ages	**133,953**	**215,815**	**38,659**	**28,841**	**78,500**	**495,768**

Source: ABS Causes of Death bulletins, 1992 to 1995

Infant deaths are analysed separately as they are recognised internationally as a group with historically high mortality rates, and rates with marked socioeconomic differentials. The four cause of death groups mapped were chosen because they represent a large proportion of the deaths in the 15 to 64 year age group (85.7 per cent, compared to 87.4 per cent in the mid-1980s). They are also predominant among the causes for which people of lower socioeconomic status have been shown to have higher death rates than those of higher socioeconomic status. Importantly, they provide a sufficient number of deaths (by aggregating four years of data, from 1992 to 1995) to be analysed at the area level for presentation in the State and Territory atlases. Some other important causes of death which are of public concern (eg. deaths from suicide) and/or are important causes of death among the most disadvantaged in the population (eg. deaths from mental disorders) have insufficient numbers for the production of meaningful statistics for most areas at the local level. As the combined causes of accidents, poisonings and violence (which include suicides) are the major cause of death for young people, deaths from these causes have been mapped separately for the 15 to 24 year age group. A separate discussion on deaths from suicides is on page 131.

Table 5.10 shows the number of deaths for the causes mapped for the capital city and other major urban centres Statistical Divisions and the *Rest of the State/Territory* (the remainder of Australia).

Table 5.10: Deaths by selected cause and area, Australia, 1992 to 1995

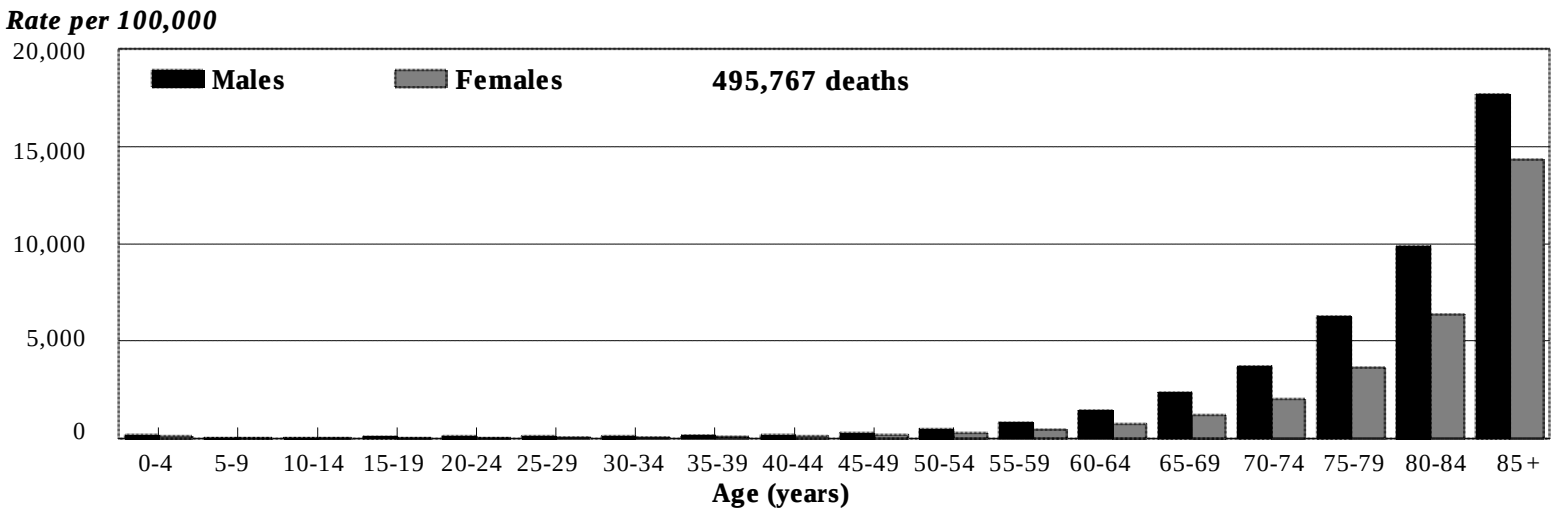
Cause of death	Capital cities and major urban centres	Rest of State	Total
Infant: all causes	**4,181**	**2,214**	**6,395**
15 to 64 years	**71,078**	**35,972**	**107,050**
Cancers	27,135	12,524	39,659
Circulatory system diseases	16,707	9,277	25,984
Respiratory system diseases	2,963	1,926	4,889
Accidents, poisonings & violence	12,760	7,388	20,148
15 to 24 years	**4,805**	**2,643**	**7,448**
Accidents, poisonings & violence	3,319	2,023	5,342
All ages	**338,071**	**157,696**	**495,767**

Source: See *Data sources*, Appendix 1.3

Figures 5.3 to **5.7** give a graphical presentation of death rates in Australia by age and sex for each of the major causes analysed (apart from infant deaths). Please note that the scales for the rates per 100,000 are different for each figure.

Figure 5.3 highlights both the steeply rising death rates from age 50 years for males and from age 60 years for females, as well as the higher rates of deaths for males across all the age groups.

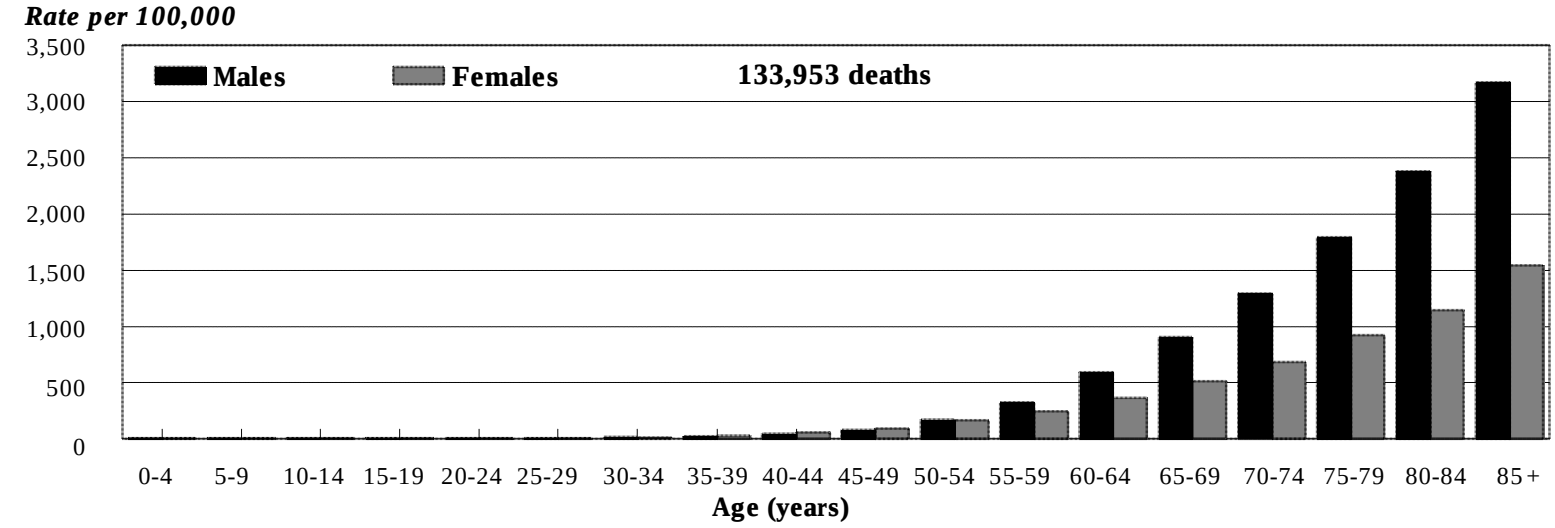
Figure 5.3: Deaths from all causes, by age and sex, Australia, 1992 to 1995



Source: See *Data sources*, Appendix 1.3

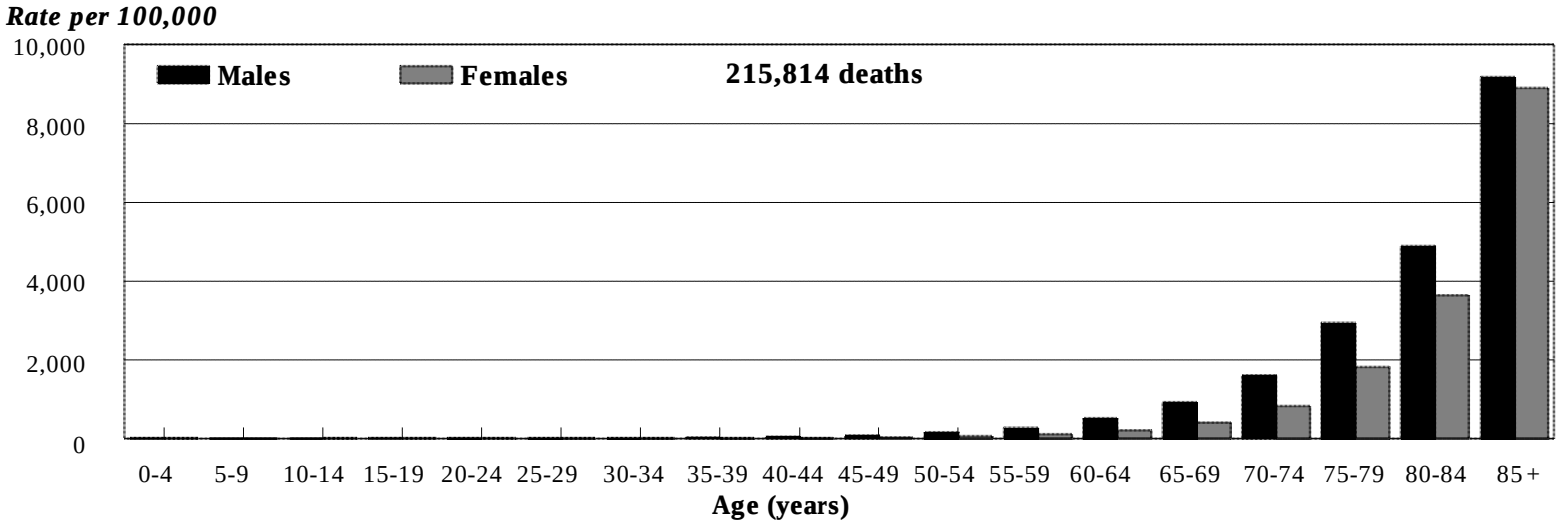
Figure 5.4 shows the predominance of males in deaths from cancer, whereas in **Figure 5.5** the similar pattern for deaths from circulatory system diseases is broken in the 85 years and over age group, where female death rates closely approximate those of males. Death rates from respiratory system diseases (**Figure 5.6**) reflect the 'all causes' pattern.

Figure 5.4: Deaths from cancer, by age and sex, Australia, 1992 to 1995



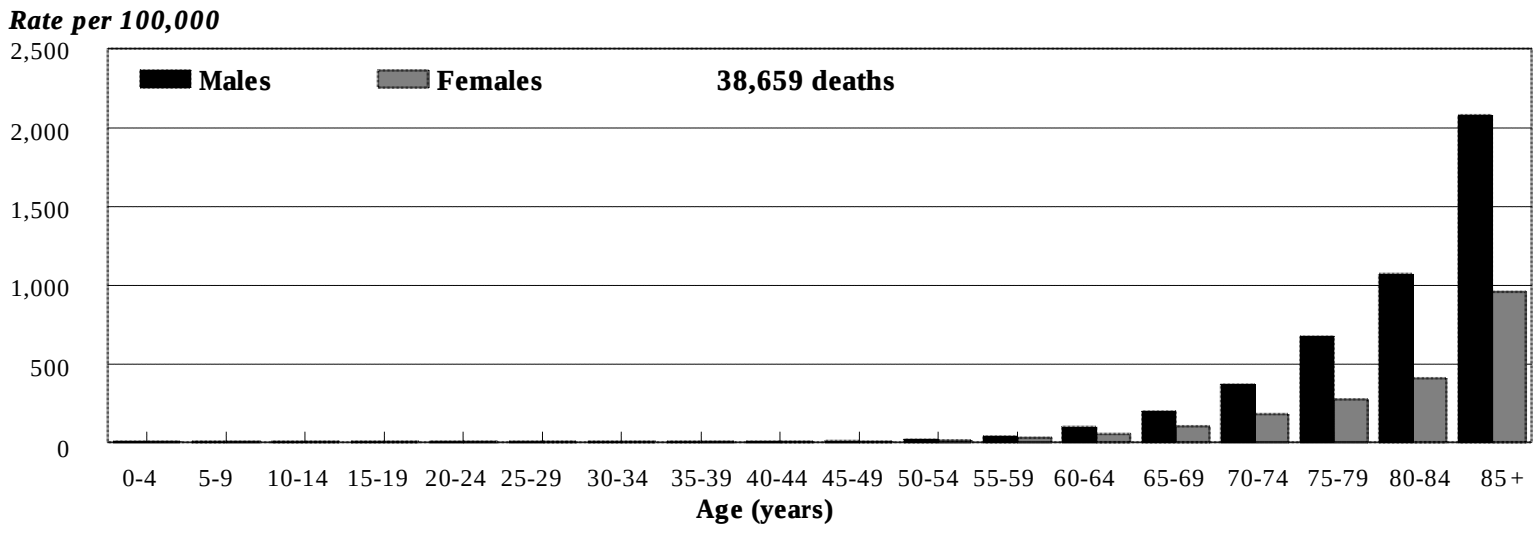
Source: See *Data sources*, Appendix 1.3

Figure 5.5: Deaths from circulatory system diseases, by age and sex, Australia, 1992 to 1995



Source: See *Data sources*, Appendix 1.3

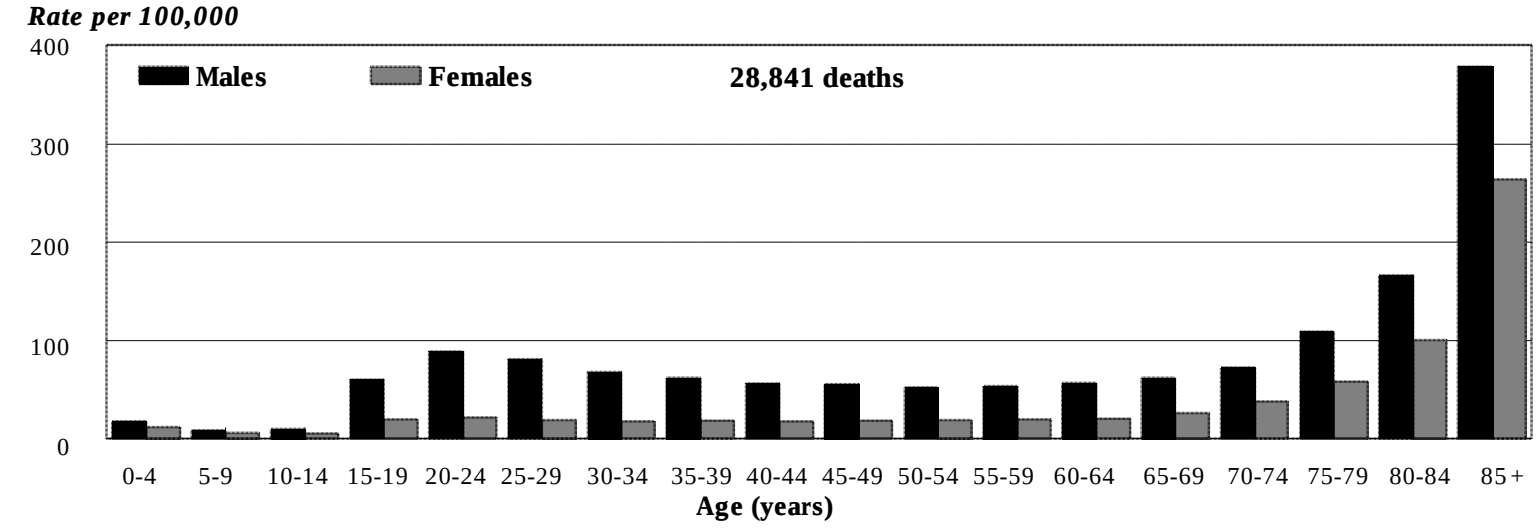
Figure 5.6: Deaths from respiratory system diseases, by age and sex, Australia, 1992 to 1995



Source: See *Data sources*, Appendix 1.3

Deaths from the external causes of accidents, poisonings and violence (**Figure 5.7**) occur at earlier ages than is the case for other causes, and occur across all age groups. Again, males predominate across the age groups, with peaks at younger ages (from 15 to 29 years, where motor vehicle accidents and suicides are major causes), and in the oldest ages, increasing markedly from 75 years of age.

Figure 5.7: Deaths from accidents, poisonings and violence diseases, by age and sex, Australia, 1992 to 1995



Source: See *Data sources*, Appendix 1.3

Deaths from suicide

Taylor et al. (1998) found that risks for suicide increased significantly with decreasing socioeconomic status in males, but not in females. An even stronger relationship existed when suicide rates were controlled for country of birth. When adjusted for age and country of birth, suicides rates were 66 per cent higher in the lowest socioeconomic status quintile compared to the highest quintile and 39 per cent higher in the 15 to 24 year age group (youth suicide). These findings suggest that socioeconomic status plays an important role in male suicide rates among Australians and residents from non-English speaking countries, and also among young people.

Despite suicide being an important cause of death, in particular amongst young people[5], it has not been mapped in this chapter.

As the number of recorded suicides is quite low, even at the SSD level, there is a possibility that mapping them will lead to misinterpretation of results. The following is an overview of the deaths recorded for suicides over the period from 1986 to 1995 for Australia as a whole, as well as separately for the capital cities and the non-metropolitan areas of Australia.

In Australia, deaths are classified as self-inflicted by the coroner or a Government Medical Officer upon consideration of the evidence, but it is likely that the number of suicides is under-reported. A death intended as suicide may appear as the result of an unrelated cause, ie. a motor vehicle accident, and thus is not recorded as such by the coroner. For example, young male residents of country areas are over represented in single vehicle accidents.

[5] Suicide is also an important cause of death at older ages.

There were 22,094 deaths at all ages from suicide in Australia over the nine year period from 1986 to 1995. Of these, 85.5 per cent (18,883) were aged from 15 to 64 years and 19.3 per cent (4,257) were aged from 15 to 24 years at death. There has been a 25.5 per cent increase in the number of deaths recorded from suicide at all ages over this time period, with the number of deaths increasing from 1,982 in 1986 to 2,487 in 1995. A similar increase was recorded among 15 to 64 year olds, where the number of suicides rose from 1,685 in 1986 to 2,201 in 1995, an increase of 30.6 per cent. While there has been a significant recent increase in suicide in the young, Goldney and Harrison (1998) have highlighted continuing reductions in suicide rates in middle aged and older Australians over the last hundred years.

Males predominated in these deaths, accounting for 79.1 per cent of suicides of all ages, 79.8 per cent of 15 to 64 year olds and 83.8 per cent of 15 to 24 year olds. However, research has suggested that females attempt suicide more often, but that males use more violent, and therefore more successful means, such as firearms (see box).

Attempted Suicides

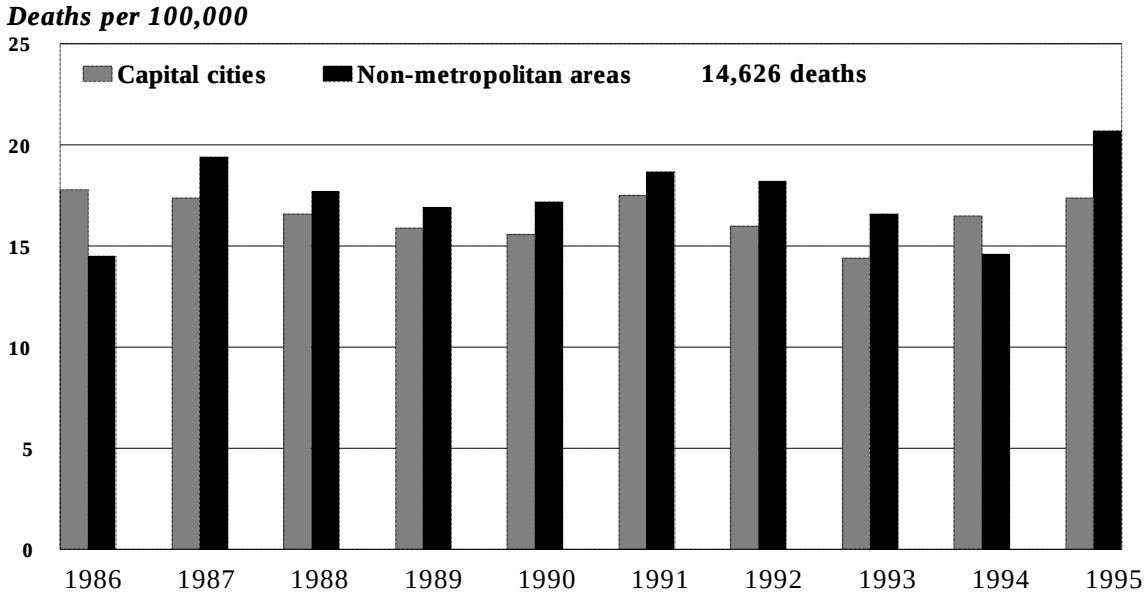
A study by the Health Department of Western Australia (1996) found that over the period from 1981 to 1993 attempted suicide rates were considerably higher among females than males, an age standardised rate of 162 compared to 105 per 100,000 person-years respectively. Female rates were highest in the 15 to 19 year age group (455 attempted suicides per 100,000 person-years), followed by those aged from 20 to 24 years (346 per 100,000). For males, rates were highest in the 20 to 24 year age group (273 per 100,000), with slightly lower rates among those aged 25 to 29 (228 per 100,000). Despite the overall higher rates recorded for females, over the years from 1981 to 1993 female rates declined by 2.4 per cent per year while male rates declined by only 0.2 per cent.

Numbers of suicides not only vary by age and sex, but also by place of residency. While there were more deaths from suicide of residents of the capital cities (13,770 deaths compared to 8,324 in the non-metropolitan areas of Australia over the nine years from 1986 to 1995), because they contain a higher proportion of the country's population, it is more informative to consider death rates.

In 1995, death rates from suicide among 15 to 64 year olds were 23.7 per cent higher in the non-metropolitan areas of Australia than in the capital cities, a rate of 20.9 per 100,000 population compared to 16.9 per 100,000, respectively. The difference in 1995 was more substantial in the 15 to 24 year age group, with a death rate of 21.4 per 100,000 non-metropolitan residents, compared to 15.1 per 100,000 for residents of the capital cities, a difference of 41.7 per cent.

In the following charts, suicide rates are shown separately for the 15 to 24 and 25 to 64 year age groups. Among the older age group (**Figure 5.8**) rates were higher for residents of the capital cities than for residents of the non-metropolitan areas in the first year analysed (1986) and in 1994, with the reverse being the case over the years from 1987 to 1993, and for 1995. There are notable variations between the States in the differentials in the rates of suicide between the capital cities and non-metropolitan areas. As noted above, rates are higher in country areas than in the capital cities in eight of the ten years analysed for the 25 to 64 year age group. This pattern is similar across most States, varying from Victoria with higher rates in the country in eight of the ten years to Western Australia and Tasmania with higher rates in the country in six of the ten years. The experience in Queensland, South Australia and the Northern Territory is rather different, with non-metropolitan rates higher in only three years in Queensland and higher in South Australia and the Northern Territory in four years. Victoria and Tasmania have consistently had higher rates in the non-metropolitan areas in the most recent years to 1995.

Figure 5.8: Suicide rates of people aged from 25 to 64 years, Capital cities and Rest of Australia

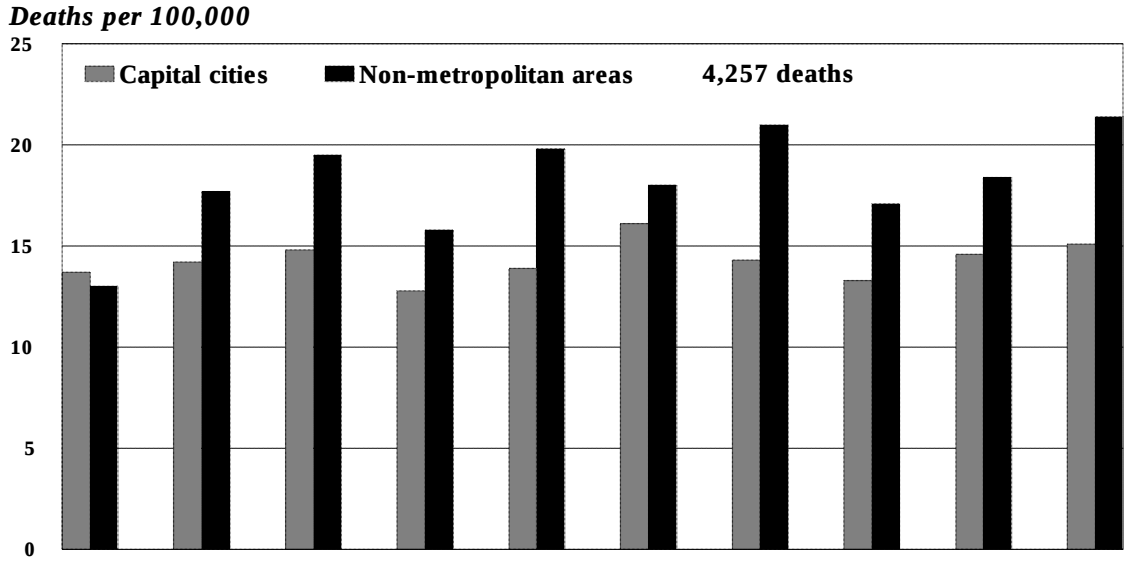


Source: Various issues, ABS Causes of Death bulletins

Death from suicide is more evidently a greater problem in the non-metropolitan areas among the 15 to 24 year age group than in the capital cities, with higher rates in country areas of Australia in all but the first of the ten years of data analysed (**Figure 5.9**). The rates for Victoria display the same profile, and are similar to those in New South Wales and Queensland (higher country rates in eight of the ten years), Western Australia (higher rates in seven years) and South Australia and the Northern Territory (higher rates in six years). Tasmania had a more even distribution, with higher rates in the non-metropolitan areas in each five of the ten years.

Overall, for the nine years analysed, suicide rates for the younger age group were lower among residents of the capital cities and higher for residents of the non-metropolitan areas. It is likely that the higher rates in country areas relate to factors such as a relative lack of job and training opportunities, the decline of many rural communities and the relatively larger numbers of Indigenous people in the population, a group which has higher suicide rates.

Figure 5.9: Suicide rates of people aged from 15 to 24 years, Capital cities and Rest of Australia



Source: Various issues, ABS Causes of Death bulletins

Infant deaths, 1992 to 1995

Capital city comparison

The infant death rate is calculated as the number of infant deaths (deaths under one year of age) per 1,000 live births. Over the years 1992 to 1995, the rate varied between the capital cities, from a high of 10.3 in **Darwin** to around half that level in a number of cities. **Hobart** had the second highest rate.

The *All capitals* infant death rate has declined by one third between the two periods for which data have been analysed (**Table 5.11**). As noted earlier (page 127), this is largely the result of the decline in deaths from sudden infant death syndrome. There were similar reductions in all of the capital cities other than **Darwin**, where the infant death rate rose, from 9.4 for the period 1985 to 1989, to 10.3 for the years 1992 to 1995. **Darwin** now has the highest infant death rate (10.3 infant deaths per 1,000 live births), followed by **Hobart** (7.5), a reversal of the ranking over the period from 1985 to 1989. All capital cities except these show significant improvements in the rate.

Table 5.11: Infant deaths, capital cities
Infant death rates per 1,000 live births

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	**6.1**	**5.2**	**6.7**	**5.2**	**5.3**	**7.5**	**10.3**	**5.9**	**5.8**
1985-89[2]	**9.3**	**8.2**	**8.9**	**7.5**	**8.4**	**9.5**	**9.4**	**8.3**	**8.7**

[1]Includes Queanbeyan (C)
[2]For 1985-89 the rate was calculated per 1,000 children aged under 12 months plus infant deaths: this approximates live births
Source: See *Data sources*, Appendix 1.3

Over the years from 1992 to 1995, there were 4,126 infant deaths of children resident in the capital cities and other major urban centres, 64.5 per cent of all infant deaths in Australia.

Neonatal deaths (deaths of infants aged under 28 days) accounted for almost two thirds (65.4 per cent) of infant deaths. Neonatal deaths result mostly from the circumstances of the birth, or from pre-natal conditions resulting in disabilities at birth. The remaining (post-neonatal) deaths are related to infections, respiratory disorders, accidents and deaths attributed to Sudden Infant Death Syndrome and other causes.

Capital Cities

In **Sydney**, the highest infant death rates were in ***Inner Sydney*** (7.4 infant deaths per 1000 live births) and ***Blacktown-Baulkham Hills*** (7.0). High rates were also recorded in ***Central Western Sydney*** (6.7) and in ***Canterbury-Bankstown***, ***Outer Western Sydney*** and ***Gosford-Wyong***, each with 6.4 infant deaths per 1,000 live births. The lowest infant death rates were in ***Inner Western Sydney*** (4.3) and ***Eastern Suburbs*** (4.6). There were 160 infant deaths in ***Blacktown-Baulkham Hills*** over the four years from 1992 to 1995, 132 in ***Outer Western Sydney*** and 127 in ***Canterbury-Bankstown***. In **Newcastle,** there were 6.8 infant deaths per 1,000 live births (174 deaths) compared with a rate of 5.6 in **Wollongong** (84 deaths).

For **Melbourne**, the highest infant death rates were in ***South Eastern Inner Melbourne*** (with 7.3 infant deaths per 1,000 live births), ***Western Fringe Melbourne*** (6.6) and ***Mornington Peninsula Inner*** (6.1). The lowest rate was in ***Northern Outer Melbourne*** and ***Eastern Inner Melbourne***, both with 4.2 infant deaths per 1,000 live births. Over the period 1992 to 1995, there were 92 infant deaths in ***Eastern Outer Melbourne***, 83 in ***South Eastern Outer Melbourne*** and 76 in ***Western Outer Melbourne***. In **Geelong** there were 30 infant deaths, an infant death rate of 4.6.

High infant death rates were recorded in three Statistical Subdivisions in **Brisbane:** in ***Redcliffe*** (8.8 infant deaths per 1,000 live births, the second highest rate for any SSD in the capital cities and other major urban centres), ***Ipswich-Moreton*** (8.1) and ***Caboolture*** (8.0). Only ***Pine Rivers*** (3.9) and ***Redland*** (4.3) had rates lower than those for **Brisbane** overall. In ***Brisbane City,*** there were 261 infant deaths, with 76 in ***Logan*** and 70 in ***Ipswich-Moreton***. Over the four years from 1992 to 1995, there were 100 infant deaths in **Gold Coast-Tweed Heads** (an infant death rate of 6.4 infant deaths per 1000 live births) compared with 63 in **Townsville-Thuringowa** (8.0).

Relatively low infant death rates were recorded in **Adelaide**, with the highest in ***Northern*** (5.8 infant deaths per 1,000 live births; 118 infant deaths) and the lowest in ***Southern*** (4.6; 72 infant deaths).

In **Perth**, there were 6.4 infant deaths per 1,000 live births in ***South East Metropolitan*** (99 infant deaths) and 5.5 in ***North Metropolitan*** (115 infant deaths). The lowest rate was in ***Central Metropolitan*** (3.9).

There were 79 infant deaths in **Hobart**, an infant death rate of 7.5 deaths per 1,000 live births.

The highest infant death rate for any capital cities or other major urban centre SSD was in ***Darwin City*** SSD, a rate of 11.2 deaths per 1,000 live births (54 infant deaths in four years). In ***Palmerston-East Arm*** the corresponding values were eight infant deaths and a rate of 6.9 infant deaths per 1000 live births.

There were more than five infant deaths for every 1,000 live births in both ***Central Canberra*** (6.6) and ***Belconnen*** (5.7). The lowest rate was in ***Weston Creek*** (2.6). Over the four years there were 34 deaths in ***Tuggeranong*** and 26 in ***Belconnen***.

Map 5.7: Infant deaths, major urban centres, 1992 to 1995

infant deaths per 1,000 live births in each Statistical Subdivision

Other major urban centres (Rate)

Hobart	7.5
Newcastle	6.8
Wollongong	5.6
Geelong	4.6
Gold Coast-Tweed Heads	6.4
Townsville-Thuringowa	8.0

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Infant deaths, 1992 to 1995

State/Territory comparison

The infant death rate is calculated as the number of infant deaths (deaths under one year of age) per 1,000 live births. The rate varied between the States and Territories, from a high of 13.9 in the Northern Territory to less than half that level in a number of States and the Australian Capital Territory. Rates in the Northern Territory were even higher in the *Rest of State/Territory* areas.

Infant death rates in the *Rest of State/Territory* areas were 26.7 per cent lower over the years from 1992 to 1995 than over the years from 1985 to 1989 (**Table 5.12**). The largest reductions occurred in the non-metropolitan areas of Tasmania (down by 46.7 per cent) and the smallest in the Northern Territory (down by 10.4 per cent). Western Australia (22.8 per cent) and Queensland (24.4 per cent) experienced the next smallest reductions, with declines of around one third occurring in the remaining States.

Table 5.12: Infant deaths, State/Territory
Infant deaths per 1,000 live births

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	6.1	5.2	6.7	5.2	5.3	7.5	10.3	5.9[1]	5.8
Other major urban centres[2]	6.4	4.6	7.1	..	..	..	..	..	6.2
Rest of State/Territory	7.1	5.4	6.7	5.9	7.1	5.7	16.3	–[3]	6.8
Whole of State/Territory	6.4	5.3	6.8	5.4	5.9	6.4	13.9	5.1	6.2
1985 to 1989[4]									
Rest of State/Territory	9.3	8.3	9.0	9.0	9.2	10.7	18.2	–[3]	9.3

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
[4]For 1985-89 the rate was calculated per 1,000 children aged under 12 months plus infant deaths: this approximates live births
Source: See *Data sources*, Appendix 1.3

Although Aboriginal infant mortality has generally improved, rates remain high. The Australian Institute of Health and Welfare (1998) has published estimates of infant death rates in the Indigenous populations of SA, WA and NT, the only States and Territory with reliable data. In 1991-96 infant death rates were 19.2 per 1,000 live births in the Indigenous population compared to 6.1 per 1,000 in the non-Indigenous population. The high rates for Aboriginal and Torres Strait Islander people are likely to influence the regional rates in areas with very high proportions of Aboriginal people in the population, in particular SSDs in the remote areas of Australia.

Rest of Australia

The highest infant death rates in New South Wales were in the Statistical Subdivisions (SSDs) of ***Queanbeyan*** (13.7 infant deaths per 1,000 live births), ***Far West*** (13.4) and ***Albury*** (10.3). Relatively high rates were recorded in ***Upper Darling*** (8.7), ***Clarence*** and ***Central Tablelands*** (both with 8.2) and ***Central Macquarie*** (8.1). The lowest rates were in ***Tweed Heads*** (4.7 infant deaths per 1,000 live births), and ***Northern Slopes*** and ***Central Murray*** (both with 5.1). There were 59 infant deaths recorded in ***Clarence*** and 53 in ***Central Murrumbidgee***.

In Victoria, the highest rates of infant deaths were recorded in ***South Gippsland*** (8.0 infant deaths per 1,000 live births), ***West Gippsland*** (7.7) and ***Gippsland Lakes*** (7.5). Relatively high rates were also recorded in ***West Central Highlands*** (7.3), ***East Mallee*** (7.0) and ***South Wimmera*** (6.9). The lowest rates were in ***South Goulburn*** (2.6 infant deaths per 1,000 live births) and ***Mitchell-Snowy*** (2.8). Between 1992 and 1995 there were 31 infant deaths in ***Ballarat*** and 28 in ***La Trobe Valley***.

There were 11.1 infant deaths per 1,000 live births in Queensland's ***Central West*** SSD, 10.1 in ***Northern SD Balance***, 9.5 in ***North West***, 9.4 in ***Far North SD Balance*** and 8.8 in ***Gladstone***. The lowest rates were in ***Sunshine Coast*** (3.8 infant deaths per 1,000 live births) and ***Bundaberg*** (4.4). There were 76 infant deaths in ***Darling Downs*** and 66 in ***Far North SD Balance*** over the four year period from 1992 to 1995.

In South Australia, the highest infant death rates were recorded in ***West Coast*** (16.3 infant deaths per 1,000 live births) and ***Flinders Ranges*** (11.9). Of SSDs with more than five infant deaths between 1992 and 1995, the lowest rates were in ***Barossa*** (3.8) and ***Pirie*** (3.9). There were four SSDs that recorded fewer than five infant deaths during the period, including no deaths in ***Kangaroo Island***. In ***Riverland,*** there were 18 infant deaths, with 17 in ***Flinders Ranges***.

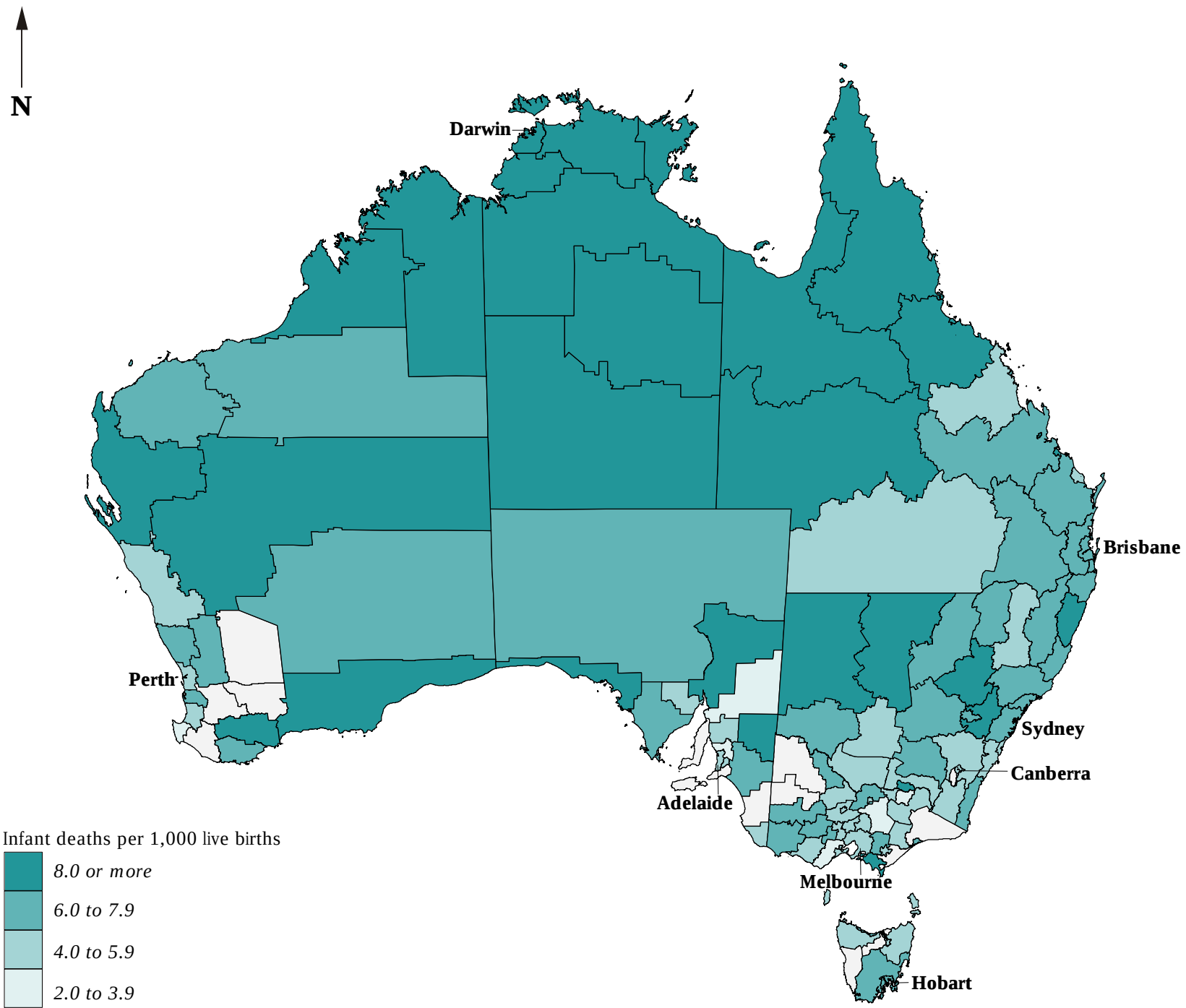
The highest infant death rate in Western Australia was recorded in ***Carnegie***, where there were 22.0 infant deaths for every 1,000 live births. High rates were also recorded in ***Ord*** (19.4) and ***Fitzroy*** (15.4). Disregarding the five SSDs with fewer than five infant deaths, the lowest rates were in ***Greenough River*** (5.3) and ***Preston*** (5.7). There were 24 infant deaths recorded in ***Lefroy*** and 22 in ***Preston***.

There were 6.8 infant deaths per 1,000 live births in ***Southern*** SSD in Tasmania and 7.3 in ***Burnie-Devonport***. Excluding ***Lyell*** and ***Central North***, both with fewer than five infant deaths, the lowest rate was in ***North Eastern*** (four infant deaths per 1,000 live births). There were 35 infant deaths in ***Burnie-Devonport*** and 32 in ***Launceston***.

The highest infant death rates in Australia were recorded in the Northern Territory in ***Alligator*** (27.5 infant deaths for every 1,000 live births) and ***Bathurst-Melville*** (25.3). Other high infant death rates were in ***Daly*** (20.2) and ***East Arnhem*** (20.1). The lowest infant death rate was in ***Darwin Rural Areas*** (8.4). There were 44 infant deaths in ***Central NT*** and 27 in ***Lower Top End NT*** over the four years from 1992 to 1995.

Map 5.8: Infant deaths, Australia, 1992 to 1995

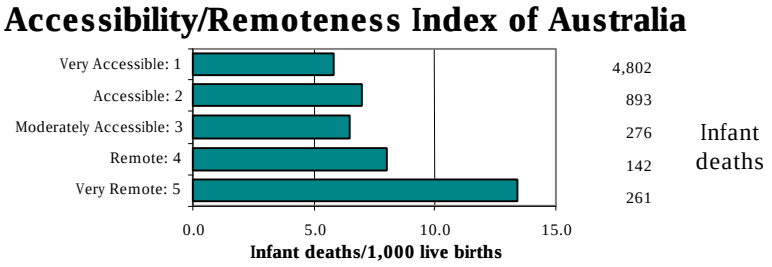
infant deaths per 1,000 live births in each Statistical Subdivision



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Infant death rates were highest in the Very Remote ARIA category (13.4 infant deaths per 1,000 live births), with almost as many deaths in this four year period as in the Moderately Accessible areas. The other rates ranged from 5.8 in the Very Accessible category to 8.0 in the Remote areas. The very high figure in the most remote areas is likely to reflect the high infant death rates among Indigenous Australians.

Source: Calculated on ARIA classification, DHAC

Deaths of males aged 15 to 64 years from all causes, 1992 to 1995

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, Standardised Death Ratios (SDRs) for males aged from 15 to 64 years ranged from 81** in **Canberra** to 143** in **Darwin**. The other capital cities (except **Hobart** with an SDR of 103) had fewer deaths than expected.

There was a higher differential (from the Australian rates) in the SDR recorded for **Darwin** in the later period shown in **Table 5.13**. The higher SDR in this later period suggests a worsening (relative to the Australian rates) in the male death ratios from all causes between the periods analysed. The differential in the ratios for **Adelaide** between these periods also suggests a deterioration, while those in **Brisbane** and **Canberra** indicate a relative improvement.

Table 5.13: Deaths of males aged 15 to 64 years from all causes, capital cities
Standardised death ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	99	92**	94**	93**	87**	103	143**	81**	94**
1985-89	100	92**	97*	89**	87**	101	124**	82**	94**

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Malignant neoplasms (cancer), diseases of the circulatory system and the combined external causes of accidents, poisonings and violence were the main causes of premature death (deaths between the ages of 15 to 64 years) for males over this period. There were 175,893 deaths of males in the capital cities and other major urban centres over the period from 1992 to 1995, of which 46,602 (26.5 per cent) were of males aged from 15 to 64 years. Males most likely to die prematurely include Indigenous people; those who are homeless, or who live in sheltered accommodation or low-cost boarding houses; those earning low incomes; and those who are unemployed.

Capital Cities

Standardised death ratios for males aged from 15 to 64 years were higher than expected from the Australian rates in six **Sydney** Statistical Subdivisions (SSDs), ranging from a highly elevated SDR of 199** in ***Inner Sydney*** (the highest of any capital city or other major urban centre SSD) to 113** in ***Eastern Suburbs***, 107* in ***Gosford-Wyong***, and 106* in both ***Fairfield-Liverpool*** and ***Central Western Sydney***. The lowest ratios were recorded in ***Hornsby-Ku-ring-gai*** (67**) and ***Northern Beaches*** (72**). There were 2,178 deaths in ***Inner Sydney***, 1,284 in ***Blacktown-Baulkham Hills*** and 1,280 in ***St George-Sutherland***. In **Newcastle,** there were more premature deaths than expected from the Australian rates (1,956 deaths and an SDR of 107**), while in **Wollongong** there were marginally fewer deaths than expected (99; 1,030 deaths).

In **Melbourne,** there were considerably more deaths of males in this age group than expected from the Australian rates in ***Central Melbourne*** (an SDR of 154**) and ***Western Inner Melbourne*** (136**). All but five SSDs recorded fewer deaths than expected, with the lowest ratios in ***Eastern Middle Melbourne*** (65**), ***Northern Outer Melbourne*** (74**) and ***South Eastern Outer Melbourne*** (80**). More than 1,000 deaths were recorded for males from ***Western Inner Melbourne*** (1,124) and ***Eastern Outer Melbourne*** (1,024). There were 497 deaths of male residents of **Geelong** aged from 15 to 64 years, an SDR of 114**.

There were no elevated ratios of statistical significance at the SSD level in **Brisbane**, with the highest ratios recorded for residents of ***Redcliffe*** (an SDR of 107), ***Ipswich-Moreton*** and ***Albert Part A*** (both with 101). The lowest ratios were in ***Pine Rivers*** and ***Redland*** (both with an SDR of 74**). The SSD of ***Brisbane City*** had the largest number of deaths of males aged from 15 to 64 years (3,001 deaths), with 499 deaths in ***Logan*** and 423 in ***Ipswich-Moreton***. There were marginally more deaths of males in **Townsville-Thuringowa** than expected from the Australian rates (103; 463 deaths), and fewer than expected in **Gold Coast-Tweed Heads** (94*; 1,238 deaths).

In **Adelaide**, ***Western*** (with an SDR of 111**) was the only SSD with more deaths of males in this age group than expected from the Australian rates; the lowest ratio was recorded in ***Southern*** (77**). The largest number of deaths was recorded in the ***Northern*** SSD, with 1,271 male deaths.

In **Perth,** there were fewer premature male deaths than expected from the Australian rates in all but ***Central Metropolitan*** (an SDR of 102). The lowest ratios were in ***North Metropolitan*** (79**) and ***East Metropolitan*** (86**). ***North Metropolitan*** also had the largest number of deaths of males at these ages, with 1,141 deaths, and there were 920 deaths in ***South East Metropolitan***.

In **Hobart**, there were 763 deaths of 15 to 64 year old male residents in the period 1992 to 1995, an SDR of 103.

There were more premature deaths of males than expected from the Australian rates in both SSDs in **Darwin**, with 49 per cent more in ***Palmerston-East Arm*** (an SDR of 149**; 51 deaths) and 43 per cent more in ***Darwin City*** (143**; 363 deaths).

In Canberra, statistically significant ratios were recorded in all SSDs except ***Outer Canberra***, although only in ***Central Canberra*** were there were more deaths of males in this age group than expected (an SDR of 114*). The lowest ratio was recorded for males in ***Belconnen*** (an SDR of 65**). These two SSDs had the largest numbers of premature deaths of males, with 264 in ***Central Canberra*** and 215 in ***Belconnen***.

Map 5.9: Deaths of males aged 15 to 64 years from all causes, major urban centres, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

Standardised Death Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*

*Expected numbers were derived by indirect age standardisation, based on Australian totals

Other major urban centres (SDR)

Hobart	103
Newcastle	107
Wollongong	99
Geelong	114
Gold Coast-Tweed Heads	94
Townsville-Thuringowa	103

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of males aged 15 to 64 years from all causes, 1992 to 1995

State/Territory comparison (Australia as the Standard)

Standardised Death Ratios (SDRs) for males aged from 15 to 64 years over the years from 1992 to 1995 were higher in the *Rest of State/Territory* areas than in the capital cities. At the *Whole of State/Territory* level, the Northern Territory had the highest ratio (an SDR of 199**) and the Australian Capital Territory had the lowest ratio (an SDR of 78**).

Most States had similar differentials (from the Australian rates) in the SDR recorded for their non-metropolitan areas in the later period shown in **Table 5.14**. The major exceptions were Western Australia, with a higher SDR (suggesting an increase in death rates relative to the Australian experience), and the Northern Territory, with a lower SDR (suggesting a decline in death rates relative to the Australian experience). The Northern Territory ratio continues to be substantially elevated, and more than twice the next highest ratio.

Table 5.14: Deaths of males aged 15 to 64 years from all causes, State/Territory
Standardised death ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	99	92**	94**	93**	87**	103	143**	81**[1]	94**
Other major urban centres[2]	104*	114**	96	..	..	..	..	..	102
Rest of State/Territory	113**	103*	105**	108**	112**	114**	260**	–[3]	110**
Whole of State/Territory	104**	95**	100	98	94**	110**	199**	78**	100
1985 to 1989									
Rest of State/Territory	113**	105**	110**	106**	103	109**	280**	–[3]	111**

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

The major causes of premature death for males in these non-metropolitan areas were malignant neoplasms (cancer), circulatory system diseases and the combined external causes of accidents, poisonings and violence. There were 88,187 deaths of males resident in these areas, of which 24,029 were aged from 15 to 64 years, 27.2 per cent of all male deaths. As noted on page 138, Aboriginal people have higher rates of death from this group of causes. The highly elevated ratios in a number of remote Statistical Subdivisions (SSDs) are likely to reflect their relatively larger populations of Indigenous Australians.

Rest of Australia

All but three SSDs in New South Wales had elevated ratios for premature male deaths. The most highly elevated ratios were in ***Upper Darling*** (an SDR of 205**), ***Macquarie-Barwon*** (166**), ***Far West*** (158**) and ***North Central Plains*** (142**). Ten other SSDs had ratios elevated by more than 15 per cent. The lowest ratios were in ***Snowy*** (83) and ***Central Murray*** (95). The largest numbers of deaths of males aged from 15 to 64 years were from the north coast SSDs of ***Richmond-Tweed SD Balance*** (648 deaths), ***Clarence*** (587) and ***Hastings*** (577).

SDRs for males aged from 15 to 64 years were elevated in half of Victoria's SSDs. The highest ratios were in ***La Trobe Valley*** (an SDR of 123**), ***Gippsland Lakes*** (123*), and ***West Central Highlands*** (121*) and the lowest were in ***South West Goulburn*** (80*) and ***South Loddon-Campaspe*** (82*). There were 365 deaths of males in ***Ballarat*** and 337 in ***La Trobe Valley***.

Three SSDs in Queensland had ratios elevated by 50 per cent or more above the levels expected from the Australian rates: they were ***North West*** (with an SDR of 163**), ***Central West*** (153**) and ***Far North SD Balance*** (150**); a relatively high ratio of 136** was recorded in ***Northern SD Balance***. Lower than expected ratios of significance were recorded in five SSDs, the lowest being in ***Mackay SD Balance*** (80**). The largest numbers of deaths of males in this age group were in ***Darling Downs*** (758 deaths) and ***Wide Bay-Burnett SD Balance*** (725).

In South Australia, there were considerably more deaths of males aged from 15 to 64 years than were expected from the Australian rates in ***West Coast*** (an SDR of 185**), ***Far North*** (176**) and ***Flinders Ranges*** (156**). The lowest ratios were in ***Onkaparinga*** (an SDR of 75**) and ***Barossa*** (81**), both located near **Adelaide**. The largest numbers of these deaths were in ***Riverland*** (165 deaths) and ***Murray Mallee*** (156).

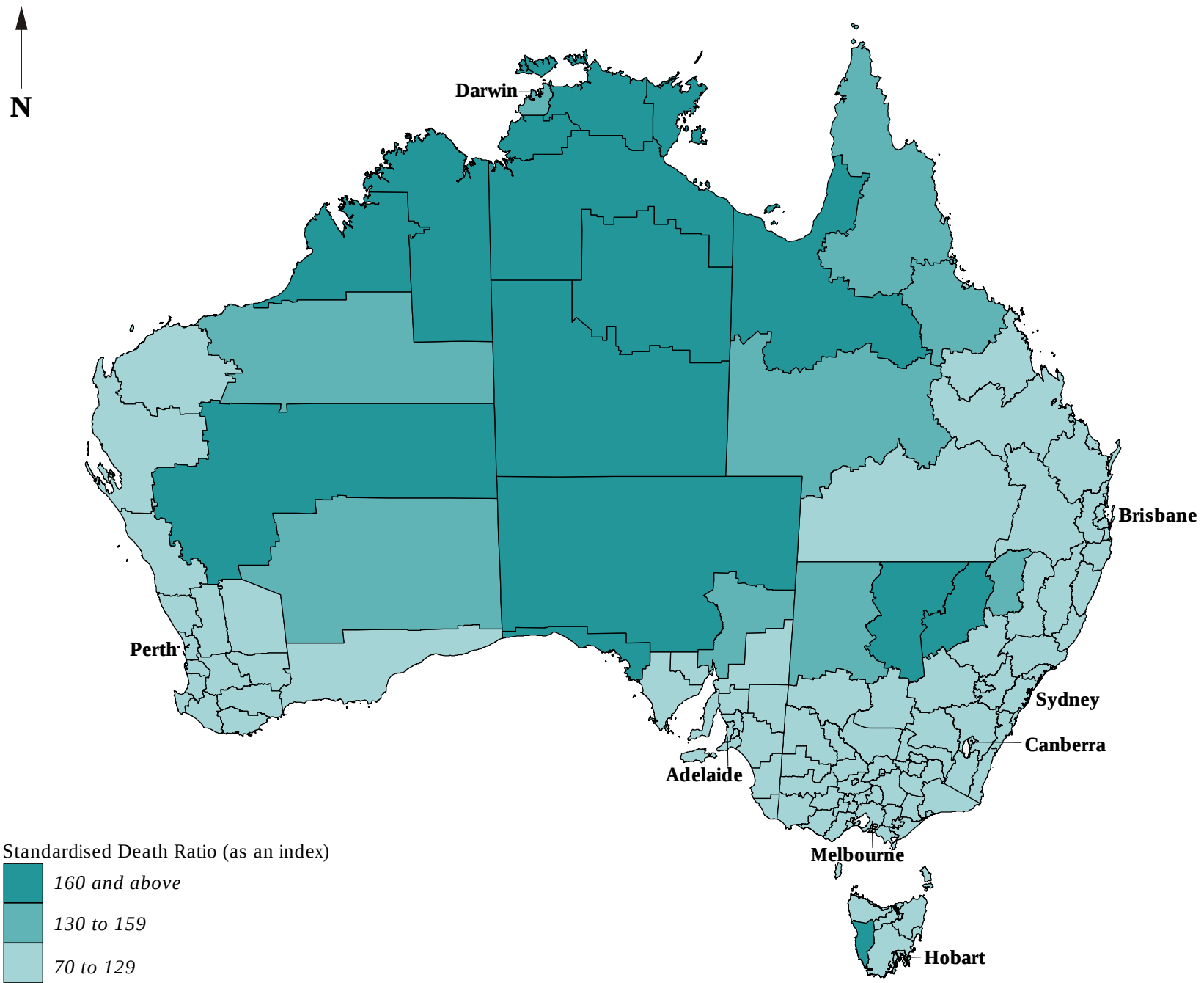
There were more than three times the expected number of deaths of males aged from 15 to 64 years in Western Australia's ***Ord*** (an SDR of 324**), with highly elevated ratios also recorded in ***Fitzroy*** (252**), ***Carnegie*** (185**), ***Lefroy*** (156**) and ***De Grey*** (145**). The lowest ratios were in ***Blackwood*** (79) and ***Campion*** (82), and the largest numbers of deaths were in ***Preston*** (242 deaths) and ***Lefroy*** (213).

Elevated ratios were recorded in five of Tasmania's seven SSDs, with the highest being in ***Lyell*** (with an SDR of 162**), ***North Eastern*** (120*) and ***Launceston*** (118**). The lowest ratio was in ***North Western Rural*** (90). The largest numbers of deaths were in the north coast SSDs of ***Launceston*** (433 deaths) and ***Burnie-Devonport*** (363).

Non-metropolitan Australia's two most highly elevated ratios at the SSD level were recorded in the Northern Territory, in ***Bathurst-Melville*** (465**) and ***Daly*** (406**), with a highly elevated ratio also in ***Lower Top End NT*** (322**). The lowest ratios were in ***Darwin Rural Areas*** (139*) and ***Central NT*** (243**). ***Central NT*** had 268 deaths of males aged from 15 to 64 years, with 164 male deaths in ***Lower Top End NT***.

Map 5.10: Deaths of males aged 15 to 64 years from all causes, Australia, 1992 to 1995

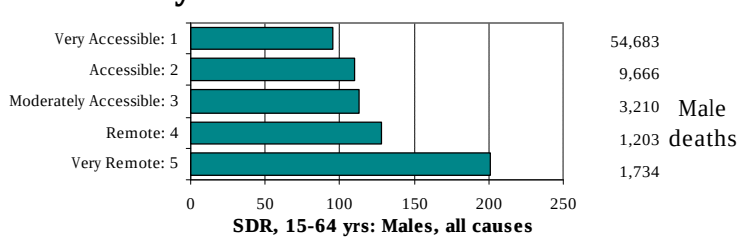
Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*



*Expected numbers were derived by indirect age standardisation, based on Australian totals

Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



Standardised Death Ratios for premature deaths of males increase steadily across the first four ARIA categories, before increasing markedly in the Very Remote category. SDRs range from 96 in the Very Accessible category to 128 in the Remote category, with an SDR of 201 in the Very Remote areas. The elevated SDRs in the Very Remote and, to a lesser extent, Remote categories are likely to reflect the very high premature death rates experienced by Indigenous males.

Source: Calculated on ARIA classification, DHAC

Deaths of females aged 15 to 64 years from all causes, 1992 to 1995

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, Standardised Death Ratios (SDRs) for females aged from 15 to 64 years ranged from 87** in **Canberra** to 115** in **Hobart** and 126** in **Darwin**. The other capital cities had ratios of below 100, indicating that there were fewer deaths than were expected from the Australian rates.

There was a higher differential (from the Australian rates) in the SDR recorded for **Darwin** in the later period (from 1992 to 1995) shown in **Table 5.15**. The higher SDR suggests a worsening (relative to the Australian rates) in the female death rates from all causes between the periods analysed. The remaining States and Territories experienced small increases (**Adelaide**, **Perth** and **Hobart**) or decreases (**Sydney**, **Melbourne**, **Brisbane** and **Canberra**) in their ratios.

Table 5.15: Deaths of females aged 15 to 64 years from all causes, capital cities
Standardised death ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	98*	92**	96	98	90**	115**	126**	87**	95**
1985-89	100	95**	98	93**	86**	112**	112	88**	96**

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

As for males, cancer was the main cause of premature death (deaths between the ages of 15 of 64 years) for females, followed by diseases of the circulatory system and the combined causes of accidents, poisonings and violence. Overall, there were 162,178 deaths of female residents in the capital cities and other major urban centres, of whom 24,476 were of females aged from 15 to 64 years. The data that have been mapped for this variable therefore represents 15.1 per cent of all female deaths.

Females most likely to die prematurely include Aboriginal and Torres Strait Islander women; single mothers; those earning low incomes; and those who were unemployed.

Capital Cities

In **Sydney,** the only Statistical Subdivisions (SSDs) with elevated ratios of statistical significance were ***Inner Sydney*** (with an SDR of 131**, the highest for any SSD in the capital cities and other major urban centres), ***Central Western Sydney*** (112**), ***Outer Western Sydney*** (110*) and ***Gosford-Wyong*** (109*), although there were more deaths than expected from the Australian rates in three other SSDs. Low ratios of statistical significance were recorded in five SSDs, with the lowest in ***Hornsby-Ku-ring-gai*** (69**) and ***St George-Sutherland*** (84**). The largest numbers of deaths were of females aged from 15 to 64 years and resident in ***St George-Sutherland*** (726 deaths) and ***Blacktown-Baulkham Hills*** (654 deaths). **Newcastle** had an SDR of 113** and 1,097 female deaths, and **Wollongong** had an SDR of 101, with 539 female deaths.

High SDRs for premature deaths of females were recorded in ***Western Inner Melbourne*** (an SDR of 115**), ***Northern Inner Melbourne*** (114), and ***Central Melbourne*** (114*). Elevated ratios were also recorded in ***Mornington Peninsula Inner*** (106) and ***Southern Eastern Inner Melbourne*** (102). Of the 13 SSDs in **Melbourne** with fewer deaths than expected from the Australian rates, eight had statistically significant ratios. The lowest ratios were in ***Eastern Fringe Melbourne*** (an SDR of 72**) and ***Eastern Inner Melbourne*** (79**). There were 576 deaths of females resident in ***Eastern Outer Melbourne*** and 563 in ***Eastern Middle Melbourne***. **Geelong** had an SDR of 109 and 251 female deaths in this age group.

In **Brisbane**, the highest ratio was in ***Beaudesert*** (an SDR of 114), with 14 per cent more deaths than expected from the Australian rates. Most SSDs had fewer premature female deaths than expected, with the lowest ratio in ***Pine Rivers*** (82*). The largest number of deaths was in ***Brisbane City***, with 1,559, while there were 280 in ***Logan*** and 213 in ***Ipswich Moreton***. Although the ratios were not statistically significant, there were more deaths than expected of females aged from 15 to 64 years in **Townsville-Thuringowa** (an SDR of 105; 223 deaths) and fewer than expected in **Gold Coast-Tweed Heads** (95; 686 deaths).

In **Adelaide,** only ***Western*** SSD had more deaths than expected from the Australian rates (an SDR of 109). Of the remaining SSDs, the lowest ratio was recorded in ***Southern*** (90**). There were 671 deaths of females aged from 15 to 64 years in ***Northern*** and 592 in ***Southern***.

In **Perth**, only ***South East Metropolitan*** (an SDR of 104) had more deaths than expected from the Australian rates. Lower than expected ratios were recorded in ***North Metropolitan*** (79**) and ***East Metropolitan*** (89*), while the largest numbers of deaths of females aged from 15 to 64 years were in ***North Metropolitan*** (607) and ***South East Metropolitan*** (561).

In **Hobart,** there were more premature female deaths than expected from the Australian rates (with an SDR of 115** and 460 deaths).

Both of the SSDs in **Darwin** had elevated ratios, with 27 per cent more deaths than expected in ***Darwin City*** (an SDR of 127**, and 141 deaths), and 21 per cent more in ***Palmerston-East Arm*** (an SDR of 121; 19 deaths).

In **Canberra**, only ***Central Canberra*** (with an SDR of 127**) recorded more deaths than expected. The lowest ratio was in ***Tuggeranong*** (an SDR of 60**), while the largest numbers of deaths of females aged from 15 to 64 years were in ***Central Canberra*** (154 deaths) and ***Belconnen*** (130).

Map 5.11: Deaths of females aged 15 to 64 years from all causes, major urban centres, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

Standardised Death Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*

*Expected numbers were derived by indirect age standardisation, based on Australian totals

Other major urban centres (SDR)

Hobart	115
Newcastle	113
Wollongong	101
Geelong	109
Gold Coast-Tweed Heads	95
Townsville-Thuringowa	105

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of females aged 15 to 64 years from all causes, 1992 to 1995

State/Territory comparison (Australia as the Standard)

Standardised Death Ratios (SDRs) for females aged from 15 to 64 years were higher in the *Rest of State/Territory* areas than in the capital cities, with the most highly elevated ratio being in the Northern Territory (an SDR of 289**). At the *Whole of State/Territory* level, only Tasmania (116**) and the Northern Territory (210**) had substantially more female deaths than expected from the Australian rates.

Most States had similar differentials (from the Australian rates) in the SDR recorded for their non-metropolitan areas in the later period shown in **Table 5.16**. The major exceptions were Tasmania, South Australia and Western Australia, with higher SDRs (suggesting an increase in death rates relative to the Australian experience); and the Northern Territory and New South Wales, with lower SDRs (suggesting a decline in death rates relative to the Australian experience). The SDR for females aged from 15 to 64 years in the Northern Territory, however, remains substantially elevated, at more than twice the next highest level.

Table 5.16: Deaths of females aged 15 to 64 years from all causes, State/Territory
Standardised death ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	98*	92**	96	98	90**	115**	126**	87**[1]	95**
Other major urban centres[2]	109**	109	96	..	..	..	..	..	105*
Rest of State/Territory	108**	101	106**	109*	112**	117**	289**	–[3]	109**
Whole of State/Territory	102	94**	101	101	96*	116**	210**	86**	100
1985 to 1989									
Rest of State/Territory	113**	101	106**	96	105	106	328**	–[3]	108**

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

As for males living in the non-metropolitan areas of Australia, the major cause of premature death among females was malignant neoplasms (cancer), followed by circulatory system diseases and the combined causes of accidents, poisonings and violence. The premature deaths mapped for this variable accounted for 17.2 per cent of all female deaths. This figure was some two thirds of that recorded for males (27.2 per cent), highlighting the fact that the female life expectancy is higher. As noted on page 142, Aboriginal people have higher rates of death from this group of causes. The highly elevated ratios in a number of remote Statistical Subdivisions (SSDs) are likely to reflect their relatively larger populations of Indigenous Australians.

Rest of Australia

All but five of the SSDs in New South Wales had more premature female deaths than expected from the Australian rates, with the most highly elevated ratios in ***Upper Darling*** (an SDR of 199**), ***Macquarie-Barwon*** (140*), ***North Central Plain*** (137**) and ***Bathurst-Orange*** (134**). Relatively high ratios were also recorded in ***Far West*** (127*), ***Central Tablelands*** (124*) and ***Southern Tablelands*** (120*). The lowest ratios were recorded for residents of ***Central Murray*** (an SDR of 78) and ***Clarence*** (90). There were 325 premature deaths of females in ***Hastings*** and 311 in ***Richmond-Tweed SD Balance***.

Elevated ratios of statistical significance for premature deaths of females were recorded in the Victorian SSDs of ***North Ovens-Murray*** (with an SDR of 130*) and ***Shepparton-Mooroopna*** (128*), while the lowest ratios were in ***West Mallee*** (68), ***Mitchell-Snowy*** (72), and ***Macalister-Avon*** (72*). The largest numbers of female deaths were in ***Ballarat*** (176 deaths) and ***La Trobe Valley*** (169).

In Queensland, elevated ratios were recorded in ***Far North SD Balance*** (175**) and ***Bundaberg*** (120*). The lowest ratio was recorded in ***Sunshine Coast*** (85**). The largest numbers of deaths were recorded for females resident in ***Darling Downs*** (375 deaths) and ***Wide Bay-Burnett SD Balance*** (366).

West Coast (with an SDR of 263**) and ***Far North*** (212**) SSDs in South Australia both had highly elevated ratios, with a lower ratio in ***Flinders Ranges*** (145**). The lowest ratios were in ***Kangaroo Island*** and ***Fleurieu*** (both with an SDR of 83). ***Lower South East*** (97 deaths) and ***Murray Mallee*** (80) had the largest numbers of deaths of females aged from 15 to 64 years.

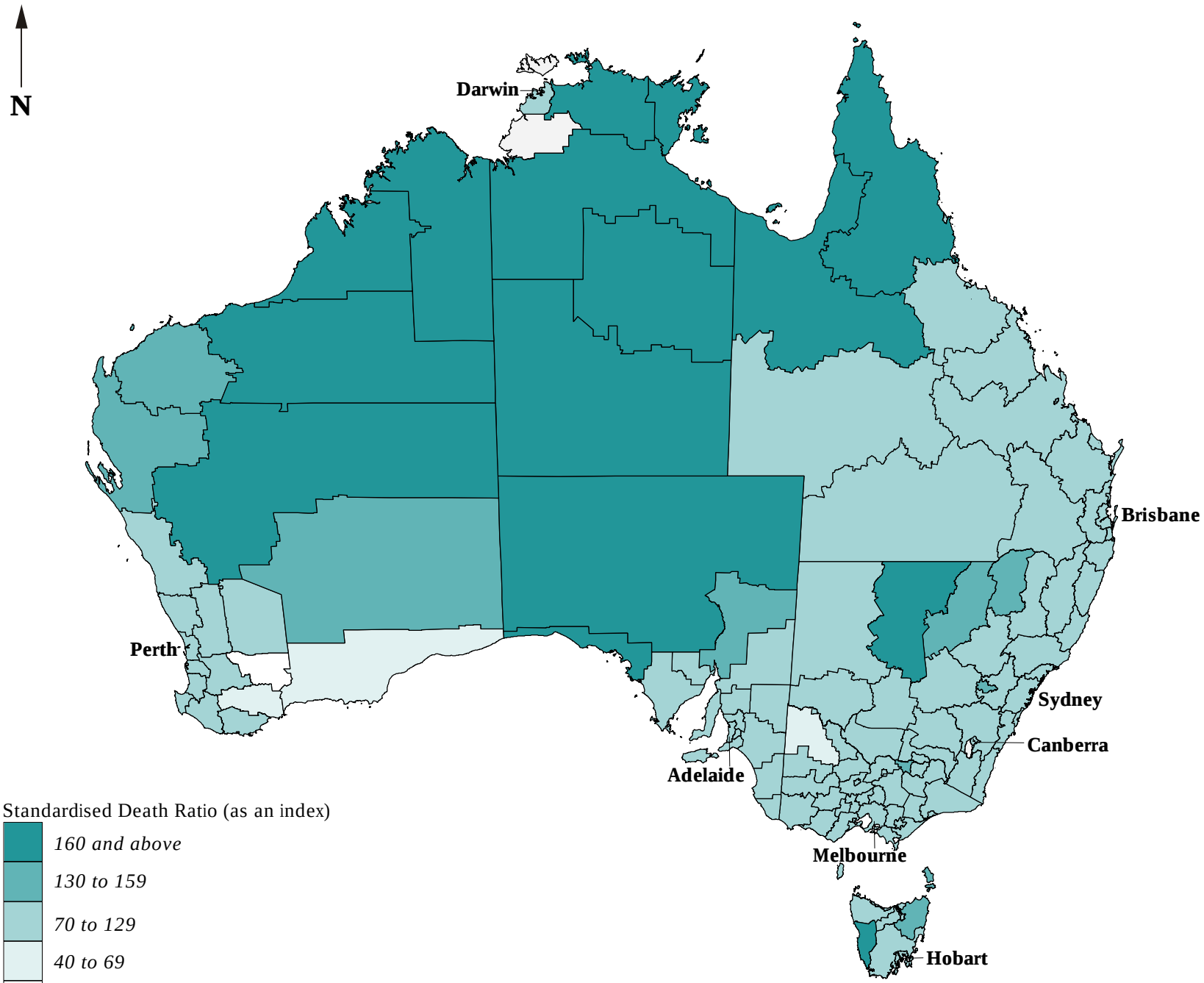
In Western Australia, highly elevated ratios were recorded for female residents aged 15 to 64 years from ***Ord*** (an SDR of 446**), ***Carnegie*** (253**), ***Fitzroy*** (231**), ***De Grey*** (220**), ***Fortescue*** and ***Lefroy*** (both with 158**). The lowest ratios were in ***Pallinup*** (an SDR of 59*) and ***Lakes*** (30*). More than 100 deaths were recorded in ***Preston*** (130) and ***Dale*** (102).

There were more premature female deaths than expected in all but one of the SSDs in Tasmania, with the most highly elevated ratios in ***Lyell*** (an SDR of 184**), ***North Eastern*** (152**) and ***Burnie-Devonport*** (128**). The lowest ratio was in ***North Western Rural*** (94). ***Burnie-Devonport*** (219 deaths) and ***Launceston*** (210 deaths) had the largest numbers of deaths.

In the Northern Territory, there were elevated ratios for premature deaths of females in all of the SSDs. The two highest ratios in the non-metropolitan areas of Australia were in ***Bathurst-Melville*** (an SDR of 754**) and in ***Alligator*** (549**), with more than seven times and five times the expected number of deaths, respectively. The lowest ratio was in ***Darwin Rural Areas*** (105). There were 130 deaths in the ***Central NT*** SSD and 65 deaths in ***East Arnhem*** SSD.

Map 5.12: Deaths of females aged 15 to 64 years from all causes, Australia, 1992 to 1995

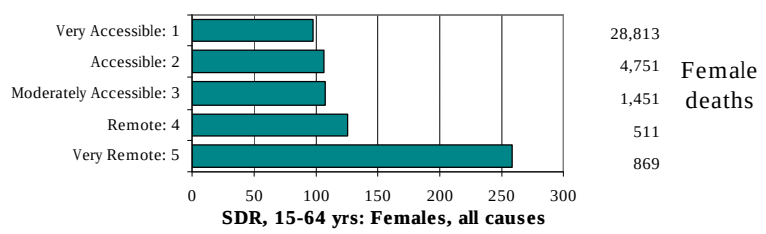
Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*



*Expected numbers were derived by indirect age standardisation, based on Australian totals

Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



Standardised Death Ratios (SDRs) for females show a similar pattern to those for males, but with a higher ratio in the Very Remote areas. They range from a low of 97 in the Very Accessible category to 126 in the Remote category and then to a highly elevated 258 in the Very Remote category. As noted for males, the elevated SDRs in the Very Remote and, to a lesser extent, Remote categories are likely to reflect the very high premature death rates experienced by Indigenous females.

Source: Calculated on ARIA classification, DHAC

Deaths of people aged 15 to 64 years from cancer, 1992 to 1995

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, **Darwin**, with a Standardised Death Ratio (SDR) of 117*, and **Hobart**, with an SDR of 112*, were the only capital cities with elevated ratios for deaths from cancer of people aged from 15 to 64 years. **Canberra** had the lowest ratio, with nine per cent fewer deaths than expected from the Australian rates: ratios in the other capitals were close to the *All capitals* average. Overall, the variations from the Australian rates in SDRs for cancer between the two time periods analysed (**Table 5.17**) were marginal, with the exception of **Darwin**, where there was a substantial differential (from the Australian rates) between the two periods.

Table 5.17: Deaths of people aged 15 to 64 years from cancer, capital cities
Standardised death ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	99	100	98	97	95**	112*	117*	91*	98*
1985-89	100	102	100	96*	99	109*	96	92*	100

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Deaths from cancer (malignant neoplasms) were the second most common cause of death of residents in the capital cities and the major urban centres, accounting for 27.4 per cent of all deaths (92,501 deaths) over the four year period from 1992 to 1995. Moreover, it was the most common cause of death in the 15 to 64 year age group, representing 38.2 per cent of deaths.

Different cancers have different causes and are influenced by a range of risk factors, the most widely accepted being tobacco smoking (it is estimated that as many as one in three cancer deaths are caused by smoking and could therefore be prevented (AIHW 1998)) and dietary influences. Both the incidence and mortality of cancer are higher among males than among females, a fact largely attributed to their greater use of tobacco. There is a strong association between socioeconomic status and certain types of cancer. Mathers (1994) has examined the extent of disparities in mortality rates, which are related to socioeconomic status of area of residence. Differentials in mortality rates from cancer were clearly evident for males aged from 25 to 64 years in the most socioeconomically disadvantaged areas: 28 per cent more male deaths than in the most advantaged areas, with the highest elevation being 60 per cent for lung cancer. Deaths of females in the most disadvantaged areas were less highly elevated (by 10 per cent over deaths in the most advantaged areas), although lung cancer rates were elevated by 58 per cent.

Capital Cities

Standardised death ratios for 15 to 64 year olds from cancer were higher than expected in ***Inner Sydney*** (with an SDR of 141**, the highest for any SSD in the capital cities and other major urban centres), ***Gosford-Wyong*** (110*) and ***Outer Western Sydney*** (107). Low ratios were recorded in over half of the Statistical Subdivisions (SSDs) in **Sydney**, with the lowest in ***Hornsby-Ku-ring-gai*** (with an SDR of 77**), ***Northern Beaches*** (85**) and ***Lower Northern Sydney*** (89**). There were 878 premature deaths from cancer in ***St George-Sutherland***, 788 in ***Inner Sydney*** and 701 in ***Blacktown-Baulkham Hills***. In **Newcastle,** there were 1,139 premature deaths from cancer (an SDR of 109**); and in **Wollongong**, there were 597 deaths (101).

The highest SDRs for premature deaths from cancer in **Melbourne** were in ***Western Inner Melbourne*** (with an SDR of 129**, the second highest for any SSD in the capital cities and other major urban centres), ***Central Melbourne*** (124**) and ***Mornington Peninsula Inner*** (121**). The lowest ratios were in ***Eastern Middle Melbourne*** (with an SDR of 85**), ***Southern Inner Melbourne*** (87*) and ***Eastern Fringe Melbourne*** (88*). The largest numbers of premature deaths from cancer were of residents in ***Eastern Outer Melbourne*** (715 deaths), ***Eastern Middle Melbourne*** (662) and ***Western Inner Melbourne*** (566). There were 23 per cent more premature deaths from cancer than expected in **Geelong** (an SDR of 123**, and 305 deaths).

In **Brisbane**, the highest ratios were recorded in ***Logan*** and ***Redcliffe***, both with an SDR of 102. The lowest ratios were recorded in ***Beaudesert*** (80) and ***Ipswich-Moreton*** (92). The largest numbers of premature deaths from cancer were in ***Brisbane City*** (1,750 deaths), ***Logan*** (284) and ***Ipswich-Moreton*** (200). **Townsville-Thuringowa** had an elevated ratio (an SDR of 108 and 246 deaths) and **Gold Coast-Tweed Heads** had a ratio just below the level expected (97; 753 deaths).

In **Adelaide**, the highest ratio for premature deaths from cancer was in ***Western*** (an SDR of 107) and the lowest was in ***Southern*** (90**). The largest numbers of deaths from cancer were in ***Northern*** (698 deaths) and ***Southern*** (629).

For **Perth**, only ***South East Metropolitan*** SSD (with an SDR of 106) had more premature deaths from cancer than were expected from the Australian rates; the lowest ratio was in ***North Metropolitan*** (90**). These areas also had the largest numbers of deaths, with 732 deaths in ***North Metropolitan*** and 614 in ***South East Metropolitan***.

There were 475 deaths from cancer of 15 to 64 year olds in **Hobart** (an SDR of 112*).

In **Darwin**, ***Darwin City*** had an elevated SDR (120*; 151 deaths) and ***Palmerston-East Arm*** had fewer premature deaths from cancer than were expected from the Australian rates (96; 16 deaths).

The highest ratios of premature deaths from cancer in **Canberra** were in ***Central Canberra*** (with an SDR of 109) and ***Weston Creek*** (94). ***Belconnen*** (82*) had the lowest ratio. There were 145 premature deaths from cancer in ***Belconnen*** and 139 in ***Central Canberra*** over this four year period.

Map 5.13: Deaths of people aged 15 to 64 years from cancer, major urban centres, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

Standardised Death Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*

*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Other major urban centres (SDR)

Hobart	112
Newcastle	109
Wollongong	101
Geelong	123
Gold Coast-Tweed Heads	97
Townsville-Thuringowa	108

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of people aged 15 to 64 years from cancer, 1992 to 1995

State/Territory comparison (Australia as the Standard)

The highest Standardised Death Ratio (SDR) for deaths from cancer of people aged from 15 to 64 years in the *Rest of State/Territory* areas was recorded in the Northern Territory (an SDR of 148**). The other States all had SDRs within 10 per cent of the level expected from the Australian rates. At the *Whole of State/Territory* level, only the Northern Territory (137**) and Tasmania (110**) had notably more deaths from cancer than expected from the Australian rates.

The non-metropolitan areas of New South Wales, Victoria and Queensland had similar differentials (from the Australian rates) in the SDR recorded in the later period shown in **Table 5.18**. The Northern Territory had the highest SDR (suggesting a worsening in death rates relative to the Australian experience); South Australia, Western Australia and Tasmania also had noticeably higher SDRs in the later period, although with much smaller increases than that for the Northern Territory.

Table 5.18: Deaths of people aged 15 to 64 years from cancer, State/Territory
Standardised death ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	99	100	98	97	95**	112*	117*	91*[1]	98*
Other major urban centres[2]	106*	123**	99	..	..	..	..	..	105**
Rest of State/Territory	103	105**	100	96	93*	109*	148**	–[3]	102*
Whole of State/Territory	101	102	99	97	94**	110**	137**	91*	100
1985 to 1989									
Rest of State/Territory	103	104*	98	86**	87**	103	123**	–[3]	99

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

As for the capital cities and major urban centres, deaths from cancer (malignant neoplasms) were also the second most common cause of death of people of all ages in the non-metropolitan areas of Australia, accounting for 26.3 per cent of all deaths (41,452 deaths) over the four year period from 1992 to 1995. Cancer was, however, the most common cause of premature death, accounting for 34.8 per cent of all deaths of people aged from 15 to 64 years. Although the largest numbers of deaths from cancer were of people aged 65 years and over, they accounted for only 24.3 per cent of all deaths at those ages.

Rest of Australia

In New South Wales, elevated SDRs for deaths from cancer were recorded for residents aged from 15 to 64 years in ***Macquarie-Barwon*** and ***Upper Darling*** (both with an SDR of 125), and ***Albury*** (121*). Relatively high ratios were also recorded in ***North Central Plain*** (119), ***Murray-Darling*** (118), ***Bathurst-Orange*** (117*) and ***Lower Murrumbidgee*** (116). The lowest ratios were in ***Snowy*** (79) and ***Northern Tablelands*** (85). There were 360 deaths from cancer in ***Hastings***, 342 in ***Richmond-Tweed SD Balance*** and 318 in ***Illawarra SD Balance***.

In Victoria, there were more premature deaths than expected from the Australian rates in ***La Trobe Valley*** (with an SDR of 124**), ***Glenelg*** (122*), ***North Ovens-Murray*** (122), ***Hopkins*** (117*) and ***Gippsland Lakes*** (116). The lowest ratios were in ***South Loddon-Campaspe*** (68**) and ***Mitchell-Snowy*** (83). The largest numbers of premature deaths from cancer were in ***East Barwon*** (215 deaths), ***Ballarat*** (197) and ***La Trobe Valley*** (189).

Elevated ratios of statistical significance were recorded in the Queensland Statistical Subdivisions (SSDs) of ***North West*** (with an SDR of 127*), ***Northern SD Balance*** (118*) and ***Far North SD Balance*** (115*). The lowest ratios were in ***Mackay SD Balance*** (82) and ***Fitzroy SD Balance*** (84*). The largest numbers of deaths from cancer of 15 to 64 year olds were in ***Darling Downs*** (422 deaths) ***Wide Bay-Burnett SD Balance*** (417) and ***Sunshine Coast*** (308).

The highest ratios in South Australia were in ***Flinders Ranges*** (with an SDR of 124) and ***Pirie*** (120), while the lowest ratios were in ***Far North*** (76) and ***Onkaparinga*** (78). There were 93 deaths of 15 to 64 year olds from cancer recorded in ***Lower South East*** and 80 in ***Riverland***.

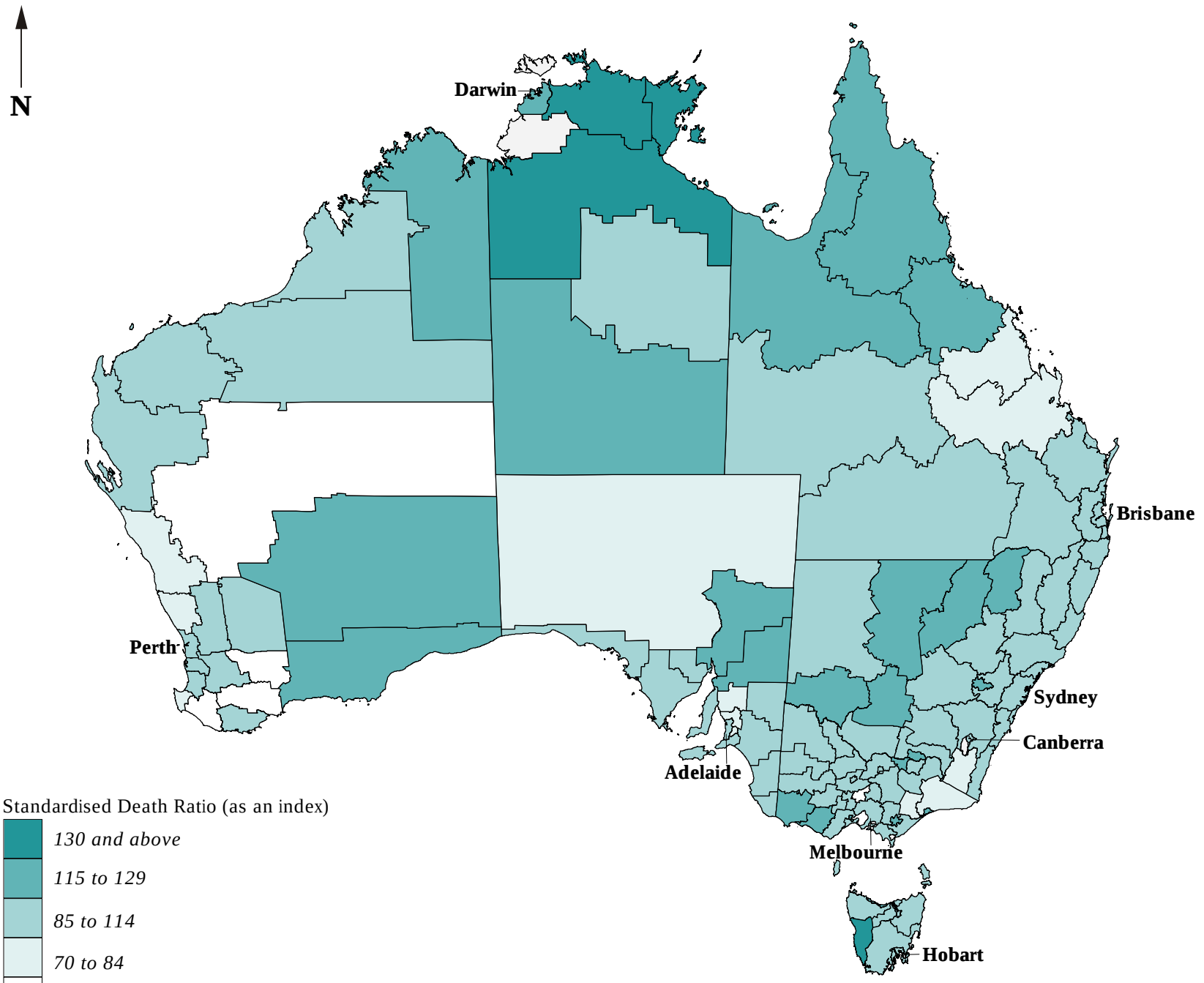
In Western Australia, the highest ratios were recorded in ***Lefroy*** (with an SDR of 117), ***Ord*** and ***Johnston*** (both with 115) and ***Fortescue*** (113). The lowest ratios were in ***Carnegie*** (48) and ***Lakes*** (52), and the largest numbers of premature deaths from cancer were in ***Preston*** (147 deaths) and ***Dale*** (125).

In Tasmania, there were almost 70 per cent more deaths of 15 to 64 year olds from cancer than expected from the Australian rates in ***Lyell*** (an SDR of 169*) and nearly 30 per cent more than expected in ***Burnie-Devonport*** (129**). The lowest ratios were in ***North Western Rural*** (92) and ***Launceston*** (94). The largest numbers of deaths from cancer were in ***Burnie-Devonport*** (237 deaths) and ***Launceston*** (196).

The Northern Territory had some of the highest standardised ratios for deaths of 15 to 64 year olds from cancer in Australia. There were more than three timers the number of deaths expected from the Australian rates in ***Alligator*** (an SDR of 319**). Highly elevated ratios were also recorded in ***East Arnhem*** (199**) and ***Bathurst-Melville*** (199). The largest numbers of deaths from cancer were recorded in ***Central NT*** (67 deaths) and ***Lower Top End NT*** (37 deaths).

Map 5.14: Deaths of people aged 15 to 64 years from cancer, Australia, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

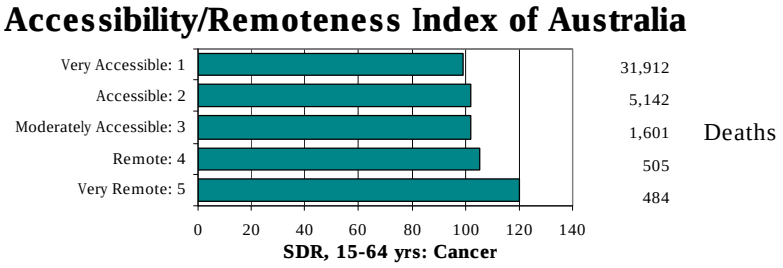


*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



The SDRs for deaths from all cancers are similarly close to the level expected from the Australian rates in the three 'accessible' ARIA categories, before increasing to an SDR of 105 in the Remote category and 120 in the Very Remote category.

Source: Calculated on ARIA classification, DHAC

National Social Health Atlas Project, 1999

Deaths of people aged 15 to 64 years from lung cancer, 1992 to 1995

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, **Darwin** with a Standardised Death Ratio (SDR) of 164**, and **Hobart**, with an SDR of 120, had the most highly elevated ratios of the capital cities for deaths from lung cancer of people aged from 15 to 64 years. **Canberra** (77*) had the lowest ratio, with 23 per cent fewer deaths than expected from the Australian rates; ratios in the other capitals were close to the *All capitals* average.

Overall, the variations from the Australian rates between the two time periods analysed (**Table 5.19**) were relatively small, with the exception of ratios in **Darwin** and **Hobart**. In **Darwin**, the higher SDR in the later period suggests a worsening (relative to the Australian rates) in the death rates for residents from lung cancer between the periods analysed; the ratios in **Hobart** suggests an improvement.

Table 5.19: Deaths of people aged 15 to 64 years from lung cancer, capital cities
Standardised death ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	102	94*	103	95	90*	120	164**	77*	98*
1985-89	101	99	108*	92*	99	134**	131	82*	100

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

In the capital cities and the other major urban centres, deaths from cancer of the trachea, bronchus and lung (referred to here as lung cancer) accounted for 18.9 per cent of all cancer deaths (5,121 deaths) among 15 to 64 year olds from 1992 to 1995. Although males account for around three quarters of these deaths, the rate among females has increased sharply since the 1970s, as a result of increased cigarette consumption since the 1950s. For example, the ratio of male to female mortality rates from lung cancer in the 1970s and 1980s was consistently above 5; however, in 1996 the ratio fell to an all time low of 2.9 (AIHW, 1998).

A relationship also exists between socioeconomic status and lung cancer. Standardised death ratios from lung cancer for both males and females from low socioeconomic status areas were highly elevated in relation to those from high socioeconomic status areas (Mathers 1994). The ratios were 60 per cent higher for males and 58 per cent higher for females.

Capital Cities

SDRs for lung cancer in **Sydney** were highly elevated for 15 to 64 year old residents of ***Inner Sydney*** (an SDR of 152**), ***Outer Western Sydney*** (136**) and ***Fairfield-Liverpool*** (130**). Ratios substantially lower than expected were found in the higher socioeconomic status Statistical Subdivisions (SSDs) of ***Hornsby-Ku-ring-gai*** (an SDR of 40**) and ***Northern Beaches*** (70**). There were 162 premature deaths from lung cancer in ***Inner Sydney***, 150 in ***Fairfield-Liverpool*** and 148 in ***Canterbury-Bankstown***. There were more deaths from lung cancer than expected in **Newcastle** (an SDR of 110 and 222 deaths) and fewer deaths than expected in **Wollongong** (96 and 111 deaths).

In **Melbourne**, ***Mornington Peninsula Inner*** (with an SDR of 153**) had the second most highly elevated ratio for deaths from lung cancer of any capital city or other major urban centre SSD. Ratios were also elevated in ***Northern Middle Melbourne*** and ***Western Inner Melbourne*** (both with an SDR of 123*). The lowest ratios were in ***Southern Inner Melbourne*** (53**) and ***Eastern Middle Melbourne*** (65**). There were 116 premature deaths from lung cancer in ***Eastern Outer Melbourne*** and 105 in ***Northern Middle Melbourne***. In **Geelong,** there were 25 per cent more deaths than expected from lung cancer (an SDR of 125 and 60 deaths).

None of the ratios for lung cancer recorded in **Brisbane** were of statistical significance, with the highest ratios recorded in ***Albert Part A*** (141) and ***Logan*** (112), and the lowest in ***Beaudesert*** (79) and ***Caboolture*** (86). In ***Brisbane City,*** there were 344 deaths from lung cancer, with 55 in ***Logan*** and 43 in ***Ipswich-Moreton***. There were more deaths of 15 to 64 year olds from lung cancer than expected in both **Gold Coast-Tweed Heads** (an SDR of 103 and 156 deaths) and **Townsville-Thuringowa** (an SDR of 121 and 51 deaths).

In **Adelaide**, the highest ratio for lung cancer of 15 to 64 year olds was in ***Western*** (an SDR of 122*) and the lowest was in ***Eastern*** (69**). These were the only ratios of statistical significance. There were 144 premature deaths from lung cancer in ***Northern*** and 119 in ***Western***.

In **Perth**, only ***South East Metropolitan*** SSDs had an elevated ratio for premature deaths from lung cancer (an SDR of 104). The lowest ratio was in ***South West Metropolitan*** (80*). There were 144 deaths of 15 to 64 year olds from lung cancer in ***North Metropolitan*** and 113 in ***South East Metropolitan***.

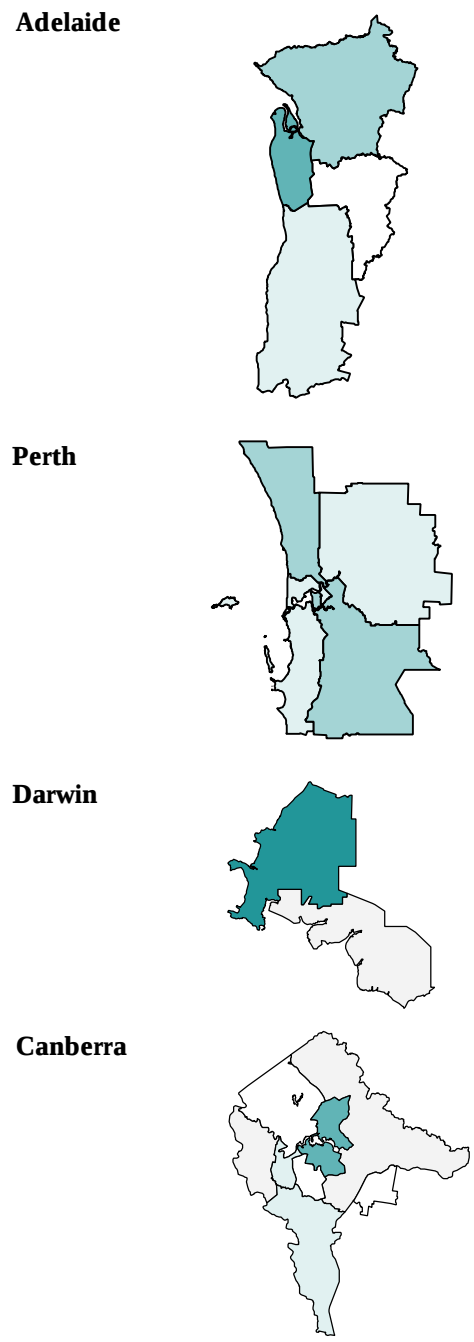
In **Hobart**, there were more deaths of 15 to 64 year olds from lung cancer than expected (an SDR of 120), with 97 deaths over the four years from 1992 to 1995.

There were elevated ratios in both ***Palmerston-East Arm*** (an SDR of 272** and the highest ratio for any SSD in the capital cities and other major urban centres, but just eight deaths) and ***Darwin City*** (150* and 34 deaths).

In **Canberra**, only ***Central Canberra*** had an elevated ratio (an SDR of 120). The lowest ratio was recorded in ***Belconnen*** (57*), although there were no lung cancer deaths in ***Outer Canberra***. The largest numbers of deaths from lung cancer were recorded in ***Central Canberra*** (with 29 deaths) and ***Belconnen*** (with 18 deaths).

Map 5.15: Deaths of people aged 15 to 64 years from lung cancer, major urban centres, 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*



Standardised Death Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*
- *fewer than five expected deaths*

*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Other major urban centres (SDR)

Hobart	120
Newcastle	110
Wollongong	96
Geelong	125
Gold Coast-Tweed Heads	103
Townsville-Thuringowa	121

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of people aged 15 to 64 years from lung cancer, 1992 to 1995

State/Territory comparison (Australia as the Standard)

The highest Standardised Death Ratio (SDR) for deaths from lung cancer of people aged from 15 to 64 years in the *Rest of State/Territory* areas was recorded in the Northern Territory (an SDR of 258**). Apart from the relatively low ratio in South Australia (an SDR of 84*), the other States all had SDRs within 10 per cent of the level expected from the Australian rates. At the *Whole of State/Territory* level, only the Northern Territory (214**) had substantially more deaths from lung cancer than expected from the Australian rates.

Most States had similar differentials (from the Australian rates) in the SDR recorded for their non-metropolitan areas in the later period shown in **Table 5.20**. The major exception is the Northern Territory, with a markedly higher SDR (suggesting an increase in death rates relative to the Australian experience) between the periods analysed.

Table 5.20: Deaths of people aged 15 to 64 years from lung cancer, State/Territory
Standardised death ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	102	94*	103	95	90*	120	164**	77*[1]	98*
Other major urban centres[2]	105	125	104	..	..	..	..	..	107
Rest of State/Territory	106	100	99	84*	96	107	258**	–[3]	102
Whole of State/Territory	104	97	102	92*	92*	113	214**	80*	100
1985 to 1989									
Rest of State/Territory	100	98	99	83**	94	112	165**	–[3]	99

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

In the non-metropolitan areas of Australia there were 2,457 deaths from lung cancer between 1992 and 1995, one third of all deaths from cancer in Australia during this period.

Rest of Australia

In New South Wales, SDRs for premature deaths from lung cancer were highly elevated in ***North Central Plain*** (an SDR of 174**), ***Murray-Darling*** (165), ***Upper Darling*** (150), ***Macquarie-Barwon*** (146), ***Upper Murray*** (134) and ***Far West*** (133). The lowest ratios were in ***Queanbeyan*** (64) and ***Snowy*** (70), although both Statistical Subdivisions (SSDs) had only six deaths from lung cancer. The largest numbers of deaths were in ***Hastings*** (74) and ***Illawarra SD Balance*** (71).

In Victoria, there were nearly twice the number of deaths from lung cancer than were expected from the Australian rates in ***Gippsland Lakes*** (an SDR of 197**), and 59 per cent more than expected in ***La Trobe Valley*** (159**). Relatively high ratios were recorded in ***South Wimmera*** (an SDR of 135) and ***Northern Loddon-Campaspe*** and ***East Central Highlands*** (both 132). The lowest ratios were in ***South Loddon-Campaspe*** (an SDR of 47*) and ***Strzlecki*** (52). The largest numbers of premature deaths from lung cancer were in ***La Trobe Valley*** (46) and ***Ballarat*** (38).

The highest SDRs for premature deaths from lung cancer in Queensland were in ***Gladstone*** (an SDR of 165*), ***North West*** (155*) and ***South West*** (145). The lowest ratios were in ***Moreton SD Balance*** (64**) and ***Darling Downs*** (82). There were 79 deaths from lung cancer in ***Wide Bay-Burnett SD Balance***, 70 in ***Darling Downs*** and 64 in ***Sunshine Coast***.

In South Australia, elevated SDRs were recorded in ***Flinders Ranges*** (an SDR of 136), ***Pirie*** (131), ***Lincoln*** (112) and ***Yorke*** (103); however, none of these ratios was statistically significant. Excluding SSDs with fewer than five premature deaths from lung cancer, the lowest ratios were in ***Murray Mallee*** (49*) and ***Barossa*** (54*). The largest numbers of deaths were in ***Pirie*** (17) and ***Riverland*** (16).

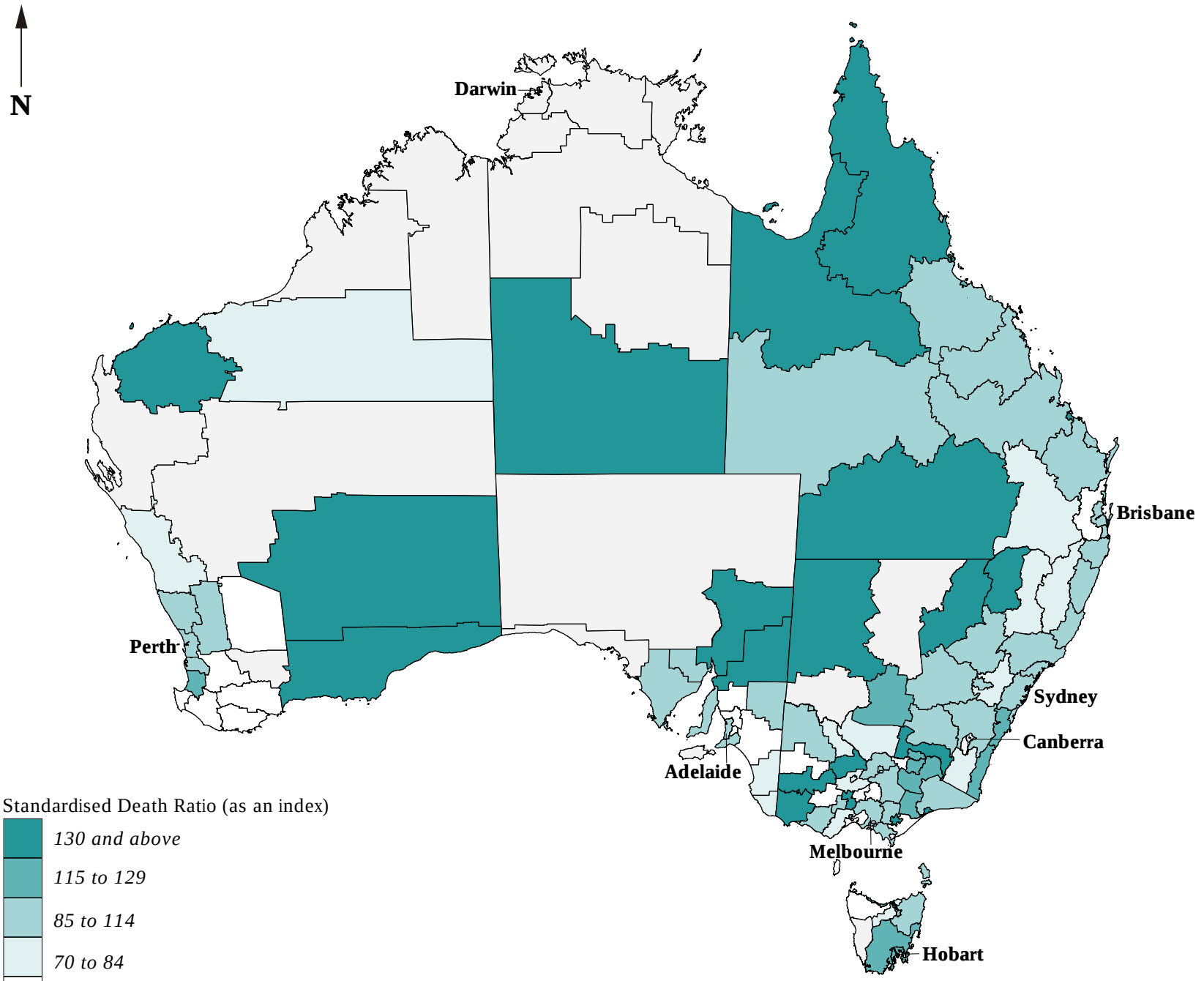
Standardised ratios for deaths of 15 to 64 year olds from lung cancer were generally low throughout Western Australia. The highest ratio was in ***Lefroy*** (with an SDR of 175* and 18 deaths), with other elevated (although not statistically significant) ratios in ***Fortescue*** (173), ***Fitzroy*** (171) and ***Johnston*** (166). Of SSDs with five or more deaths from lung cancer, the lowest ratios were recorded in ***Pallinup*** (37), ***King*** (41*) and ***Blackwood*** (41). The largest numbers of premature deaths were in ***Preston*** and ***Dale***, with 34 and 29 deaths respectively.

In Tasmania, there were more premature deaths from lung cancer than expected from the Australian rates in all but two SSDs. The highest ratios were in ***Southern*** (119) and ***Burnie-Devonport*** (122), while the lowest ratio was in ***North Western Rural*** (an SDR of 64). ***Burnie-Devonport*** (43 deaths) and ***Launceston*** (42) had the largest numbers of deaths of 15 to 64 year olds from lung cancer.

Although there were relatively few deaths from lung cancer in the Northern Territory, the standardised ratios in ***Alligator*** (an SDR of 918**, with 11 deaths) and ***East Arnhem*** (499**) were the highest at the SSD level in Australia. Excluding SSDs with fewer than five expected deaths, the lowest ratio was in ***Central NT*** (171* and 16 deaths, the largest number outside of Darwin).

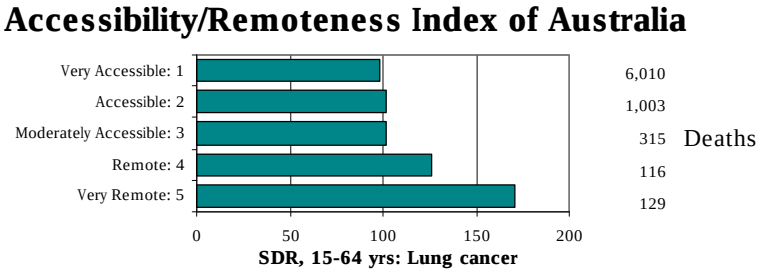
Map 5.16: Deaths of people aged 15 to 64 years from lung cancer, Australia, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*



Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



The SDRs for premature deaths from lung cancer in the three 'accessible' ARIA categories are all close to the level expected from the Australian rates, before increasing to an SDR of 126 in the Remote category and 171 in the Very Remote category. These latter ratios are again likely to reflect the impact of high premature death rates from lung cancer experienced by Indigenous people. The overall number of deaths drops off rapidly across the ARIA categories.

Source: Calculated on ARIA classification, DHAC

Deaths of people aged 15 to 64 years from circulatory system diseases, 1992 to 1995

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, Standardised Death Ratios (SDRs) for deaths from circulatory system diseases of people aged from 15 to 64 years ranged from 77** in **Canberra** to 118 in **Darwin**. With the exception of **Hobart** (with an SDR of 105), the other capital cities had fewer deaths than expected from the Australian rates. **Perth** and **Melbourne** also had relatively low ratios, of 82** and 85**, respectively. There was a higher differential (from the Australian rates) in the SDR recorded for **Darwin** in the later period shown in **Table 5.21**, although neither of the ratios was statistically significant.

Table 5.21: Deaths from circulatory systems diseases of people aged from 15 to 64 years, capital cities
Standardised Death Ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	98	85**	96	94*	82**	105	118	77**	91**
1985-89	101	87**	103	94**	80**	104	94	77**	94**

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Circulatory system diseases (diseases of the heart and blood vessels) are the major cause of death in the population. In the capital cities and other major urban centres, they accounted for 43.6 per cent of deaths of people of all ages (147,371 deaths) and 23.5 per cent (16,707 deaths) among people aged from 15 to 64 years over the period from 1992 to 1995. Males accounted for approximately three quarters (73.0 per cent) of these deaths, however it is an important cause of death for males at a much earlier age than for females. For example, the ratio of male to female deaths from this cause was approximately 3:1 between the ages of 40 and 59, and it is only above age 80 years that it changes to 2:3 (male to female deaths).

The main causes of death within this group were heart disease (68.8 per cent) and cerebrovascular disease (stroke, 23.6 per cent). The AIHW (1994) reports that among people aged 35 to 69 years, men who were current smokers had 2.9 times the age-adjusted risk of a first coronary event (fatal or non-fatal) than non-smokers. For female current smokers, the risk was 3.5 times that of non-smokers.

Capital Cities

In **Sydney**, elevated ratios for circulatory system diseases were recorded in ***Inner Sydney*** (with an SDR of 147**, the highest for any capital city or other major urban centre SSD), ***Outer South Western Sydney*** (126**), ***Fairfield-Liverpool*** (121**) and ***Central Western Sydney*** (118**). Low ratios of statistical significance were recorded in four Statistical Subdivisions (SSDs), the lowest being in ***Hornsby-Ku-ring-gai*** (an SDR of 62**) and ***Northern Beaches*** (67**). The largest numbers of deaths of 15 to 64 year olds from these causes were in ***Inner Sydney*** (with 547 deaths), ***Blacktown-Baulkham Hills*** (500 deaths) and ***Fairfield-Liverpool*** (483 deaths). There were more deaths from circulatory system diseases than expected in both **Newcastle** (122** and 841 deaths) and **Wollongong** (115** and 450 deaths).

The highest ratios in **Melbourne** were in ***Central Melbourne*** (an SDR of 124**), ***Western Inner Melbourne*** (121**) and ***Northern Inner Melbourne*** (111). Of the 14 SSDs with fewer deaths from circulatory system disease than expected, the lowest ratios were in ***Eastern Inner Melbourne*** and ***Eastern Middle Melbourne*** (both with 61**) and ***Northern Outer Melbourne*** (70**). The largest numbers of deaths were of residents of ***Western Outer Melbourne*** (384 deaths) and ***Western Inner Melbourne*** (351). There were 175 deaths of 15 to 64 year olds from these causes in **Geelong** (and an SDR of 107).

There were more deaths of 15 to 64 year olds from circulatory system diseases than expected in the SSDs of ***Ipswich Moreton*** (with an SDR of 120*) and ***Logan*** (111) in **Brisbane**. The lowest ratios were in ***Pine Rivers*** (with an SDR of 70**) and ***Beaudesert*** (74). Residents of ***Brisbane City*** recorded 1,072 deaths from these causes, with 197 from ***Logan,*** 171 from ***Ipswich-Moreton*** and 110 from ***Caboolture***. There were 25 per cent more deaths than expected from these diseases in **Townsville-Thuringowa** (an SDR of 124** and 186 deaths) and fewer deaths than expected in **Gold Coast-Tweed Heads** (88* and 453 deaths).

In **Adelaide**, ***Western*** (with an SDR of 106) and ***Northern*** (102) had marginally elevated ratios for deaths of 15 to 64 year olds from circulatory system diseases; the lowest ratio was in ***Southern*** (an SDR of 82**). The largest numbers of deaths from these diseases were in ***Northern*** (486 deaths) and ***Southern*** (369 deaths).

None of the SSDs in **Perth** had elevated ratios for premature deaths from circulatory system diseases. The highest ratio was in ***South East Metropolitan*** (an SDR of 90), and the lowest ratios were in ***North Metropolitan*** (75**) and ***South West Metropolitan*** (81**). The largest numbers of deaths from this cause were in ***North Metropolitan*** (394 deaths) and ***South East Metropolitan*** (338).

In **Hobart**, there were 289 deaths of 15 to 64 year olds from circulatory system diseases, five per cent more than expected from the Australian rates (an SDR of 105).

Deaths from circulatory system diseases were higher than expected in both ***Palmerston-East Arm*** (an SDR of 139, and the second highest of any capital city or other major urban centre SSD, and 15 deaths) and ***Darwin City*** (115; 94 deaths).

In **Canberra**, the highest ratio for deaths from circulatory system disease deaths for 15 to 64 year olds was in ***Central Canberra*** (an SDR of 114), and the lowest in ***Outer Canberra*** (44). There were 95 deaths in ***Central Canberra*** and 67 in ***Belconnen***.

Map 5.17: Deaths of people aged 15 to 64 years from circulatory system diseases, major urban centres, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

Standardised Death Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*

*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Other major urban centres (SDR)

Hobart	105
Newcastle	122
Wollongong	115
Geelong	107
Gold Coast-Tweed Heads	88
Townsville-Thuringowa	124

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of people aged 15 to 64 years from circulatory system diseases, 1992 to 1995

State/Territory comparison (Australia as the Standard)

Residents of the non-metropolitan areas of all States and the Northern Territory had higher Standardised Death Ratios (SDRs) from diseases of the circulatory system than those living in the capital cities. The largest differentials were in the Northern Territory and Western Australia, with the Northern Territory also recording the highest non-metropolitan SDR, of 289**. At the *Whole of State/Territory* level SDRs ranged from 26 per cent lower than expected in the Australian Capital Territory, an SDR of 74**, to almost twice the number of deaths expected in the Northern Territory, an SDR of 191**. There was little difference in the SDRs for the two periods shown in **Table 5.22** for most States and Territories, although the higher SDRs in the later period for the Northern Territory, Tasmania and Western Australia suggest a worsening (relative to the Australian rates) in the death rates from these causes.

Table 5.22: Deaths of people aged 15 to 64 years from circulatory system diseases, State/Territory
Standardised death ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	98	85**	96	94*	82**	105	118	77**[1]	91**
Other major urban centres[2]	120**	107	95	..	..	..	..	..	111**
Rest of State/Territory	121**	101	109**	117**	112**	127**	289**	–[3]	115**
Whole of State/Territory	107**	90**	101	101	90**	118**	191**	74**	100
1985 to 1989									
Rest of State/Territory	119**	99	105**	114**	103	120**	260**	–[3]	111**

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Over the four year period from 1992 to 1995, there were 9,277 deaths from circulatory system diseases of residents of the non-metropolitan areas. Deaths from circulatory system diseases were a more important cause of death for males at a much earlier age than for females. Between the ages of 45 and 64 years, there were 5,913 male deaths and only 2,127 female deaths from these causes. This relationship turned around at the age of 80 years and over, when the number of female deaths (7,074 deaths) exceeded the number of male deaths (6,387).

Rest of Australia

Standardised death ratios (SDRs) for deaths of 15 to 64 year olds from circulatory system diseases were elevated across much of non-metropolitan New South Wales. The highest ratios were recorded in ***Upper Darling*** (an SDR of 268**), ***Far West*** (206**), ***Macquarie-Barwon*** (199**), ***North Central Plain*** (189**), ***Northern Tablelands*** (147**) and ***Central Macquarie*** (141**). The lowest ratio was recorded in ***Central Murray*** and ***Richmond-Tweed SD Balance*** (both with an SR of 97). The largest numbers of deaths from this cause were in the northern coastal Subdivisions of ***Hastings*** (242) and ***Richmond-Tweed SD Balance*** (232), and in ***Illawarra SD Balance*** (217).

In Victoria, elevated ratios of statistical significance were recorded for residents of ***La Trobe Valley*** (an SDR of 134**) and ***Ballarat*** (124**). The lowest ratios were in ***South Ovens-Murray*** (63*) and ***South West Goulburn*** (68*). There were 151 deaths from circulatory system diseases in ***Ballarat*** and 134 in ***La Trobe Valley***.

Highly elevated ratios for deaths from circulatory system diseases were recorded in Queensland's ***North West*** (an SDR of 210**), ***Central West*** (184**) and ***Far North SD Balance*** (152**) Statistical Subdivisions (SSDs). The lowest ratios were in ***Sunshine Coast*** (72**) and ***Mackay SD Balance*** (89). The largest numbers of deaths of 15 to 64 year olds were in ***Darling Downs*** (314 deaths), ***Wide Bay-Burnett SD Balance***, (284 deaths) and ***Far North SD Balance*** (218 deaths).

SDRs for circulatory system diseases in South Australia were highly elevated in ***West Coast*** (an SDR of 219**), ***Far North*** (217**), ***Flinders Ranges*** (177**) and ***Lower North*** (153**). Relatively high ratios were also recorded in ***Pirie*** (134*) and ***Whyalla*** (127). The lowest ratios were in ***Onkaparinga*** (72) and ***Upper South East*** (74). There were 68 deaths in ***Murray Mallee***, and 66 in both ***Riverland*** and ***Lower South East***.

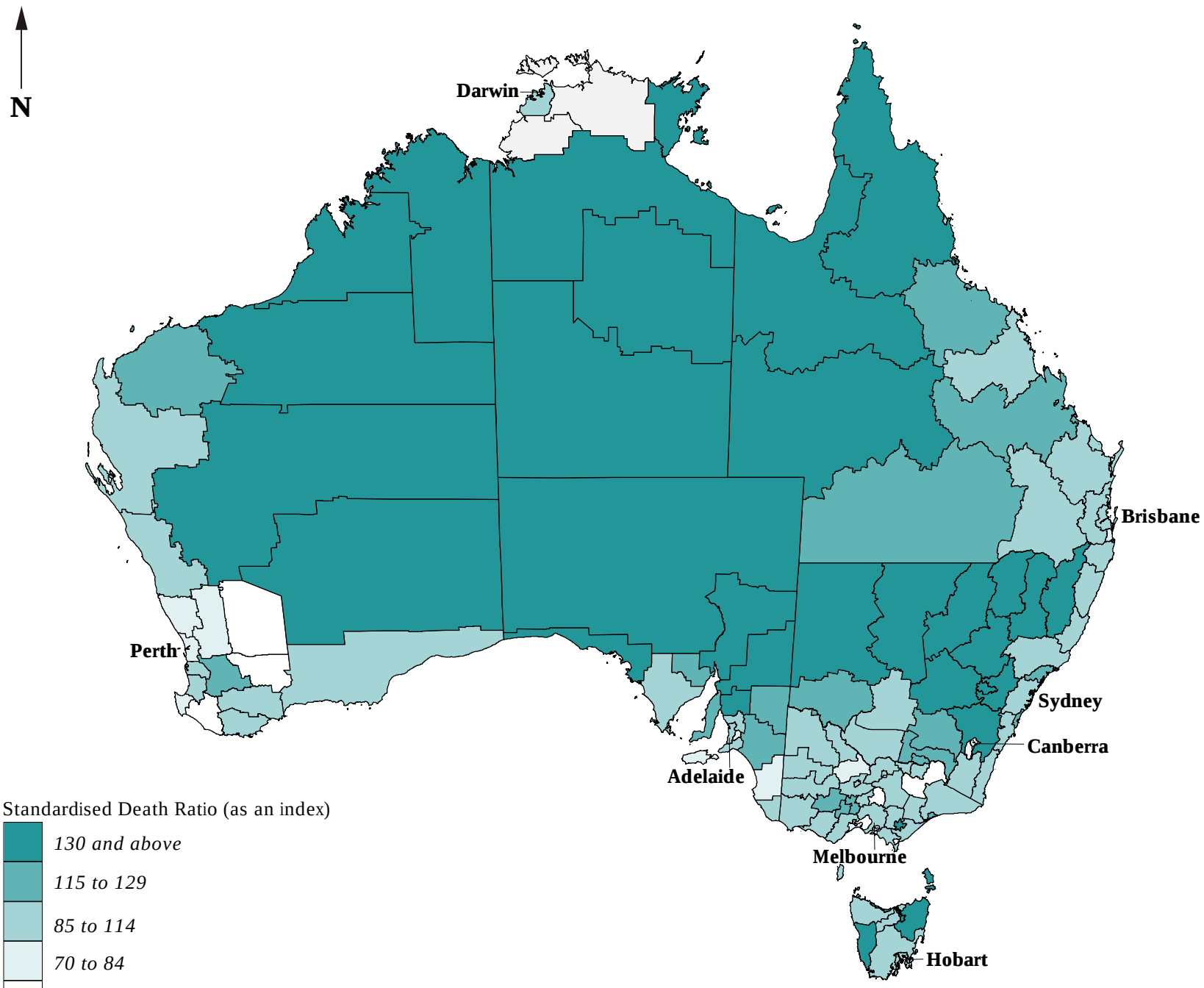
In Western Australia, SDRs for deaths from circulatory system diseases were highly elevated in ***Ord*** (an SDR of 409**), ***Carnegie*** (292**), ***Fitzroy*** (261**), ***Lefroy*** (197**) and ***De Grey*** (187**). The lowest ratios were in ***Lakes*** (65) and ***Blackwood*** (67). There were 90 deaths of 15 to 64 year olds recorded in ***Preston*** and 76 in ***Lefroy***.

There were more deaths from circulatory system diseases than expected in all but one SSD in **Tasmania**. The highest ratios were in ***Lyell*** (with an SDR of 193** and 18 deaths) and ***North Eastern*** (136*; 50 deaths), while the lowest was in ***North Western Rural*** (93; 35 deaths). There were 180 deaths of 15 to 64 year olds from these causes in ***Launceston.***

Apart from ***Darwin Rural Areas*** (with an SDR of 85), SDRs for circulatory system diseases in SSDs in the Northern Territory were elevated by between two and nine times above the level expected from the Australian rates. The highest ratios in non-metropolitan Australia were in ***Bathurst-Melville*** (an SDR of 975**, 18 deaths), ***Daly*** (551**) and ***Barkly*** (421**). The largest numbers of deaths of 15 to 64 year olds from these causes were in ***Central NT*** (79 deaths) and ***Lower Top End NT*** (63).

Map 5.18: Deaths of people aged 15 to 64 years from circulatory system diseases, Australia, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

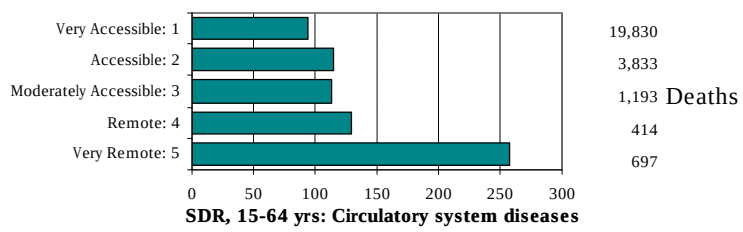


*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Death rates of people aged from 15 to 64 years from circulatory system diseases vary markedly across the ARIA categories. They increase from an SDR of 94 in the Very Accessible areas through to an SDR of 129 in the Remote areas, before rising substantially to a ratio of 257 in the Very Remote category. The elevated SDRs in the Very Remote and, to a lesser extent, Remote categories are likely to reflect the high premature death rates from these causes experienced by Indigenous people.

Source: Calculated on ARIA classification, DHAC

Deaths of people aged 15 to 64 years from respiratory system diseases, 1992 to 1995

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, Standardised Death Ratios (SDRs) for deaths from respiratory system diseases of people aged from 15 to 64 years ranged from 64** in **Perth** to 193** in **Darwin**. With the exception of **Hobart** (with an SDR of 115), the other capital cities had fewer deaths than expected. There was a larger differential (from the Australian rates) in the SDR recorded in a number of the capital cities in the later period shown in **Table 5.23**, with the largest in **Darwin**. The higher SDR in this later period suggests a worsening (relative to the Australian rates) in rates of death from respiratory system diseases between the periods analysed. The movement in the ratios for **Perth** and **Melbourne** suggest a marked improvement in death rates relative to the Australian rates.

Table 5.23: Deaths of people aged 15 to 64 years from respiratory system diseases, capital cities
Standardised death ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	94	79**	98	87*	64**	115	193**	79	87**
1985-89	90**	90**	101	74**	73**	98	124	71**	88**

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

The organs of the respiratory system include the nose, pharynx, larynx, trachea, bronchi and lungs. There were 25,779 deaths from diseases of the respiratory system over the period from 1992 to 1995, 7.6 per cent of deaths of residents of the capital cities and other major urban centres. People aged from 15 to 64 years accounted for 11.5 percent of these deaths, or 4.2 per cent of all deaths for this age group. It is these premature deaths that are presented in **Map 5.19**.

There is a strong association between deaths from respiratory system diseases and socioeconomic status. Mathers (1994) noted substantial differentials in mortality rates from respiratory system diseases among working age Australians: men aged from 25 to 64 years living in areas of greatest socioeconomic disadvantage had death rates 2.3 times higher than those living in areas of least disadvantage (rates elevated by 130 per cent). For females the differential was just more than double (106 per cent). These differentials have persisted in 1995-97 (**Table 5.2**).

Deaths from respiratory system diseases are also a major cause of death for Aboriginal people. Over the period from 1992 to 1994, these death rates were reported to be over seven times higher than expected in SA, WA and the NT. More recent figures indicate that respiratory diseases accounted for 13.4 per cent of excess deaths in Indigenous men and 15.8 per cent of excess deaths in Indigenous women in SA, WA and the NT (ABS/AIHW 1999).

Capital Cities

There were substantially more premature deaths from respiratory system diseases in ***Inner Sydney*** (with an SDR of 168**, the second highest of any capital city or major urban centre SSD), with other elevated ratios in ***Central Western Sydney*** (121), ***Gosford-Wyong*** (120), ***Blacktown-Baulkham Hills*** (119), and ***Outer Western Sydney*** (118). Ratios lower than expected were recorded in ***Hornsby-Ku-ring-gai*** (an SDR of 50**), ***Northern Beaches*** (51**) and ***Eastern Suburbs*** (56**). There were 116 premature deaths in ***Inner Sydney*** and 107 in ***Blacktown-Baulkham Hills***. There were more deaths from this cause than expected in **Newcastle** (an SDR of 124** and 162 deaths) and fewer than expected in **Wollongong** (90; 67 deaths).

A majority of the Statistical Subdivisions (SSDs) in **Melbourne** had fewer deaths from respiratory system diseases than expected from the Australian rates, with the lowest ratios in ***Eastern Middle Melbourne*** (an SDR of 41**), ***Eastern Inner Melbourne*** (51**), ***Eastern Fringe Melbourne*** (53**) and ***Eastern Outer Melbourne*** (58**). The highest ratios were in ***Central Melbourne*** (with an SDR of 147**) and ***Western Inner Melbourne*** (129*). There were 71 deaths from respiratory system diseases in ***Western Inner Melbourne***, 53 in ***Western Outer Melbourne*** and 52 in ***Northern Fringe Melbourne***. There were 28 deaths in **Geelong**, an SDR of 90.

None of the elevated ratios at the SSD level in **Brisbane** was of statistical significance; ratios ranged from an SDR of 144 in ***Redcliffe*** to 47* in ***Pine Rivers***. The largest numbers of deaths were in ***Brisbane City*** (212 deaths), ***Logan*** and ***Ipswich-Moreton*** (both 30). There were more premature deaths from this cause than expected in **Townsville-Thuringowa** (an SDR of 108 and 30 deaths) and fewer than expected in **Gold Coast-Tweed Heads** (68**; 66 deaths).

In **Adelaide,** the SDRs for respiratory system diseases ranged from 107 in ***Western*** to 67** in ***Southern***. Residents of ***Northern*** SSD had the largest number of premature deaths from respiratory system diseases (85 deaths).

The highest ratio in **Perth** was in ***South East Metropolitan*** (an SDR of 71*), and the lowest were in ***East Metropolitan*** (51**) and ***North Metropolitan*** (58**). There were 50 deaths in both ***South East Metropolitan*** and ***South West Metropolitan***.

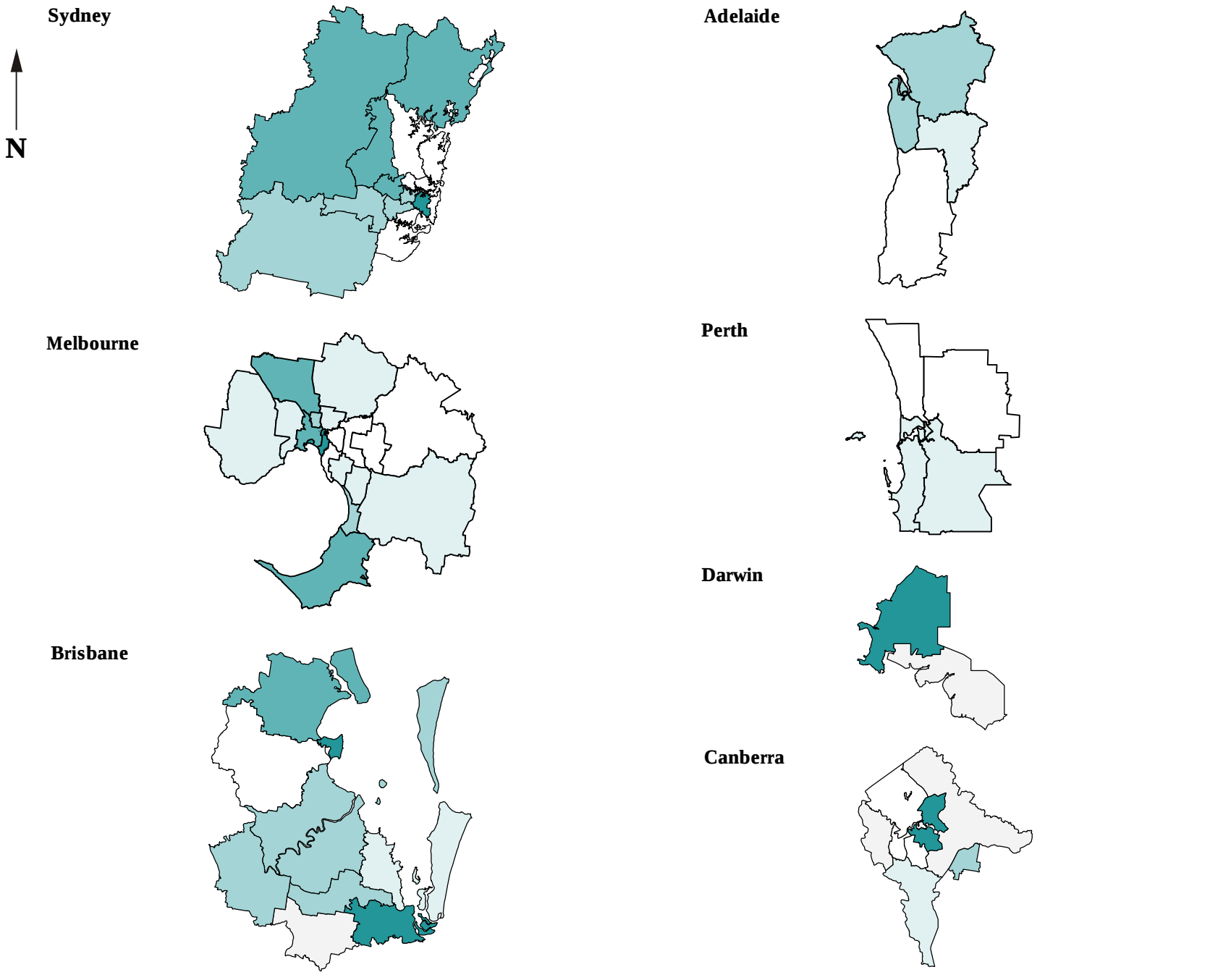
In **Hobart**, there were 60 deaths from respiratory system diseases, 15 per cent more than expected from the Australian rates (an SDR of 115).

In **Darwin**, rates of premature deaths from respiratory system diseases in ***Darwin City*** were the highest of any capital city or other major urban centre SSD (an SDR of 199** and 29 deaths), with ***Palmerston-East Arm*** recording an SDR of 150 (3 deaths).

The highest ratio in **Canberra** was in ***Central Canberra*** (an SDR of 156*, and 25 premature deaths from respiratory system diseases). The lowest ratios were in ***Woden Valley*** (26*) and ***Weston Creek*** (39).

Map 5.19: Deaths of people aged 15 to 64 years from respiratory system diseases, major urban centres, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*



Standardised Death Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*
- *fewer than five expected deaths*

*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Other major urban centres (SDR)

Hobart	115
Newcastle	124
Wollongong	90
Geelong	90
Gold Coast-Tweed Heads	68
Townsville-Thuringowa	108

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of people aged 15 to 64 years from respiratory system diseases, 1992 to 1995

State/Territory comparison (Australia as the Standard)

Residents of the non-metropolitan areas of all States and the Northern Territory had higher Standardised Death Ratios (SDRs) from diseases of the respiratory system than those living in the capital cities. The largest differentials were in the Northern Territory, Tasmania and Western Australia, with the Northern Territory also recording the highest non-metropolitan ratio, an exceptionally high SDR of 908**. There were differences in the SDRs for the two periods shown in **Table 5.24** for all but Victoria; the higher SDRs in the later period for Tasmania, the Northern Territory, South Australia and Western Australia suggest a worsening (relative to the Australian rates) in the death rates from these causes.

Table 5.24: Deaths of people aged 15 to 64 years from respiratory system diseases, State/Territory
Standardised death ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	94	79**	98	87*	64**	115	193**	79[1]	87**
Other major urban centres[2]	112	90	75**	..	..	..	..	..	98
Rest of State/Territory	116**	111*	118**	123*	134**	133**	908**	–[3]	128**
Whole of State/Territory	102	88**	104	97	82**	125**	511**	76	100
1985 to 1989									
Rest of State/Territory	127**	111*	129**	98	115	93	805**	–[3]	124**

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

There were 12,880 deaths from diseases of the respiratory system over the period from 1992 to 1995 outside the capital cities and other major urban centres. More than four fifths of these deaths (84.1 per cent, 10,830 deaths) were of people aged 65 years and over, with 15.0 per cent of deaths being of people aged from 15 to 64. Deaths from these causes represented 5.4 per cent of all deaths for this age group.

Rest of Australia

In New South Wales, highly elevated ratios were recorded for deaths from respiratory system diseases in ***Upper Darling*** (with an SDR of 369**), ***Lachlan*** (194**), ***Bathurst-Orange*** (184**) and ***Southern Tablelands*** (182**). Overall, there were more deaths from respiratory system diseases than expected from the Australian rates in two thirds of the State's Statistical Subdivisions (SSDs). Excluding SSDs with fewer than five deaths, the lowest ratios were in ***Hunter SD Balance*** (49**) and ***Central Murray*** (81). There were 44 respiratory system disease deaths in both ***Clarence*** and ***Richmond-Tweed Heads SD Balance***.

There were highly elevated SDRs for premature deaths from respiratory system diseases in Victoria in ***Glenelg*** (with an SDR of 229**), ***West Barwon*** (184**), ***Shepparton-Mooroopna*** (179**), ***South Loddon-Campaspe*** (171*) and ***North Ovens-Murray*** (159). Excluding SSDs with fewer than five deaths, the lowest ratios were in ***East Barwon*** (64) and ***La Trobe Valley*** (80). The largest numbers of deaths from respiratory system diseases were recorded in ***Glenelg*** (28 deaths) and ***Ballarat*** (24).

Several SSDs in Queensland had highly elevated ratios for deaths from these causes, the highest being in ***North West*** (with an SDR of 409**), ***Far North SD Balance*** (232**), ***Central West*** (194), ***Northern SD Balance*** (142) and ***Mackay*** (133). The lowest ratios were nearer to **Brisbane,** in ***Moreton SD Balance*** (63*) and ***Sunshine Coast*** (76). The largest numbers of premature deaths from these causes were in ***Far North SD Balance*** (62 deaths), ***Darling Downs*** (53) and ***Wide Bay-Burnett SD Balance*** (51).

Highly elevated ratios for deaths from respiratory system diseases were also recorded across much of South Australia, with the highest in ***Far North*** (an SDR of 630**), ***West Coast*** (444**), ***Whyalla*** (167) and ***Flinders Ranges*** (165). Of SSDs with five or more premature deaths from this cause, the lowest ratio was in ***Fleurieu*** (69). The largest number of deaths was in ***Lower South East*** (18 deaths).

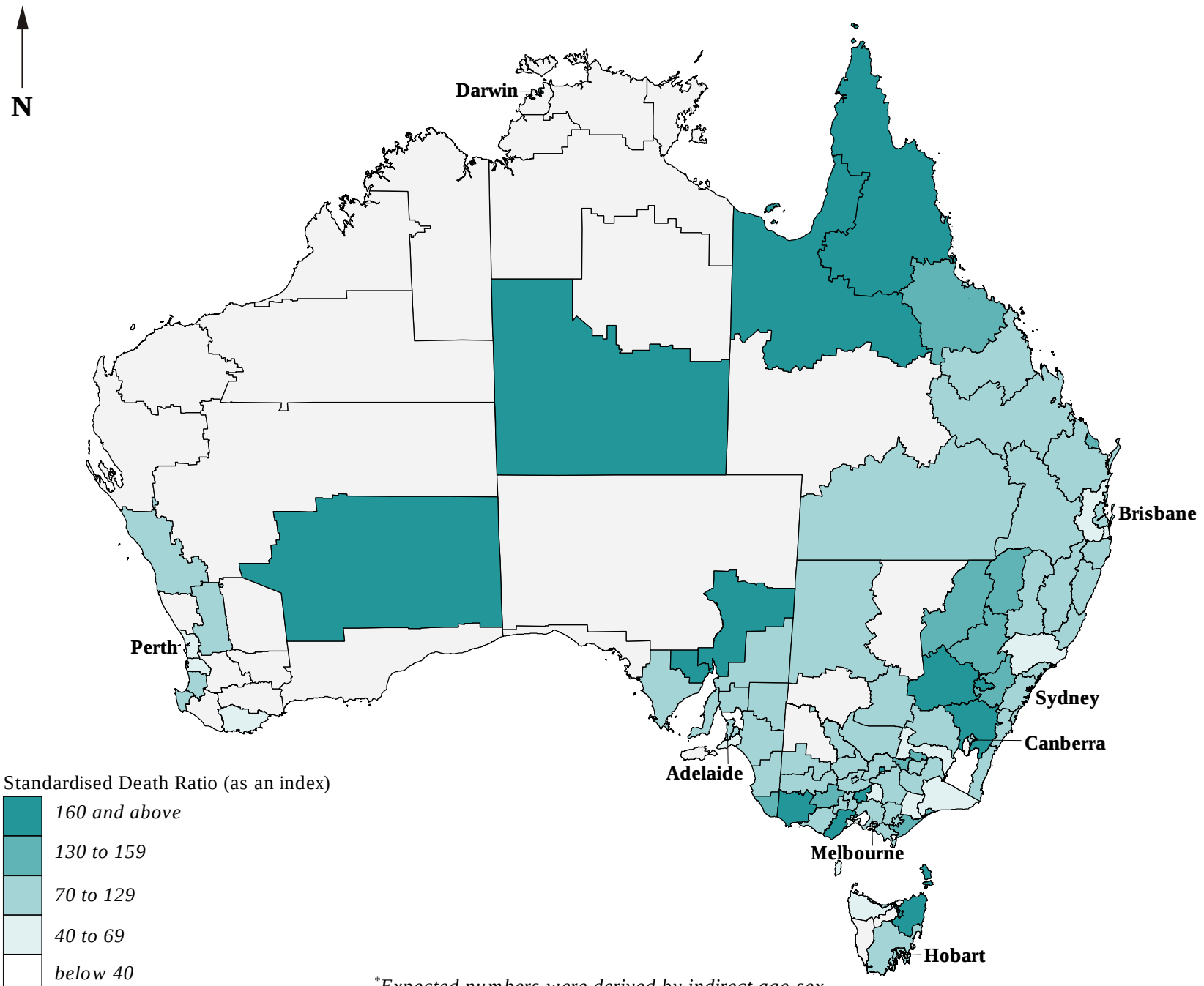
Several of the SSDs in Western Australia had substantially more premature deaths from respiratory system diseases than expected from the Australian rates. The most highly elevated ratios were in ***Ord*** (959**), ***Carnegie*** (552**), ***Fitzroy*** (550**) and ***Lefroy*** (292**). Of SSDs with five or more deaths, the lowest ratios were in ***Dale*** (49*) and ***King*** (65). There were 20 deaths from respiratory system disease in ***Lefroy*** and 19 in ***Preston***.

The highest ratio for respiratory system diseases in Tasmania was in ***Launceston*** (an SDR of 186**), with elevated ratios also in ***North Eastern*** (161) and ***Burnie-Devonport*** (123). ***North Western Rural*** (58) was the only rural SSD in Tasmania in which there were fewer deaths than expected. There were 48 premature deaths from respiratory system diseases in ***Launceston*** and 28 in ***Burnie-Devonport***.

Northern Territory SSDs had the highest SDRs for premature deaths from respiratory system diseases in Australia. The SDR in ***Bathurst-Melville*** was more than 44 times the level expected (an SDR of 4492**; with 16 deaths over four years), while highly elevated ratios were recorded in ***Alligator*** (2138**; 19 deaths) and ***Daly*** (1905**; 11 deaths). The lowest ratio was in ***Darwin Rural Areas*** (325**; 10 deaths). The largest numbers of deaths from this cause were in ***Central NT*** (44) and ***East Arnhem*** (29).

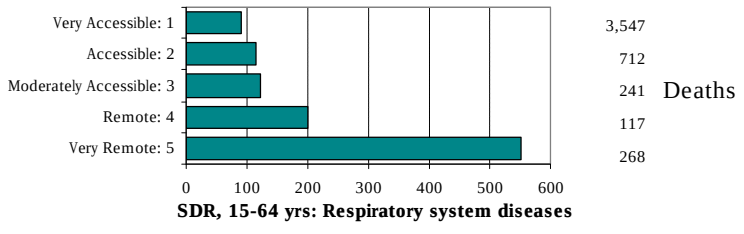
Map 5.20: Deaths of people aged 15 to 64 years from respiratory system diseases, Australia, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*



Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



SDRs for deaths of people aged from 15 to 64 years from respiratory system diseases also increase steeply with increasing remoteness, from an SDR of 90 in the Very Accessible category to 199 in the Remote areas. The highest ratio is a substantially elevated SDR of 550 in the Very Remote areas, five and a half times the number of deaths expected from the Australian rates. The influence of Indigenous deaths is gain likely to be an important influence on the ratios for the most remote areas.

Source: Calculated on ARIA classification, DHAC

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Accidents, poisonings and violence as a cause of death

Introduction

Accidental and violent deaths are classified according to the external cause of death, that is, according to the circumstances of the accident or violent incident that produced the fatal injury, rather than the nature of the injury. This differs from the other causes of death analysed, which are classified according to the underlying disease or condition.

The main causes of death in this classification of accidents, poisonings and violence are comprised of the following:

- suicide (31.1 per cent);
- motor vehicle traffic accidents (27.4 per cent);
- accidental falls (13.2 per cent, mainly of elderly people);
- accidental drownings (4.4 per cent); and
- accidental poisonings (4.2 per cent).

Although representing only 5.8 per cent of deaths of people of all ages, deaths from the external causes of accidents, poisonings and violence are a major cause of premature death, accounting for 18.8 per cent of deaths in the 15 to 64 year age group. Among people aged from 15 to 64 year olds the major causes of death from external causes are as follows:

- suicide (38.9 per cent);
- motor vehicle traffic accidents (30.8 per cent);
- accidental poisonings (5.5 per cent); and
- assault without weapon or weapon not specified (4.6 per cent).

Over the period from 1992 to 1995, there were 5,342 deaths in Australia from the combined external causes of accidents, poisonings and violence among people aged from 15 to 24 years, representing 71.1 per cent of all deaths in this age group. Motor vehicle traffic accidents and suicides accounted for the majority of these deaths (76.7 per cent in total: 44.3 per cent from motor vehicle traffic accidents and 32.4 per cent from suicides).

Males predominated in these causes of death, accounting for 77.5 per cent of deaths from these causes in the 15 to 64 year age group (ranging from 80.8 per cent of suicides to 73.3 per cent of motor vehicle traffic accidents) and 21.3 per cent of deaths among 15 to 24 year olds (see **Table 5.25**).

Table 5.25: Deaths from accidents, poisonings & violence Australia, 1992 to 1995

Age (years) and sex	Motor vehicle traffic accidents		Suicides		All accidents, poisonings & violence[1]	
	No.	%	No.	%	No.	%
15 to 24						
Males	1,774	75.3	1,447	84.1	4,215	78.9
Females	582	24.7	273	15.9	1,127	21.1
Total	**2,356**	**100.0**	**1,720**	**100.0**	**5,342**	**100.0**
15 to 64						
Males	4,487	73.3	6,263	80.8	15,623	77.5
Females	1,635	26.7	1,489	19.2	4,525	22.5
Total	**6,122**	**100.0**	**7,752**	**100.0**	**20,148**	**100.0**

[1] Includes other accidents, poisonings and violence.
Source: See *Data sources*, Appendix 1.3

As can be seen from **Table 5.26**, death rates from the combined causes of accidents, poisonings and violence were substantially higher, across all age groups, in the non-metropolitan areas of Australia than in the capital cities. The biggest difference was recorded among males aged from 15 to 24 years, where the rates ranged from 102.8 per 100,000 population in the non-metropolitan areas to 29.8 per 100,000 population in the capital cities.

Table 5.26: Deaths from accidents, poisonings and violence, by area of residence, Australia, 1992 to 1995

Age (years) and sex	Capital cities		Rest of Australia		Total	
	No.	Rate	No.	Rate	No.	Rate
15 to 24						
Males	2,350	64.2	1,596	102.8	4,215	75.5
Females	630	17.7	427	29.8	1,127	21.1
Total	**2,980**	**41.3**	**2,023**	**67.7**	**5,342**	**48.9**
15 to 64						
Males	8,758	56.8	5,860	83.1	15,623	65.1
Females	2,695	17.6	1,528	22.6	4,525	19.2
Total	**17,413**	**38.6**	**7,388**	**53.5**	**20,148**	**42.4**
All ages						
Males	11,410	50.5	7,601	71.6	20,339	57.2
Females	5,122	22.2	2,811	27.1	8,502	23.7
Total	**16,532**	**36.3**	**10,412**	**49.3**	**28,841**	**40.4**

[1]Rate per 100,000 population of same age and sex
Source: See *Data sources*, Appendix 1.3

Mathers (1994) noted substantial differentials in mortality rates from accidents, poisonings and violence among working age Australians, with men aged from 25 to 64 years living in areas of greatest socioeconomic disadvantage having death rates almost twice as high (96 per cent higher) as those living in areas of least disadvantage. For females the differential was 69 per cent. Similar differentials for males and females have persisted over the period from 1995 to 1997, with differentials for motor vehicle traffic accidents becoming substantially larger (**Table 5.2**).

The NSW Health Department (1997) found an inverse relationship (-0.23) between high socioeconomic status and

death by accidents, poisoning and violence in 15 to 64 year olds over the period from 1990 to 94.

Indigenous people also have higher death rates from these causes. The ABS and AIHW (1999) report that for Indigenous men, the standardised mortality ratio (from accidents, poisonings and violence) was 3.2 times that expected from the overall Australian rates, and deaths from causes in this group were responsible for 19.3 per cent of the excess mortality experienced. For Indigenous women, the standardised mortality ratio was 3.6 times that expected, and deaths from causes in this group were responsible for 16.9 per cent of the excess mortality. These figures were derived from data for deaths of Indigenous people in SA, WA and the NT for the three-year period 1995-1997.

Years of potential life lost from accidents, poisonings and violence

Estimates have been made of the number of years of potential life lost (YPLL: see discussion on page 174 for additional details of this concept) from deaths from the external causes of accidents, poisonings and violence (Ginpil et al 1992). For people of 'working life' (ages 18 to 65 years) it is estimated that 180,234 years of (potential) life have been lost due to premature deaths from these external causes. This is 34.2 per cent of the total number of YPLL from all causes of death, of which 15.0 per cent were from road crashes, 8.9 per cent from suicides, 8.4 per cent from other accidents, and 1.9 per cent from violence. For males, 32.5 per cent of YPLL during their working life were from these external causes and, for females, 16.0 per cent.

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Deaths of people aged 15 to 64 years from accidents, poisonings and violence, 1992 to 1995

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, Standardised Death Ratios (SDRs) for deaths from accidents, poisonings and violence, of people aged from 15 to 64 years ranged from 75** in **Canberra** to 149** in **Darwin**. With the exception of **Darwin**, and **Hobart** (an SDR of 114*), the other capital cities had fewer deaths than expected. **Melbourne** and **Sydney** also had relatively low ratios, of 80** and 84**, respectively.

There was a higher differential (from the Australian rates) in the SDRs recorded for **Hobart** and **Darwin** in the later period shown in **Table 5.27**, suggesting a worsening (relative to the Australian rates) in rates of death from accidents, poisonings and violence between the periods analysed. The movement in the ratios for **Canberra** indicates an improvement in death rates relative to the Australian rates; similar, but smaller movements were evident in the ratios for **Sydney** and **Melbourne**.

Table 5.27: Deaths of people aged 15 to 64 years from accidents, poisonings and violence, capital cities
Standardised death ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	84**	80**	99	96	95	114*	149**	75**	88**
1985-89	91**	86**	92**	86**	82**	98	141**	88**	89**

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Within the capital cities and other major urban centres, there were 18,429 deaths from the combined causes of accidents, poisonings and violence, (63.9 per cent of all deaths from these causes). Some 76.5 per cent of these (12,760 deaths) were deaths of 15 to 64 year old males. There were 21.5 per cent more deaths from this group of external causes of 15 to 64 year old metropolitan residents over the period from 1992 to 1995 than over the years from 1985 to 1989, rising from 3,615 per year to 4,607 per year.

Capital Cities

There were substantially more premature deaths from accidents, poisonings and violence in ***Inner Sydney*** than expected from the Australian rates (an SDR of 122**). Ratios of 100 or less were recorded throughout the remainder of **Sydney**, with the highest of those in ***Gosford-Wyong*** (an SDR of 100) and ***Outer Western Sydney*** (99). The lowest ratios were in ***Hornsby-Ku-ring-gai*** (63**) and ***Lower Northern Sydney*** (68**). The largest numbers of deaths were in ***Inner Sydney*** (404 deaths) and ***Blacktown-Baulkham Hills*** (331). In both **Newcastle** (an SDR of 97; 493 deaths) and **Wollongong** (90; 255 deaths), deaths from accidents, poisonings and violence were below expected levels.

In **Melbourne,** only two Statistical Subdivisions (SSDs) had elevated ratios for premature deaths from accidents, poisonings and violence; ***Central Melbourne*** (with an SDR of 109) and ***Western Inner Melbourne*** (104). The lowest ratios were in ***Eastern Inner Melbourne*** (65**), ***Eastern Middle Melbourne*** (67**) and ***Southern Inner Melbourne*** and ***Northern Outer Melbourne*** (both with 69**). There were 278 deaths in ***Eastern Outer Melbourne***, 270 in ***Western Inner Melbourne*** and 223 in ***Eastern Middle Melbourne***. Residents of **Geelong** had 11 per cent more deaths than expected from the Australian rates (an SDR of 111; 137 deaths).

The highest ratios for deaths from accidents, poisonings and violence in **Brisbane** were in ***Beaudesert*** (with an SDR of 160** and the highest ratio for any capital city or other major urban centre SSD) and ***Albert Part A*** (126) SSDs, while the lowest ratios were recorded in ***Pine Rivers*** (79*) and ***Redland*** (86). ***Brisbane City*** had 891 deaths of 15 to 64 year olds, with 175 recorded in ***Logan*** and 156 in ***Ipswich-Moreton***. There were more premature deaths than expected from these external causes in **Gold Coast-Tweed Heads** (with an SDR of 116**; 403 deaths) and fewer than expected in **Townsville-Thuringowa** (87; 132 deaths).

In **Adelaide,** SDRs for deaths of 15 to 64 year olds from accidents, poisonings and violence ranged from 107 in ***Western*** to 81** in ***Southern***. There were 402 deaths of 15 to 64 year old residents of ***Northern*** and 282 from ***Southern***.

The range of SDRs for deaths from accidents, poisonings and violence in **Perth** was from 111 in ***South West Metropolitan*** to 78** in ***North Metropolitan***. The largest numbers of premature deaths from these causes were in ***North Metropolitan*** (342) and ***South West Metropolitan*** (308).

There were 241 deaths of 15 to 64 year olds from the external causes of accidents, poisonings and violence in **Hobart**, an SDR of 114*.

In **Darwin**, there were more premature deaths from accidents, poisonings and violence than expected in both ***Darwin City*** (with an SDR of 151**, and the second highest for any SSD in the capital cities and other major urban centres; 127 deaths) and ***Palmerston-East Arm*** (132; 16 deaths).

In **Canberra**, only ***Central Canberra*** (with an SDR of 134** and 97 deaths) had more premature deaths than expected from these causes. The lowest ratio was in ***Tuggeranong*** (54**).

Map 5.21: Deaths of people aged 15 to 64 years from accidents, poisonings and violence, major urban centres, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

Standardised Death Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*

*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Other major urban centres (SDR)

Hobart	114
Newcastle	97
Wollongong	90
Geelong	111
Gold Coast-Tweed Heads	116
Townsville-Thuringowa	87

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of people aged 15 to 64 years from accidents, poisonings and violence, 1992 to 1995

State/Territory comparison (Australia as the Standard)

Residents of the non-metropolitan areas of all States and the Northern Territory had higher Standardised Death Ratios (SDRs) from the external causes of accidents, poisonings and violence than those living in the capital cities. Apart from Tasmania, the differentials were substantial, with the largest being in the Northern Territory: the Northern Territory also had the highest non-metropolitan SDR, of 254**. The main differences from the Australian rates in the SDRs for the two periods shown in **Table 5.28** were in Western Australia (the higher SDR in the later period suggesting a worsening, relative to the Australian rates, in the death rates from these external causes) and the Northern Territory, with a somewhat lower ratio, suggesting an improvement (relative to the Australian rates) in the death rates.

Table 5.28: Deaths of people aged 15 to 64 years from accidents, poisonings and violence, State/Territory
Standardised death ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	84**	80**	99	96	95	114*	149**	75**[1]	88**
Other major urban centres[2]	95	111	108	..	..	..	..	..	101
Rest of State/Territory	121**	108**	131**	132**	152**	129**	254**	–[3]	127**
Whole of State/Territory	94**	88**	113**	105*	110**	123**	204**	74**	100
1985 to 1989									
Rest of State/Territory	122**	120**	133**	126**	123**	116**	285**	–[3]	126**

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

In the areas of Australia outside the capital cities and other major urban centres, there were 10,412 deaths from the causes of accidents, poisonings and violence, 6.6 per cent of all deaths. Unlike deaths from all causes where the highest proportion is experienced among people aged 65 years and over, deaths from accidents, poisonings and violence are a major cause of premature death between the ages of 15 to 64 years.

As noted on page 164, Aboriginal people have higher rates of death from this group of causes. The highly elevated SDRs in many remote Statistical Subdivisions (SSDs) are likely to reflect these higher death rates.

Rest of Australia

Only three SSDs in New South Wales had fewer deaths from accidents, poisonings and violence than expected from the Australian rates, with the lowest ratios in ***Snowy*** (an SDR of 77) and ***Queanbeyan*** (92). The highest ratios, all of which were highly statistically significant, were in ***Macquarie-Barwon*** (196**), ***Upper Darling*** (190**), ***Upper Murray*** (174**), ***Central Tablelands*** (168**) and ***Far West*** (161**). The largest numbers of deaths from this cause were in the northern coastal SSDs of ***Richmond-Tweed SD Balance*** (192 deaths), ***Clarence*** (167) and ***Hastings*** (138).

Elevated ratios for premature deaths from accidents, poisonings and violence in Victoria were recorded in ***Mitchell-Snowy*** (141), ***West Central Highlands*** and ***South Ovens-Murray*** (both with 139); with lower than expected ratios in ***East Barwon*** (71**) and ***Macalister-Avon*** (71). The largest numbers of deaths were in ***La Trobe Valley*** (97 deaths) and ***Ballarat*** (94 deaths).

In Queensland, highly elevated ratios for deaths from accidents, poisonings and violence were recorded in ***Far North*** (an SDR of 220**), ***North West*** (197**), ***Northern SD Balance*** (190**), ***Central West*** (144) and ***Fitzroy SD Balance*** (139**). Only three SSDs recorded fewer deaths than expected, with the lowest ratio in ***Rockhampton*** (an SDR of 85). The largest numbers of these deaths were in ***Far North SD Balance*** (240), with 217 in both ***Wide Bay-Burnett SD Balance*** and ***Darling Downs***.

Standardised death ratios for premature deaths from accidents, poisonings and violence in South Australia ranged from highly elevated ratios in ***West Coast*** (an SDR of 284**; and 20 deaths), ***Far North*** (256**; 33), ***Lower North*** (189**; 38), ***Flinders Ranges*** (152*; 37) and ***Upper South East*** (152*; 30), to the lowest ratio in ***Lincoln*** (100; 28). The largest numbers of premature deaths from these causes were in ***Lower South East*** (51 deaths) and ***Riverland*** and ***Murray Mallee*** (both with 49)

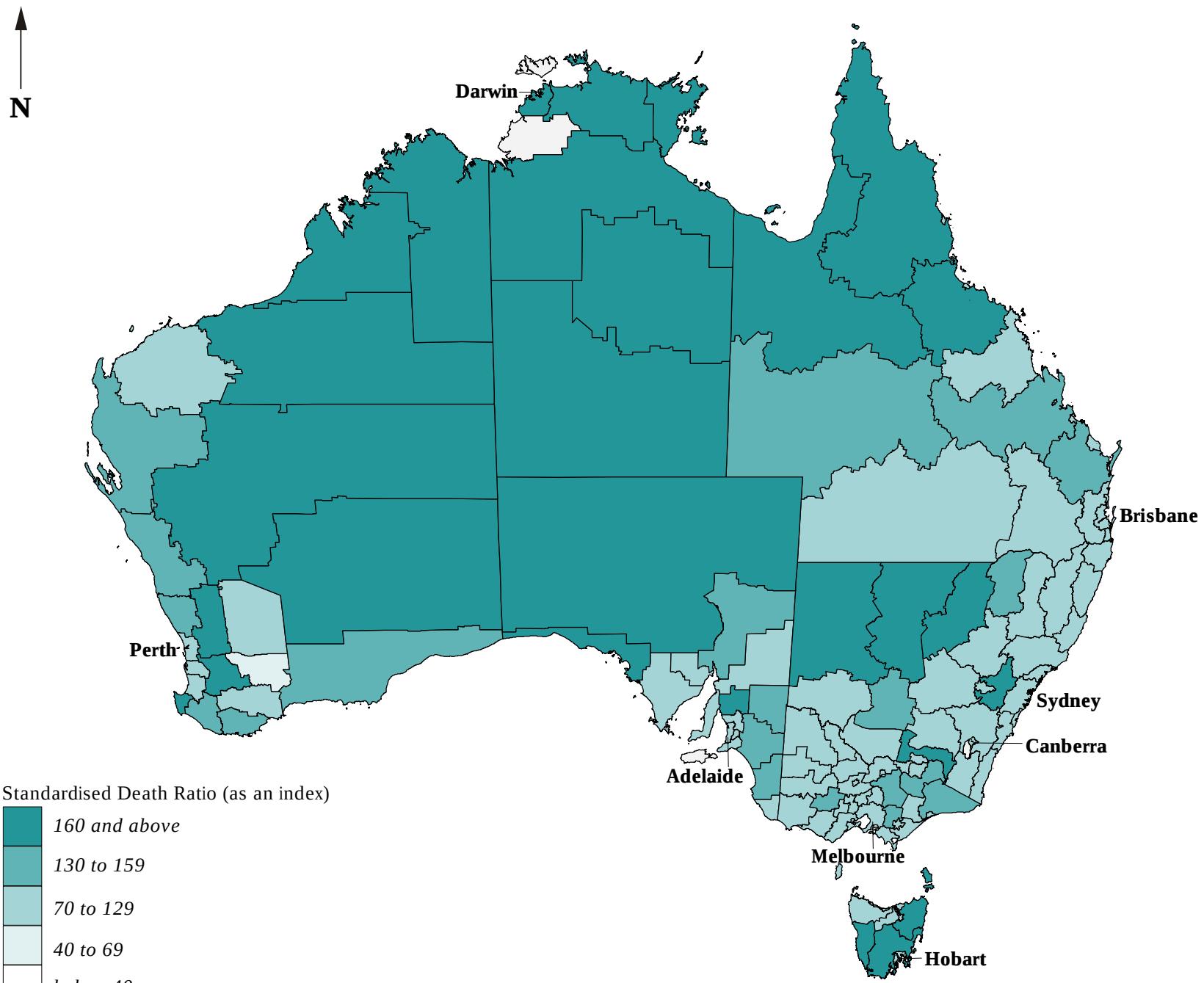
Generally, SSDs in Western Australia had elevated ratios for deaths from accidents, poisonings and violence, with the most highly elevated for any non-metropolitan SSD in Australia in ***Ord*** (an SDR of 425**; and 44 deaths). Also with highly elevated ratios were ***Carnegie*** (276**; 24), ***Fitzroy*** (254**; 46) and ***Avon*** (203**; 58). Of the SSDs with five or more deaths, the lowest ratios were in ***Pallinup*** (84) and ***Fortescue*** (97). There were 81 deaths from these external causes in ***Lefroy*** and 75 in ***Preston***.

Deaths from accidents, poisonings and violence in Tasmania ranged from 196** in ***North Eastern*** (46 deaths) and 188* in ***Lyell*** (16 deaths) to 98 in ***North Western Rural***. ***Launceston*** (129 deaths) and ***Burnie-Devonport*** (92) had the largest number of premature deaths from these causes.

Standardised death ratios for deaths from accidents, poisonings and violence in the SSDs in the Northern Territory were all highly elevated. The highest ratios were in ***Lower Top End NT*** (340**; 62) and ***Barkly*** (an SDR of 307**; and 22 deaths), with the lowest ratio in ***Bathurst-Melville*** (174; 4). There were 96 deaths recorded in ***Central NT.***

Map 5.22: Deaths of people aged 15 to 64 years from accidents, poisonings and violence, Australia, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

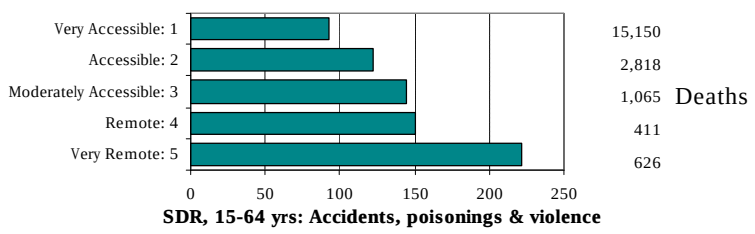


*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



There are major differences in SDRs for accidents, poisonings and violence across the ARIA categories. The most highly elevated ratios are over twice the level in the lowest ARIA category, with an SDR of 222 in the Very Remote category, compared with a ratio of 92 in the Very Accessible category. The Accessible, Moderately Accessible and Remote categories also had elevated ratios, of 122 and 144 and 150, respectively. Again, the influence of Indigenous deaths is likely to be an important influence in the high ratios for the most remote areas.

Source: Calculated on ARIA classification, DHAC

Deaths of people aged 15 to 24 years from accidents, poisonings and violence, 1992 to 1995

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, Standardised Death Ratios (SDRs) for deaths from accidents, poisonings and violence of people aged from 15 to 24 years ranged from 65** in **Canberra** to 127* in **Hobart**. With the exception of **Darwin** (with an SDR of 124) and **Brisbane** (104), the other capital cities recorded fewer deaths than expected. **Sydney** and **Melbourne** also had relatively low ratios, of 76** and 78**, respectively. There was a higher differential (from the Australian rates) in the SDRs recorded for **Perth**, **Brisbane**, **Hobart** and **Darwin** in the later period shown in **Table 5.29**, suggesting a worsening (relative to the Australian rates) in rates of death from accidents, poisonings and violence between the periods analysed. The movements in the ratios for the other capitals (and in particular in **Canberra)** indicate an improvement in death rates relative to the Australian rates.

Table 5.29: Deaths of people aged 15 to 24 years from accidents, poisonings and violence, capital cities
Standardised death ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1992-95	76**	78**	104	85**	97	127*	124	65**	84**
1985-89	88**	81**	83**	89*	76**	95	112	97	85**

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Deaths from the external causes of accidents, poisonings and violence were the major cause of death for people aged from 15 to 24 years. Over the four year period from 1992 to 1995, they represented 69.1 per cent of all deaths in Australia in this age group - 74.3 per cent of deaths of males and 54.7 per cent of female deaths. Males predominated, accounting for 78.9 per cent of all deaths from these external causes.

Mathers (1994) examined the extent of disparities (related to socioeconomic status of areas of residence) in mortality rates according to the major cause of death. Differentials in mortality rates for deaths from injury and poisonings were clearly evident for both males and females (aged from 15 to 24 years) from the most socioeconomically disadvantaged areas - 47 per cent more deaths of males than in the most advantaged areas, and 66 per cent for females. This relationship was also evident between socioeconomic status and suicide, with 35 per cent more male deaths and 30 per cent more female deaths in the most socioeconomically disadvantaged areas than there were in the most advantaged areas. Mathers (in press) has recently reported an increase in the rates of male suicide in areas of low socioeconomic status over the decade from 1985.

There were 3,319 deaths at ages 15 to 24 years from accidents, poisonings and violence of people from the capital cities and other major urban centres, 88.0 deaths per 100,000 population.

Capital Cities

In **Sydney**, only ***Outer Western Sydney*** (with an SDR of 116) and ***Gosford-Wyong*** (102) had more deaths of 15 to 24 year olds from accidents, poisonings and violence than were expected from the Australian rates. There were very low ratios in the higher socioeconomic areas of ***Lower North Sydney*** (41**) and ***Eastern Suburbs*** (53**). The largest numbers of deaths from these causes were in ***Outer Western Sydney*** (106) and ***Blacktown-Baulkham Hills*** (104). Both **Wollongong** (73*; 55 deaths) and **Newcastle** (98; 132 deaths) had ratios that were lower than expected from the Australian rates.

In **Melbourne**, SDRs for deaths of 15 to 24 years olds from accidents, poisonings and violence were elevated (although not statistically significantly) by more than five per cent in ***Mornington Peninsula Inner*** (an SDR of 114) and ***Mornington Peninsula Outer*** (105). The lowest ratio was in ***Northern Inner Melbourne*** (49**) and the largest numbers of deaths were recorded in ***Eastern Outer Melbourne*** (72 deaths) and ***Eastern Middle Melbourne*** (63 deaths). **Geelong** had an SDR of 94 and 33 deaths.

In **Brisbane**, ***Beaudesert*** had the highest ratio for any SSD in the capital cities and other major urban centres (an SDR of 276**), with the next highest ratio in ***Albert Part A*** (149). The lowest ratio was in ***Redcliffe*** (71). There were 260 deaths of 15 to 24 year olds from these causes in ***Brisbane City,*** with 53 in ***Logan*** and 46 in ***Ipswich-Moreton***. There were more deaths than expected from the Australian rates in **Gold Coast-Tweed Heads** (an SDR of 120; and 104 deaths) and fewer than expected in **Townsville-Thuringowa** (98; 48 deaths).

In **Adelaide,** the SDRs for deaths of 15 to 24 year olds from accidents, poisonings and violence ranged from 101 in ***Northern*** to 72** in ***Southern***. There were 102 deaths of 15 to 24 year old residents of ***Northern*** and 65 from ***Southern***.

In **Perth**, the highest ratios for deaths of 15 to 24 year olds from accidents, poisonings and violence were in ***South Western Metropolitan*** (117) and ***South East Metropolitan*** (107), with the lowest in ***North Metropolitan*** (80*). The largest numbers of deaths in this age group from these external causes were in ***North Metropolitan*** (97) and ***South East Metropolitan*** (92).

There were 73 deaths of 15 to 24 year olds from accidents, poisonings and violence in **Hobart,** an SDR of 127*.

In **Darwin**, both ***Palmerston-East Arm*** (with an SDR of 136; and four deaths) and ***Darwin City*** (122; and 27 deaths) recorded more deaths of 15 to 24 year olds from accidents, poisonings and violence than expected from the Australian rates.

There were more deaths from accidents, poisonings and violence than expected only in ***Central Canberra*** (an SDR of 109), with low ratios in ***Tuggeranong*** (42**) and ***Weston Creek*** (57). There were 26 deaths in this age and cause group in ***Central Canberra*** and 21 in ***Belconnen***.

Map 5.23: Deaths of people aged 15 to 24 years from accidents, poisonings and violence, major urban centres, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*

Standardised Death Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*
- *fewer than five deaths*

*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Other major urban centres (SDR)

Hobart	127
Newcastle	98
Wollongong	73
Geelong	94
Gold Coast-Tweed Heads	120
Townsville-Thuringowa	98

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of people aged 15 to 24 years from accidents, poisonings and violence, 1992 to 1995

State/Territory comparison (Australia as the Standard)

Residents of the non-metropolitan areas of all States and the Northern Territory had higher Standardised Death Ratios (SDRs) from the external causes of accidents, poisonings and violence than those living in the capital cities. In all cases the differentials were substantial, with the largest being in the Northern Territory, Western Australia and South Australia: the Northern Territory also had the highest non-metropolitan SDR, of 267**. The main differences from the Australian rates in the SDRs for the two periods shown in **Table 5.30** were in the ratios for Western Australia and the Northern Territory, with the higher SDRs in the later period suggesting a worsening, relative to the Australian rates, in the death rates from these causes.

Table 5.30: Deaths of people aged 15 to 24 years from accidents, poisonings and violence, State/Territory
Standardised death ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1992 to 1995									
Capital city	76**	78**	104	85**	97	127*	124	65**[1]	84**
Other major urban centres[2]	89	94	110	..	..	..	..	..	98
Rest of State/Territory	127**	123**	136**	158**	188**	144**	267**	–[3]	140**
Whole of State/Territory	89**	89**	117**	102	120**	137**	202**	66**	100
1985 to 1989									
Rest of State/Territory	135**	132**	132**	146**	139**	130**	235**	–[3]	136**

[1] Includes Queanbeyan (C)
[2] Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Over the four year period from 1992 to 1995, there were 2,023 deaths of people aged from 15 to 24 years from this group of external causes outside the capital cities and other major urban centres. This was a rate of 67.7 per 100,000 population, lower than the metropolitan rate of 88.0 per 100,000 population. Although this was a relatively small number of deaths, they accounted for 76.5 per cent of all deaths in this age group – 80.4 per cent of male deaths and 64.8 per cent of female deaths.

As noted on page 164, Aboriginal people have higher rates of death from this group of external causes. The highly elevated SDRs in many remote Statistical Subdivisions (SSDs) are likely to reflect these higher death rates.

Rest of Australia

in New South Wales, there were more than twice the expected number of deaths of 15 to 24 year olds from accidents, poisonings and violence in ***Central Tablelands*** (with an SDR of 256**) and ***Upper Darling*** (220*). Highly elevated ratios were also recorded in ***Upper Murray*** (186), ***Lachlan*** (177**), ***Far West*** (169) and ***Hunter SD Balance*** (163**). Excluding SSDs with fewer than five deaths, the lowest ratios were in ***Queanbeyan*** (61) and ***Northern Tablelands*** (80). There were 48 deaths from these causes in ***Richmond-Tweed SD Balance*** and 43 in ***Clarence***.

Two thirds of SSDs in Victoria had more deaths of 15 to 24 year olds from accidents, poisonings and violence than were expected from the Australian rates. The highest ratios were recorded in ***South Ovens-Murray*** (an SDR of 259**), ***South Goulburn*** (228**) and ***Strzlecki*** (215**). Excluding SSDs with fewer than five deaths, the lowest ratios were in ***Macalister-Avon*** (63) and ***East Barwon*** (74). There were 29 deaths from these causes in ***La Trobe Valley*** and 28 in ***Ballarat***.

In Queensland, there were highly elevated ratios for deaths of 15 to 24 year olds from accidents, poisonings and violence in ***Far North SD Balance*** (an SDR of 255**) and ***North West*** (249**). High ratios were also recorded in ***Central West*** (171) and ***Gladstone*** (154). The lowest ratios were in ***Rockhampton*** (79) and ***Sunshine Coast*** (80). There were 69 deaths from these causes in ***Far North SD Balance*** and 66 in ***Darling Downs***.

In South Australia, of SSDs with five or more deaths of 15 to 24 year olds from these causes, none had a ratio of less than 100. The highest ratios were in ***Far North*** (355**; and 10 deaths), ***Lower North*** (210*; 8), ***Onkaparinga*** (197**; 16) and ***Flinders Ranges*** (190*; 11), and the lowest was in ***Lincoln*** (100). In ***Lower South East*** there were 17 deaths, with 16 in both ***Barossa*** and ***Onkaparinga***.

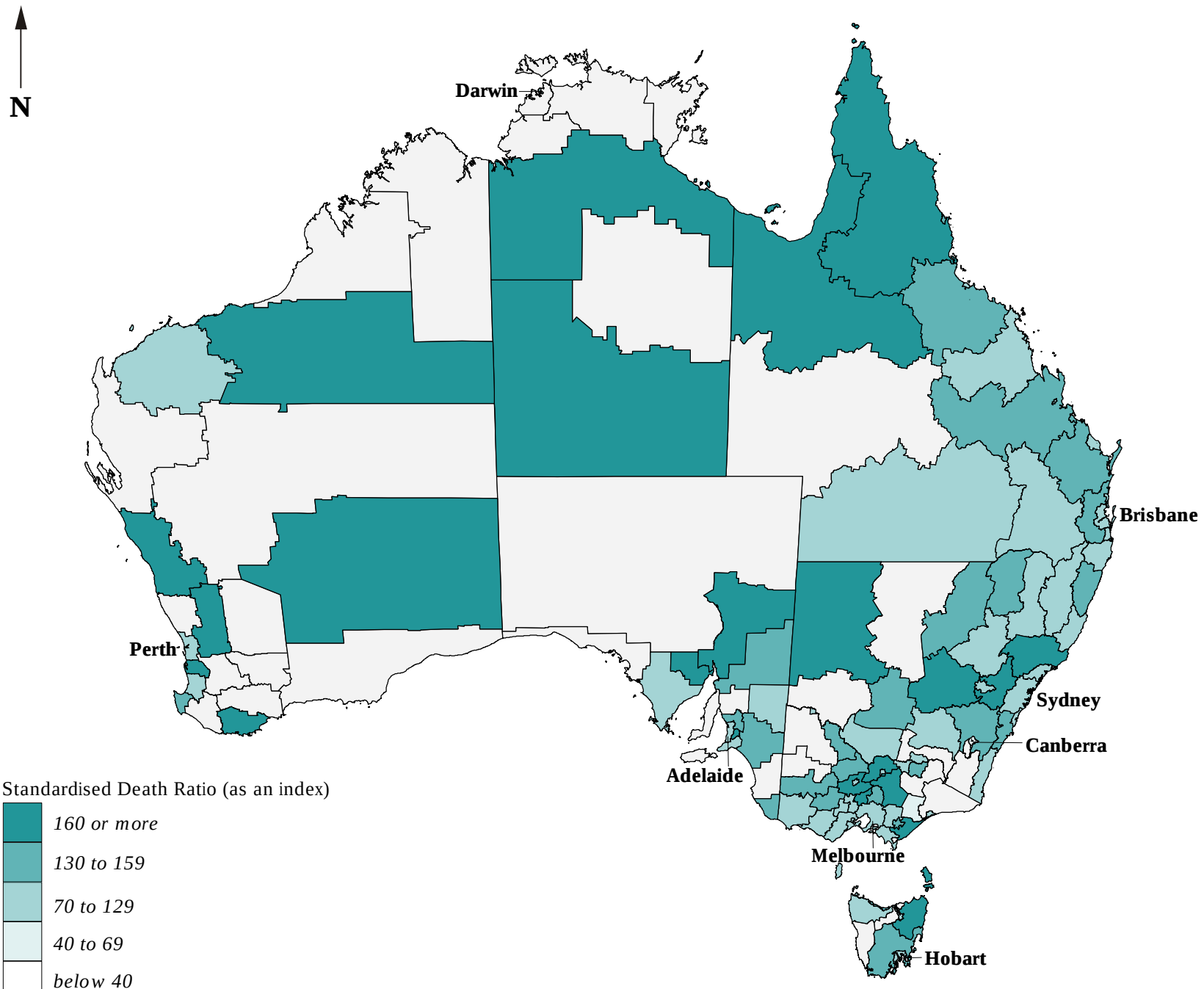
Of the SSDs in Western Australia with five or more deaths of 15 to 24 year olds from accidents, poisonings and violence, none had fewer deaths than were expected. The highest ratios for any SSD in non-metropolitan Australia were recorded in ***Carnegie*** (461**; and nine deaths) and ***Ord*** (423**; 12), with highly elevated SDRs also in ***Fitzroy*** (290**; 14), ***King*** (283**; 27) and ***De Grey*** (257**; 16). The lowest ratio was in ***Preston*** (an SDR of 118). ***King*** had the largest number of deaths (27).

There were no SSDs in Tasmania with fewer deaths of 15 to 24 year olds from accidents, poisonings and violence than were expected from the Australian rates. The highest ratios were in ***North Eastern*** (200*) and ***Lyell*** (194), and the lowest in ***North Western Rural*** (118). ***Launceston*** recorded the largest number of deaths (40), with 31 in ***Burnie-Devonport***.

In the Northern Territory, ratios were also highly elevated in all but one SSD, with the highest in ***East Arnhem*** (an SDR of 356**; and 14 deaths) and ***Daly*** (352**; 4) and the lowest in ***Alligator*** (84; 2). There were 28 deaths in ***Central NT***.

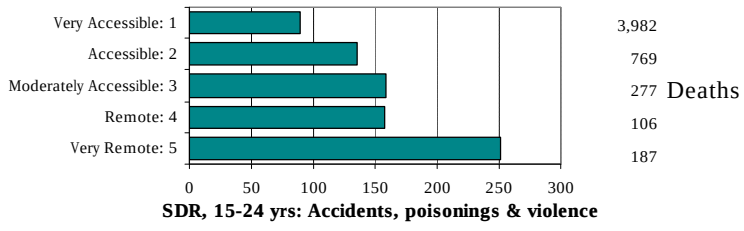
Map 5.24: Deaths of people aged 15 to 24 years from accidents, poisonings and violence, Australia, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Subdivision compared with the number expected*



Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



The differences across the ARIA categories in SDRs for accidents, poisonings and violence among 15 to 24 year olds are more marked than those for the 15 to 64 year age group. There were two and a half times the number of deaths in the Very Remote category than were expected from the Australian rates, an SDR of 251, compared with a ratio of 89 in the Very Accessible category. The Accessible (with an SDR of 135), Moderately Accessible (159) and Remote (157) categories also had elevated ratios. The influence of Indigenous deaths is likely to be an important influence in the high ratios.

Source: Calculated on ARIA classification, DHAC

Deaths of people aged 15 to 64 years: years of potential life lost, 1992 to 1995

Capital city comparison (Australia as the Standard)

One measure of the impact of premature death is the number of potential years of life lost as a result of death before the age of 65 years. This measure is calculated as the sum of all the years of life that could potentially have been lived had people not died before the age of 65 years. The total number of years of potential life lost (YPLL) is calculated by assuming that people who died at 17 years of age would have otherwise lived to the age of 65 years (ie. 65 minus 17 years), or 48 years. In this analysis, deaths included were of people aged from 15 to 64 years. The results are expressed as rates per 100,000 population, and age standardised to the Australian population. People in most capital cities had fewer years of potential life lost (YPLL) than were expected from the Australian rates, with the lowest standardised ratios (SRs) in **Canberra** (81**), **Perth** (89**) and **Melbourne** (90**) (**Table 5.31**). **Darwin** (with an SR of 137**) and **Hobart** (108**) had the only elevated ratios: the ratio of 137** in **Darwin** indicates that there were 37 per cent more YPLL by 15 to 64 year old residents of **Darwin** than would be expected from the Australian rates. Overall, ratios for females (95**) were generally higher than for males (94**), the exceptions being **Sydney** and **Darwin** (**Table 5.31**).

Table 5.31: Deaths of people aged 15 to 64 years; years of potential life lost, capital cities, 1992 to 1995
Standardised ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
Males	**99****	**90****	**93****	**93****	**88****	**104****	**144****	**79****	**94****
Females	**96****	**91****	**97****	**100**	**91****	**114****	**122****	**84****	**95****
Total	**98****	**90****	**94****	**96****	**89****	**108****	**137****	**81****	**94****

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

Over the period from 1992 to 1995 there were 1,948,661 YPLL from premature deaths of people aged from 15 to 64 years and resident in the capital cities and other major urban centres. Males accounted for two thirds (62.8 per cent, 1,223,820 years) of these years of life lost.

Capital Cities

In **Sydney**, ***Inner Sydney*** had the most highly elevated ratio for YPLL for any SSD in the capital cities and other major urban centres (with an SR of 183**). Substantially lower, but statistically significant ratios were recorded in the Statistical Subdivisions (SSDs) of ***Gosford-Wyong*** (108**) and ***Central Western Sydney*** (107**). The lowest SRs were in the SSDs of ***Hornsby-Ku-ring-gai*** (69**), and ***Lower Northern Sydney*** and ***Northern Beaches*** (both with 77**). The greatest impact of premature death (when measured by YPLL by the population aged from 15 to 64 years) was recorded for residents of ***Inner Sydney*** (82,095 years), ***Blacktown-Baulkham Hills*** (53,683) and ***St George-Sutherland*** (53,385). There were more than the expected numbers of YPLL in **Newcastle** (107**; and 79,622 years), but fewer than expected in **Wollongong** (98**; 40,754 years).

There were five SSDs in **Melbourne** where there were more YPLL than expected from the Australian rates. Of these, the highest ratios were in ***Central Melbourne*** (an SR of 135**) and ***Western Inner Melbourne*** (121**). The lowest ratios were in ***Eastern Middle Melbourne*** (71**) and ***Northern Outer Melbourne*** (77**). The largest numbers of YPLL were of residents of ***Eastern Outer Melbourne*** (43,606 years), ***Western Inner Melbourne*** (42,247) and ***Western Outer Melbourne*** (37,436 years). There were 19,437 YPLL for residents of **Geelong** (108**).

In **Brisbane, *Beaudesert*** (with an SR of 112**) and ***Redcliffe*** (104**) both had elevated SRs. The ratios in those SSDs with fewer than the expected number of YPLL were statistically highly significant. The lowest ratios were in ***Pine Rivers*** (79**) and ***Redland*** (82**). The largest numbers of YPLL from premature deaths were in ***Brisbane City*** (123,933 years), ***Logan*** (23,285) and ***Ipswich-Moreton*** (18,393). In both **Gold Coast-Tweed Heads** (with an SR of 99; and 52,563 YPLL) and **Townsville-Thuringowa** (96**; 18,645 years) there were fewer YPLL than expected from the Australian rates.

The highest standardised ratio for YPLL in **Adelaide** was recorded in ***Western*** (with an SR of 112**), where the number of years of potential life lost was 12 per cent higher than that expected. The lowest ratio was in ***Southern*** (81**). In ***Northern*** there were 54,357 years of potential life lost, and in ***Southern*** 41,177 years.

None of **Perth's** SSDs had an elevated ratio for YPLL. The highest ratios were in ***Central Metropolitan*** (an SR of 99) and ***South East Metropolitan*** (96**). The lowest ratios were in ***North Metropolitan*** (79**) and ***East Metropolitan*** (88**). The highest numbers of YPLL as a result of premature death were recorded for residents of ***North Metropolitan*** (49,022 years) and ***South East Metropolitan*** (41,855).

In **Hobart**, there were 33,288 years of potential life lost over the period from 1992 to 1995 (an SR of 108**).

Both of the SSDs in **Darwin** recorded elevated standardised ratios for YPLL. The ratio for ***Darwin City*** (an SR of 137**, the second highest at the SSD level in Australia; 15,092 years) was slightly higher than that for ***Palmerston-East Arm*** (133**; 2,041 years).

In **Canberra**, there were 17 per cent more YPLL than expected from the Australian rates in ***Central Canberra*** (an SR of 117**), whereas in each of the other SSDs, there were fewer than expected. The lowest ratios were recorded in ***Tuggeranong*** (61**) and ***Belconnen*** (70**). There were 11,547 years of potential life lost in ***Central Canberra*** and 10,352 years in ***Belconnen***.

Map 5.25: Deaths of people aged 15 to 64 years; years of potential life lost, major urban centres, 1992 to 1995

Standardised Ratio: number of years of potential life lost in each Statistical Subdivision compared with the number expected*

Standardised Ratio (as an index)

- *130 and above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*

*Expected numbers were derived by indirect age-sex standardisation, based on Australian totals

Other major urban centres (SR)

Hobart	108
Newcastle	107
Wollongong	98
Geelong	108
Gold Coast-Tweed Heads	99
Townsville-Thuringowa	96

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Deaths of people aged 15 to 64 years: years of potential life lost, 1992 to 1995

State/Territory comparison (Australia as the Standard)

All of the *Rest of State/Territory* areas in **Table 5.32** had higher standardised ratios (SRs) for years of potential life lost (YPLL) than were calculated for the capital cities. The largest differential was in the Northern Territory, with more than twice the SR in the *Rest of State/Territory* areas than was calculated for **Darwin**; the next highest differential was in Western Australia. In contrast to the male and female rates recorded in the metropolitan areas, male rates (113**) were generally above those recorded for females (111**), with the exceptions being Queensland, the Northern Territory and Tasmania.

Table 5.32: Deaths of people aged 15 to 64 years; years of potential life lost, State/Territory, 1992 to 1995
Standardised ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	98**	90**	94**	96**	89**	108**	137**	81**[1]	94**
Other major urban centres[2]	104**	108**	97**	..	..	..	..	..	102**
Rest of State/Territory	112**	102**	109**	112**	118**	117**	278**	–[3]	113**
Whole of State/Territory	102**	94**	101**	100	97**	113**	210**	79**	100
Rest of State/Territory									
Males	114**	103**	108**	112**	119**	117**	273**	–[3]	113**
Females	108**	102**	110**	112**	117**	117**	287**	–[3]	111**

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at five per cent; ** significance at one per cent

There were 961,915 YPLL from premature deaths of residents outside the capital cities and other major urban centres over the period from 1992 to 1995. Males accounted for 63.8 per cent (613,776 years) of these, compared with 36.2 per cent for females.

Rest of Australia

In New South Wales, the most highly elevated ratios for YPLL were recorded in the more remote parts of the State, in ***Upper Darling*** (an SR of 209**), ***Macquarie-Barwon*** (162**), ***Far West*** (143**) and ***North Central Plain*** (135**). Ratios elevated by more than 20 per cent were recorded in ***Central Tablelands*** (129**), ***Lachlan*** (123**) and ***Murray-Darling*** (122**). Only two Statistical Subdivisions (SSDs) had ratios for YPLL of less than 100: these were ***Snowy*** (87**) and ***Central Murray*** (91**). The largest numbers of YPLL from premature deaths were in the northern coastal SSDs of ***Richmond-Tweed SD Balance*** (26,304 years), ***Hastings*** (22,521) and ***Clarence*** (22,011).

The highest ratios in Victoria were in ***La Trobe Valley*** and ***Gippsland Lakes*** (both with an SR of 123**) and ***West Central Highlands*** (119**). Of the 11 SSDs with ratios of less than 100, the lowest were in ***Macalister-Avon*** (80**) and ***North Wimmera*** (83**). There were an estimated 14,737 years of potential life lost for residents of ***Ballarat*** and 13,767 in ***La Trobe Valley***.

The highest ratios in Queensland were in ***North West*** (an SR of 185**) and ***Far North SD Balance*** (171**). Ratios of greater than 110 were also recorded for ***Northern SD Balance*** (134**), ***Central West*** (128**) and ***Wide Bay-Burnett SD Balance*** (112**). The lowest ratio was recorded for ***Sunshine Coast*** and ***Mackay SD Balance***, both with 16 per cent fewer YPLL than expected from the Australia rates (both 84**). The largest numbers of YPLL were in ***Darling Downs*** (29,838 years), ***Wide Bay-Burnett SD Balance*** (28,465), and ***Far North SD Balance*** (26,930).

In South Australia, ***West Coast*** (with an SR of 227**) and ***Far North*** (209**) SSDs had more than twice the number of YPLL expected from the Australian rates. There was also a highly elevated ratio in ***Flinders Ranges*** (154**), with other relatively high ratios in ***Lower North*** (119**) and ***Murray Mallee*** (116**). The three SSDs with ratios less than 100 (all adjacent to **Adelaide**) were ***Barossa*** (85**), ***Onkaparinga*** (88**) and ***Fleurieu*** (96*). There were 7,003 YPLL for residents of ***Lower South East*** and 6,324 years lost in ***Murray Mallee***.

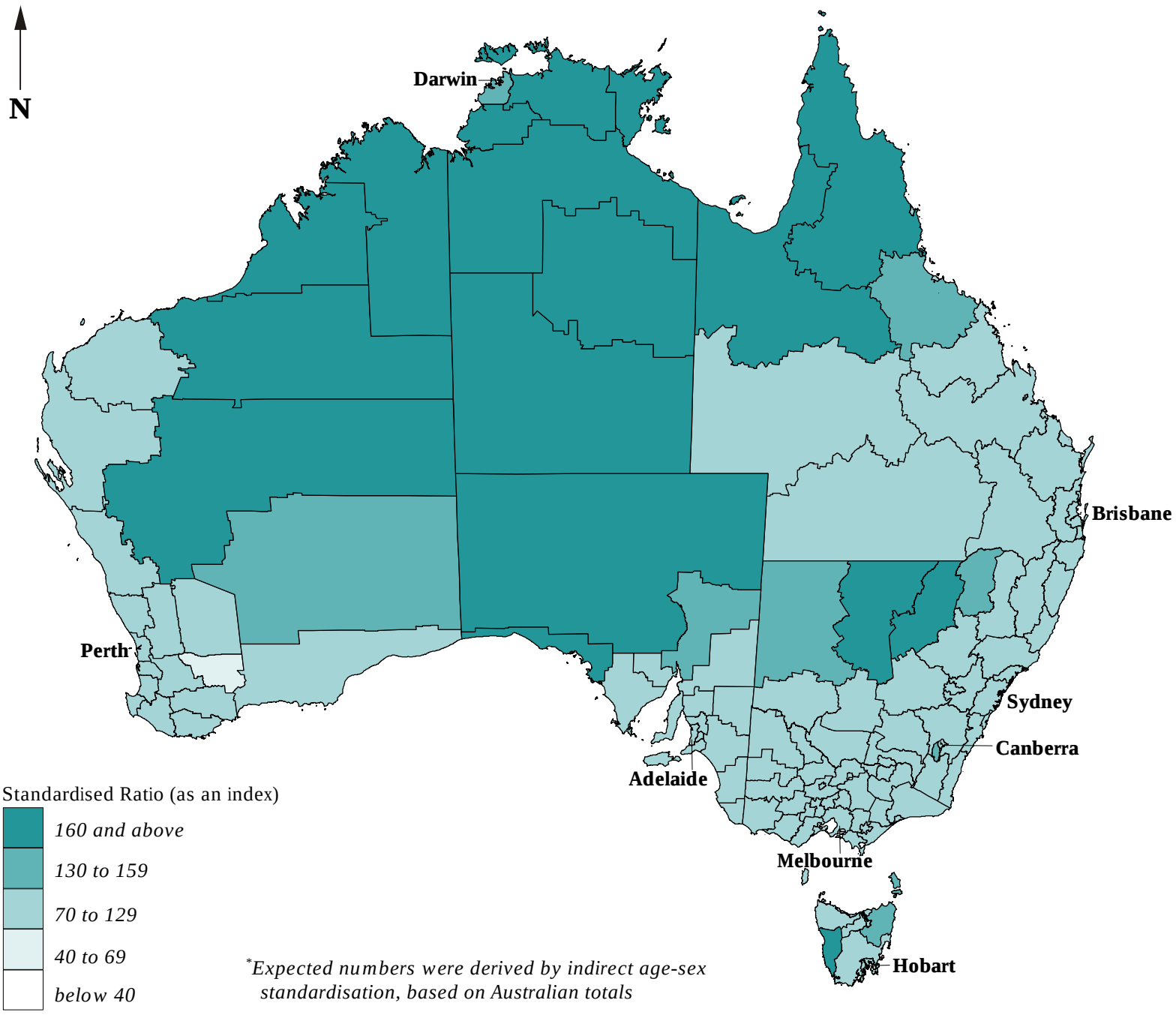
In Western Australia, ***Ord*** (with an SR of 353**) and ***Fitzroy*** (262**) SSDs recorded highly elevated ratios for YPLL. Very high ratios were also recorded in ***Carnegie*** (197**), ***De Grey*** (163**) and ***Lefroy*** (152**). Of the seven SSDs with ratios of less than 100, the lowest were in ***Lakes*** (68**) and ***Moore*** (84**). The largest numbers of years of potential life lost were calculated for ***Preston*** (10,159 years), ***Lefroy*** (8,962) and ***Dale*** (7,998).

There were at least than 20 per cent more YPLL than expected from the Australian rates in ***Lyell*** (an SR of 171**), ***North Eastern*** (143**) and ***Burnie-Devonport*** (122**) in Tasmania. The lowest ratio was in ***North Western Rural*** (93**). The largest numbers of YPLL were in the northern coastal centres of ***Launceston*** (17,307 years) and ***Burnie-Devonport*** (15,439).

Standardised ratios for YPLL were extremely highly elevated in the majority of SSDs in the Northern Territory. Ratios elevated by at least three times were recorded from six of the eight SSDs. The highest ratios were in ***Bathurst-Melville*** (with an SR of 562** and the highest of any non-metropolitan SSD in Australia), ***Daly*** (382**) and ***Alligator*** (336**). The lowest ratio was in ***Darwin Rural Areas*** (135**), but even here there were 35 per cent more YPLL than expected from the Australian rates. The largest numbers of YPLL was in ***Central NT*** (13,190 years) and ***Lower Top End NT*** (7,297).

Map 5.26: Deaths of people aged 15 to 64 years; years of potential life lost, Australia, 1992 to 1995

Standardised Ratio: number of years of potential life lost in each Statistical Subdivision compared with the number expected*



Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

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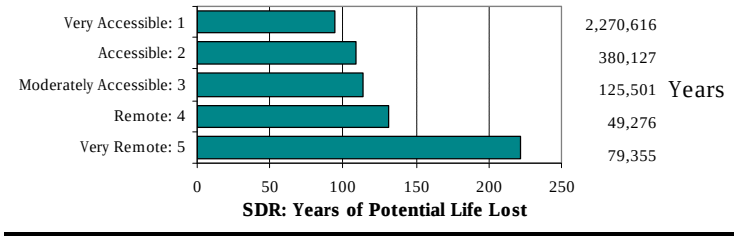

As a summary measure of the impact of premature deaths over the years from 1992 to 1995, the ARIA graph of years of potential life lost (YPLL) highlights the overall impact evident in the previous graphs. There is again a clear gradient evident in the graph, with the most substantial increases occurring in the Remote (an SDR of 131) and Very Remote (222) categories, where the influence of Indigenous deaths is again likely to be an important influence in the ratios for the most remote areas. The largest numbers of YPLL are in the most heavily populated Very Accessible and Accessible categories.

Source: Calculated on ARIA classification, DHAC

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Total Fertility Rate

Introduction

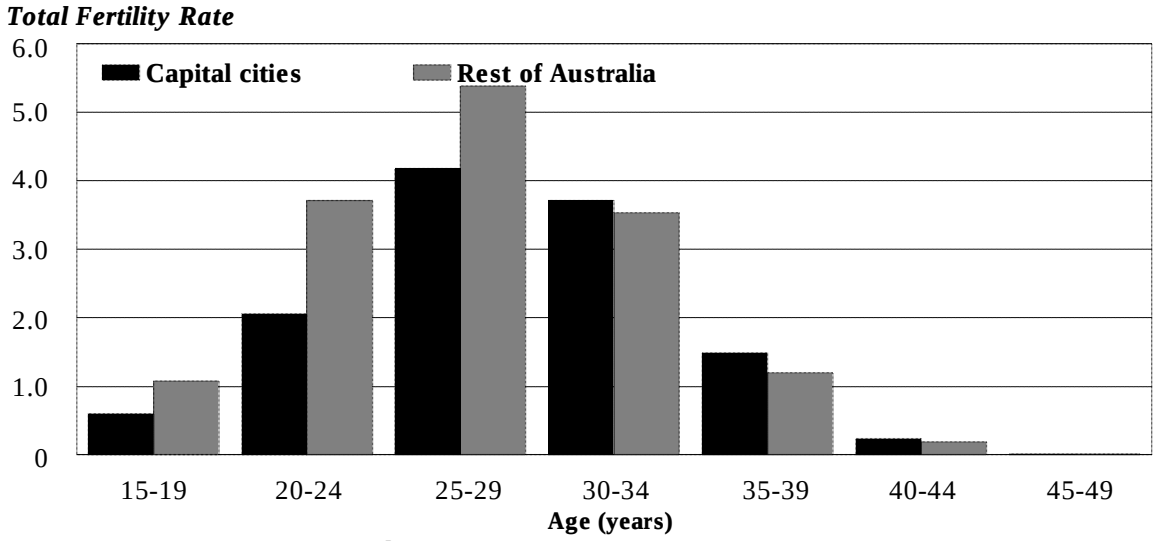
The Total Fertility Rate (TFR) is a measure of the production of children and is calculated from details of the age of the female population, the number of live births and the age of the mother at birth. It represents the mean number of children which females, living right through their child-bearing period, will (on average) bear, if they are subject to the fertility conditions holding in a particular area during the given period.

A TFR of 2.11 is the level at which a population replaces itself over the long term - ie. each woman has, on average, 2.11 births. In order to keep the ranges as simple as possible, the distribution mapped here has been split at 1.5 or 2.0 (and at intervals of 0.5 above and below), rather than at the replacement level figure of 2.11.

Details of the TFR are included in this chapter (rather than in Chapter 3 with the other demographic variables) because they have been compiled on the same boundaries as other data in this chapter. Common boundaries are important in enabling the correlation analysis to be undertaken, and to enhance the value of the maps in highlighting associations in the patterns of distribution.

The highest Total Fertility Rates (TFRs) in Australia are those for females aged from 25 to 29 years living in the non-metropolitan areas (**Figure 5.10**). Females aged from 25 to 29 years and living in the capital cities and other major urban centres, as well as those aged from 20 to 24 years and living in non-metropolitan areas of Australia, and those aged from 30 to 34 years, regardless of residence, had the next highest TFRs. The largest difference in TFRs between residents of the capital cities and other major urban centres and the rest of Australia was in the 20 to 24 year age group.

Figure 5.10: Total Fertility Rates, Capital cities and Rest of Australia, 1992 to 1995



Source: See *Data sources*, Appendix 1.3

Total Fertility Rate, 1992 to 1995

Capital city comparison

The capital cities recorded similar Total Fertility Rates (TFRs) over the four years from 1992 to 1995 (**Table 5.33**), with the exception of a higher rate in **Darwin** (2.06). The lowest TFR was that in **Adelaide** (1.64).

Table 5.33: Total Fertility Rate, capital cities, 1992 to 1995

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1.81	1.70	1.73	1.64	1.76	1.79	2.06	1.69	1.75

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3

Over the period from 1992 to 1995, Australia's TFR was 1.86, with 1,037,436 children born (an annual average of 259,359 births). The highest TFRs in the capital cities were recorded for women aged from 25 to 29 years (a TFR of 4.13), followed by those aged from 30 to 34 (a TFR of 3.74) (**Figure 5.10**, previous page).

Capital Cities

The Total Fertility Rate (TFR) for female residents of **Sydney** was 1.81 over the four year period from 1992 to 1995. However in seven Statistical Subdivisions (SSDs), the TFR was higher than the replacement level of 2.01. Of these, the highest rates were recorded in ***Gosford-Wyong*** (a TFR of 2.26), ***Outer South Western Sydney*** (2.25) and ***Fairfield-Liverpool*** (2.21). The lowest fertility rates were in ***Eastern Suburbs*** (1.20), ***Inner Sydney*** (1.31) and ***Lower Northern Sydney*** (1.35). Over this period there were 22,744 births in ***Blacktown-Baulkham Hills***, 21,766 in ***St George-Sutherland*** and 21,454 in ***Fairfield-Liverpool***. In **Wollongong** (with a TFR of 1.95; and 14,889 births), the TFR was slightly higher than in **Newcastle** (1.89; 25,461 births).

In **Melbourne,** the TFR over the years from 1992 to 1995 was 1.7, with 181,637 births. The highest Total Fertility Rates were in ***Mornington Peninsula Outer*** (2.21), ***South Eastern Outer Melbourne*** (2.14), ***Eastern Fringe Melbourne*** (2.09) and ***Western Fringe Melbourne*** (a TFR of 2.04). In the remaining SSDs fertility was below replacement levels, with the lowest rates in ***Central Melbourne*** (1.12), ***Eastern Inner Melbourne*** (1.36) and ***Eastern Middle Melbourne*** (1.40). There were 18,230 children born in ***Eastern Outer Melbourne***, 16,117 in ***Southern Eastern Outer Melbourne*** and 14,211 in ***Western Outer Melbourne***. In **Geelong** there were 6,519 births between 1992 and 1995 and a TFR of 1.86.

Total Fertility Rates of near or above replacement level were recorded in the **Brisbane** SSDs of ***Caboolture*** (2.14), ***Ipswich-Moreton*** (2.11), ***Beaudesert*** (2.07), and ***Albert Part A*** (2.05) over the years from 1992 and 1995. The lowest TFR was in ***Brisbane City*** (1.53). Largely because of its size, there were 38,941 births in ***Brisbane City***, substantially more than the 11,015 in second ranked ***Logan*** and the 8,638 in ***Ipswich-Moreton***. There were 15,627 births in **Gold Coast-Tweed Heads** (a TFR of 1.71) and 7,868 in **Townsville-Thuringowa** (1.81).

There were no SSDs in **Adelaide** with TFRs above replacement level. The highest were in ***Northern*** (a TFR of 1.88) and ***Southern*** (1.68) while the lowest was in ***Eastern*** (1.34). Over the period from 1992 to 1995, there were 20,422 births to female residents of ***Northern*** and 15,656 in ***Southern***.

The highest TFRs in **Perth** were in ***East Metropolitan*** (a TFR of 1.99) and ***South West Metropolitan*** (1.86) and the lowest was in ***Central Metropolitan*** (1.36). There were 20,767 births in ***North Metropolitan*** and 15,549 in ***South East Metropolitan***.

In **Hobart,** 10,492 births were recorded over the four year period, a TFR of 1.79.

In **Darwin**, ***Palmerston-East Arm*** (with a TFR of 2.74) had the highest TFR for an Australian urban SSD. However, there were only 1,155 births over the four years, compared with 4,839 in ***Darwin City*** (a TFR of 1.95).

In **Canberra**, the TFR was almost at replacement level in ***Tuggeranong*** (2.03), but lower in the other SSDs. The TFR in ***Outer Canberra*** was 1.91, while that in ***Belconnen*** was 1.61. The lowest TFR was in ***Central Canberra*** (1.42) and the largest numbers of births were in ***Tuggeranong*** (7,013 births) and ***Belconnen*** (4,524).

Map 5.27: Total Fertility Rate, major urban centres, 1992 to 1995

Total Fertility Rate* in each Statistical Subdivision

Total Fertility Rate*

- *2.5 and above*
- *2.0 to 2.4*
- *1.5 to 1.9*
- *1.0 to 1.4*
- *below 1.0*

**The Total Fertility Rate is a measure of the number of children a woman can expect to bear in her lifetime: it was derived by indirect age standardisation, based on Australian totals*

Other major urban centres (TFR)

Hobart	1.79
Newcastle	1.89
Wollongong	1.95
Geelong	1.86
Gold Coast-Tweed Heads	1.71
Townsville-Thuringowa	1.81

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Total Fertility Rate, 1992 to 1995

State/Territory comparison

The Total Fertility Rates (TFRs) were higher in the non-metropolitan areas of Australia in each State and the Northern Territory (**Table 5.34**). The Northern Territory had the highest non-metropolitan rate, as did **Darwin** among the capital cities, although there was less difference between the rates than was evident for the capital cities. The lowest non-metropolitan TFRs were in Tasmania (2.06) and Queensland (2.07). At the *Whole of State/Territory* level, the Northern Territory again had the highest rate and the Australian Capital Territory and South Australia had the lowest rates.

Table 5.34: Total Fertility Rate, State/Territory, 1992 to 1995

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	1.81	1.70	1.73	1.64	1.76	1.79	2.06	1.72[1]	1.75
Other major urban centres[2]	1.91	1.86	1.73	..	..	..	..	..	1.84
Rest of State/Territory	2.24	2.15	2.07	2.12	2.22	2.08	2.66	–[3]	2.16
Whole State/Territory	1.91	1.79	1.86	1.75	1.87	1.95	2.38	1.69	1.86

[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3

There were 321,360 children born outside the capital cities and other major urban centres over the years from 1992 to 1995. The highest TFRs in these areas were recorded for women aged from 25 to 29 years (a TFR of 5.39), followed by those aged from 20 to 24 years (a TFR of 3.71) (**Figure 5.10**, page 179).

Rest of Australia

Between 1992 and 1995, there were 95,207 births in the non-metropolitan areas of New South Wales with a TFR of 2.24, considerably higher than the rates in the urbanised areas of the State. All but three SSDs recorded rates at above replacement levels, with the highest TFR in ***Macquarie-Barwon*** (2.90). High TFRs were also recorded in ***Upper Darling*** (2.72), ***Lachlan*** (2.61) and ***North Central Plain*** (2.51). The lowest rates were in ***Bathurst-Orange*** (a TFR of 1.94), ***Northern Tablelands*** (1.97) and ***Far West*** (1.99). There were 8,589 births in ***Richmond-Tweed SD Balance***, 7,165 in ***Clarence*** and 6,850 in ***Central Murrumbidgee***.

Relatively high TFRs were recorded throughout most of Victoria, with the highest in ***West Mallee*** (a TFR of 2.53), ***East Mallee*** (2.45) and ***South West Goulburn*** (2.43). The lowest TFRs were in ***Mitchell-Snowy*** (1.78), ***East Barwon*** and ***Bendigo*** (both with 1.88). There were 67,824 births in Victoria over this period, with a Total Fertility Rate of 2.15. The largest numbers of births were in ***Ballarat*** (5,116 births) and ***La Trobe Valley*** (4,741).

In Queensland, the TFR in the non-metropolitan areas was 2.07, and fertility levels were high in most parts of the State. Between 1992 and 1995, 81,813 births were recorded. The highest TFRs were in ***Far North SD Balance*** (2.44), ***North West*** (2.40) and ***South West*** (2.29). Nine other SSDs had TFRs of between 2.00 and 2.22. The lowest TFRs were in ***Sunshine Coast*** (1.79) and ***Rockhampton*** (1.83). There were 11,889 births in ***Darling Downs***, 8,430 in ***Wide Bay-Burnett SD Balance*** and 7,947 in ***Moreton SD Balance***.

There were 22,711 births in the non-metropolitan areas of South Australia between 1992 and 1995. The TFR for the State was 2.12. Relatively high levels of fertility were recorded in ***Upper South East*** (a TFR of 2.52), ***West Coast*** (2.39), ***Lincoln*** (2.36) and ***Far North*** (2.35). In contrast, the lowest levels of fertility were recorded in the three SSDs adjacent to **Adelaide**; in ***Onkaparinga*** (a TFR of 1.78), ***Barossa*** (1.79) and ***Fleurieu*** (1.89). There were 2,582 births in ***Lower South East*** and 2,080 in ***Barossa***.

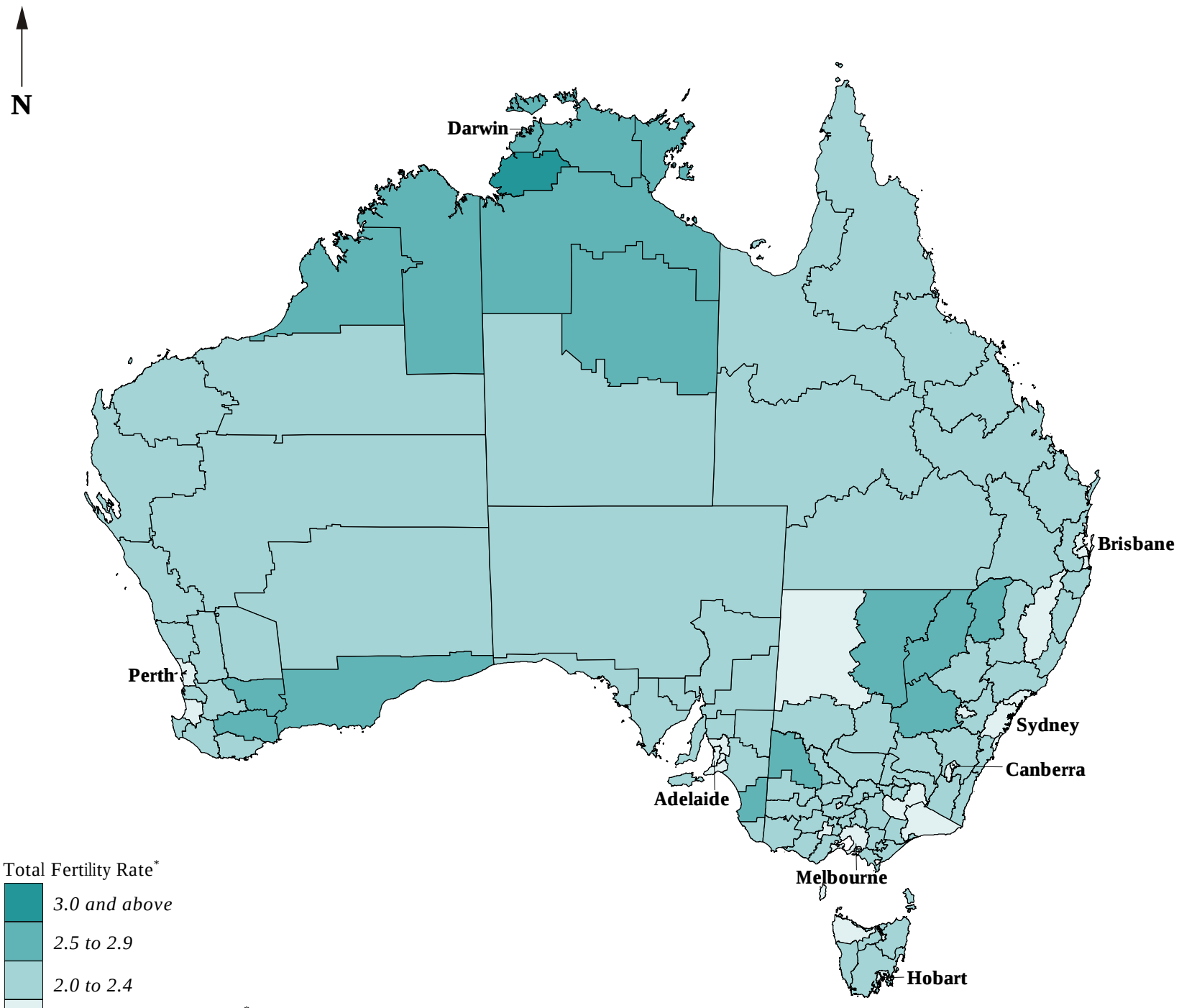
There were 30,870 births over the period from 1992 to 1995 in the non-metropolitan areas of Western Australia, a TFR of 2.22. TFRs in all SSDs, except ***Preston*** (1.92), were above replacement levels. The highest rates were in ***Ord*** (a TFR of 2.80), ***Lakes*** (2.69), ***Pallinup*** (2.61) and ***Fitzroy*** (2.59). There were relatively low rates in ***Carnegie*** (a TFR of 2.02), ***Vasse*** (2.08) and ***King*** (2.09). ***Preston*** had the largest number of births (3,856 births), with 3,237 in ***Lefroy*** and 3,039 in ***Greenough River***.

The TFR in the non-metropolitan areas of Tasmania was 2.08, with 16,739 births. The highest TFRs were in ***Southern*** (2.48) and ***Lyell*** (2.41), with the lowest rates in ***North Western Rural*** (1.87) and ***Launceston*** (1.91). The largest numbers of births were in the two north coast SSDs of ***Launceston*** (5,783 births) and ***Burnie-Devonport*** (4,780).

The TFR was above replacement levels in all non-metropolitan SSDs in the Northern Territory. Between 1992 and 1995, the TFR for the non-metropolitan areas in the Northern Territory was 2.66, with 8,722 births. ***Daly*** had the highest TFR with a rate of 3.43 (the highest of any non-metropolitan SSD in Australia), ahead of next ranked ***Lower Top End NT***, with 2.93. The lowest rate was in ***Central NT*** (a TFR of 2.4). ***Central NT*** and ***Lower Top End*** recorded the largest numbers of births, with 3,106 and 1,587 respectively.

Map 5.28: Total Fertility Rate, Australia, 1992 to 1995

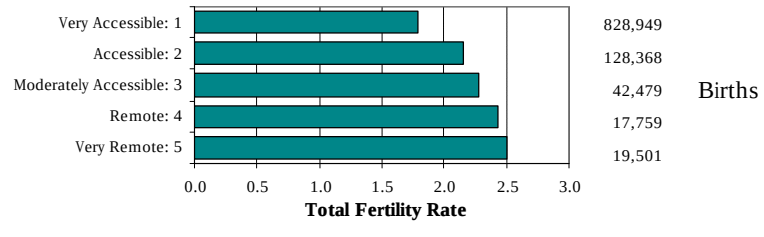
Total Fertility Rate* in each Statistical Subdivision



*The Total Fertility Rate is a measure of the number of children a woman can expect to bear in her lifetime: it was derived by indirect age standardisation, based on Australian totals

Source: See Data sources, Appendix 1.3 ***Details of map boundaries are in Appendix 1.2***

Accessibility/Remoteness Index of Australia



The Total Fertility Rate increases markedly, from a low of 1.79 in areas in the Very Accessible category to 2.15 in the Accessible category, before increasing steadily to a rate of 2.51 in the Very Remote category (40.2 per cent higher than the rate in the Very Accessible category).

Source: Calculated on ARIA classification, DHAC

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