5 Health status

Introduction

Differences in social and economic circumstances have been illustrated in the previous chapters for areas of South Australia. The maps and analyses 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 South Australia, and in demonstrating associations with the socioeconomic status and health services utilisation patterns. The results of the correlation analysis (which shows the extent of interdependence between the measures when mapped) are included in the text to support these associations.

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 with 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 the 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) 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 CD. 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 109.

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 identified in statistical collections. **Table 3.2** 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 16 and 17 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 Australians.

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 are: 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

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 (Muller, 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 (Measuring 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 which 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 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 SLAs in the capital cities are particularly likely to be affected, as many of those who live ôn 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 11) 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.

This page intentionally left blank

Synthetic predictions of selected health status measures

Introduction

As noted above (page 105), 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 include people in institutions such as hospitals, specialised long-term accommodation for people with a disability, gaols, etc.

Variables mapped

Physical Component Summary of the SF-36

As noted on page 105, 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 300,800 South Australians (20.6 per cent of the population) had a disability. Of these, 285,100 (19.5 per cent of the population) were living in 'households', with the remainder living in establishments such as nursing homes and hostels.

The majority (241,600, or 16.5 per cent of the population) of those with a disability had a handicap of varying levels of severity, ranging from profound (17.4 per cent of all people with a handicap), through severe (9.8 per cent) and moderate (23.0 per cent), to mild (37.0 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 5.1, however only the dataset for the population with a handicap has been mapped in this atlas.

This page intentionally left blank

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 5 per cent; ** significance at 1 per cent

Adelaide (South Australia as the standard)

There were an estimated 137,135 people reporting their health as fair or poor (as distinct from those who reported their health as being good, very good or excellent) in **Adelaide** in 1995, the same number as expected from the State rates (an SR of 100).

The distribution of SLAs with ratios in the highest range (**Map 5.1**) reflects the pattern of socioeconomic disadvantage shown in Chapter 3. The SLA of Enfield [Part B] had the highest ratio for this variable, with 34 per cent more people reporting their health as fair or poor than expected from the State rates (an SR of 134**). Also mapped in the two highest ranges were the northern areas of Elizabeth (132**), Munno Para (122**), Enfield [Part A] (115**) and Salisbury (110**); the western SLAs of Thebarton (123**), Port Adelaide (114**) and Hindmarsh and Woodville (106**); and the SLAs of Adelaide (106*) and Noarlunga (106**).

In total, nine SLAs were mapped in the middle class interval, with ratios ranging from 95* in Glenelg to 102 in Gawler. The only other SLA to record a ratio of statistical significance in this range was Campbelltown, with 4 per cent fewer people reporting fair or poor health than expected from the State rates (an SR of 96**).

The lowest ratios were recorded in a number of SLAs to the east of **Adelaide**, including Stirling (with an SR of 76**), Burnside (79**), Walkerville and East Torrens (both with 82**) and St Peters (92**). Ratios of below 95 were also recorded in Happy Valley (79**), Mitcham (83**), Tea Tree Gully (89**), Brighton (90**), Unley (91*) and Henley and Grange (93**).

In 1995, the largest numbers of people reporting their health as fair or poor were in Hindmarsh and Woodville (estimated at 13,308 people), Salisbury (13,178), Noarlunga (10,882), Marion (10,359), Tea Tree Gully (9,460) and Enfield [Part A] (7,447).

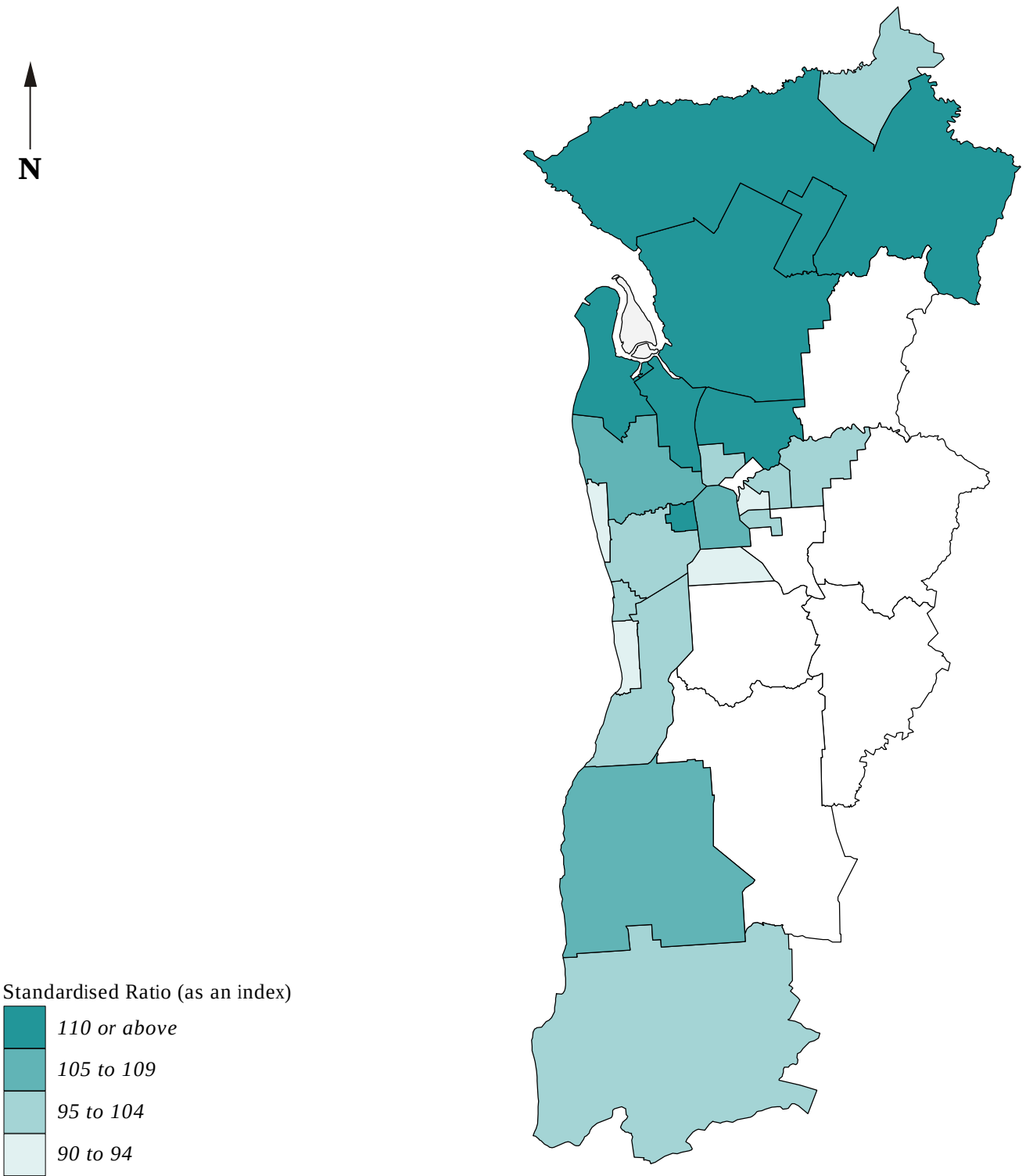
There were correlations of substantial significance with the variables for unemployed people (0.93), low income families (0.90) and the Indigenous population (0.89), housing authority rented dwellings (0.84), single parent families and unskilled and semi-skilled workers (both 0.83) and early school leavers (0.78).

These results, together with the inverse correlation of substantial significance with the IRSD (-0.94), indicate the existence of an association at the small area level between people reporting their health as fair or poor and socioeconomic disadvantage.

There were also correlations of substantial significance with the health status variables for people with a handicap (0.76) and premature deaths from circulatory system diseases (0.72), as well as an inverse correlation with the PCS, of -0.99, indicating poorer physical health.

Map 5.1
People reporting their health as fair or poor, Adelaide, 1995

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



Standardised Ratio (as an index)

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

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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected cases

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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 the 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 5 per cent; ** significance at 1 per cent

Rest of State (South Australia as the standard)

There were an estimated 46,490 people reporting their health as fair or poor (as distinct from those who reported their health as being good, very good or excellent) in the non-metropolitan areas of South Australia in 1995**,** marginally fewer than expected from the State rates (an SR of 99*).

As can be seen from **Map 5.2**, a number of the northern SLAs were mapped in the highest range, while those with the lowest ratios were generally situated in the south-east of the State, and in areas surrounding **Adelaide**.

The highest ratio was recorded in Unincorporated Riverland, with 48 per cent more people reporting their health as fair or poor than expected from the State rates (an SR of 148). However, there were estimated to be just 21 people in this category. Ratios elevated by at least 5 per cent were recorded in:

- the northern areas of Unincorporated West Coast (with an SR of 141**), Coober Pedy (127**), Port Augusta (115**), Whyalla (C) (113**), Unincorporated Whyalla (113), Port Pirie (112**), Peterborough (M) (111), Unincorporated Far North (108), Kanyaka and Quorn (105) and Peterborough (DC) (105);
- on the Yorke Peninsula in Wallaroo (121**), Port Broughton (109) and Northern Yorke Peninsula (107*); and in
- the southern areas of Meningie (109), Murray Bridge (107**), Browns Well (106) and Ridley-Truro (105).

The majority of SLAs were mapped in the middle range, with ratios ranging from an SR of 95 in Waikerie, Rocky River, Riverton, Millicent, Lower Eyre Peninsula, Franklin Harbor, Eudunda and Elliston; to 104 in Mannum and Hallett.

There were 29 per cent fewer people than expected reporting their health as fair or poor in Mount Gambier (DC), an SR of 71**. Also mapped in the lowest range were the northern areas of Carrieton (with an SR of 77), Roxby Downs (77**) and Hawker (83); the south-eastern SLAs of Lucindale (77**), Coonalpyn (79**), Port MacDonnell (81**), Naracoorte (DC) (82**) and Lameroo (84); and the SLA of Gumeracha (80**).

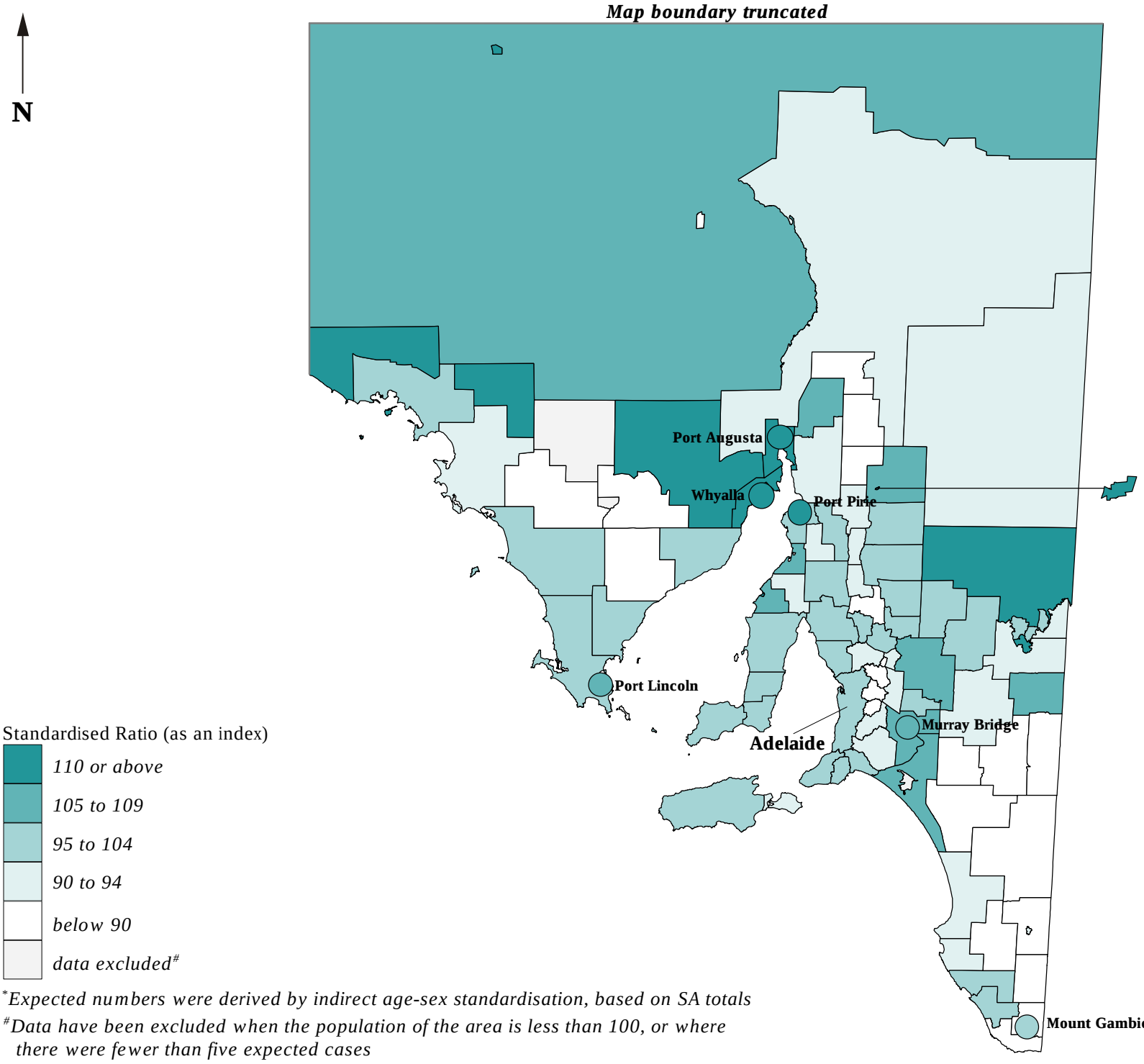
The largest numbers of people reporting their health as fair or poor were in the towns of Whyalla (estimated at 3,089 people), Mount Gambier (2,609), Murray Bridge (2,160), Port Pirie (2,046) and Port Augusta (1,769), as well as in Mount Barker (2,126).

There was a correlation of substantial significance with the variable for single parent families (0.73), and of meaningful significance with dwellings with no motor vehicle (0.69), the Indigenous population (0.63), unemployment (0.56) and early school leavers (0.53). These results, together with the inverse correlation of substantial significance with the IRSD (-0.83), indicate an association at the SLA level between high proportions of the population reporting their health as fair or poor and socioeconomic disadvantage.

There was also a correlation of substantial significance with the health status variable for people with a handicap (0.75), and an inverse correlation with the PCS, of -0.93, indicating poorer physical health.

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

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



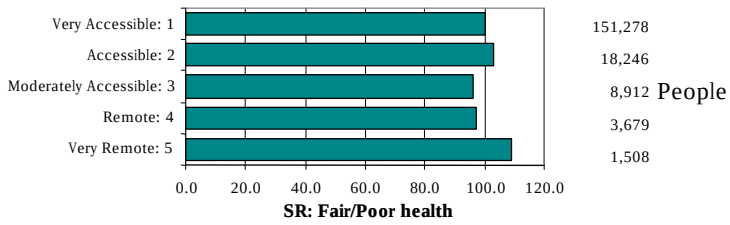
*Expected numbers were derived by indirect age-sex standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100, or where there were fewer than five expected cases

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



There are two separate gradients evident in the distribution of people reporting their health as fair or poor. The first is from an SR of 100 in the Very Accessible areas to 103 in the Accessible areas; and the second is from the lowest SR, in the Moderately Accessible areas (96, 4.0 per cent fewer people than expected from the State rates reporting their health as fair or poor), to the highest SR, in the Very Remote areas (an SR of 109, with 9 per cent more people than expected reporting their health as fair or poor).

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 PCS scores vary 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

Adelaide (South Australia as the standard)

The PCS score estimated for residents of **Adelaide** in 1995 was 49.1, which was as expected from the State rates for a population of this size and age/sex composition.

The distribution of mean scores across **Adelaide** was similar to that recorded for many of the indicators of socioeconomic disadvantage, with the highest scores (indicating better physical health) generally located in the eastern and southern areas, and the lowest in the northern and western areas (**Map 5.3**).

The highest PCS score was estimated for residents of Stirling, with a mean score of 50.3. Relatively high scores were also recorded in the eastern SLAs of Burnside (a PCS score of 50.2), Walkerville (50.1), East Torrens (50.0), Unley and St Peters (both with 49.6); in the southern SLAs of Happy Valley (50.1), Mitcham (49.9) and Brighton (49.4); and in the SLAs of Tea Tree Gully (49.6) and Henley and Grange (49.4).

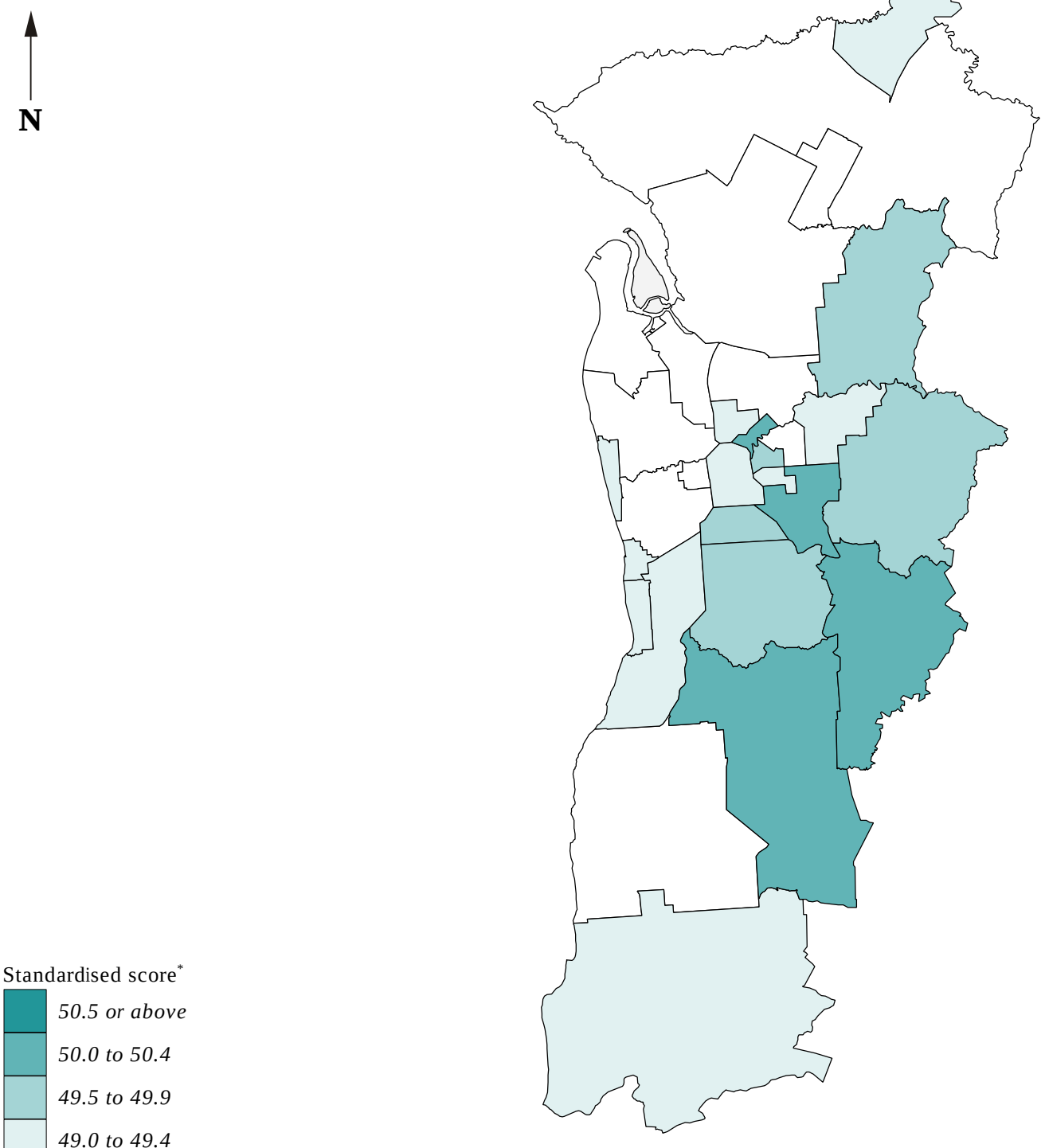
The SLAs of Campbelltown, Adelaide, Marion and Willunga (each with a PCS score of 49.2) and Gawler and West Torrens (both with 49.0) recorded mean scores of close to the **Adelaide** average.

The western SLA of Enfield [Part B] recorded the lowest score for this variable (a PCS score of 47.2). Mean scores of below 49.0 were also estimated for residents in Elizabeth (a mean score of 47.5), Enfield [Part A] and Munno Para (both with 48.3) and Salisbury (48.7), situated in the north; Thebarton (48.0), Port Adelaide (48.3) and Hindmarsh and Woodville (48.7), located in the western region; and in the SLAs of Noarlunga (48.8) and Payneham (48.9).

The results of the correlation analysis revealed a positive association between high PCS scores (indicating better physical health) and many of the indicators of high socioeconomic status. The strongest of these were with the variables for high income families (0.86), female labour force participation (0.82) and managers and administrators, and professionals (0.76). The correlation with the IRSD (0.97) also indicates a positive association at the SLA level between high scores and high socioeconomic status. Inverse correlations of substantial significance were recorded with all of the indicators of socioeconomic disadvantage. There were also inverse correlations of substantial significance with the health status variables of people reporting fair or poor health (-0.99); people with a handicap (-0.73); premature deaths from circulatory system diseases (-0.69), and of males (-0.66); and years of potential life lost (-0.63); and the health service variables for admissions to public acute hospitals (-0.88) and GP services to males (-0.88) and females (-0.85).

Map 5.3
Physical Component Summary*, SF-36, Adelaide, 1995

mean Physical Component Summary (PCS) score in each Statistical Local Area



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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected cases

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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 State (South Australia as the standard)

The PCS score estimated for residents of the non-metropolitan areas of South Australia was 49.1, which was as expected from the State rates.

As can be seen from **Map 5.4**, SLAs with the highest scores (indicating better physical health) were generally situated in the south-eastern regions and in the areas surrounding **Adelaide**. However, a number of areas to the north of the city also recorded relatively high scores, including Roxby Downs (a PCS score of 50.5), Carrieton (50.2), Hawker (49.9), Unincorporated Flinders Ranges (49.8), Saddleworth and Auburn (49.6), Spalding (49.6) and Jamestown (49.5).

Mean scores of 49.5 or above were estimated for residents in the south-eastern SLAs of Mount Gambier (DC) (50.6), Port MacDonnell and Lucindale (both with 50.2), Coonalpyn Downs and Naracoorte (DC) (both with 49.9), Penola (49.8), Tatiara (49.7), Lameroo and Robe (both with 49.6) and Pinnaroo, Peake and Lacepede (each with 49.5); in the areas surrounding **Adelaide** of Gumeracha (50.0), Barossa and Tanunda (both with 49.8), Onkaparinga (49.7) and Strathalbyn, Mount Pleasant, Light and Mount Barker (DC) (each with 49.5); on the Eyre Peninsula in Le Hunte (49.6) and Cleve and Kimba (both with 49.5); and in the SLAs of Paringa (49.7) and Bute and Dudley (both with 49.5).

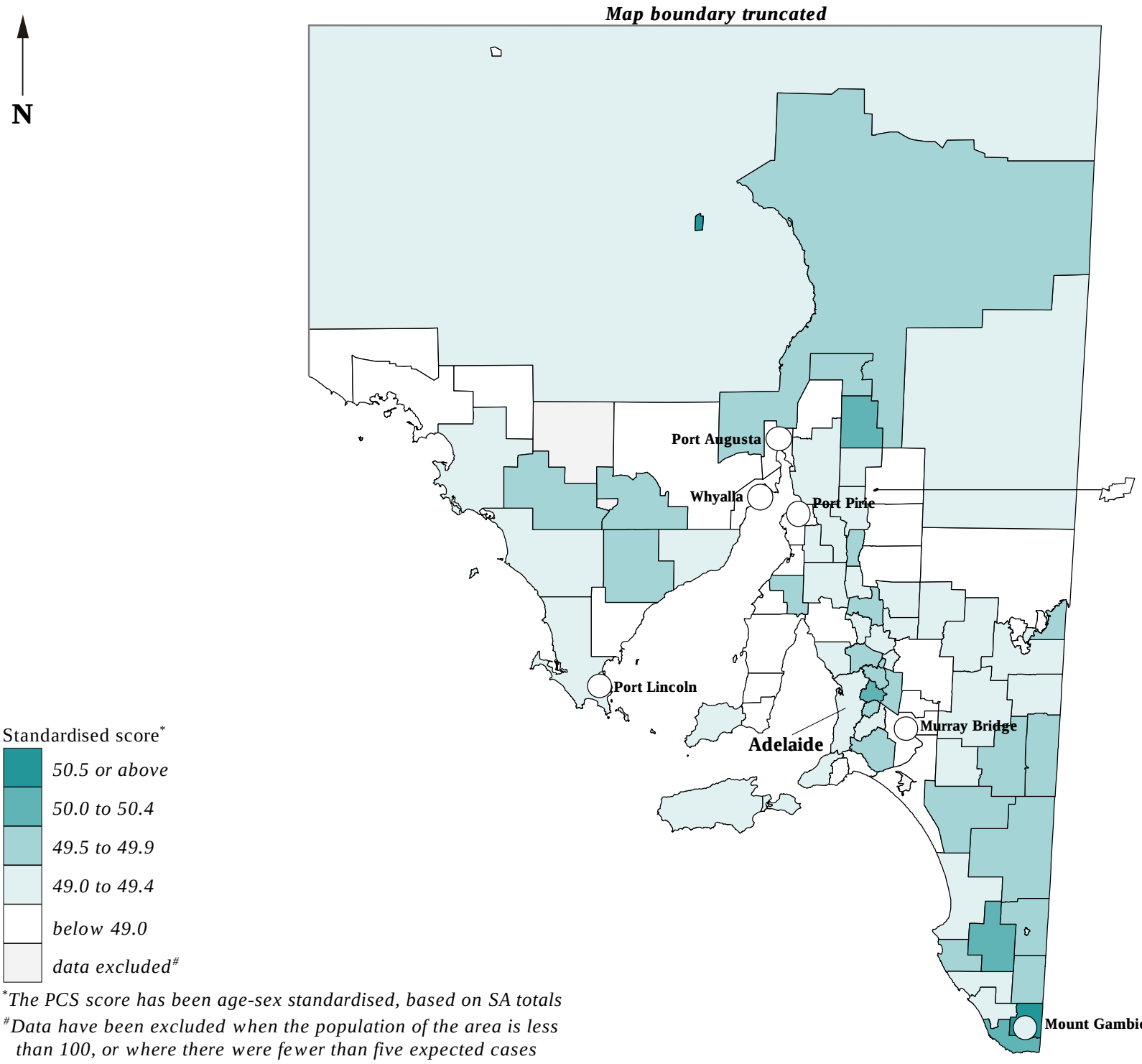
The lowest score, of 47.6, was recorded for residents of Unincorporated Riverland and Wallaroo. The SLAs of Unincorporated West Coast (a PCS score of 47.8), Coober Pedy (48.1), Port Broughton (48.2), Peterborough (48.4) and Northern Yorke Peninsula, Unincorporated Whyalla, Port Augusta, Port Pirie and Meningie (each with 48.5) also had relatively low ratios.

The correlation analysis revealed a positive association with many of the indicators of high socioeconomic status: the strongest were with the variables for female labour force participation (0.62) and high income families (0.51). The correlation of substantial significance recorded with the IRSD (0.82) also indicates an association at the SLA level between high mean PCS scores (indicating better physical health) and high socioeconomic status.

The correlations with the health status and health service use variables were generally weaker than in **Adelaide**; the strongest were with the variable for people reporting their health as fair or poor (-0.93) and people with a handicap (-0.82).

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

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



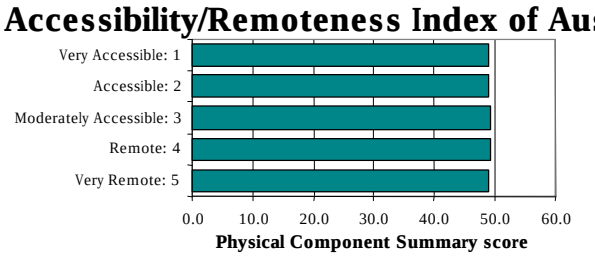
*The PCS score has been age-sex standardised, based on SA totals

#Data have been excluded when the population of the area is less than 100, or where there were fewer than five expected cases

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



There is virtually no difference in Physical Component Summary (PCS) scores across the ARIA categories. The highest scores are in the Remote and Moderately Accessible categories (with PCS scores of 49.3 and 49.1, respectively), with the lowest in the Very Remote category (48.9).

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

The regional distribution of people with a disability (and who are handicapped by that disability) is likely to be affected by a number of factors associated with their disability, in addition to any association between a higher prevalence of disability and poorer socioeconomic status. Such factors include the location of dedicated therapeutic, educational and employment facilities, as well as the location of accommodation, both group or community housing and institutional accommodation. For example, people who have moved out of institutional accommodation into group or private housing often remain close to the institution in which they previously lived. This may reflect a choice to remain near to available services eg. day centre, education or employment services (which may be located with or near to the institution), or because group housing has been provided in the local area.

Another important influence is likely to be that people may have chosen to live in an area in which such therapeutic and educational services are available. While this may have been a more important influence in the past, when transport to these services was less readily available than it is now, such historical influences can remain for many years.

Adelaide (South Australia as the Standard)

The western suburbs have historically provided the bulk of services for people with disabilities in **Adelaide**. This is reflected in the standardised ratios for people with a handicap (and for those with a disability) and living in households, which are higher in the west than in the other metropolitan regions (**Map 5.5**).

There were an estimated 157,841 people with a handicap in **Adelaide** in 1993, marginally fewer than expected from the State rates (an SR of 99*).

Elevated ratios were recorded to the west of the city in the SLAs of Thebarton (with an SR of 115**), Enfield [Part B] (111**), Port Adelaide (107**). The inner SLA of Adelaide (115**), and the northern SLAs of Enfield [Part A] (109**) and Elizabeth (108**), also had ratios elevated by at least five per cent.

Two thirds of **Adelaide's** SLAs had ratios within five per cent of the level expected from the South Australian State rates, and were mapped in the middle class interval, ranging from 95** in Campbelltown to 104* in Brighton.

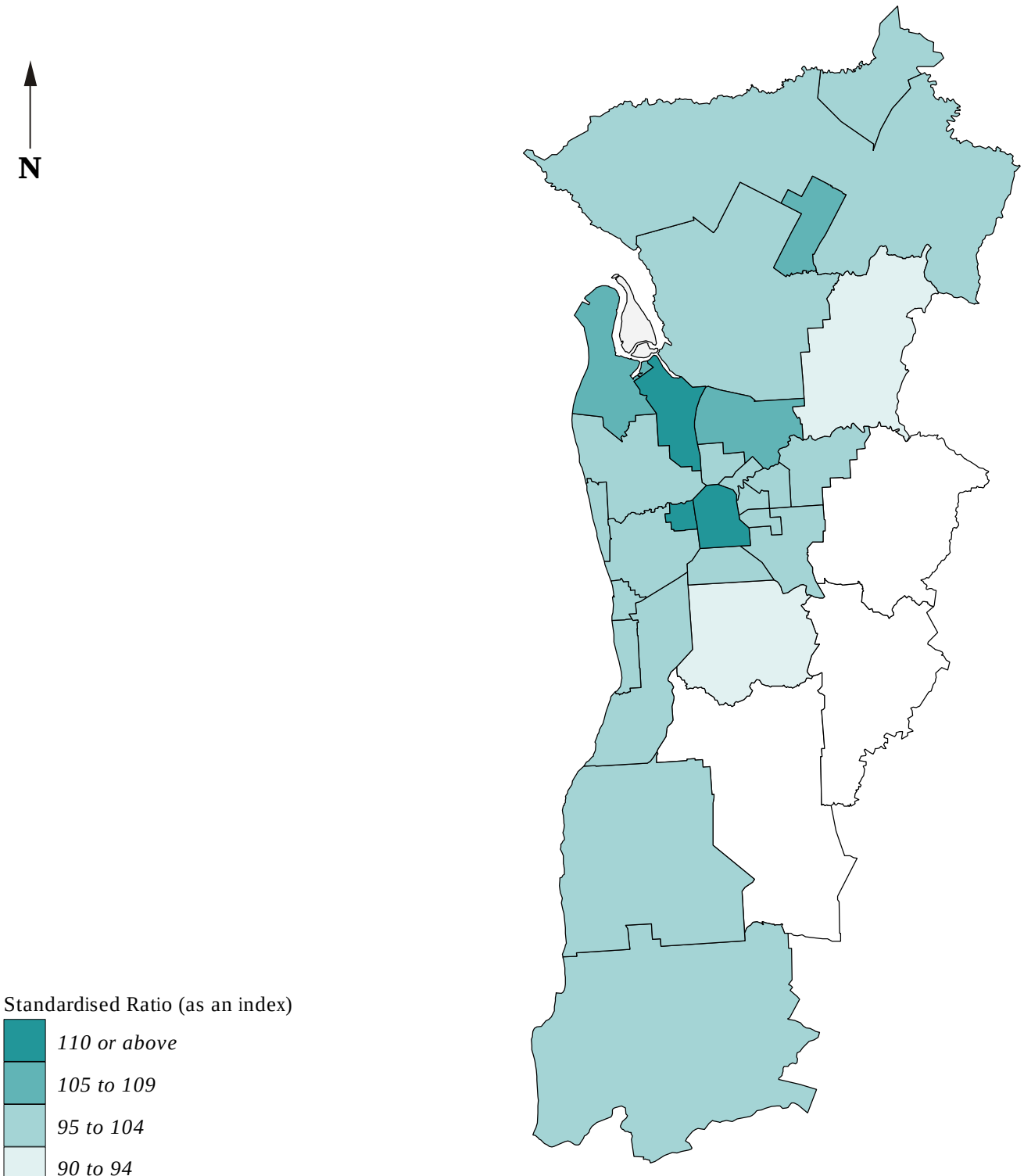
The lowest ratio was recorded in the SLA of Happy Valley, with an estimated 14 per cent fewer people with a handicap than expected from the State rates (an SR of 86**). East Torrens and Stirling also had low ratios, both with an SR of 89**.

The largest numbers of people with a handicap were estimated to live in the SLAs of Hindmarsh and Woodville (15,562), Salisbury (13,372) and Marion (12,502).

Correlations of significance were evident at the SLA level with most indicators of socioeconomic disadvantage, including with the variables for dwellings with no motor vehicle (0.91), unemployed people (0.64), low income families (0.63), the Indigenous population (0.63), recently arrived immigrants (0.57), dwellings rented from the State housing authority (0.56), people with poor proficiency in English (0.55) and single parent families (0.50). The inverse correlation with the IRSD (-0.59) also supports the existence of an association at the SLA level between high proportions of the population with a handicap and socioeconomic disadvantage. Correlations of substantial significance were also recorded with the variables for premature deaths (deaths between the ages of 15 and 64 years) of males (0.88), from cancer (0.74), of females (0.72) and years of potential life lost (0.90).

Map 5.5
Estimated number of people with a handicap, Adelaide, 1993

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



Standardised Ratio (as an index)

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

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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected cases

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Estimated number of people with a handicap, 1993

State/Territory 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.

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**	105**	97*	–[3]	104**
Whole of State/Territory	91**	103**	104**	110**	112**	104**	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 State (South Australia as the standard)

There were an estimated 57,892 people with a handicap in the non-metropolitan areas of South Australia, two per cent more than expected from the South Australian State rates (an SR of 102**).

Ten SLAs were mapped in the highest interval, with standardised ratios of 110 and above. It can be seen that SLAs mapped in these class intervals were scattered throughout the State in no notable pattern (**Map 5.6**). The most highly elevated standardised ratios were recorded in Cooper Pedy (with an SR of 126**), Unincorporated Riverland and Unincorporated West Coast (both 117), Wallaroo (116**), Peterborough (DC) (113), Northern Yorke Peninsula (111**), Unincorporated Pirie, Port Broughton and Peterborough (M) (each 110) and Mannum (110*). These SLAs, excluding Northern Yorke Peninsula and Mannum, had relatively small numbers of people with a handicap, all with an estimated 500 or fewer people.

Over half (58.9 per cent) of the SLAs in the non-metropolitan areas of South Australia had SRs in the middle range mapped, within five per cent of the level expected from the South Australian State rates. These ratios ranged from 104 in Robertstown, Pirie and Wakefield Plains to 95 in Millicent, Mount Gambier (DC), Naracoorte (DC) and Browns Well.

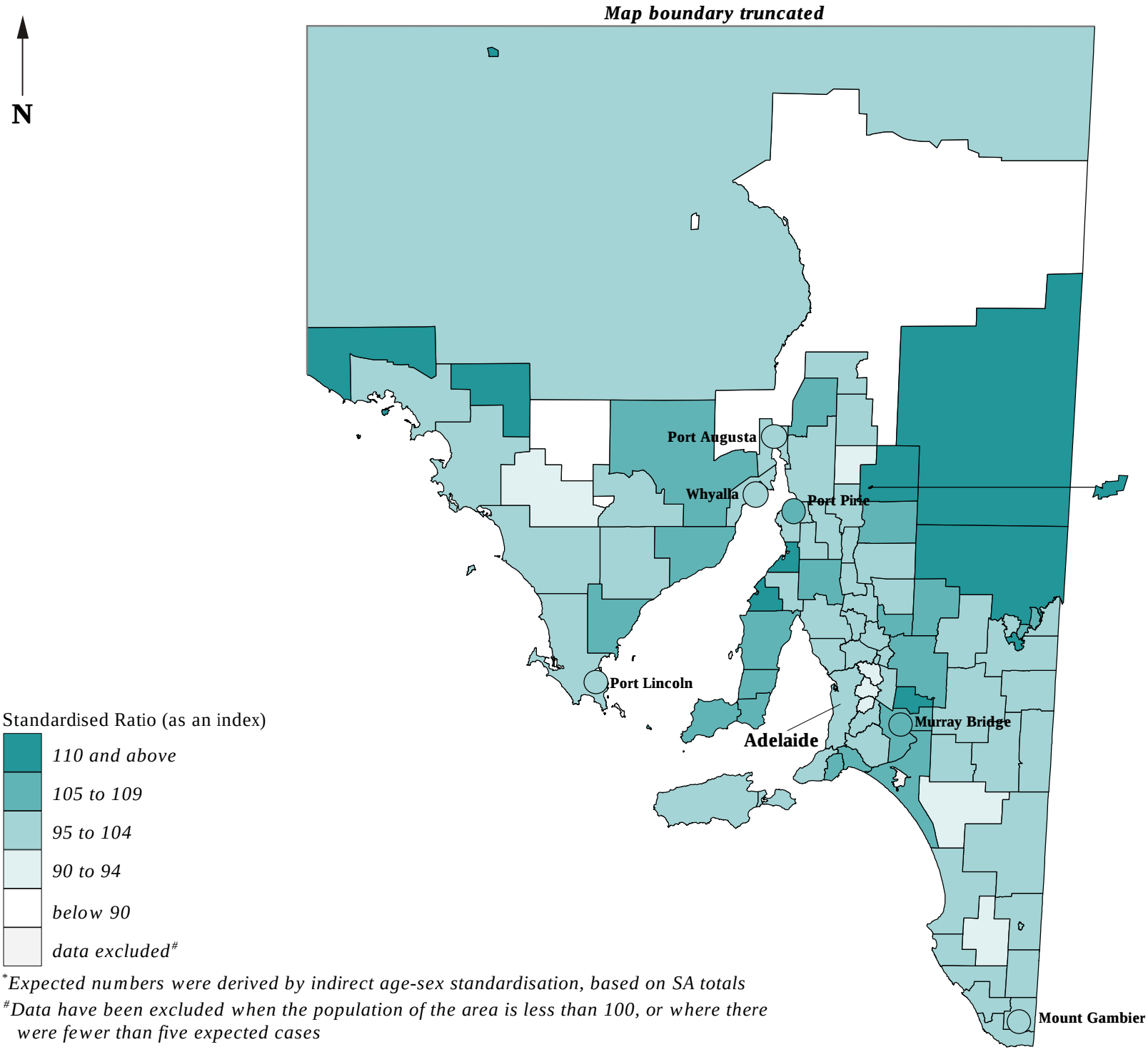
Statistically significant ratios of at least five per cent below the level expected were recorded in Roxby Downs (with 27 per cent fewer people with a handicap than were expected from the State rates, an SR of 73**), Gumeracha (92*) and Onkaparinga (94*). Other low ratios were recorded in Unincorporated Flinders Ranges (with an SR of 89), Le Hunte (91), Coonalpyn Downs (92), Barossa (93), and Luncindale and Orroroo (both 94).

In 1993, 3,593 residents of Whyalla were estimated to have a handicap. High numbers were also estimated for the towns of Mount Gambier (3,039 people), Murray Bridge (2,559 people) and Port Pirie (2,473 people).

Correlations of statistical significance at the SLA level were recorded with the variables for low income families (0.74), unemployed people (0.56) and high income families (an inverse correlation of -0.71). The inverse correlation of substantial significance with the IRSD (-0.76) supports the existence an association at the SLA level between high proportions of the population with a handicap and socioeconomic disadvantage.

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

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



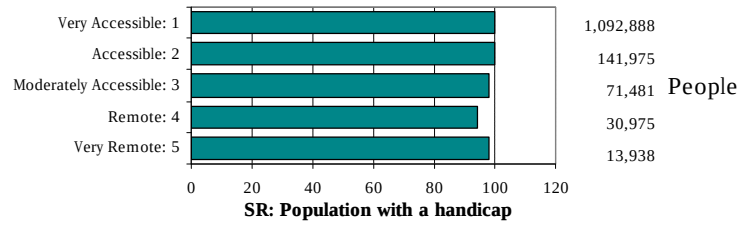
*Expected numbers were derived by indirect age-sex standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100, or where there were fewer than five expected cases

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 100 in the Very Accessible and Accessible categories (both with the number of people expected from the State rates estimated as having a handicap) to a low of 94 in the Remote areas (4.0 per cent fewer than expected). The SR in the Very Remote areas is marginally higher, at 98.

Source: Calculated on ARIA classification, DHAC

This page intentionally left blank

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 his 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 years from 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

Australia

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.

South Australia

The number of deaths in South Australia over the nine year period from 1986 to 1995 increased by 8.6 per cent, rising from 10,328 in 1986 to 11,218 in 1995. Male deaths increased by 5.8 per cent, while a more substantial increase of 11.8 per cent was recorded for female deaths. Although there has been an overall increase in the number of deaths, this increase was evident only for people aged 65 years and over (an increase of 17.5 per cent). In 1995, there were 112 infant deaths (73 males and 39 females) recorded in South Australia, a decrease of 23.3 per cent from 1986. There was also a decrease in the number of deaths of people aged from 15 to 64 years, down by 14.6 per cent, from 2,548 deaths in 1986 to 2,175 deaths in 1995.

Death rates have declined in the age groups under 12 months, 15 to 64 years and 65 years and over.

Changes in death rates by cause, 1986 to 1995

Australia

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 5.1**). 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).

South Australia

In South Australia, death rates of people aged from 15 to 64 years have declined for all major causes of deaths, with the largest decline recorded for deaths from circulatory system diseases, a decrease of 39.7 per cent (**Figure 5.2**). Other large decreases were recorded for deaths from accidents, poisonings and violence (20.2 per cent); cancer (9.2 per cent); and respiratory system diseases (4.6 per cent).

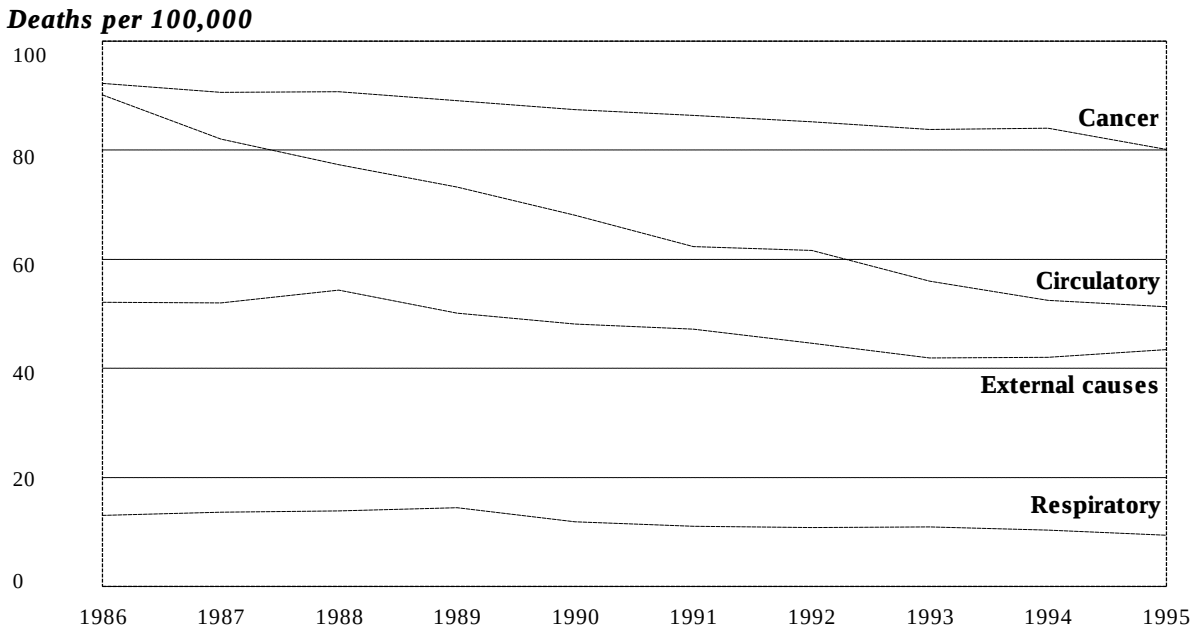
Changes in death rates by age group and sex, 1986 to 1995

Australia

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) 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.

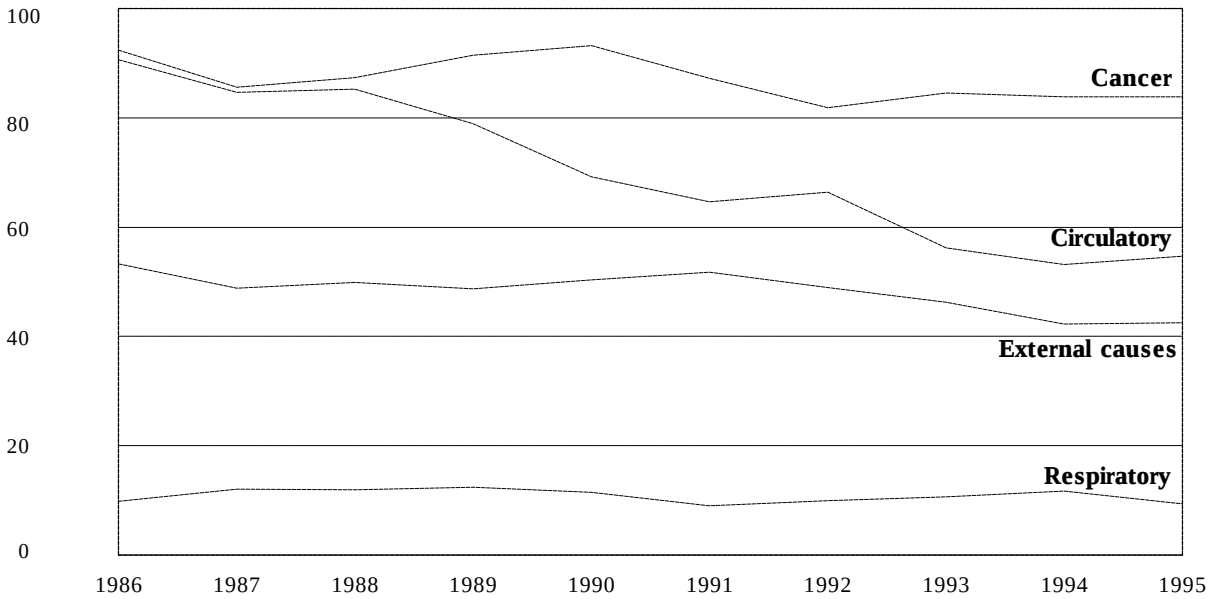
Death rates of males and females from accidents, poisonings and violence were similar, with male deaths down by 16.4 per

Figure 5.1: 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

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



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

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.

South Australia

In South Australia, premature death rates of males declined at a slightly greater rate (19.4 per cent) than for females (16.5 per cent). Although the number of deaths due to diseases of the respiratory system remained consistent over the nine year period, this overall pattern was the result of a 25.9 per cent decrease in male death rates (12.2 deaths per 100,000 population in 1986 to 9.1 in 1995) and a 31.1 per cent increase in female death rates (7.5 deaths per 100,000 population in 1986 to 9.8 in 1995). Male death rates from the combined causes of accidents, poisonings and violence also declined at a greater rate than for females, decreasing by 22.5 per cent compared to 10.5 per cent for females. Death rates recorded for both circulatory system diseases and malignant neoplasms over this nine year period showed a reverse in this pattern. Death rates from circulatory system diseases decreased by 43.4 per cent for females and 38.2 per cent for males. Between 1986 and 1995 female death rates from malignant neoplasms decreased at a rate of 13.4 per cent, while male deaths decreased by only 5.3 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 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 SLAs 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 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 SLA level). 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.

Readers should be aware that two standards have been used in this atlas. Standardised ratios calculated for the States, Territories, capital cities and other major urban centres have the Australian rates as the standard. Those ratios calculated for Statistical Local Areas are based on the rates applicable to the relevant State or Territory.

Thus, the text describing the variables refers to two standards: the discussion in the 'Capital city comparison' and 'State/Territory comparison' sections has Australia as the standard (as do the tables in this section), whereas the discussion describing 'Adelaide' or 'Rest of State' has South Australia as the standard. In this way the capital cities, States, etc., can be compared with each other against the Australian rates, and the smaller area data within each State and Territory can be compared with each other against the State/Territory rates.

Variables mapped

Only a selection of the total number of causes of death of the population aged from 15 to 64 years has 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 selected cause and age, South 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)	**6**	**5**	**2**	**11**	**399**	**423**
15 to 64 years	**3,245**	**2,214**	**403**	**1,728**	**1,269**	**8,859**
males	1,781	1,612	235	1,308	820	5,756
females	1,464	602	168	420	449	3,103
Other ages	**8,683**	**18,341**	**3,136**	**732**	**5,134**	**36,026**
All ages	**11,934**	**20,560**	**3,541**	**2,471**	**6,802**	**45,308**

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 persons 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 SLA 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 130.

Table 5.10 shows the number of deaths for the causes mapped for **Adelaide** (the Adelaide Statistical Division) and the *Rest of the State*.

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

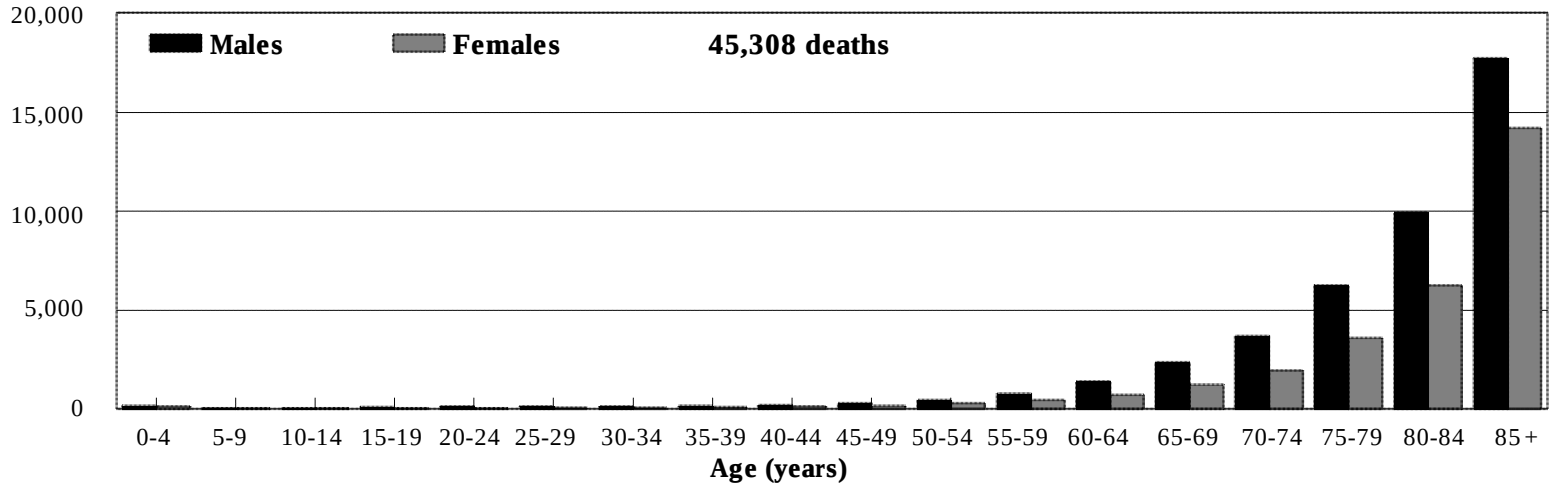
Cause of death	Adelaide	Rest of State	Total
Infant: all causes	**288**	**135**	**423**
15 to 64 years	**6,195**	**2,664**	**8,859**
Cancers	2,350	895	3,245
Circulatory system diseases	1,487	727	2,214
Respiratory system diseases	260	143	403
Accidents, poisonings & violence	1,170	558	1,728
15 to 24 years	**404**	**196**	**600**
Accidents, poisonings & violence	272	153	425
All ages	**33,383**	**11,925**	**45,308**

Source: see *Data sources*, Appendix 1.3

Figures 5.3 to **5.7** give a graphical presentation of death rates in South 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 predominance of male deaths across all age groups.

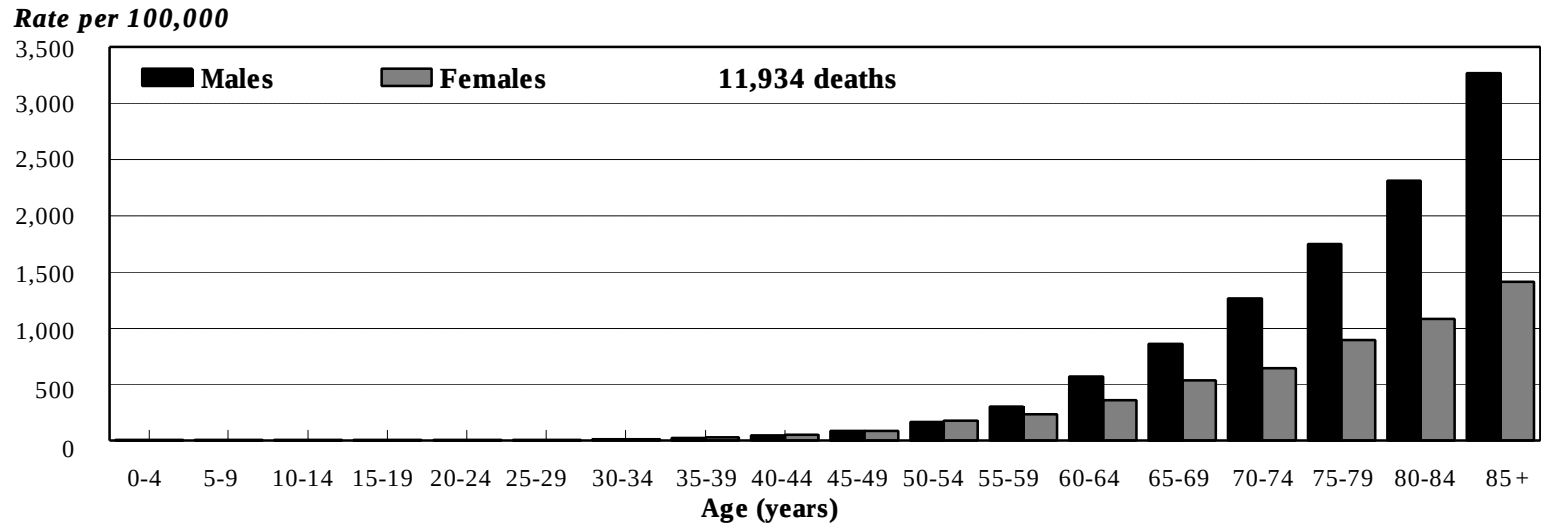
Figure 5.3: Deaths from all causes, by age and sex, South Australia, 1992 to 1995



Source: see *Data sources*, Appendix 1.3

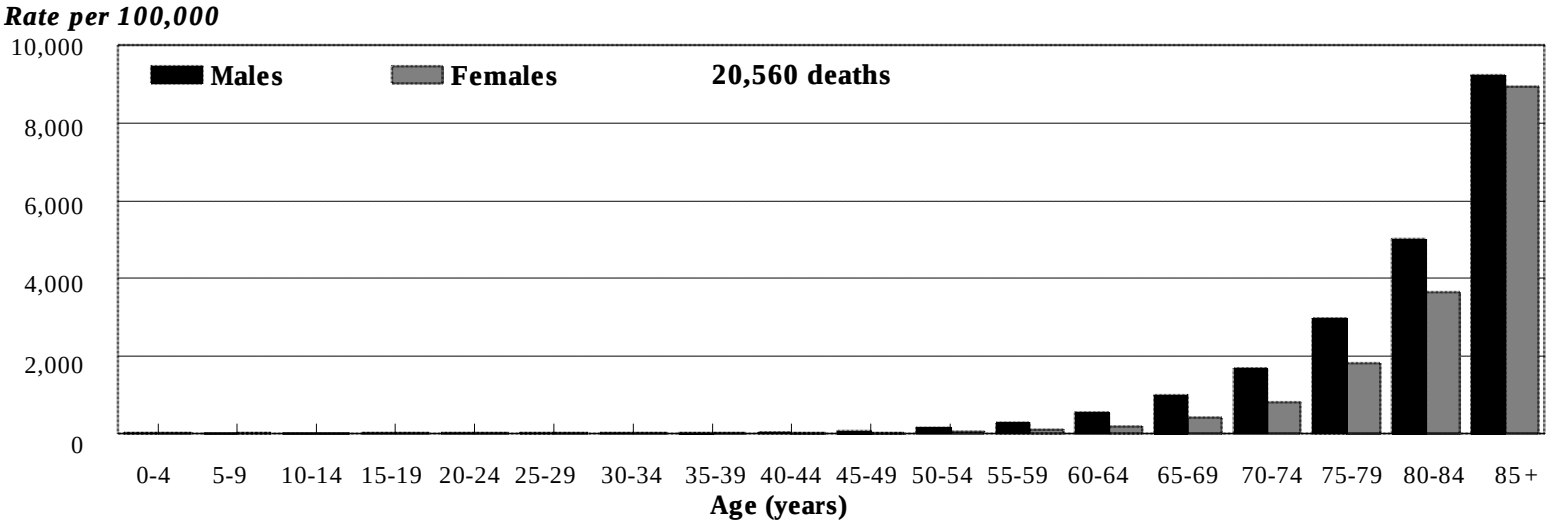
Figure 5.4 shows the predominance of males in deaths from cancer, whereas in **Figure 5.5** the similar pattern for deaths from circulatory system diseases is broken in the 85 years and over age group, where female death rates closely approximate those of males. Death rates from respiratory system diseases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

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



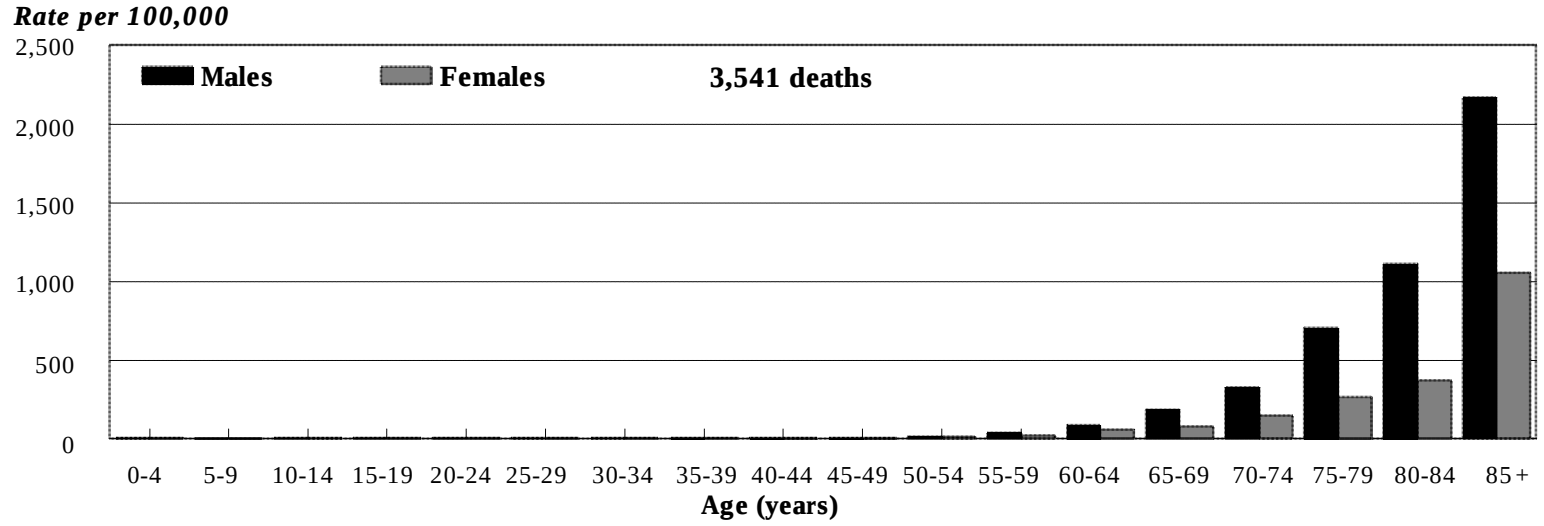
Source: see *Data sources*, Appendix 1.3

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



Source: see *Data sources*, Appendix 1.3

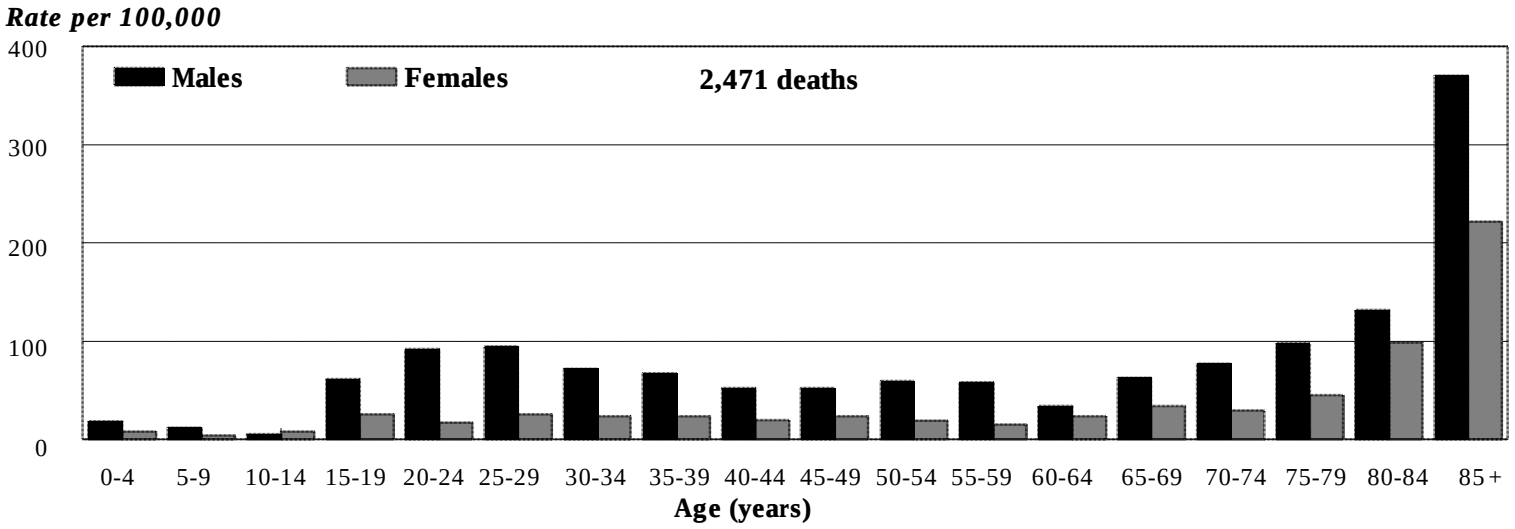
Figure 5.6: Deaths from respiratory system diseases, by age and sex, South Australia, 1992 to 1995



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 at the older ages, increasing markedly from 75 years and over.

Figure 5.7: Deaths from accidents, poisonings and violence, by age and sex, South 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, suicide 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 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 at the SLA 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 in the period from 1986 to 1995 for South Australia as a whole, as well as separately for **Adelaide** and the *Rest of the State*.

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 motor vehicle accidents.

There were 1,947 deaths of all ages from suicide in South Australia over the nine year period from 1986 to 1995. Of these, 85.0 per cent (1,655) were aged from 15 to 64 years and 9.7 per cent (383) were aged from 15 to 24 years at death. Over this time period there has been a 11.1 per cent increase in the number of deaths recorded for suicides at all ages, rising from 180 in 1986 to 200 in 1995. An even more substantial increase was recorded among 15 to 24 year olds, where the number of suicides rose from 29 in 1986 to 39 in 1995, an increase of 34.5 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 78.1 per cent of all suicides of all ages, 78.9 per cent of 15 to 64 year olds and 86.2 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 Suicide

A study by the Health Department of Western Australia (1996) found that in the period from 1981 to 1993 attempted suicides 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.

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

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 **Adelaide** (1,421 deaths compared to 526 in the country areas of South Australia over the nine years from 1986 to 1995), because it contains a higher proportion of the State's population, it is more informative to consider death rates.

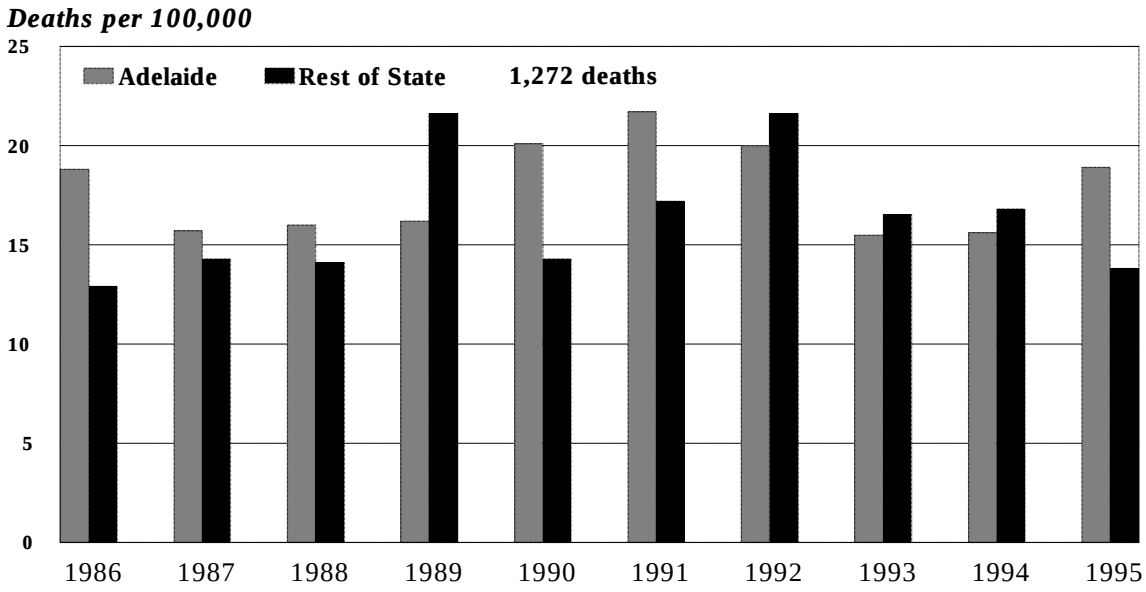
In 1995, death rates from suicide among 15 to 64 year olds were 1.7 per cent higher in the non-metropolitan areas of South Australia than in **Adelaide**, a rate of 17.9 per 100,000 population compared to 17.6 per 100,000, respectively. The difference in 1995 was more substantial in the 15 to 24 year age group, with a death rate of 33.8 per 100,000 non-metropolitan residents, compared to 14.4 per 100.000 for residents of **Adelaide**, a difference of 34.7 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 groups (**Figure 5.8**) rates were generally higher for residents of **Adelaide** than for residents of the non-metropolitan areas in the earlier years, with the reverse being the case over the years from 1992, 1993 and 1994.

For the 15 to 24 year age group, rates were higher in the non-metropolitan areas of South Australia in seven of the nine years of data analysed (**Figure 5.9**), and in all but one of the last eight years. The rates were more variable from year to year than for the older age group, and the differential between capital city and non-metropolitan rates was generally greater.

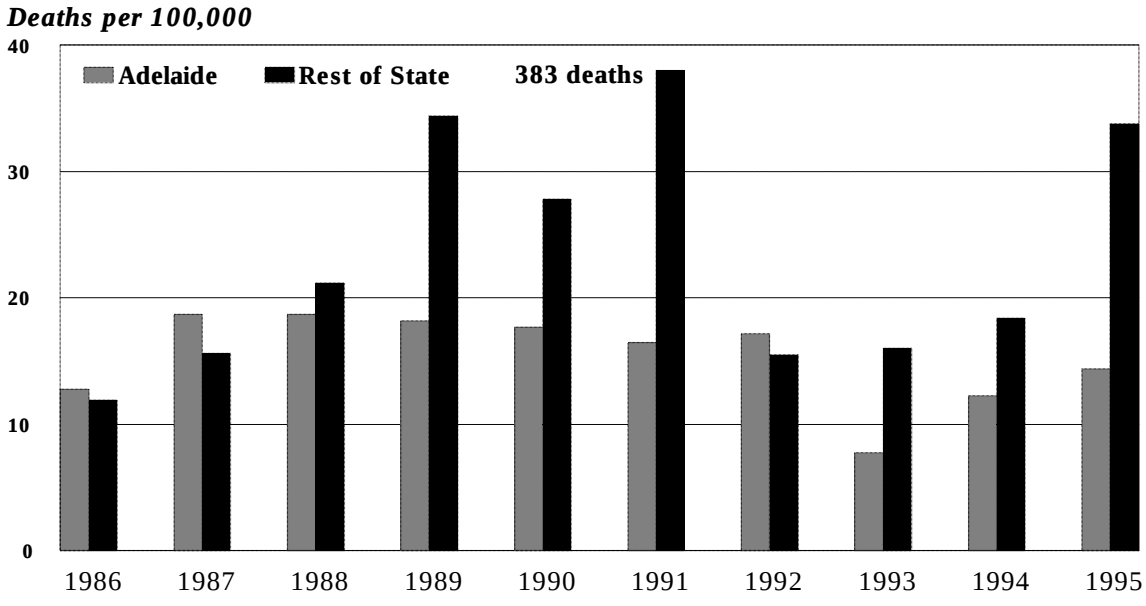
It is likely that the higher rates in country areas relate to factors such as a relative lack of job and training opportunities, the decline of many rural communities and the relatively larger numbers of Aboriginal people in the population, a group which has higher suicide rates.

Figure 5.8: Suicide rates of people aged from 25 to 64 years, Adelaide and Rest of State



Source: Various issues, ABS Cause of Death bulletins

Figure 5.9: Suicide rates of people aged from 15 to 24 years, Adelaide and Rest of State



Source: Various issues, ABS Cause 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 125), 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 in the years 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

In the years from 1985 to 1989, there were 797 infant deaths of children resident in South Australia, whereas in the years from 1992 to 1995, there were 423 infant deaths. This represented a decline from an average of 159 to 106 infant deaths per year between the two periods analysed, and a decline in the infant death rate from 8.0 to 5.4.

Neonatal deaths (deaths of infants aged under 28 days) accounted for 61.3 per cent of all 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.

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 the remote areas of Australia.

Adelaide[6]

There were only 288 deaths of infants resident in **Adelaide** over the four year period from 1992 to 1995, resulting in a relatively small number of deaths in this cause group for several SLAs (more than one third had fewer than five deaths). Overall there were 5.2 infant deaths per 1,000 live births.

By far the highest infant death rates were recorded in the inner SLAs of Adelaide (17.2 infant deaths per 100,000 live births) and St. Peters (16.7 infant deaths per 1,000 live births) (**Map 5.7**) although both have a small number of infant deaths with five and six respectively. Also mapped in the highest range was Enfield [Part B], with a rate of 10.0 infant deaths. Relatively high ratios (with more than 6.0 deaths per 1,000 live births) also occurred in Enfield [Part A] (an infant death rate of 7.3 and 17 deaths) and the northern SLAs of Munno Para (an infant death rate of 7.9 and 22 deaths) and Elizabeth (an infant death rate of 6.9 and 14 deaths).

The largest proportion of SLAs (55.6 per cent) was mapped in the middle range, with infant death rates ranging from 4.1 to 5.6. Burnside, Campbelltown, Marion, Noarlunga, Port Adelaide and Salisbury were in this group.

No SLAs were mapped in the lowest range, however the lowest rates were recorded in the southern SLA of Mitcham (with 3.4 infant deaths per 1,000 live births) and the northern SLA of Tea Tree Gully (with 3.9 infant deaths per 1,000 live births).

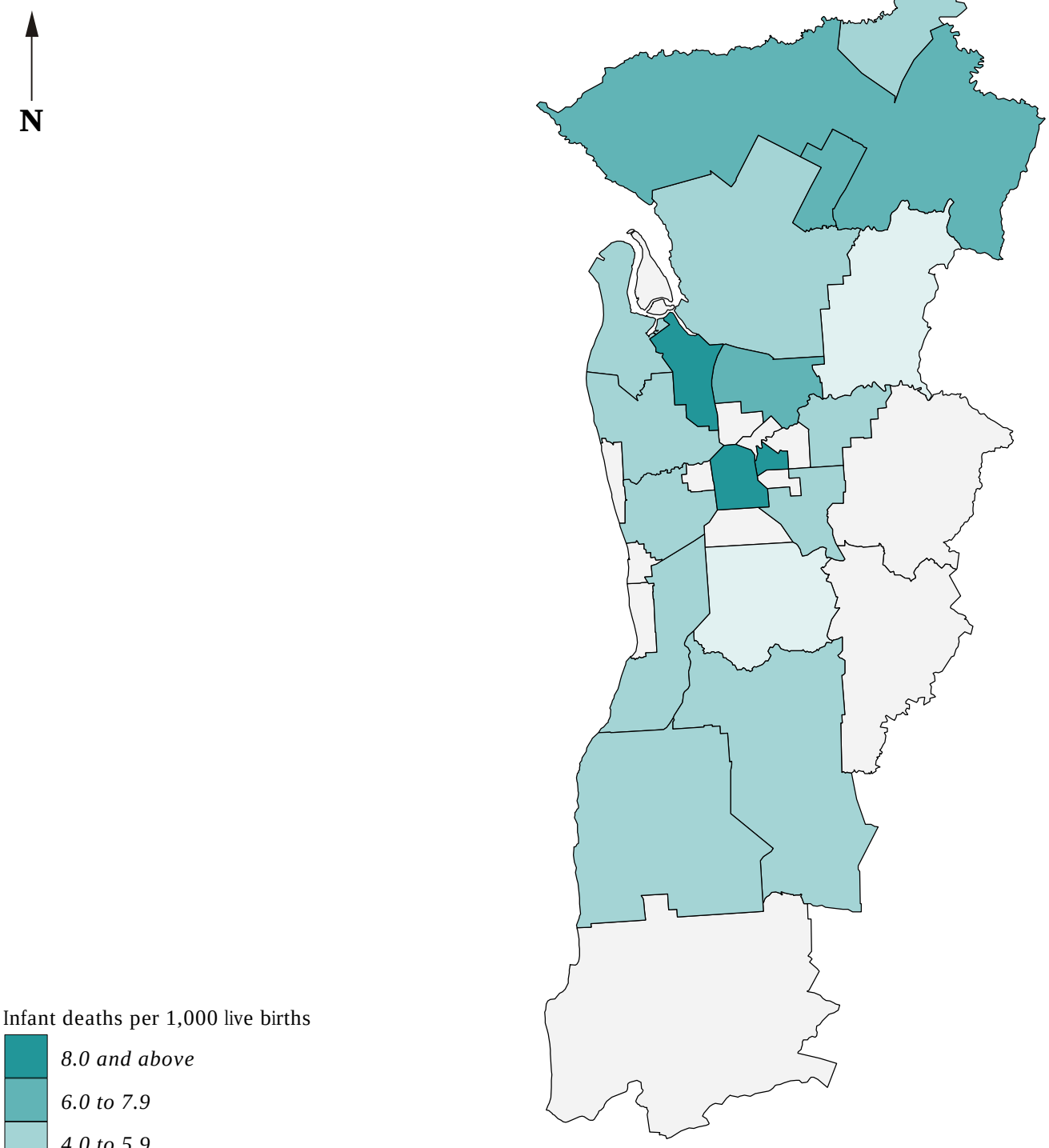
The large, outer northern and southern SLAs of Salisbury (41 infant deaths), Noarlunga (31) and Munno Para (22) had the largest numbers of infant deaths over the four year period from 1992 to 1995. The inner SLA of Hindmarsh and Woodville had 22 of these deaths. Gawler, the City of Adelaide, St. Peters and Burnside had the lowest numbers in **Adelaide**, with fewer than eight infant deaths each.

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

[6]As there were relatively few areas with sufficient cases to analyse for this variable in the non-metropolitan areas of South Australia, the data have not been mapped. A summary of the main features is on page 169.

Map 5.7
Infant deaths, Adelaide, 1992 to 1995

infant deaths per 1,000 live births in each Statistical Local Area



Infant deaths per 1,000 live births

- *8.0 and above*
- *6.0 to 7.9*
- *4.0 to 5.9*
- *2.0 to 3.9*
- *below 2.0*
- *data excluded*[*]

[*]*Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five deaths*

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

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 5.12**. 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 suggest a deterioration, while those in **Brisbane** and **Canberra** indicate a relative improvement.

Table 5.12: 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 5 per cent; ** significance at 1 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 17,063 deaths of males in **Adelaide** in the years from 1992 to 1995, of which 3,974 (23.3 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.

Adelaide (South Australia as the Standard)

There were 13 per cent fewer deaths of 15 to 64 year old males resident in **Adelaide** over the years from 1992 to 1995 than over the years from 1985 to 1989, down from an average of 1,143 male deaths per year to 994 per year. **Adelaide** had an SDR of 96**, indicating that there were four per cent fewer deaths of male residents than were expected from the State rates.

Despite the decrease in the number of male deaths in this age group, exactly half of the SLAs recorded SDRs above the level of deaths expected from the South Australian rates. It can be seen from **Map 5.8** that the lowest SDRs were located in the more affluent SLAs in the east and south-east of **Adelaide**, and the highest in the inner, western and northern areas.

In total, eight SLAs had SDRs in the highest range mapped, ranging from 130** to 162**. The SLA of Adelaide had the highest ratio, with 62 per cent more deaths than expected. Highly significant ratios were also recorded in the western SLAs of Enfield [Part B] (155**) and Port Adelaide (154**); in the northern SLAs of Elizabeth (144**) and Enfield [Part A] (132**); and in Unley (130**). Thebarton (144*) and St Peters (131) were the remaining two SLAs to record SDRs in the highest range mapped.

At the other end of the scale, East Torrens (with an SDR of 52**), Happy Valley (56**), and Stirling (65**) all recorded SDRs substantially lower than expected. It is interesting to note that in the period between 1985 and 1989 the SLA of Walkerville had the lowest SDR of 58*; however in this latest period the SDR rose to 107, showing a marked change from 42 per cent fewer deaths than expected from the State rates to seven per cent more.

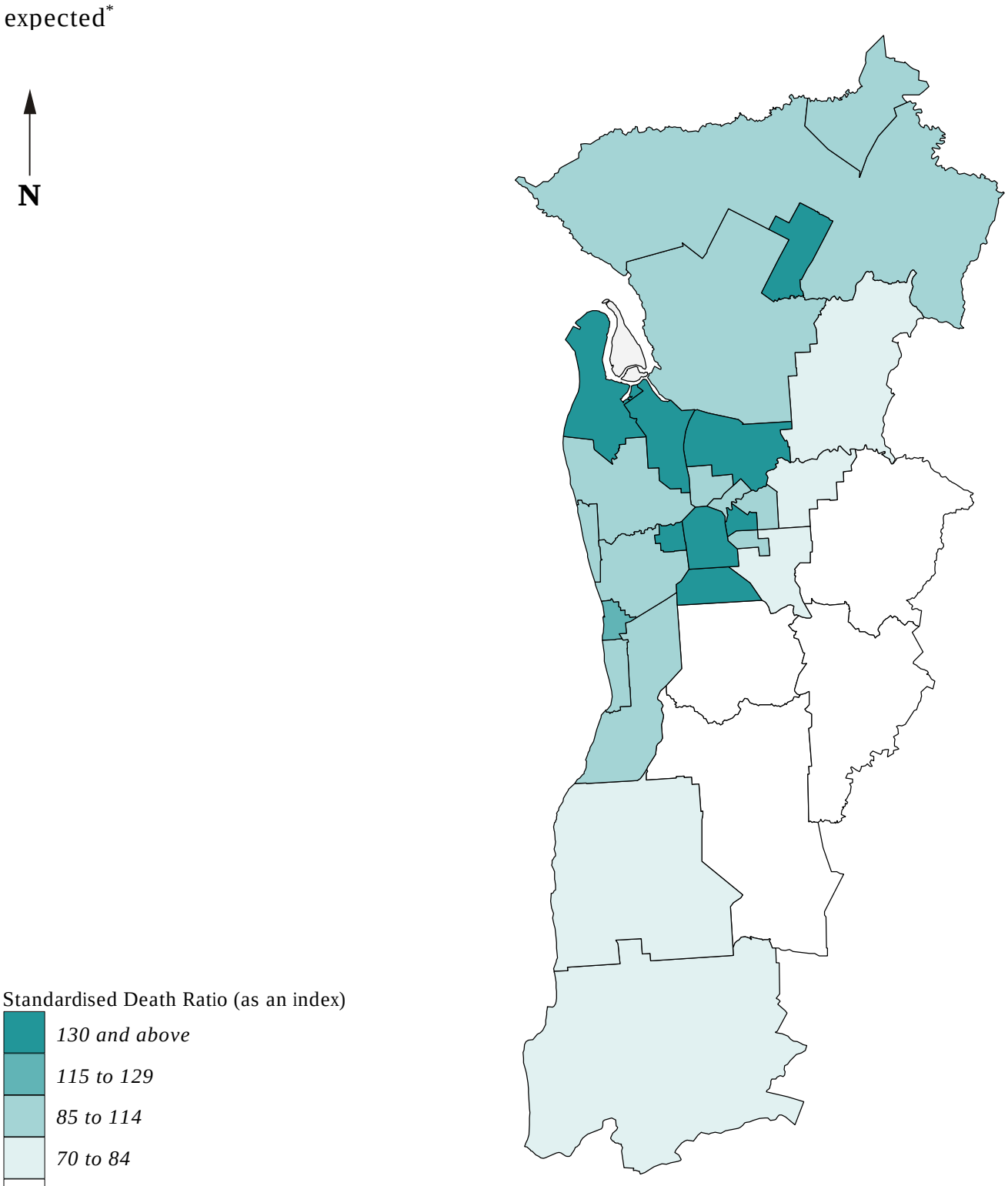
The SLA of Salisbury had the largest number of male deaths from all causes in the 15 to 64 year group, with 376 deaths. A large number of deaths was also recorded in Hindmarsh and Woodville (345 deaths), Tea Tree Gully (284) and Marion (273). Male residents of East Torrens aged 15 to 64 years had 16 deaths in the four year period from 1992 to 1995, while Walkerville, and Kensington and Norwood also had low numbers of deaths, with 30 and 33 respectively.

There was a correlation of substantial significance with the variable for dwellings with no motor vehicle (0.84), and of meaningful significance with the variables for Indigenous people (0.62), unemployment (0.60), dwellings rented from the State housing authority (0.60), recently arrived immigrants (0.54), low income families (0.52) and people who reported poor proficiency in English (0.50). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.53), indicate an association at the SLA level between high premature death rates for males and socioeconomic disadvantage.

Map 5.8

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

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



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

#Data have been excluded when the population of the SLA is less than 100

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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 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 (199**), Tasmania (110**) and New South Wales (104**) had more deaths than expected from the Australian rates. 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 5.13**. 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. While the SDR for males in the non-metropolitan areas of the Northern Territory was 7.1 per cent lower in this later period (suggesting a decline in death rates relative to the Australian experience), it continues to be substantially elevated, and more than twice the next highest ratio.

Table 5.13: 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 5 per cent; ** significance at 1 per cent

Over the four years from 1992 to 1995, the major causes of premature death for male residents of the non-metropolitan areas of South Australia were circulatory system diseases, malignant neoplasms (cancer) and the combined causes of accidents, poisonings and violence. There were 6,845 deaths of males resident in these non-metropolitan areas, 57.4 per cent of all deaths. Of these deaths, 1,782 deaths were of males aged from 15 to 64 years, 26.0 per cent of all male deaths.

Rest of State (South Australia as the Standard)

There were 11 per cent more deaths of males aged 15 to 64 years old and resident in the non-metropolitan areas of South Australia than expected from the whole of State rates.

The northern part of South Australia was mapped in the highest range (60 per cent more deaths than expected), in part at least, a reflection of the high proportion of Aboriginal people living in this area. Although some southern SLAs had elevated ratios, on the whole they were lower than those recorded in the northern areas. Data for a number of SLAs have not been mapped for this variable, as there were considered to be too few cases from which to calculate reliable rates.

As many of the SDRs in **Map 5.9** are very high, the ranges mapped have been changed to enhance the pattern of differentiation in the map. The highest and lowest ranges have been set at 60 per cent variation from the standard, rather than 30 per cent as in the map of **Adelaide** for this variable.

Unincorporated Far North had the highest SDR, with nearly two and a half times more deaths than expected from the State rates (an SDR of 242**). Ceduna (217**) and Peterborough (210**) also had more than twice the number of deaths expected. The remaining three SLAs with ratios in the highest range mapped were Eudunda (183), Wallaroo (179*) and Port Augusta (178**).

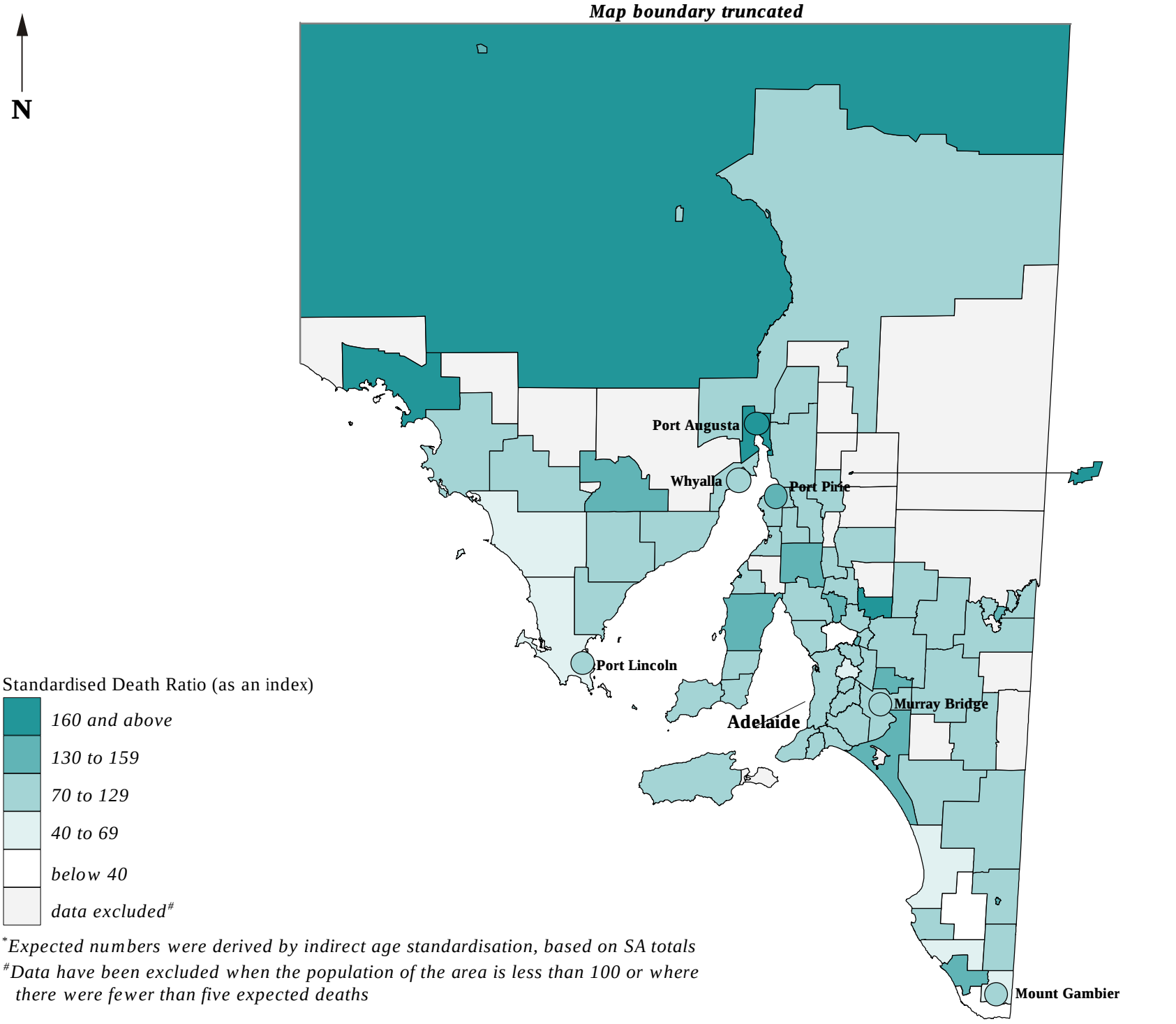
The SLAs of Port MacDonnell, Light and Lucindale all had SDRs in the lowest range mapped. Lucindale, located in the south-east, had an SDR of 20, indicating that there were 80 per cent fewer deaths of males than were expected from the South Australian rates. Port MacDonnell and Light also had very low SDRs of 36* and 33** respectively.

The largest numbers of deaths among males aged from 15 to 64 years in the non-metropolitan areas of South Australia, were in Whyalla (109 deaths) and Port Augusta (102 deaths). Lucindale (one male death) and Beachport and Elliston (both with three male deaths) recorded the fewest deaths, in this category.

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

Map 5.9
Deaths of males aged 15 to 64 years from all causes, South Australia, 1992 to 1995

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



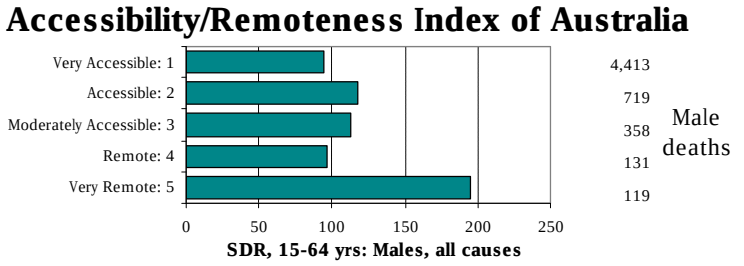
*Expected numbers were derived by indirect age standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100 or where there were fewer than five expected deaths

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



The lowest Standardised Death Ratios for premature deaths of males were recorded for the Very Accessible (95) and Remote categories (96), with higher ratios in the Moderately Accessible (118) and Accessible (113) categories. The highly elevated SDR in the Very Remote areas (195, almost twice the number of deaths of males at these ages expected from the State rates) is likely to reflect the very high premature death rates of 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 5.14**. 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 5.14: 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 5 per cent; ** significance at 1 per cent

As for males, cancer was the main cause of premature death (deaths between the ages of 15 to 64 years) for females, followed by diseases of the circulatory system and the combined causes of accidents, poisonings and violence. Overall, there were 16,320 deaths of female residents in **Adelaide**, of whom 2,221 were of females aged from 15 to 64 years. The data mapped for this variable therefore represents 13.6 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.

Adelaide (South Australia as the Standard)

There were 10 per cent fewer deaths of 15 to 64 year old females resident in **Adelaide** over the years from 1992 to 1995 than over the years from 1985 to 1989, down from an average of 616 per year, to 555 per year. In every SLA there was some variation in SDRs between the two time periods. This was particularly notable in the SLA of Walkerville, where from 1985 to 1989 there were 34.7 fewer female deaths than expected from the South Australian rates; however, in the period from 1992 to 1995 the SDR was a higher 119, with 19 per cent more deaths than expected from the State rates.

The highest ranges mapped were located in inner and middle SLAs to the north of **Adelaide**, as well as in Glenelg and Brighton (**Map 5.10**). At the other end of the scale the lowest SDRs were situated to the south and east of **Adelaide**. Although the pattern of distribution was similar to that found among male deaths, there were some notable differences. For example, the number of SLAs mapped in the highest range for females was half that mapped for males and the highest ratios were generally in different SLAs to those for male deaths.

The northern SLA of Enfield [Part A] had the highest SDR in **Adelaide**, with 38 per cent more deaths of females aged 15 to 64 years than expected for this age group (an SDR of 138**). Glenelg, Kensington and Norwood and St Peters all recorded an elevated, but not significant, SDR of 137. In total, 16 SLAs had more female deaths than expected in comparison to the South Australian rates.

Of the SLAs mapped in the middle range (with SDRs of 15 per cent below or above the ratios expected), those which recorded ratios of 100 and above were located in the inner, northern and western suburbs. The SLAs located in the inner suburbs were Adelaide (111) and Payneham (103); those to the north of the city were Gawler (113) and Elizabeth (103); and those situated in the west were Port Adelaide (112) and Hindmarsh and Woodville (114*).

In total, fewer deaths than expected were recorded in 14 SLAs in **Adelaide**; they included Happy Valley (an SDR of 55**) and Willunga (60*) situated in the south, and East Torrens (59) and Tea Tree Gully (69**) located in the east and north-east, which all had SDRs in the lowest range mapped.

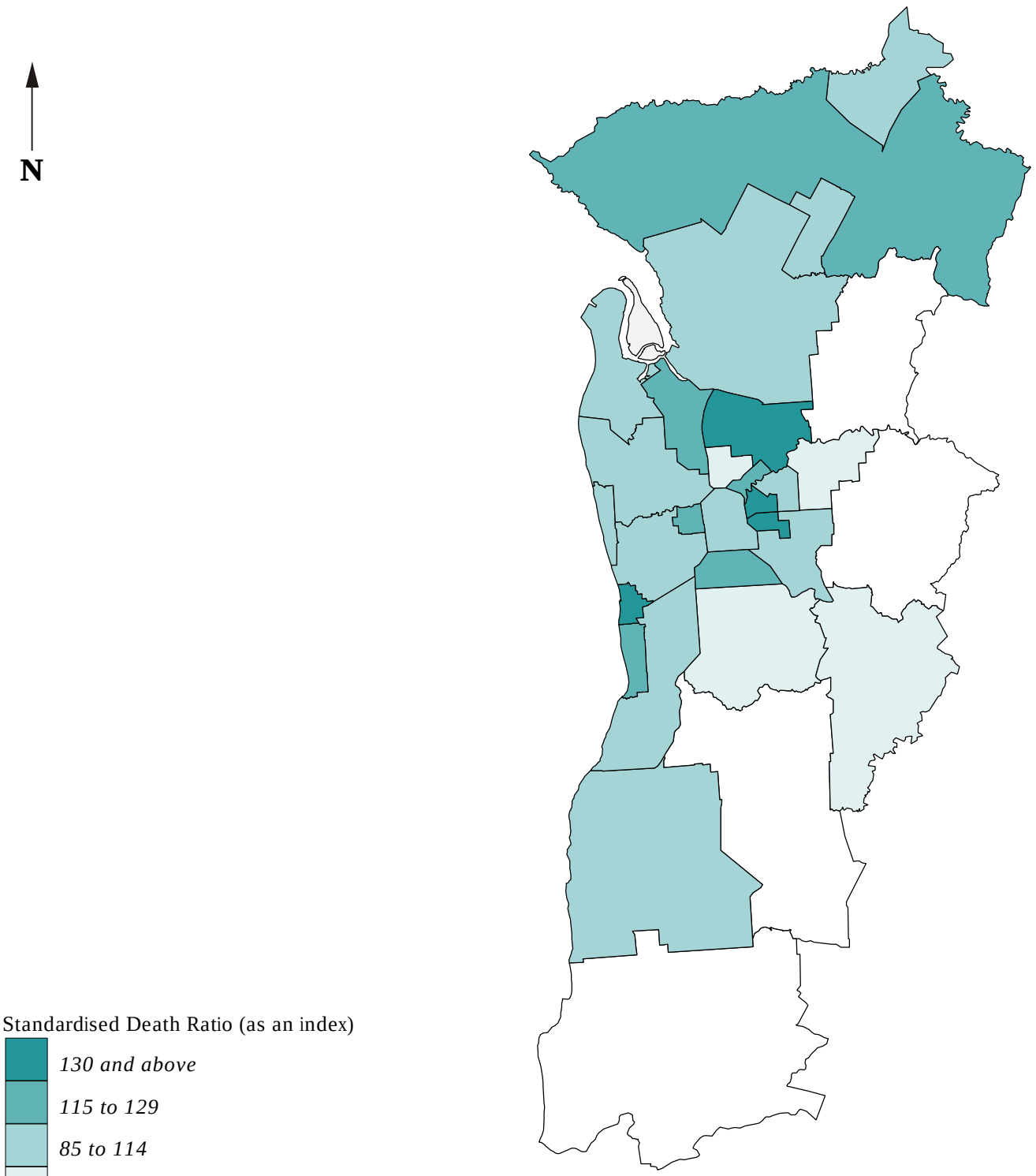
Female deaths accounted for 35.9 per cent of all premature deaths in **Adelaide,** a total of 2,221 female and 3,974 male deaths. The SLAs of Hindmarsh and Woodville (227 deaths), Salisbury (195) and Marion (174) had the largest numbers of female deaths.

The correlations recorded at the SLA level were far less significant than those recorded for male deaths, the most notable difference being in the correlation coefficients for males and females for the Indigenous population, of 0.62 for males and 0.29 for females. There was a correlation of substantial significance with the variable for dwellings with no motor vehicle (0.74) and of meaningful significance with people aged 65 years and over (0.55). There were also weaker correlations with the other indicators of socioeconomic disadvantage. These results, together with the inverse correlation with the IRSD (-0.31), indicate an association at the SLA level between high premature death rates for females and socioeconomic disadvantage.

Map 5.10

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

Standardised Death Ratio: number of deaths in each Statistical Local Area 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*
- *data excluded#*

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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected deaths

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 5.15**. 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 5.15: 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 5 per cent; ** significance at 1 per cent

Unlike males living in the non-metropolitan areas of South Australia, the major cause of premature death among female residents 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 17.4 per cent of all female deaths. This figure was some two thirds of that recorded for males (26.0 per cent), highlighting the fact that female life expectancy is higher.

Rest of State (South Australia as the Standard)

Females aged from 15 to 64 years living in the non-metropolitan areas of South Australia recorded 8 per cent more deaths than expected from the State rates. These deaths accounted for 33.1 per cent of all deaths from all causes, among 15 to 64 year olds, some 882 deaths.

As many of the SDRs in **Map 5.11** are very high, the ranges mapped have been changed to enhance the pattern of differentiation in the map. The highest and lowest ranges have been set at 60 per cent variation from the standard, rather than 30 per cent as in the map of **Adelaide** for this variable.

The majority of the northern region was mapped in the highest range, with SDRs of 160 and above, with lower rates in the southern and coastal areas. Data for a number of SLAs have not been mapped for this variable, as there were considered to be too few cases from which to calculate reliable rates. As was the case for males, the most highly elevated ratios were in areas with relatively large Aboriginal populations. These included Ceduna (334**), Unincorporated Far North (261**) and Port Augusta (184**). The SLAs of Waikerie (170*) and Berri (174**), located in the Riverland, and Penola (184*), situated the lower south-east, also had ratios in the highest range mapped. There were nine deaths of females aged from 15 to 64 years in Coober Pedy. However as there were only four deaths expected (from the State rate) for a SLA of the population size and composition, the data were not mapped.

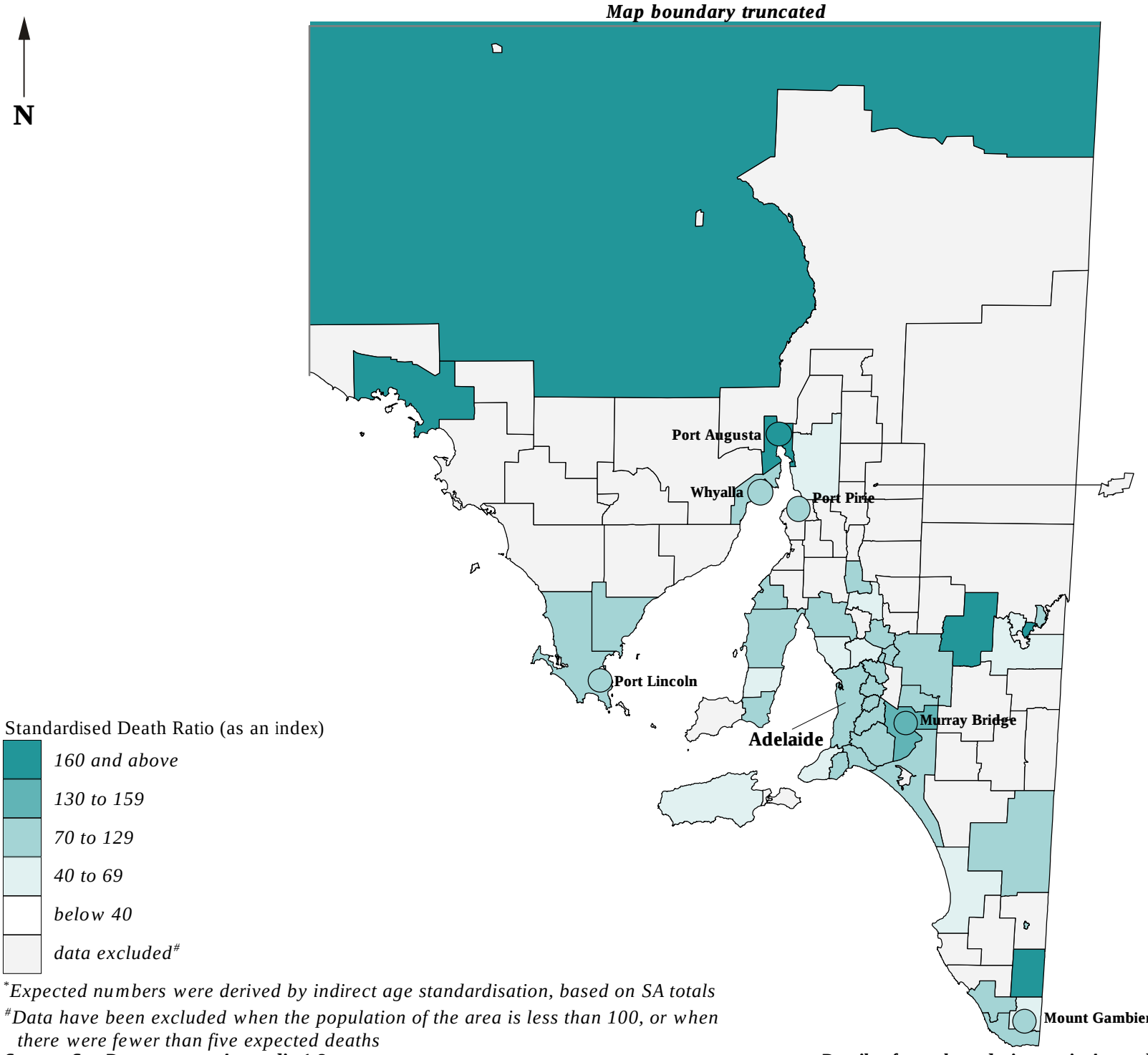
There were no recordings in the lowest range of female deaths for all causes. The lowest ratio was recorded in Lacepede, with 60 per cent fewer deaths than expected from the State rates (an SDR of 40). Barmera and Mount Remarkable had similarly low ratios, both recording SDRs of 42. None of the ratios that were below the level expected were statistically significant.

Whyalla, Port Augusta, and Mount Gambier had the largest number of deaths of females aged 15 to 64 years, with 58, 53, and 52 deaths respectively.

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

Map 5.11
Deaths of females aged 15 to 64 years from all causes, South Australia, 1992 to 1995

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



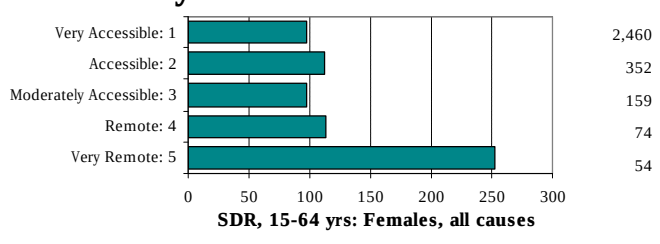
*Expected numbers were derived by indirect age standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100, or when there were fewer than five expected deaths

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Very Accessible: 1	2,460
Accessible: 2	352
Moderately Accessible: 3	159
Remote: 4	74
Very Remote: 5	54

Female deaths

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 (98 in the Moderately Accessible areas) to 113 in the Remote category (112 in the Accessible areas) and then to a highly elevated 258 in the Very Remote category. As noted for males, the elevated SDRs in the Very Remote category is 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 9 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 from cancer between the two time periods analysed (**Table 5.16**) were marginal, with the exception of **Darwin**, where there was a substantial differential (from the Australian rates) between the two periods. The higher SDR in the later period suggests a worsening (relative to the Australian rates) in the death rates for residents of **Darwin** from this cause.

Table 5.16: 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 5 per cent; ** significance at 1 per cent

Deaths from cancer (malignant neoplasms) were the second most common cause of death of residents of all ages of **Adelaide**, accounting for 26.7 per cent of all deaths (8,917 deaths) over the four years from 1992 to 1995. Moreover, it was a more common cause of death in the 15 to 64 year age group, representing 37.9 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 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 cancers 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. In more recent work, Mathers (in press) has reported that the socioeconomic differentials in mortality rates related to cancer have persisted in 1995-97 (**Table 5.2**). In NSW in 1990-94 an inverse relationship was specifically found between high socioeconomic status and cervical cancer (-0.22) and lung cancer (-0.25) (NSW Health Department 1997). In Victoria in 1996 increased rates of (age standardised) years of life lost were found for mouth, stomach, lung and larynx cancer for males and lung cancer for females in the lowest compared to the highest socioeconomic quintiles of the population (Department of Human Services Victoria, in press).

Adelaide (South Australia as the Standard)

There was an average of six per cent fewer deaths from cancer compared to the South Australian state rates expected of 15 to 64 year olds in **Adelaide** over the years from 1992 to 1995 than over the years from 1985 to 1989, down from an average of 622 per year to 588 per year. There were 2,350 cancer deaths in this age group, of which 1,289 were males and 1,061 were females.

However, since the analysis in the first atlas (covering the period from 1985 and 1989) the SDRs recorded in St Peters and Walkerville have increased dramatically. St Peters had an SDR of 80, 20 per cent fewer deaths from cancer than expected over the years from 1985 to 1989; this figure rose to 143 in the four year period from 1992 to 1995. In the years from 1985 to 1989, the SDR in Walkerville was 66, and by the later period it had risen to 122. The largest decreases between the two periods were found in the SLAs of East Torrens (98 to 47*) and Willunga (101 to 74).

The distribution of cancer deaths among 15 to 64 year olds (**Map 5.12**) shows that SLAs with the highest standardised death ratios were located throughout the inner and western suburbs**.** In contrast, lower SDRs were located in the more affluent eastern and south-eastern areas**.**

Residents of the western part of Enfield [Part B] had the highest statistically elevated SDR, with 48 per cent more deaths than expected from the State rates (an SDR of 148**). St Peters (143), Adelaide (135) and Port Adelaide (135**) also had elevated SDRs. In each of these SLAs, the number of male deaths exceeded the number of female deaths.

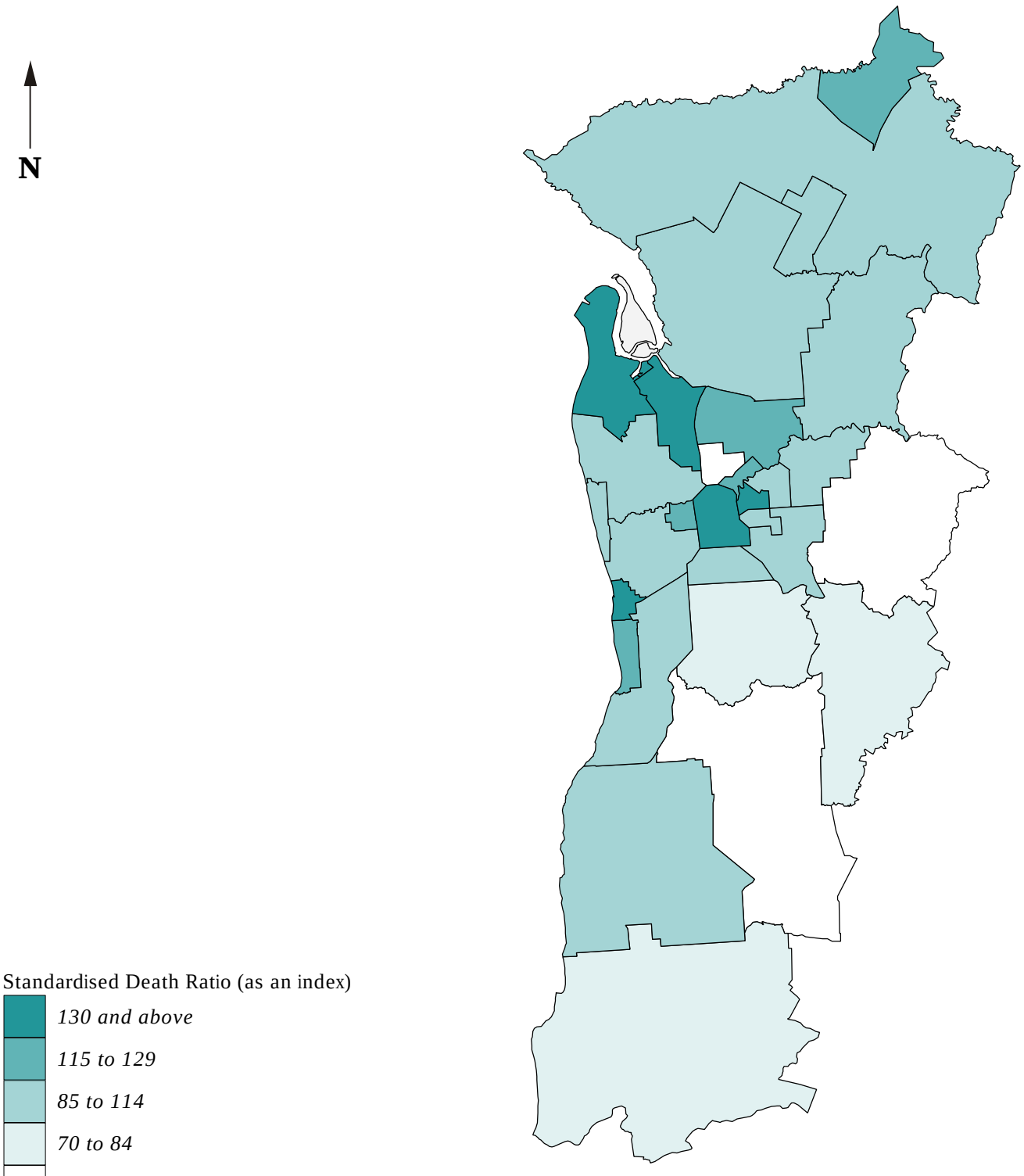
The lowest ratio was recorded in the SLA of East Torrens, with an SDR of 47*. Prospect (69) and Happy Valley (69**) also had low SDRs, both with 31 per cent fewer deaths than expected. In contrast with the other metropolitan SLAs, there were more female cancer deaths within Prospect than male cancer deaths.

The largest numbers of cancer deaths in the 15 to 64 year age group were recorded in the SLAs of Hindmarsh and Woodville and Salisbury, with 215 and 203 deaths respectively.

Apart from the correlation with the variable for dwellings without a motor vehicle (0.76), there were weaker correlations with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.36), suggest the existence of an association at the SLA level between high premature death rates from cancer and socioeconomic disadvantage.

Map 5.12
Deaths of people aged 15 to 64 years from cancer, Adelaide, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Local Area 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*
- *data excluded#*

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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected deaths

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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 5.17**. 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 5.17: 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 5 per cent; ** significance at 1 per cent

As for **Adelaide**, 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 South Australia, accounting for 25.3 per cent of all deaths (3,017 deaths) over the four year period from 1992 to 1995. Cancer was, however, the most common cause of premature death, accounting for 33.6 per cent of all deaths of people aged from 15 to 64 years. Although the largest numbers of cancer deaths were recorded for people aged 65 years and over, they accounted for only 23.3 per cent of deaths at those ages.

Rest of State (South Australia as the Standard)

In the years from 1992 to 1995 there were 895 premature deaths from cancer recorded for residents of the non-metropolitan areas of South Australia. Male deaths exceeded female deaths, with 492 and 403 respectively. Nearly half of the male deaths (41.9 per cent) occurred at ages from 60 to 64 years. One third of female deaths occurred in the same age group. Over the four years from 1992 to 1995, there were no deaths from cancer among females aged from 15 to 19 years.

It can be seen from **Map 5.13** that the northern part of South Australia was mapped in the lowest range (with an SDR of 30 per cent or more lower than expected when compared to the overall rate for South Australia) in contrast to the maps showing deaths of all causes for males and females. Other low SDRs were located throughout the middle and coastal regions of South Australia. Data for a number of SLAs have not been mapped for this variable, as there were considered to be too few cases from which to calculate reliable rates.

Over the four years from 1992 to 1995, the most highly elevated SDR was recorded in Peterborough, with almost twice the number of deaths of 15 to 64 year olds than were expected from the State rates (an SDR of 198*). In total, nine SLAs had ratios in the highest range, including Wallaroo (161), Rocky River (151), Port Augusta (145*), Wakefield Plains (144), Tanunda (141), and Coober Pedy (139), all located to the north of **Adelaide**; and Naracoorte (150) and Millicent (134), situated in the south of the State.

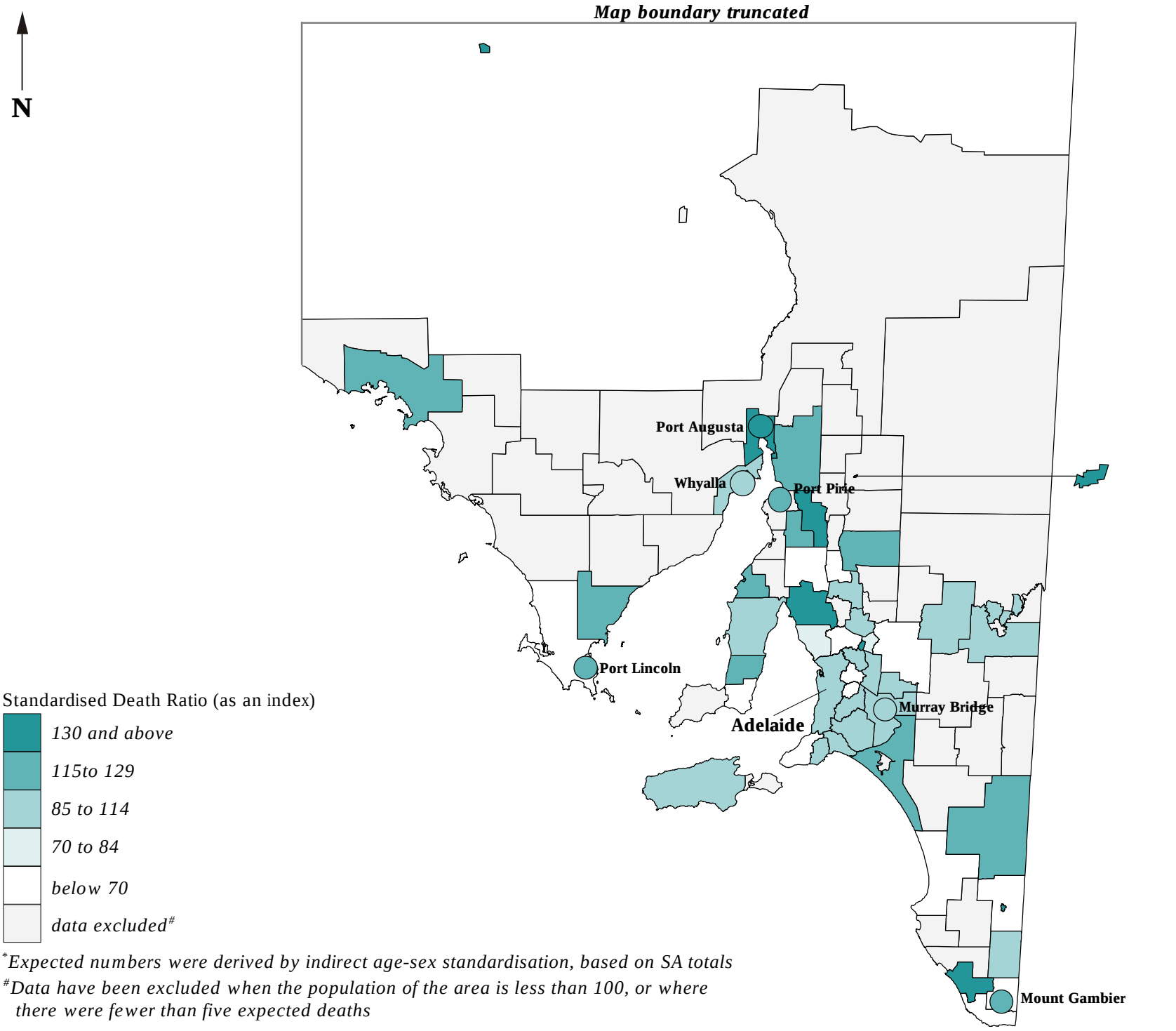
Residents of Light (31*), Port MacDonnell (32) and Clare (32*) had the lowest SDRs from deaths from cancer.

The largest numbers of deaths were recorded in the cities of Whyalla, with 56 deaths; Mount Gambier, with 53 deaths; and Port Augusta, with 45 deaths.

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

Map 5.13
Deaths of people aged 15 to 64 years from cancer, South Australia, 1992 to 1995

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



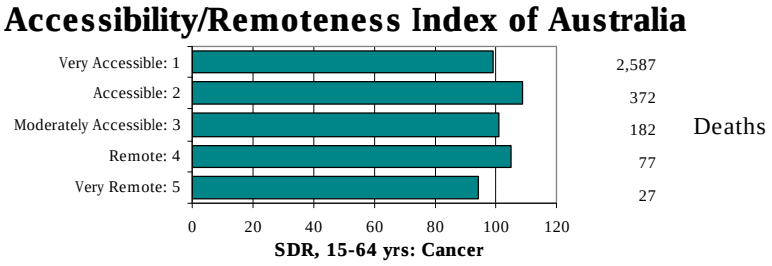
*Expected numbers were derived by indirect age-sex standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100, or where there were fewer than five expected deaths

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 of people aged from 15 to 64 years from all cancers are close to the level expected from the State rates in the Very Accessible (an SDR of 99) and Moderately Accessible (101) ARIA categories, with the highest SDR (109) in the Accessible category and the lowest (94) in the Very Remote category.

Source: Calculated on ARIA classification, DHAC

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 5.18**) 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. This is in line with the rates for deaths from all cancers and all causes, recorded above. The lower SDR for **Hobart** suggests an improvement relative to the Australian deaths 'experience.

Table 5.18: 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 5 per cent; ** significance at 1 per cent

In **Adelaide**, deaths from cancer of the trachea, bronchus and lung (referred to here as lung cancer) accounted for 18.7 per cent of all cancer deaths among 15 to 64 year olds from 1992 to 1995. Although males accounted 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 1970's and 1980's was consistently above 5:1; however, in 1996 the ratio fell to an all time low of 2.9:1 (AIHW, 1998).

As previously noted there is a strong relationship between socioeconomic status and lung cancer. Standardised death rates 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 rates were 60 per cent higher for males and 58 per cent higher for females.

Adelaide[7] (South Australia as the Standard)

In total, there were 439 premature deaths from lung cancer of residents of **Adelaide** over the four years from 1992 to 1995 (an SDR of 104 when compared to the South Australian State rate), resulting in relatively small numbers of deaths in this cause group for several SLAs. The SLAs of Port Adelaide (236**) and Elizabeth (205**) had the most highly elevated SDRs for this variable. Munno Para (an SDR of 153) and Enfield [Part A] (147*), located to the north of the city, and Enfield [Part B] (152) and West Torrens (130), situated to the west, all had ratios elevated by 30 per cent or more (**Map 5.14**).

In total, eight SLAs were mapped in the middle range of 15 per cent above or below the level expected from the State rates. Within this range only Burnside, with an SDR of 98, and Marion, with an SDR of 89, had ratios that were lower than expected. The highest ratios in this range were recorded in Noarlunga, Gawler and Brighton.

Statistically significant ratios below the expected level were recorded in Stirling (an SDR of 15*), Mitcham (52*) and Tea Tree Gully (64*). Henley and Grange (62) also had an SDR in the lowest range, although its SDR was not statistically significant.

Over the four year period from 1992 to 1995, no deaths from lung cancer were recorded for residents of the SLA of Prospect, although six deaths were expected from the State rates. Thirty or more deaths were recorded in each of Salisbury, Hindmarsh and Woodville, Noarlunga, Port Adelaide and Enfield [Part A].

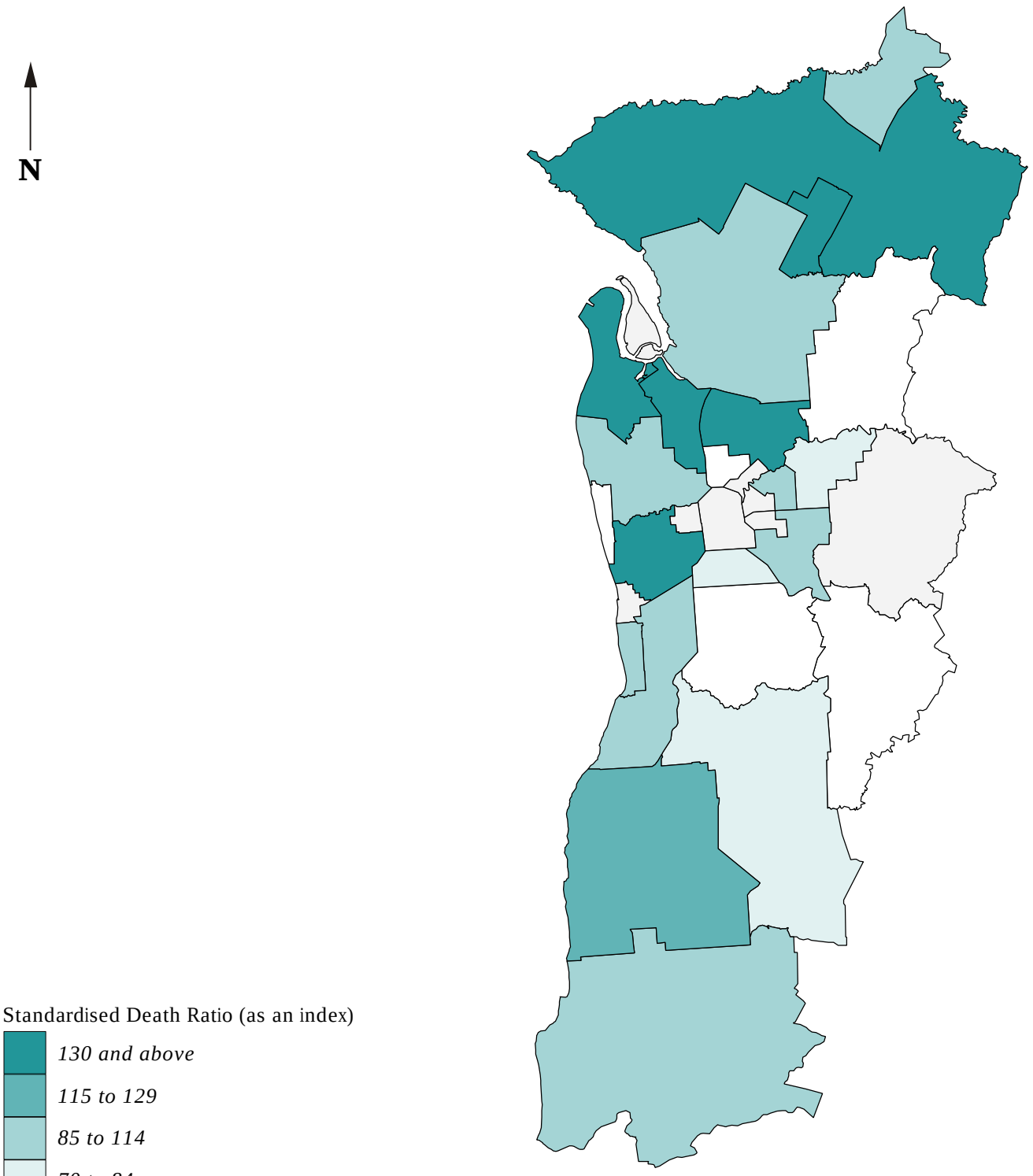
The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

[7]As there were relatively few areas with sufficient cases to analyse for this variable in the non-metropolitan areas of South Australia, the data have not been mapped. A summary of the main features is on page 170.

Map 5.14

Deaths of people aged 15 to 64 years from lung cancer, Adelaide, 1992 to1995

Standardised Death Ratio: number of deaths in each Statistical Local Area 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*
- *data excluded#*

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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected deaths

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

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 5.19**, although neither of the SDRs was statistically significant. The higher SDR in this later period suggests a worsening (relative to the Australian rates) in rates of death from circulatory system diseases between the periods analysed. The movement in the ratios for **Brisbane** suggests an improvement in death rates relative to the Australian rates, although neither ratio was statistically significant.

Table 5.19: Deaths of people aged 15 to 64 years from circulatory system diseases, 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 5 per cent; ** significance at 1 per cent

Circulatory system diseases (diseases of the heart and blood vessels) are the major cause of death in the population. In **Adelaide**, they accounted for 45.7 per cent of deaths of people of all ages (15,240 deaths) and 24 per cent of deaths (1,487 deaths) among people aged from 15 to 64 years in the years from 1992 to 1995. Overall, roughly equal numbers of males and females die from these causes, although 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 45 and 64 years, and it is only above age 75 years that it changes to 2:3 (male to female deaths).

The main causes of death within this group were heart disease (67.6 per cent) – in particular ischaemic heart disease – and cerebrovascular disease (stroke, 24.8 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.

Adelaide (South Australia as the Standard)

There were 1,487 premature deaths from circulatory system diseases of residents of **Adelaide** over the four years from 1992 to 1995, of which 1,095 were males and only 392 were females. The higher proportion of male deaths was evident in all of the SLAs in **Adelaide**.

Map 5.15 shows that the majority of SLAs that recorded SDRs in the lowest category, when compared with the rates for South Australia overall, were located in the eastern and southern areas of **Adelaide**, and those with the highest SDRs were located in the northern and western areas.

Elevated ratios were found in Enfield [Part B] (189**), Elizabeth (154**) and Adelaide (149*). Since the earlier period analysed (1985 to 1989) the SDR in Enfield [Part B] has increased, from 135* to 189**.

Elizabeth also experienced an increase in its ratio rising from 123* to 154*. On the other hand the SDR in Adelaide decreased from 169* (1985 to 1989) to 149* (1992 to 1995).

A number of areas had quite low ratios, including Burnside (51**), Happy Valley (53**), Stirling (54*) and Willunga (55*). Other ratios that were significantly lower than expected were recorded in Mitcham, Tea Tree Gully and West Torrens. Overall more than half of the SLAs in **Adelaide** recorded fewer deaths than expected from the State rates.

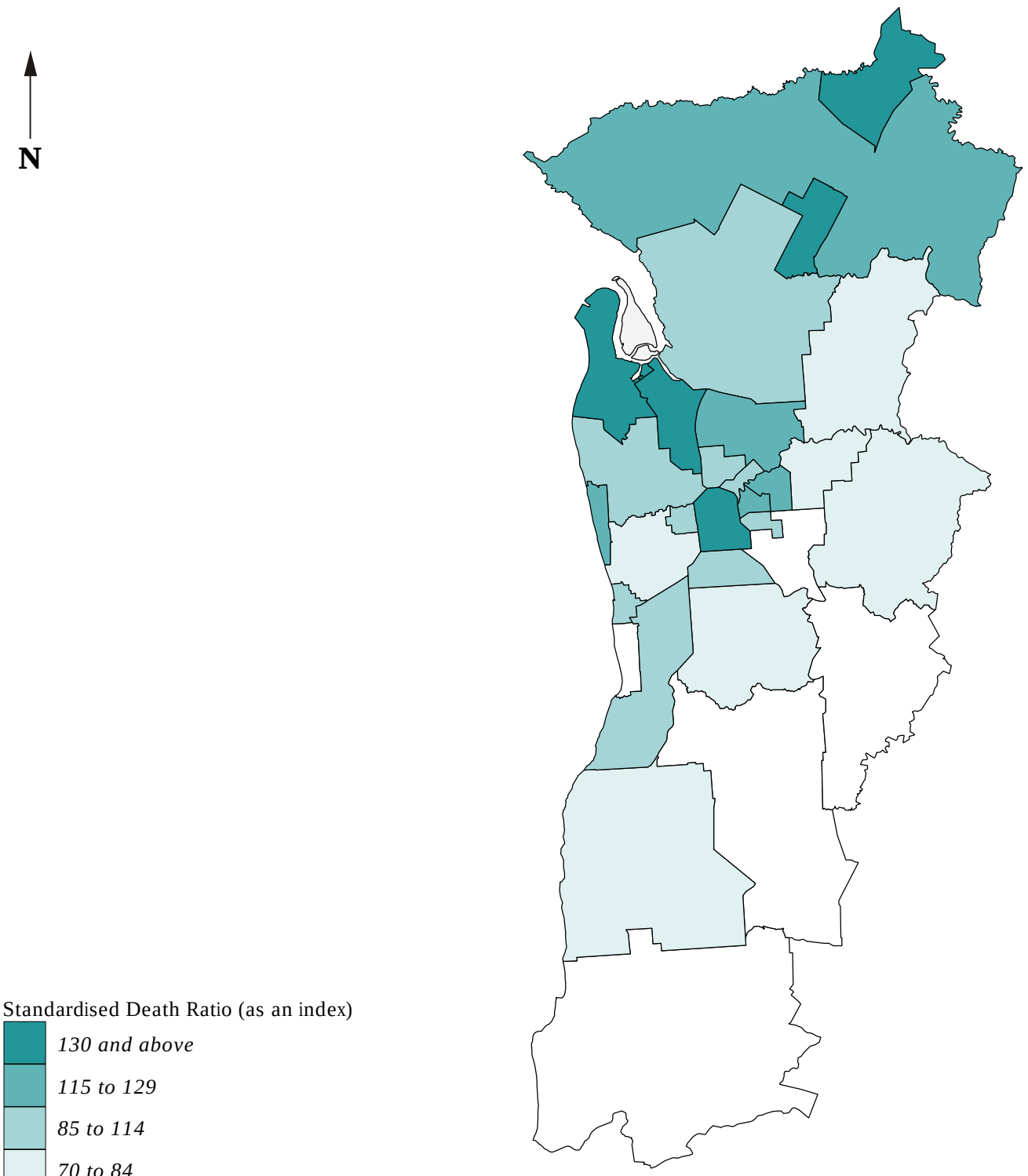
The largest numbers of deaths from circulatory system diseases were recorded for residents of Hindmarsh and Woodville, with 136 deaths; Salisbury, with 135 deaths; and Marion, with 120 deaths. Only eight deaths were recorded in East Torrens and ten deaths were recorded in both Kensington and Norwood, and Thebarton.

There was a correlation of substantial significance with the variable for dwellings rented from the State housing authority (0.75) and of meaningful significance with the variables for dwellings with no motor vehicle (0.69), unemployment (0.68), the Indigenous population (0.67), low income families (0.60), single parent families (0.52), unskilled and semi-skilled workers (0.50) and recently arrived migrants (0.50). An inverse correlation of meaningful significance was recorded with the variable for female labour force participation (-0.57). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.65), suggest the existence of an association at the SLA level between high premature death rates from circulatory system diseases and socioeconomic disadvantage.

Map 5.15

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

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



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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected cases

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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

State/Territory comparison

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 relative to 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 State and 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 5.20** for most States and Territories, although the higher SDRs in the later period for Northern Territory, Tasmania and Western Australia suggest a worsening (relative to the Australian rates) in the death rates from these causes.

Table 5.20: 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 5 per cent; ** significance at 1 per cent

Over the four year period from 1992 to 1995, 44.6 per cent of deaths of people of all ages (5,320 deaths) in the non-metropolitan areas of South Australia were attributable to circulatory system diseases. These causes of death accounted for 27.3 per cent of deaths of people aged from 15 to 64 years and 50.7 per cent of deaths of people aged 65 years and over.

Overall, there were roughly equal numbers of male and female deaths from circulatory system diseases, with 2,873 male deaths and 2,447 female deaths. However, over the years from 1992 to 1995 this was 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 474 male deaths and only 171 female deaths from these causes over the years from 1992 to 1995. This relationship turned around at the age of 75 years and over, when the number of female deaths (1,853) exceeded the number of male deaths (1,536).

Rest of State (South Australia as the Standard)

In the non-metropolitan areas of South Australia, there were 17 per cent more deaths of 15 to 64 year old residents from circulatory system diseases than expected from the South Australian State rates, an SDR of 117**. Of the 727 deaths, 517 were of males and 210 were of females.

There was no notable geographical pattern in the SDRs for deaths from circulatory system diseases in the southern half of South Australia (**Map 5.16**). However, the entire northern area was mapped in the highest category (130 and above), with the high proportion of Aboriginal people in the population likely to be a contributing factor. Data for a number of SLAs have not been mapped for this variable, as there were considered to be too few cases from which to calculate reliable rates.

Residents of Unincorporated Far North (288**), Tanunda (226**) and Port Augusta (215 **) had the highest SDRs, all three SLAs recording more than twice the number of deaths that were expected from the State rates. In total, 17 areas were mapped in the highest range, including Mannum, Berri, Meningie, Waikerie, Barmera and Murray Bridge.

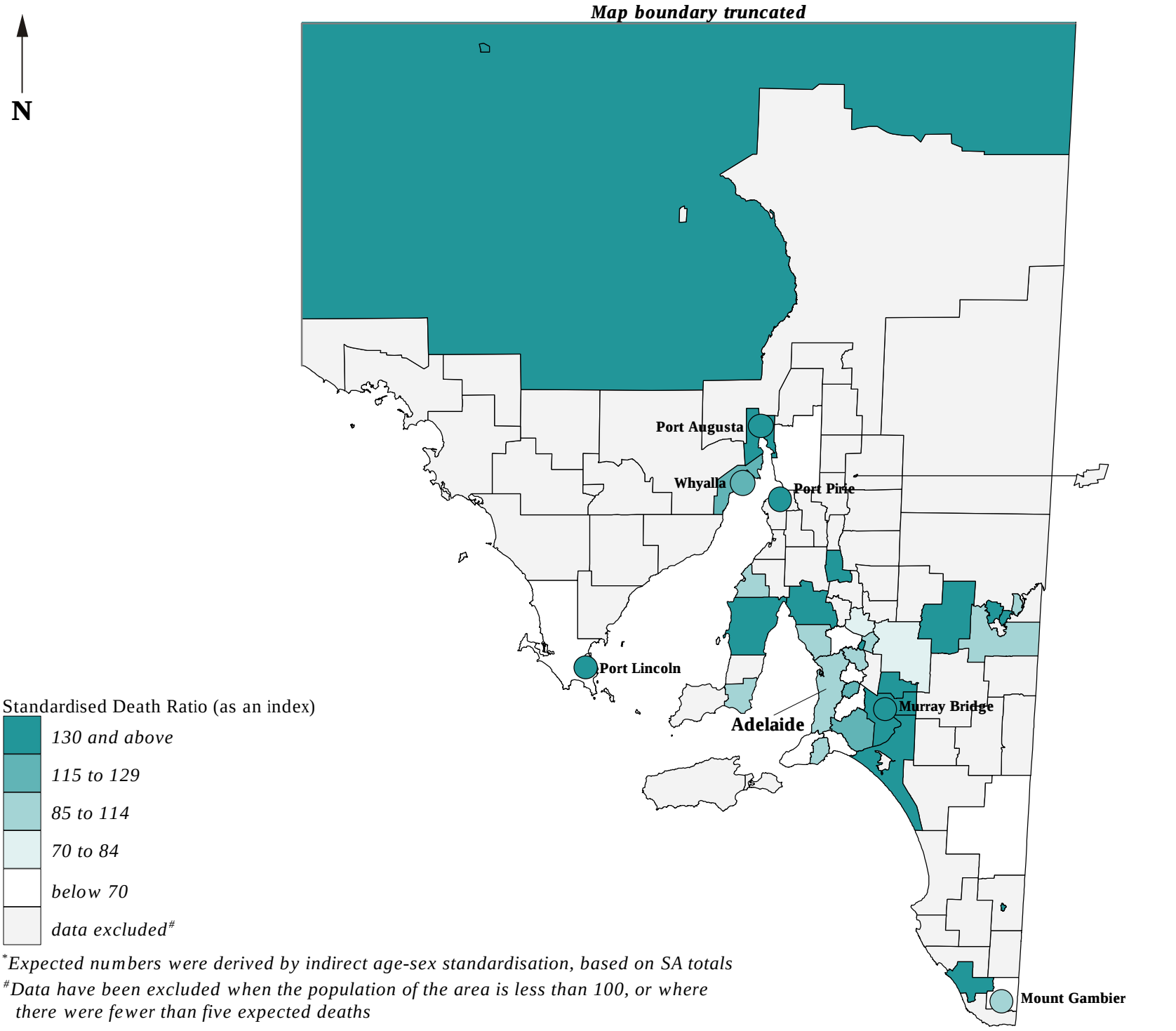
The lowest SDR, of 44, was recorded in Lower Eyre Peninsula, indicating that there were 56 per cent fewer deaths of 15 to 64 year olds from circulatory system diseases than expected. Low ratios were also recorded in Light, Mount Barker and Mount Remarkable, with SDRs of 45, 50*, and 52 respectively.

Whyalla (48 deaths), Port Augusta (46 deaths) and Port Pirie (36 deaths) had the largest number of deaths.

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

Map 5.16
Deaths of people aged 15 to 64 years from circulatory system diseases, South Australia, 1992 to 1995

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



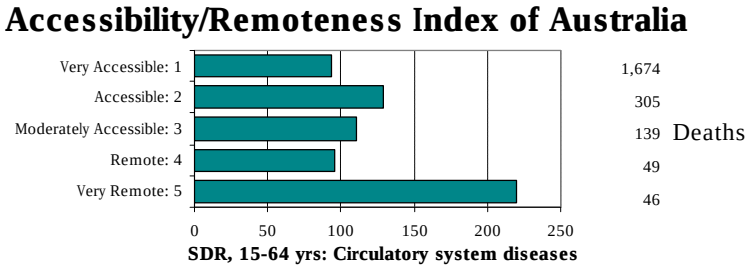
*Expected numbers were derived by indirect age-sex standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100, or where there were fewer than five expected deaths

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, from an SDR of 94 in the Very Accessible areas, increasing to 129 in the Accessible areas, then declining to 96 in the Remote areas, before increasing substantially to a ratio of 220 in the Very Remote areas. The elevated SDR in the Very Remote category is likely to reflect the high premature death rates 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. **Canberra** and **Melbourne** also had relatively low ratios, of 79 and 79**, respectively. 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 5.21**, 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 5.21: 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 5 per cent; ** significance at 1 per cent

The organs of the respiratory system include the nose, pharynx, larynx, trachea, bronchi and lungs. There were 2,638 deaths from diseases of the respiratory system from 1992 to 1995, 7.9 per cent of all deaths of residents of **Adelaide.** More than a half (59.5 per cent) of the deaths from diseases of the respiratory system were from chronic obstructive pulmonary disease (largely deaths from bronchitis, emphysema and asthma), while 24.5 per cent were deaths from pneumonia and influenza. People aged from 15 to 64 years accounted for 9.9 per cent 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 5.17**.

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**). In NSW, a marked correlation (-0.45) has been found between premature deaths from respiratory illness and socioeconomic status over the period 1990-94 (NSW Health Department 1997). Increased rates of (age standardised) years of life lost have also been found in the lowest socioeconomic quintile in Victoria in 1996 (Department of Human Services Victoria, in press).

Deaths from respiratory system diseases are also a major cause of death for Aboriginal people. In the years from 1992 to 1994, these death rates were reported to be over 7 times higher than expected in SA, WA and the NT. This represents 17 per cent of the excess deaths in Indigenous men and 12 per cent of the excess deaths in Indigenous women in these States (AIHW/ABS 1996). 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).

Adelaide[8] (South Australia as the Standard)

In the years from 1992 to 1995, 260 residents of **Adelaide** aged from 15 to 64 years died from respiratory system diseases, 11 per cent fewer than expected (an SDR of 89*). Unlike deaths from all causes, where the proportion of male deaths was almost double that of females, the number of male (140) and female (120) deaths from respiratory system diseases was roughly equal.

Elizabeth had the only elevated ratio of statistical significance, an SDR of 213**, indicating that there were more than twice the number of deaths from these causes than were expected from the State rates. Other SLAs with elevated SDRs were Enfield [Part A] (144), Brighton (140), West Torrens (133) and Hindmarsh and Woodville (104). It is interesting to note that over the five years from 1985 to 1989 the SLA of West Torrens recorded an SDR of 54*, substantially lower than in this later period.

Both Mitcham (50*) and Tea Tree Gully (57*) recorded statistically significant SDRs that were much lower than expected from the State rates. The SDR of 76 recorded for Port Adelaide was less than half that recorded in the years from 1985 to 1989, when it was 179.9**. This is a surprising result, despite the small numbers involved, as it represents fewer than half the number of deaths over this period than were recorded in the first atlas and in other, more recent studies. For example, over the years from 1989 to 1993 the SDR was 175**, with 24 deaths from these diseases.

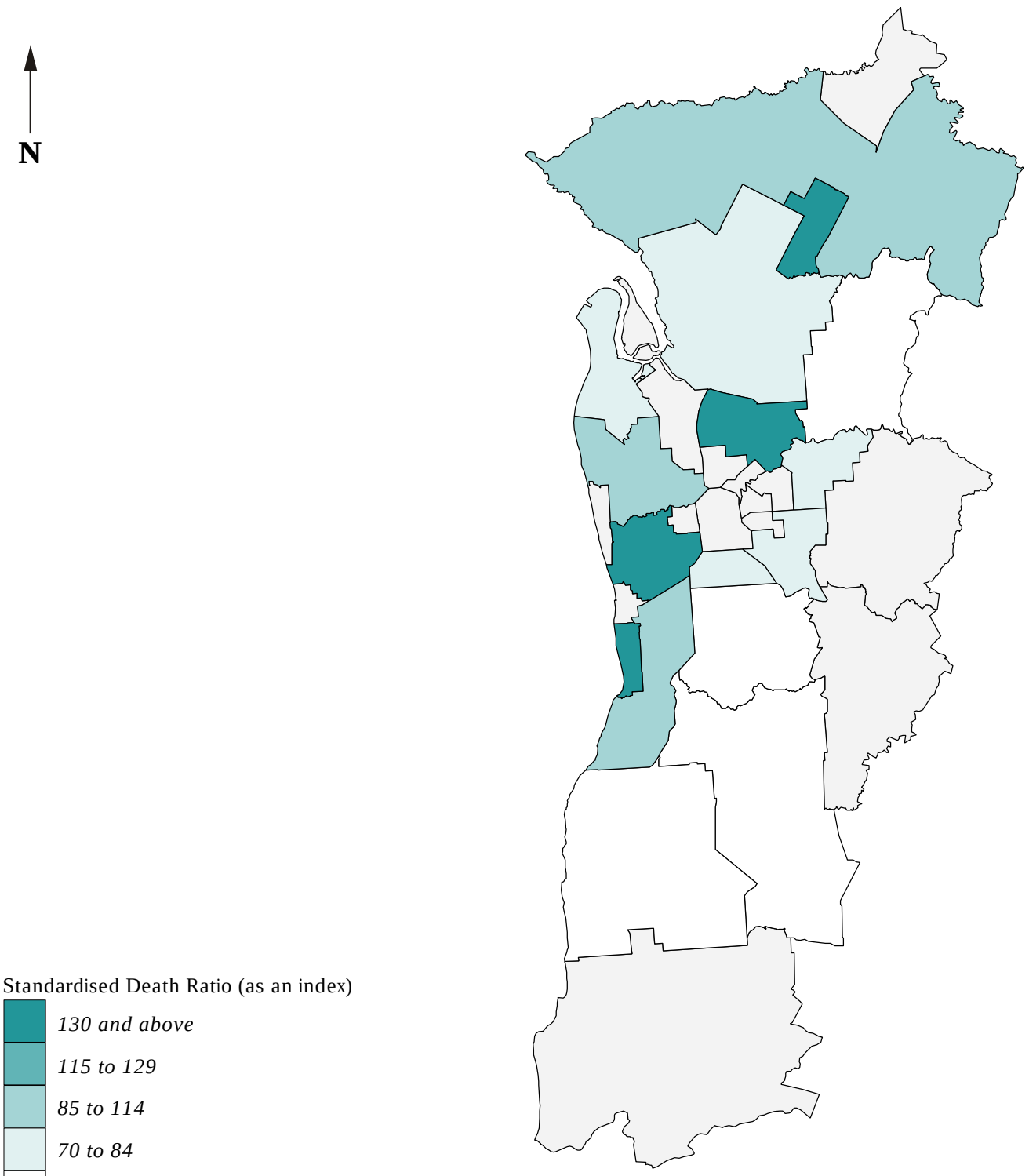
The SLAs of Hindmarsh and Woodville and Marion had the largest number of deaths from respiratory system diseases among the age group analysed, with 27 (an SDR of 104) and 22 (an SDR of 98) deaths, respectively.

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

[8]As there were relatively few areas with sufficient cases to analyse for this variable in the non-metropolitan areas of South Australia, the data have not been mapped. A summary of the main features is on page 171.

Map 5.17
Deaths of people aged 15 to 64 years from respiratory system diseases, Adelaide, 1992 to 1995

Standardised Death Ratio: number of deaths in each Statistical Local Area 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*
- *data excluded#*

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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected deaths

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

This page intentionally left blank

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 (30.3 per cent);
- motor vehicle traffic accidents (28.5 per cent);
- accidental falls (11.6 per cent, mainly of elderly people);
- accidental poisonings (7.2 per cent); and
- accidental drownings (4.0 per cent).

Although representing only 5.5 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 19.5 per cent of deaths in the 15 to 64 year age group. Among people aged from 15 to 64 years, the major causes of death from external causes are as follows:

- suicide (37.6 per cent);
- motor vehicle traffic accidents (30.8 per cent);
- accidental poisonings (9.7 per cent); and
- assault without weapon or weapon not specified (3.8 per cent).

In the years from 1992 to 1995, there were 425 deaths in South Australia from the combined external causes of accidents, poisonings and violence among people aged from 15 to 24 years, representing 70.8 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: 47.1 per cent from motor vehicle traffic accidents and 29.6 per cent from suicides).

Males predominated in these causes of death, accounting for 75.7 per cent of deaths from these causes in the 15 to 64 year age group (ranging from 80.6 per cent of suicides to 70.9 per cent of motor vehicle traffic accidents) and 79.8 per cent of deaths among 15 to 24 year olds (see **Table 5.22**).

Table 5.22: Deaths from accidents, poisonings & violence South 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	154	77.0	110	87.3	339	79.8
Females	46	23.0	16	12.7	86	20.2
Persons	**200**	**100.0**	**126**	**100.0**	**425**	**100.0**
15 to 64						
Males	378	70.9	523	80.6	1,308	75.7
Females	155	29.1	126	19.4	420	24.3
Persons	**533**	**100.0**	**649**	**100.0**	**1,728**	**100.0**

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

As can be seen from **Table 5.23**, death rates from the combined causes of accidents, poisonings and violence were substantially higher, across all age groups, in the non-metropolitan areas of South Australia than in **Adelaide**. The biggest difference was recorded among males aged from 15 to 24 years, where the rates ranged from 119.3 per 100,000 population in the non-metropolitan areas to 64.7 per 100,000 population in **Adelaide**.

Table 5.23: Deaths from accidents, poisonings and violence, by area of residence, South Australia, 1992 to 1995

Age (years) and sex	Adelaide		Rest of South Australia		Total	
	No.	Rate	No.	Rate	No.	Rate
15 to 24						
Males	215	64.7	124	119.3	339	77.7
Females	57	17.8	29	31.0	86	20.8
Total	**272**	**41.7**	**153**	**77.5**	**425**	**50.0**
15 to 64						
Males	864	60.0	444	85.8	1,308	66.9
Females	306	21.3	114	23.6	420	21.9
Total	**1,170**	**40.7**	**558**	**55.8**	**1,728**	**44.6**
All ages						
Males	1,126	52.4	593	77.2	1,719	58.9
Females	551	24.7	201	27.7	752	25.4
Total	**1,677**	**38.3**	**794**	**52.4**	**2,471**	**42.0**

[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 that an inverse relationship (-0.23) between high socioeconomic status and death by accidents, poisonings 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 164 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.

This page intentionally left blank

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 SDR recorded for **Hobart** and **Darwin** in the later period shown in **Table 5.24**, 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 5.24: 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 5 per cent; ** significance at 1 per cent

Within **Adelaide**, there were 1,677 deaths from the combined causes of accidents, poisonings and violence (67.9 per cent of all deaths from these causes). Some 69.8 per cent of these (1,170 deaths) were deaths of 15 to 64 year olds, and 67.1 per cent were males. There were 5.1 per cent fewer deaths of 15 to 64 year olds resident in **Adelaide** from these external causes over the years from 1992 to 1995 than over the years from 1985 to 1989, declining from an average of 308 deaths per year to 293 per year.

Adelaide (South Australia as the Standard)

Deaths from this group of external causes were 9 per cent lower than expected (from the South Australian State rates) for residents of **Adelaide** in the years from 1992 to 1995, an SDR of 91**. In total, there were 1,170 premature deaths from accidents, poisonings and violence, of which 864 were males and 306 were females.

In general the pattern of SDRs recorded in the four years from 1992 to 1995 did not differ greatly from the figures recorded in the years from 1985 to 1989. However there were major changes in the SDRs for the SLAs of Port Adelaide and the western part of Enfield [Part B]. From 1985 to 1989, Port Adelaide and Enfield [Part B] had SDRs of 83 and 161* respectively. Since then, the ratio recorded in Port Adelaide has risen to 141**: in contrast, the ratio recorded in Enfield [Part B] decreased to 74.

The distribution of deaths from accidents, poisonings and violence throughout **Adelaide** is shown in **Map 5.18**. The six SLAs that recorded SDRs of 30 per cent or more higher than the South Australian standard were located in the northern, western and inner suburbs. SLAs with ratios of below 70 were situated in the more affluent eastern and south-eastern areas.

Munno Para had the highest SDR for deaths from this group of external causes in the 15 to 64 year old group (an SDR of 153**).

The SLAs of Glenelg (148), Port Adelaide (141**), Elizabeth (138*), Walkerville (135) and Adelaide (131) also had substantially more deaths than expected.

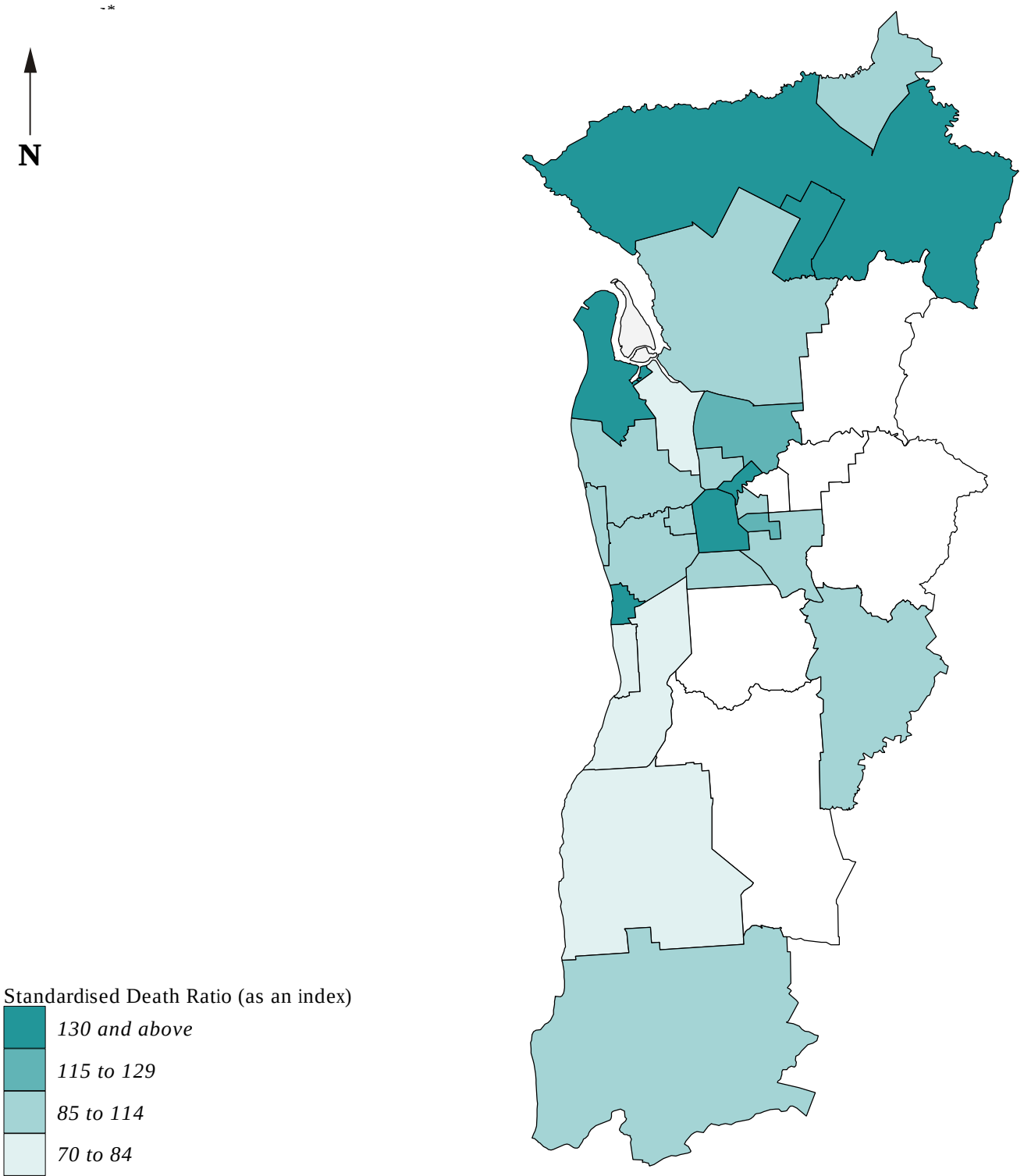
In contrast, the lowest ratios were recorded in Happy Valley (with an SDR of 60**), Campbelltown (61**), and Mitcham (63**). Other ratios that were significantly below the level expected from the South Australian rates were recorded in the SLAs of Tea Tree Gully (an SDR of 68**) and Marion (71**).

Over the four years from 1992 to 1995, the largest numbers of deaths from this group of external causes were recorded in the SLAs of Salisbury (128 deaths), Hindmarsh and Woodville (94 deaths) and Noarlunga (92 deaths).

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

Map 5.18
Deaths of people aged 15 to 64 years from accidents, poisonings and violence, Adelaide, 1992 to1995

Standardised Death Ratio: number of deaths in each Statistical Local Area compared with the number



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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected deaths

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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 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 5.25** 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 from these causes.

Table 5.25: 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 5 per cent; ** significance at 1 per cent

There were 794 deaths in the non-metropolitan areas of South Australia attributable to accidents, poisonings and violence, representing 6.7 per cent of deaths for all ages. 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 and 64 years. Premature deaths accounted for 70 per cent of the 794 deaths recorded in the non-metropolitan areas of South Australia; in comparison only 24 per cent of these deaths occurred at the age of 65 years and over.

Rest of State (South Australia as the Standard)

Deaths of 15 to 64 year old non-metropolitan residents from the combined causes of accidents, poisonings and violence were 25 per cent higher than expected from the South Australian State rates (an SDR of 125**). The relatively higher death rates of Aboriginal people from this group of causes may be an influence in some of the high standardised ratios recorded for the more remote areas.

There were 558 deaths from external causes of residents of the non-metropolitan areas of South Australia aged from 15 to 64 years. Males were approximately four times more likely to die from these external causes than females, with 444 and 114 deaths, respectively.

Data for a number of SLAs have not been mapped for this variable, as there were considered to be too few cases from which to calculate reliable rates (**Map 5.19**). More than three quarters of SLAs were consequently not mapped for this variable. However, of the 28 SLAs that were analysed, more than half had elevated SDRs. Unincorporated Far North had a highly significantly elevated ratio of 335**, more than three times higher than expected. Berri, with an SDR of 206**, and Central Yorke Peninsula, with an SDR of 168, also recorded SDRs in the highest range mapped.

The majority of SLAs mapped had ratios in the range of 30 per cent above or below the level expected. The highest ratio in this range was recorded in the Riverland SLA of Renmark (with an SDR of 126) and the lowest in Mount Gambier, located in the lower south-east of the State (an SDR of 71).

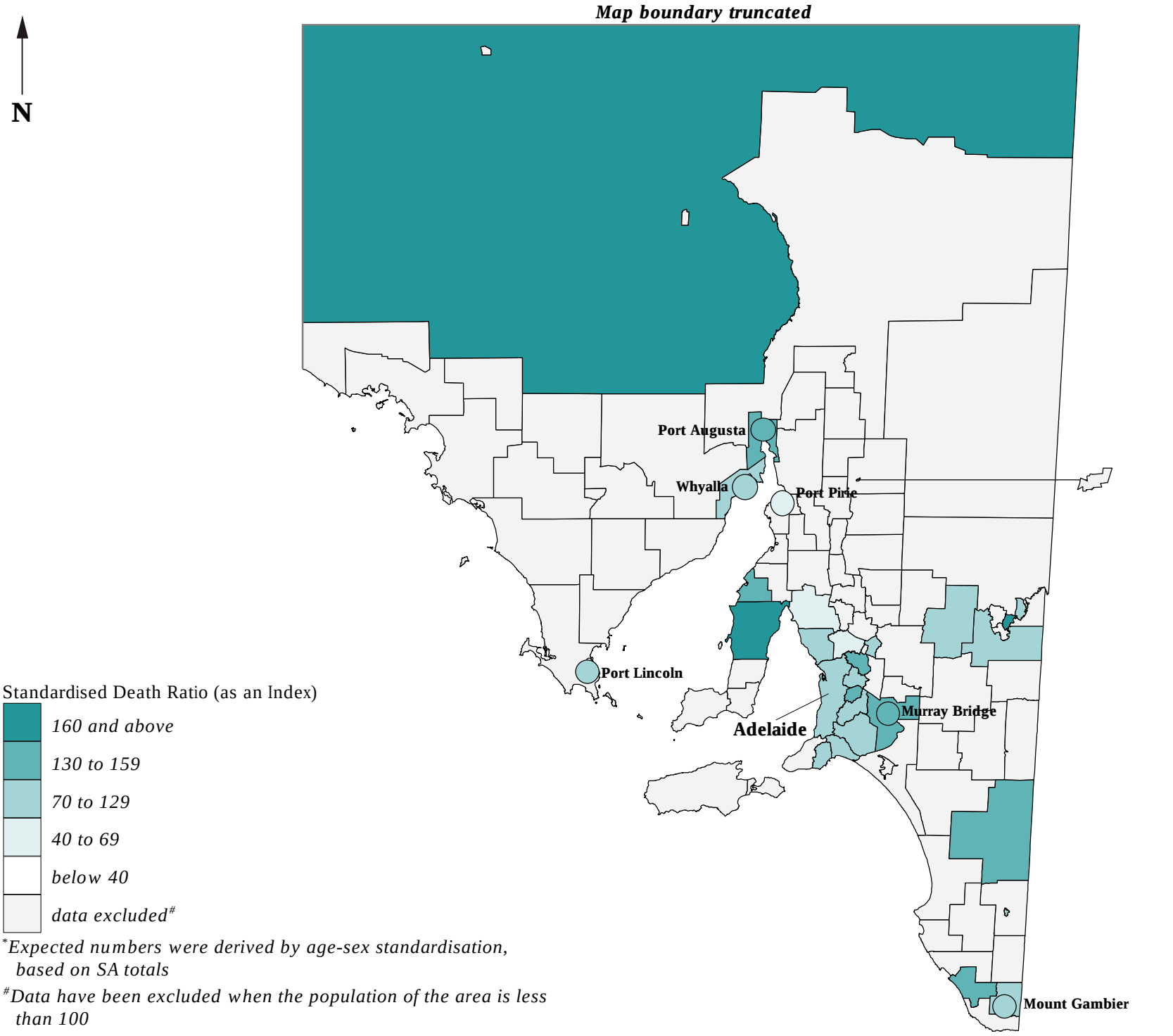
Light and Wakefield Plains, with just four and three deaths from these causes respectively, had the lowest ratios (SDRs of 57 and 59). Other low SDRs were recorded in Port Pirie (68), Mount Gambier (71) and Angaston (77).

The largest number of deaths from external causes in this age group was in Whyalla (32 deaths).

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

Map 5.19
Deaths of people aged 15 to 64 years from accidents, poisonings and violence, South Australia, 1992 to 1995

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



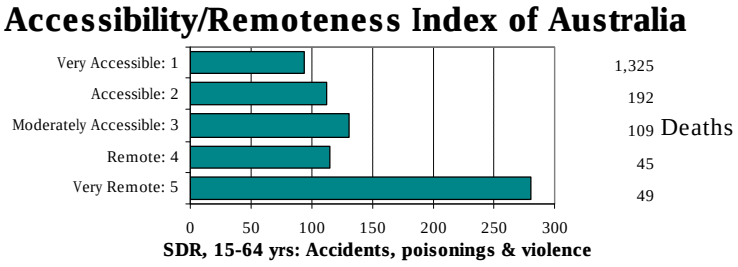
*Expected numbers were derived by age-sex standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100

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 almost three times the level in the lowest ARIA category, with an SDR of 281 in the Very Remote category, compared with 94 in the Very Accessible category. The middle three categories also had elevated ratios. Again, the influence of Indigenous deaths is likely to be an important influence in the highest ratios.

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 5.26** 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 5.26: 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 5 per cent; ** significance at 1 per cent

Deaths from the external causes of accidents, poisonings and violence were the major cause of death for people aged from 15 and 24 years. Over the four year period from 1992 to 1995, they represented 67.3 per cent of all deaths in **Adelaide** in this age group - 75.2 per cent of male deaths and 48.3 per cent of female deaths. Males predominated, accounting for 79.0 per cent of deaths from these external causes. Almost half (45.8 per cent) of these male deaths were from motor vehicle traffic accidents and one third (32.7 per cent) were from suicides.

Mathers (1994) examined the extent of disparities (related to socioeconomic status of area of residence) in mortality rates according to the major causes 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 suicides, 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.

Adelaide[9] (South Australia as the Standard)

There were 33 per cent fewer deaths of 15 to 24 year old residents of **Adelaide** over the years from 1992 to 1995 than over the years from 1985 to 1989, down from an average of 102 deaths per year to 68 per year.

In light of the relatively small number of deaths from these causes over the four years from 1992 to 1995, particular care should be taken when using these Standardised Death Ratios to refer also to the numbers published in Volume 5.1.

There were 17 per cent fewer deaths from these external causes for residents of **Adelaide** than were expected from the South Australian rates, an SDR of 83**. This indicates the extent to which deaths from these causes are over-represented among country residents in this age group.

The northern SLAs of Munno Para (187**) and Elizabeth (172*) had highly elevated SDRs. Other elevated ratios were recorded in Brighton (115), Hindmarsh and Woodville (110), Enfield [Part A] (109) and Prospect (104).

Many SLAs had fewer deaths than expected from the State rates, with the lowest SDR in Marion (35**). Residents of Mitcham, Tea Tree Gully, Campbelltown, Happy Valley, and Adelaide all had ratios mapped in the lowest range, with SDRs of 70 or below.

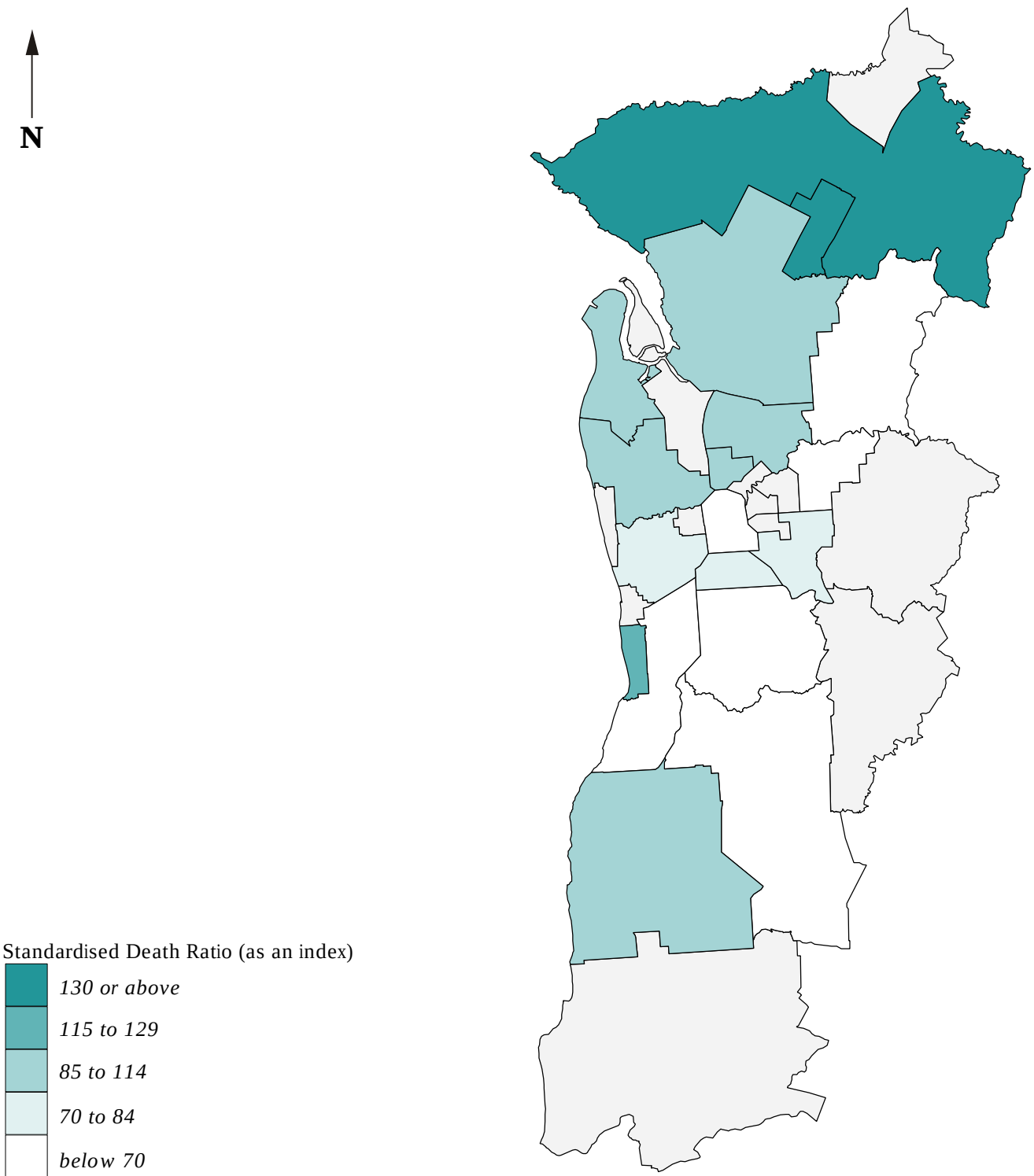
The SLA of Salisbury had the largest number of deaths from these external causes in **Adelaide** in the years from 1992 to 1995, a total of 34 deaths. A high number of deaths was also recorded in Hindmarsh and Woodville (28 deaths) and Noarlunga (27 deaths).

The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

[9]As there were too few areas with sufficient cases to analyse for this variable in the non-metropolitan areas of South Australia, the data have not been mapped. A summary of the main features is on page 172.

Map 5.20
Deaths of people aged 15 to 24 years from accidents, poisonings and violence, Adelaide, 1992 to 1995

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



Standardised Death Ratio (as an index)

- *130 or above*
- *115 to 129*
- *85 to 114*
- *70 to 84*
- *below 70*
- *data excluded#*

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

#Data have been excluded when the population of the SLA is less than 100

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

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 5.27**). **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 5.27**).

Table 5.27: 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 5 per cent; ** significance at 1 per cent

Adelaide (South Australia as the Standard)

Over the years from 1992 to 1995, there were an estimated 169,150 YPLL as a result of deaths of residents of **Adelaide** aged from 15 to 64 years, four per cent fewer than were expected from the South Australian State rates (an SR of 96**). There were more YPLL for males (103,077 years, 60.9 per cent) than for females (66,073 years, 39.1 per cent).

The mapped distribution of standardised ratios produced a pattern consistent with that evident for many of the measures of socioeconomic status (Chapter 3). The highest ratios were distributed throughout the inner, northern and western suburbs, while those with the lowest ratios were located in the eastern and southern metropolitan areas (**Map 5.21**).

The highest standardised ratio, of 140**, was recorded in the SLAs of Adelaide and Enfield [Part A], indicating that there were 40 per cent more YPLL than were expected from the State rates. Ratios elevated by 30 per cent or more were also recorded in the western SLAs of Thebarton (139**), Enfield [Part B] (136**) and Port Adelaide (133**), and the northern SLA of Elizabeth (131**).

In total, twelve SLAs were mapped in the middle range of 15 per cent above or below the level expected. These included Kensington and Norwood (114**), Brighton and Walkerville (both 112**), Gawler (108**), Hindmarsh and Woodville (106**), West Torrens (99), Prospect (95**), Payneham (94**), Henley and Grange (92**), Salisbury (90**), Marion (89**) and Burnside (87**).

Residents of East Torrens had the lowest ratio for this variable, with 46 per cent less YPLL than were expected from the State rates, an SR of 54**. Low ratios to the south of the city were recorded in Happy Valley (an SR of 57**) and Mitcham (69**).

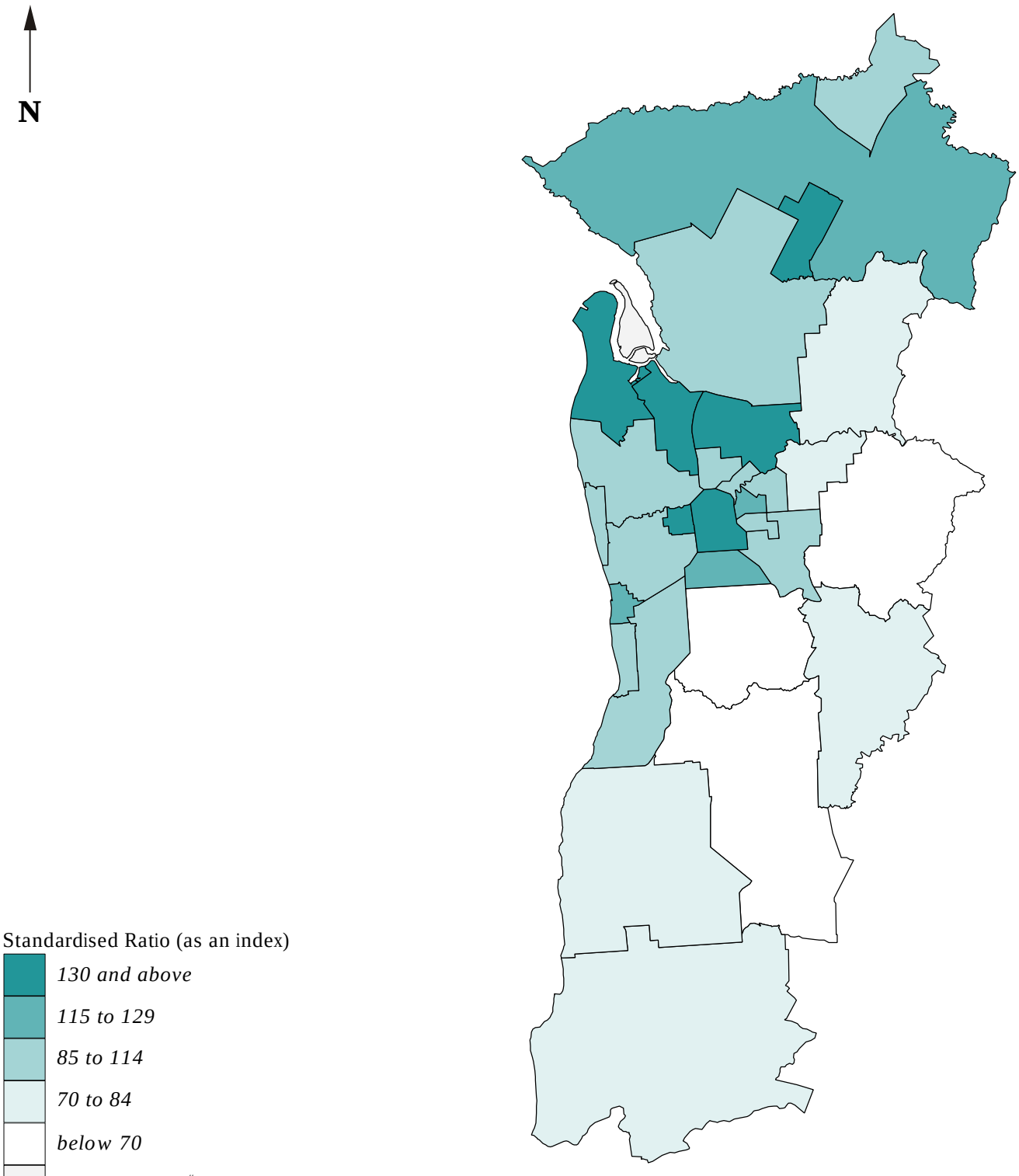
The distribution of standardised ratios for males across **Adelaide** was very similar to that recorded for females (a ratio of 95** for males and 97** for females). However, the ratios recorded for males were substantially higher than those for females for residents a number of SLAs, including the City of Adelaide (a male ratio of 159** and a female ratio of 100), Port Adelaide (a male ratio of 152** and a female ratio of 103) and Elizabeth (a male ratio of 148** and a female ratio of 107**). By way of contrast, female ratios greatly exceeded those for males in St Peters (151** compared to 114**, respectively), Kensington and Norwood (141** compared to 96) and Brighton (131** compared to 99).

The greatest impact of premature death (when measured by YPLL by the population aged from 15 to 64 years) was recorded for residents of Salisbury, with 16,448 years. High numbers were also recorded in the SLAs of Hindmarsh and Woodville (15,555 years), Noarlunga (11,924 years), Tea Tree Gully (11,551 years), Marion (11,239) and Enfield [Part A] (10,625).

There was a correlation of substantial significance with the variable for dwellings with no motor vehicle (0.85), and of meaningful significance with the Indigenous population (0.57), dwellings rented from the State housing authority (0.55), unemployed people (0.55) and low income families (0.50). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.50), indicate an association at the SLA level between high rates of premature death (of people aged from 15 to 64 years) and socioeconomic disadvantage.

Map 5.21
Deaths of people aged 15 to 64 years: years of potential life lost, Adelaide, 1992 to 1995

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



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

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than five expected deaths

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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 5.28** 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 5.28: 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 5 per cent; ** significance at 1 per cent

Rest of State (South Australia as the Standard)

There were an estimated 71,451 YPLL as a result of deaths of residents of the non-metropolitan residents aged from 15 to 64 years in the years from 1992 to 1995, 12 per cent more than were expected from the South Australian rates (an SR of 112**). The elevated ratio is in contrast to the lower than expected rate among metropolitan residents. Males accounted for nearly two thirds (63.8 per cent) of these years of potential years lost, 45,574 years.

Several SLAs had standardised ratios in the highest range mapped, the highest being 337** in the SLA of Unincorporated West Coast (with more than three times the number of YPLL than were expected from the State rates). Ratios of at least twice the level expected were recorded in the SLAs of Unincorporated Far North (an SR of 283**), Ceduna (257**), Peterborough (236**), Carrieton (215**), Spalding (207**) and Unincorporated Pirie (206**). As can be seen from **Map 5.22**, a large proportion of the northern region of the State was mapped in the highest range. The obvious conclusion (and one supported by the correlation analysis below) is that these figures are influenced by high death rates of the Indigenous population.

In total, 59 SLAs were mapped in the middle range, with ratios of 30 per cent above or below the level expected.

The lowest ratio was recorded in Light, just north of Adelaide, an SR of 37**. Ratios in the second lowest range mapped were recorded in three distinct areas; in the Murray Lands, in the south-east and in the mid north. Those in the Murray Lands included Pinnaroo (with a ratio of 43**), Browns Well (52**) and Karoonda and East Murray (66**); the south-east included Beachport (46**), Lucindale (49**), Mount Gambier (DC) (58**), Lacepede (60**) and Port MacDonnell (67**); and Kanyaka and Quorn (57**) and Jamestown (66**) were the mid north SLAs in the lowest range.

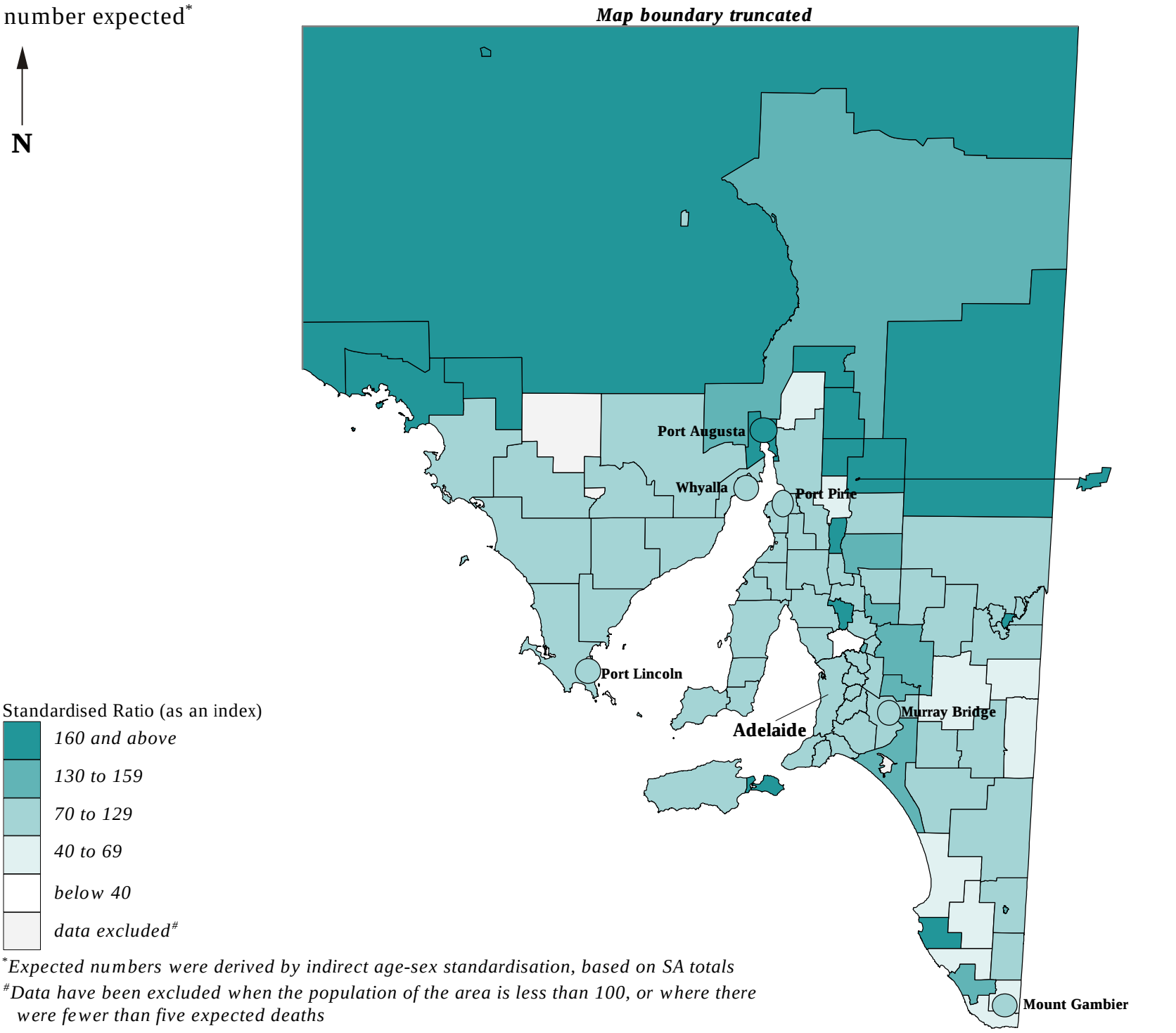
The most notable difference recorded between male and female ratios occurred in Carrieton (with a ratio of 336** for males and 0** for females), Spalding (328** and 0**) and Unincorporated Riverland (156** and 0**). In contrast, female ratios were substantially higher in Unincorporated Pirie (342** for females compared to 158** for males), Orroroo (275** compared to 101), Morgan (232** compared to 60**) and Hallett (200** compared to 46**).

The greatest impact of premature death (when measured by YPLL by the population aged from 15 to 64 years) was recorded for residents of the towns of Whyalla (4,218 years), Port Augusta (4,205 years), Mount Gambier (3,718 years), Murray Bridge (3,289 years) and Port Pirie (2,622 years).

There were weak correlations with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.29), suggest the existence of an association at the SLA level between high rates of premature death (of people aged from 15 to 64 years) and socioeconomic disadvantage.

Map 5.22
Deaths of people aged 15 to 64 years: years of potential life lost, South Australia, 1992 to 1995

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



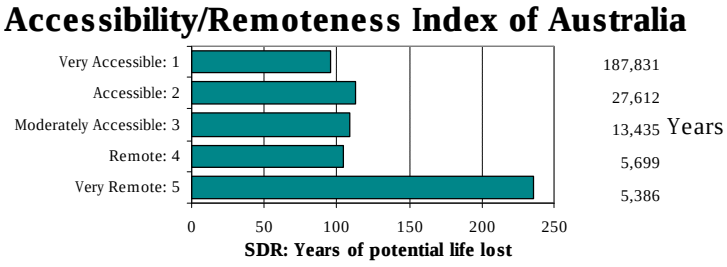
*Expected numbers were derived by indirect age-sex standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100, or where there were fewer than five expected deaths

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



The ARIA graph of years of potential life lost provides a summary measure of the impact of premature deaths over the years from 1992 to 1995. The lowest standardised ratio is in the Very Accessible areas (an SDR of 96) and the most substantial increase occurs between the Remote (an SDR of 105) and Very Remote (236) categories, where the impact of Indigenous deaths is likely to be an important influence in the high ratios.

Source: Calculated on ARIA classification, DHAC

This page intentionally left blank

The information on these four pages provides summary details for variables where it was considered that there were too few cases to map the data at the SLA level. Where SLA data is available it is in the tables in Volume 5.1.

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 *Rest of State/Territory* areas were similarly highest in the Northern Territory and were higher than the capital city rates for all but Queensland (where they were the same) and Tasmania (where they were lower).

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 5.29**). 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 5.29: 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

Rest of State

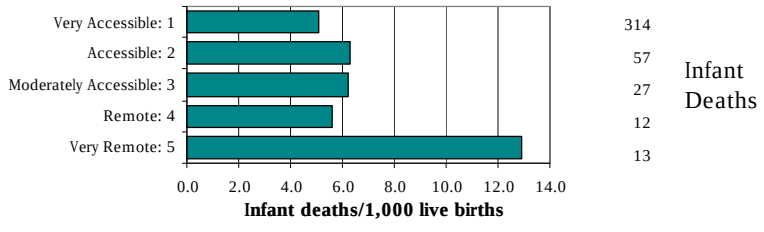
There were 135 deaths of infants resident in the non-metropolitan areas of South Australia over the four year period from 1992 to 1995, a rate of 5.9 infant deaths per 1,000 live births.

Of the SLAs where rates were able to be reliably calculated, the highest rate was in Barmera, where there were 21.0 infant deaths per 1,000 live births. Relatively high rates were also recorded in Ceduna (18.7), Port Augusta (14.9), Unincorporated Far North (13.6) and Renmark (10.3).

Mount Barker (4.0), Mount Gambier (5.4), Whyalla (5.9) and Murray Bridge (5.9) recorded the lowest infant death rates.

The only two SLAs to record more than 10 infant deaths over this time period were Port Augusta (with 15 deaths) and Whyalla (with 10 deaths).

Accessibility/Remoteness Index of Australia



Infant death rates were highest in the Very Remote ARIA category (12.9 infant deaths per 1,000 live births), although there were just 13 infant deaths in this four year period. The other rates ranged from 5.1 in the Very Accessible category to 6.3 in the Moderately Accessible 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 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 5.30**. 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 5.30: 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

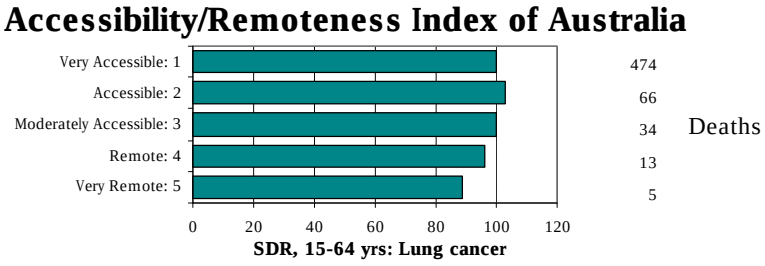
[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

In the non-metropolitan areas of South Australia**,** 17.8 per cent of all cancer deaths were of the trachea, bronchus and lung (referred to as lung cancer). This was a minor cause of death in the non-metropolitan areas, accounting for 4.5 per cent of deaths at all ages; 4.2 per cent of deaths of people aged 65 years and over; and 5.7 per cent of all deaths before age 65.

Rest of State (South Australia as the Standard)

As for all cancers, deaths of 15 to 64 year old non-metropolitan residents varied little from the number expected from the South Australian totals (down by 9 per cent). In the four year period from 1992 to 1995, there were only 153 lung cancer deaths recorded in the non-metropolitan areas of South Australia. Male deaths were four times higher than female deaths, with 120 and 33 deaths, respectively.

Accessibility/Remoteness Index of Australia



The SDRs for deaths from lung cancer in the three 'accessible' ARIA categories are all close to the level expected from the State rates (with the only elevated SDR in the Accessible category (103)); the lowest ratio was in the Very Remote category (an SDR of 89).

Source: Calculated on ARIA classification, DHAC

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 5.31** 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 5.31: 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**

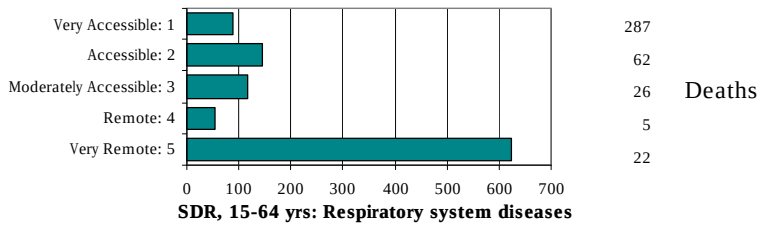
[1]Includes Queanbeyan (C)
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3] Data included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

There were 903 deaths from diseases of the respiratory system in the years from 1992 to 1995 in the non-metropolitan areas of South Australia, 7.6 per cent of all deaths**.** The majority of these deaths (84 per cent, 756 deaths) were of people aged 65 years and over, with 16 per cent of deaths being of people aged from 15 to 64 years. Deaths from these causes represented five per cent of all deaths for this age group.

Rest of State (South Australia as the Standard)

There were 28 per cent more deaths of 15 to 64 year old non-metropolitan residents from respiratory system diseases than were expected from the South Australian State rates (an SDR of 128**). Of the 143 deaths, 95 were males and 48 were females.

Accessibility/Remoteness Index of Australia



Death rates of people aged from 15 to 64 years from respiratory system diseases vary markedly across the ARIA categories. They range from an SDR of 55 in the Remote areas to an SDR of 624 in the Very Remote category. The next highest SDR is 145 in the Accessible areas. The extremely highly elevated SDR in the Very Remote category is likely to reflect the high premature death rates experienced by Indigenous people.

Source: Calculated on ARIA classification, DHAC

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 5.32** 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 5.32: 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**	154**	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 5 per cent; ** significance at 1 per cent

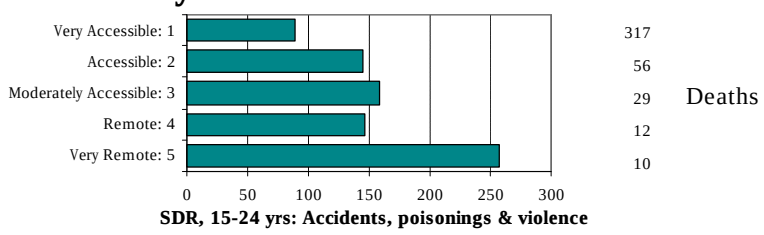
Over the four year period from 1992 to 1995, there were 153 deaths of people aged from 15 to 24 years from this group of external causes in the non-metropolitan areas of South Australia. This was a rate of 77.5 per 100,000 population, higher than the **Adelaide** rate of 41.7 per 100,000 population. Although this was a relatively small number of deaths, they accounted for 78.1 per cent of all deaths in this age group, 82.7 per cent of male deaths and 63.0 per cent of female deaths. The data analysed for this variable represented 19.3 per cent of deaths at all ages from this cause.

Rest of State (South Australia as the Standard)

Deaths of 15 to 24 year old non-metropolitan residents from the combined causes of accidents, poisonings and violence were substantially (54 per cent) higher than expected from the South Australian rates (an SDR of 154**).

Mount Barker, with an SDR of 206* and 12 deaths; Whyalla, with an SDR of 168 and 12 deaths; and Mount Gambier with an SDR of 117 and eight deaths, were the only SLAs where the data was sufficiently reliable for SDRs to be calculated for this variable.

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 similar to those for the 15 to 64 year age group. There were nearly three times the number of deaths in the Very Remote category than were expected from the State rates, an SDR of 257, compared with a ratio of 89 in the Very Accessible category. The Accessible (with an SDR of 145), Moderately Accessible (158) and Remote (146) categories also had elevated ratios. The influence of Indigenous deaths is likely to be an important influence in the high ratios in the Very Remote areas.

Source: Calculated on ARIA classification, DHAC

Total Fertility Rate

Introduction

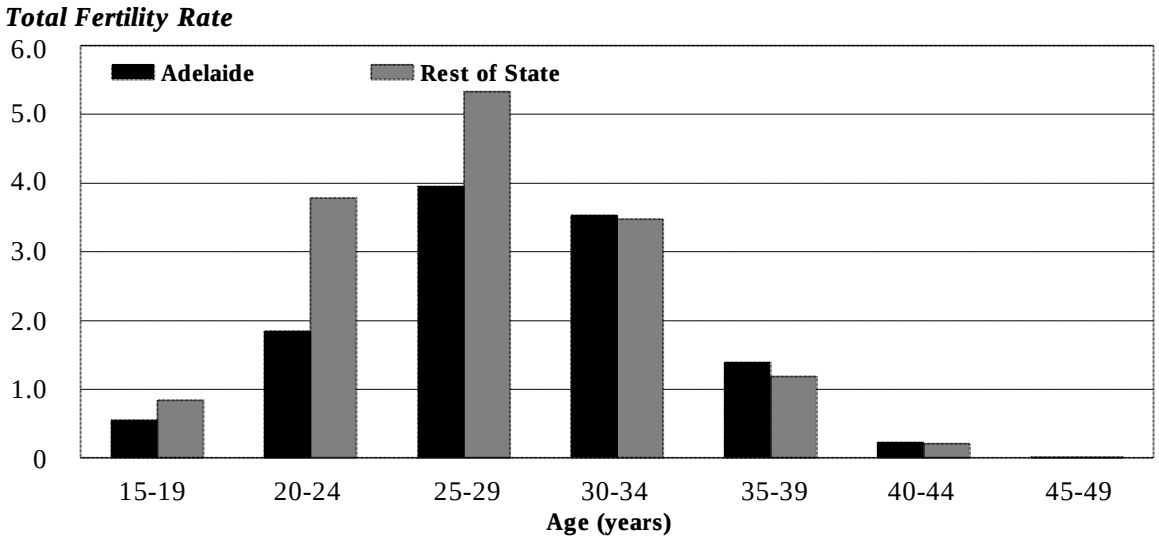
The Total Fertility Rate (TFR) is a measure of the production of children and is calculated from details of the age of the female population, the number of live births and the age of the mother at birth. It represents the mean number of children which females, living right through their child-bearing 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 and cluster 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 South Australia are those for females aged from 25 to 29 years living in areas outside **Adelaide** (**Figure 5.10**). Females aged from 25 to 29 years and living in **Adelaide**, as well as those aged from 20 to 24 years and living in the non-metropolitan areas of South Australia, had the next highest TFRs. The largest difference in TFRs between residents of **Adelaide** and the rest of South Australia was in the 20 to 24 year age group.

Figure 5.10: Total Fertility Rates, Adelaide and Rest of State, 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	1.72	1.75

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

Areas with fewer than 20 births over this four year period have been excluded from the analysis.

Adelaide

The Total Fertility Rate (TFR) for **Adelaide** over the four year period from 1992 to 1995 was 1.64, slightly lower than the State rate of 1.75. The highest Total Fertility Rates were recorded for women aged from 25 to 29 years (a TFR of 3.95), followed by those aged from 30 to 34 years (a TFR of 3.53) (see **Figure 5.10**, previous page).

Map 5.23 shows that SLAs with high TFRs were located in the outer northern areas, with the highest TFRs recorded in Elizabeth (a TFR of 2.36) and Munno Para (2.14). Salisbury (1.95), Gawler (1.92), Enfield [Part A] (1.74) and Tea Tree Gully (1.63), also located in the north, also had high TFRs.

Just under half (46.7 per cent) of metropolitan SLAs had TFRs of between 1.50 and 2.00. TFRs in this class interval were generally distributed to the south and west of the city, and included Willunga (1.96), Enfield [Part B] (1.96), Stirling (1.95), Noarlunga (1.90), Happy Valley (1.79), Port Adelaide (1.76), Marion (1.65) and Hindmarsh and Woodville (1.60). Rates in this range were also recorded in the eastern SLAs of East Torrens, with a TFR of 1.84 and Campbelltown, with a TFR of 1.50.

SLAs located in inner city areas generally reported the lowest TFRs, with St Peters recording a TFR of 1.26; Unley, 1.25; Thebarton, 1.22; and Walkerville, 1.17. Kensington and Norwood, with a TFR of 0.99, and Adelaide, with a TFR of 0.73, had the lowest TFRs in **Adelaide**.

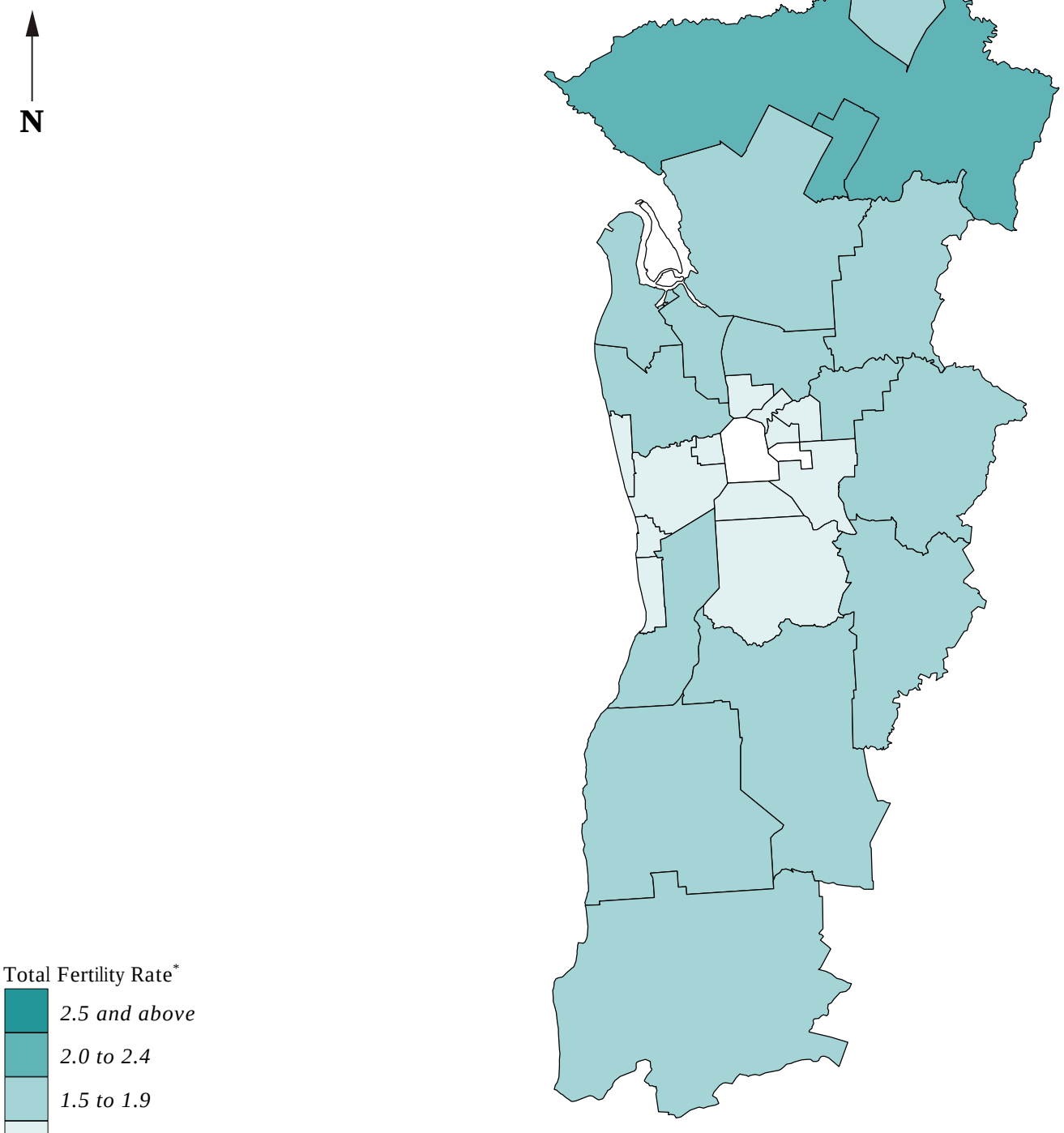
There were 55,333 births to mothers aged from 15 to 49 years over the four years from 1992 to 1995, with the largest numbers being in Salisbury (7,513), Noarlunga (5,630), and Tea Tree Gully (4,847). At the other end of the scale, fewer than 300 births were recorded in the SLAs of Walkerville (216) and Adelaide (291).

As would be expected, there was a strong association between high TFRs and the variable for children aged from 0 to 4 years (a correlation of substantial significance, of 0.94). There were also correlations of substantial significance at the SLA level with the variables for unskilled and semi-skilled workers (0.76) and early school leavers (0.74), and of meaningful significance with single parent families (0.51) and the Indigenous population (0.50).

An inverse correlation of substantial significance was recorded with the variable for managers and administrators, and professionals (-0.71). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.55), indicate the existence of an association at the small area level between high Total Fertility Rates and socioeconomic disadvantage.

Map 5.23
Total Fertility Rate*, Adelaide, 1992 to 1995

Total Fertility Rate* in each Statistical Local Area



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*
- *data excluded#*

*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 SA totals

#Data have been excluded when the population of the SLA is less than 100, or where there were fewer than 20 births

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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

Rest of State

The Total Fertility Rate (TFR) for the non-metropolitan areas of South Australia over the four year period from 1992 to 1995 was 2.12, above the **Adelaide** rate of 1.64. The highest TFRs were recorded for women aged from 25 to 29 years (a TFR of 5.33), followed by those aged 20 to 24 (a TFR of 3.78) (see **Figure 5.10**, page 173).

As many of the TFRs in **Map 5.24** are high, the ranges mapped have been changed to enhance the pattern of differentiation. The highest and lowest ranges have been set at 3.0 and above, and less than 1.5, respectively, rather than at 2.5 and 1.0, as in the map of **Adelaide** for this variable.

There was no notable pattern in the spatial distribution of TFRs across the State. The highest rates were recorded in the SLAs of Elliston (a TFR of 4.08), located on the Eyre Peninsula; Morgan (3.35); and Lameroo (3.15); in the Murray Lands; and Warooka (3.15), on the Yorke Peninsula. Relatively high rates were also evident in Ridley-Truro (2.99), Franklin Harbor (2.98), Streaky Bay (2.93) and Cleve (2.82).

Generally speaking, there was little variation in TFRs across the areas mapped, with about half of the SLAs recording rates of between 2.00 and 2.50. The highest rates in this range were in the SLAs of Hallett and Minlaton, both with a TFR of 2.49, and the Unincorporated Far North, with a rate of 2.47. On the other hand, Mount Gambier (2.00), Jamestown (2.02) and Wallaroo (2.02) had the lowest values in this class interval.

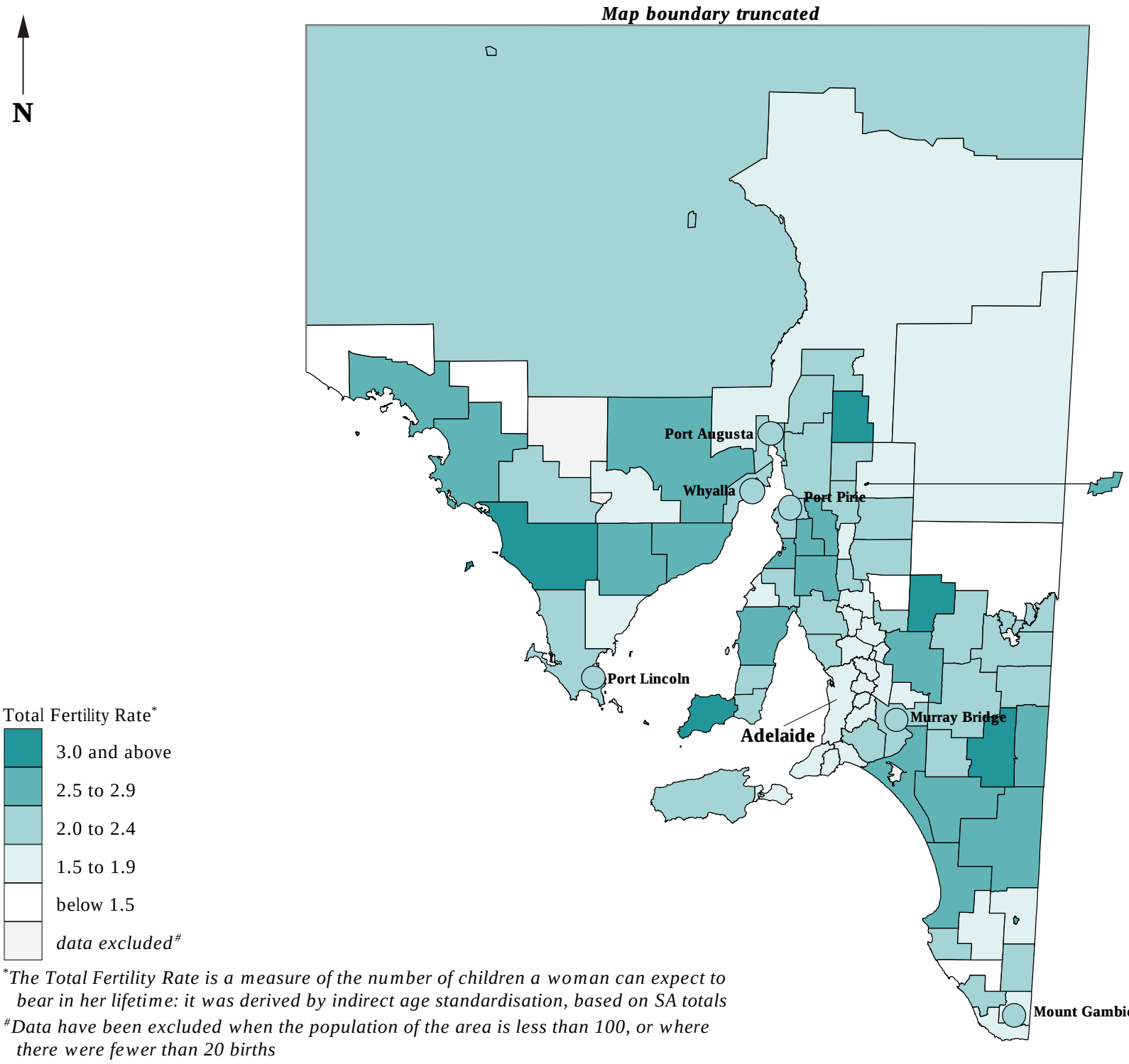
The lowest rate was recorded in Unincorporated West Coast, with a TFR of 1.10. Beachport and Robertstown also recorded low TFRs, with rates of 1.23 and 1.45 respectively.

In the non-metropolitan areas of South Australia, the largest numbers of births to mothers aged from 15 to 49 years were recorded in the towns of Whyalla, with 1,691; Mount Gambier, with 1,485; Murray Bridge, with 1,018; Port Augusta, with 1,008; Port Lincoln, with 874 and Port Pirie, with 825.

There was a weak association evident in the correlation analysis at the SLA level between high Total Fertility Rates and the indicators of socioeconomic disadvantage.

Map 5.24
Total Fertility Rate*, South Australia, 1992 to1995

Total Fertility Rate* in each Statistical Local Area



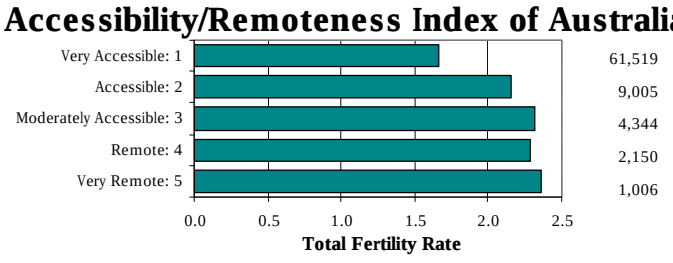
*The Total Fertility Rate is a measure of the number of children a woman can expect to bear in her lifetime: it was derived by indirect age standardisation, based on SA totals

#Data have been excluded when the population of the area is less than 100, or where there were fewer than 20 births

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 (TFR) increases markedly, from a low of 1.66 in areas in the Very Accessible category to 2.16 in the Accessible category, before increasing steadily to a rate of 2.36 in the Very Remote category (42.2 per cent higher than the TFR in the Very Accessible category).

Source: Calculated on ARIA classification, DHAC

This page intentionally left blank