5 Health status

Introduction

Differences in social and economic circumstances have been illustrated in the previous chapters for areas of the Northern Territory. The maps and an 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 the Northern Territory, and in demonstrating associations with the socioeconomic status of health service utilisation patterns. The results of the correlation analysis (which show the extent of interdependence between 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, Australia, 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.

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

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

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

Data mapped

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

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

Gaps and deficiencies in the data

Health status of Aboriginal and Torres Strait Islander people

Indigenous people have the poorest health of any group in Australia: they are also the group least well 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 18 and 19 for further details. Thus, estimates of the completeness of Indigenous birth and death notifications for some States and

[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.

Territories (which are, in part, based on Census counts) will need to be reviewed.

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

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

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

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

Health status and the physical environment

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

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

Since 1 July 1998 larger Australian industrial facilities 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 'on the street' frequent these areas, and these SLAs are also the location of much of the sheltered accommodation and many of the low-cost boarding houses used by the homeless in general.

Other gaps and deficiencies

There are a number of important areas for which health status data are not available at the small area level. These include oral health, nutrition (including information on height and weight) and mental health and wellbeing, all of which are key areas affecting health status. Details of the incidence of cancer are also not available for all of Australia in a standard form suitable for mapping. For example, data are available for some States and Territories 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.

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Synthetic predictions of selected health status measures

Introduction

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

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

Description of the technique

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

SF-36

As noted on page 107, 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 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 20,700 people in the Northern Territory (12.3 per cent of the population) had a disability. Of these, 20,000 (11.9 per cent of the population) were living in 'households', the remainder living in establishments such as nursing homes and hostels.

The majority (15,400, or 9.2 per cent of the population) of those with a disability had a handicap of varying levels of severity, ranging from profound (10.4 per cent of all people with a handicap), through severe (16.2 per cent) and moderate (13.6 per cent), to mild (44.2 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 2.2, however only the dataset for the population with a handicap has been mapped in this atlas.

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People reporting their health as fair or poor, 1995

Capital city comparison (Australia as the Standard)

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

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

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

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

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

Darwin (Northern Territory as the standard)

In 1995, an estimated 7,504 **Darwin** residents (14.5 per cent of the population) reported their health as fair or poor (as distinct from those who reported their health as being good, very good or excellent), 3 per cent fewer than expected from the Northern Territory rates (an SR of 97*).

Postcodes (aggregates of suburbs)

The highest ratio was recorded in the developing Palmerston suburbs in the south-east, where 20 per cent more residents reported their health as fair or poor than were expected from the Northern Territory rates (an SR of 120**). This represented an estimated 1,284 people, or 16.9 per cent of the Palmerston population aged 18 years and over. Palmerston also had the highest proportions for most indicators of socioeconomic disadvantage, including the variables for single parent families and unemployed people.

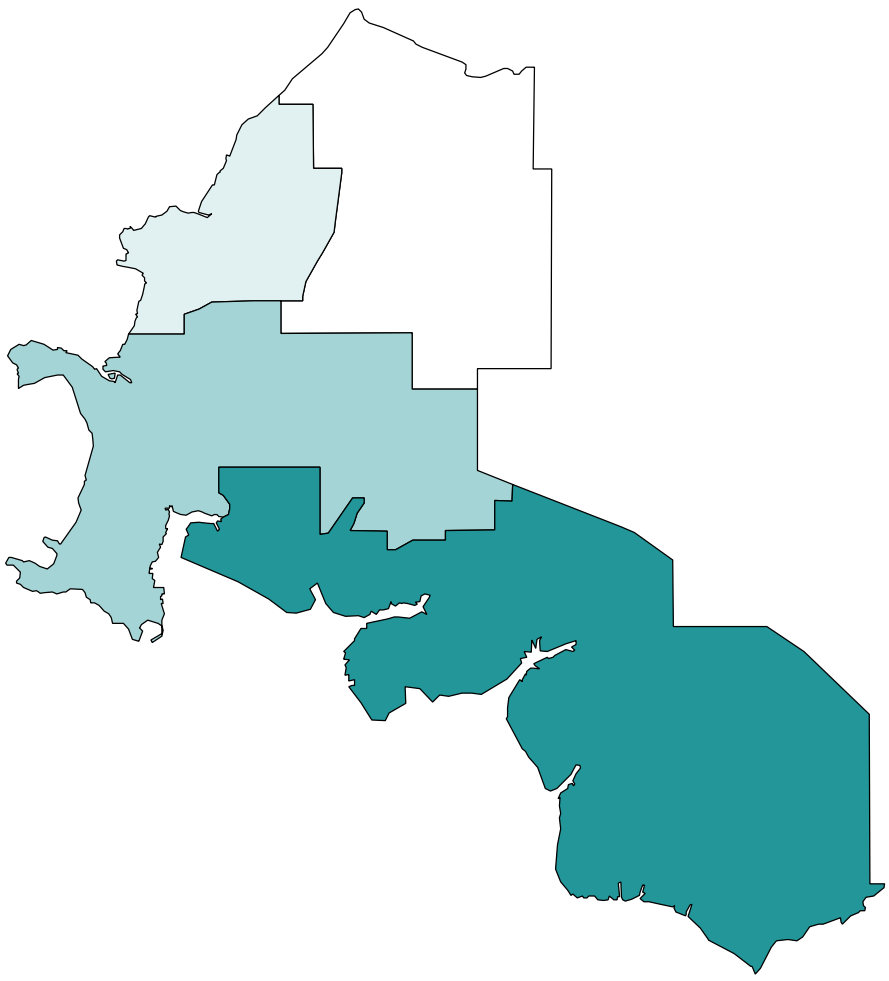
The older, inner city suburbs of Darwin: South West had marginally more people reporting fair or poor health than were expected from the Northern Territory rates (an SR of 101) and, in Darwin: North West, 8 per cent fewer residents than were expected reported their health as fair or poor (an SR of 92**) (**Map 5.1**). This was also the area with the largest number of people who reported their health as fair or poor.

The lowest ratio was recorded in Darwin: North East, with 12 per cent fewer people than expected reporting their health as fair or poor (an SR of 88**).

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

Standardised Ratio: number of people in each postcode area compared with the number expected*

N



Standardised Ratio (as an index)

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

SLAs have been grouped to approximate postcode areas

#Expected numbers were derived by age-sex standardisation, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

People reporting their health as fair or poor, 1995

State/Territory comparison

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

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

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

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

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

Rest of Territory (NT as the standard)

In 1995, there were estimated to be 8,600 people (15 per cent of the population aged 18 years and over) 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 the Northern Territory**,** marginally more than expected from the Northern Territory rates (an SR of 102*).

All of the SLAs with elevated ratios for this variable were rural areas, rather than towns (**Map 5.2**).

Indigenous people comprised over 60 per cent of the population in the eight SLAs in which ratios were elevated by more than 20 per cent above the level expected from the Northern Territory rates. The highest ratio was recorded in Tanami, where 20 per cent of the population considered their health to be fair or poor; this was 33 per cent more people than expected (an SR of 133**). Still in the lower central region of the Northern Territory, Tennant Creek-Balance (123**) and Sandover-Balance (121**) also recorded high ratios. Other highly elevated ratios were recorded in the northern SLAs of East Arnhem-Balance (126**), West Arnhem (126**), Daly (125**), Gulf (125**) and Bathurst-Melville (123**).

Ratios elevated by between 10 and 20 per cent were recorded in the SLAs of Tennant Creek (113*), Elsey Balance (111) and South Alligator (110).

Standardised ratios showing little or no variation from the Territory rates were recorded in Groote Eylandt (an SR of 104), Petermann (103), Cox-Finniss (101) and Katherine (100).

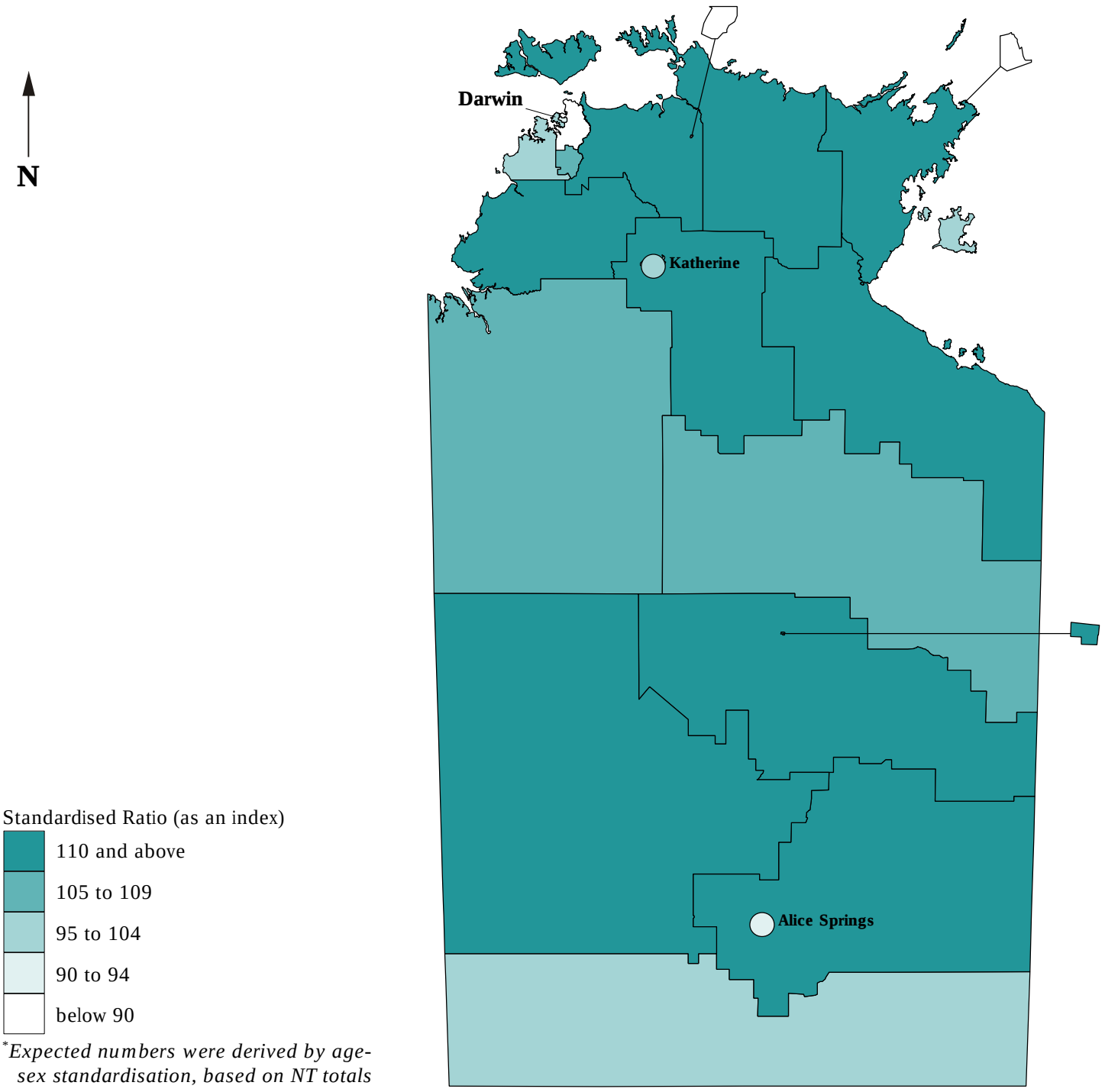
There were 31 per cent fewer people than expected from the Northern Territory rates reporting their health as fair or poor in Nhulunbuy, an SR of 69**. Other SLAs with low ratios were Jabiru (76*), Litchfield [Part A] (85**), Litchfield [Part B] (91) and Alice Springs (91**).

In the non-metropolitan areas of the Northern Territory, the largest numbers of people reporting their health as fair or poor were in Alice Springs (2,018 people), Litchfield [Part B] (1,027), Katherine (758), Tanami (735) and East Arnhem-Balance (569).

There were correlations of substantial significance with the variables for the Indigenous population (0.86), low income families (0.84), single parent families (0.81) and private dwellings without a motor vehicle (0.75). Inverse correlations were recorded with high income families (-0.88) and female labour force participation (-0.80). These results, together with the inverse correlation of substantial significance with the IRSD (-0.90), indicate the existence of an association at the SLA level between high rates of fair or poor health and socioeconomic disadvantage.

Map 5.2
People reporting their health as fair or poor, Northern Territory, 1995

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

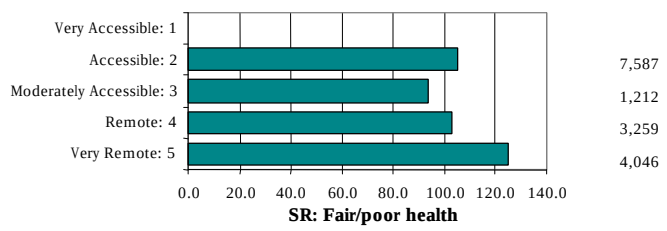


Expected numbers were derived by age-sex standardisation, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



	People
Very Accessible: 1	7,587
Accessible: 2	1,212
Moderately Accessible: 3	3,259
Remote: 4	4,046
Very Remote: 5	

Areas in the Accessible category (ie. **Darwin**) had five per cent more people reporting their health as fair or poor than expected from the Northern Territory rates (a standardised ratios (SR) of 105). There is a strong gradient evident across the three remaining ARIA categories for people reporting their health as fair or poor. The standardised ratios (SRs) increase from an SR of 94 (six per cent fewer people reporting their health as fair or poor than expected from the Northern Territory rates) in the Moderately Accessible areas to an SR of 125 in the Very Remote areas (25 per cent more than expected).

Source: Calculated on ARIA classification, DHAC

Physical Component Summary, SF-36, 1995

Capital city comparison (Australia as the Standard)

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

The capital city 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

Darwin (Northern Territory as the standard)

The PCS score recorded in **Darwin** in 1995 was 51.0, the level expected from the Northern Territory rates for a population of this size and age/sex composition.

Postcodes (aggregates of suburbs)

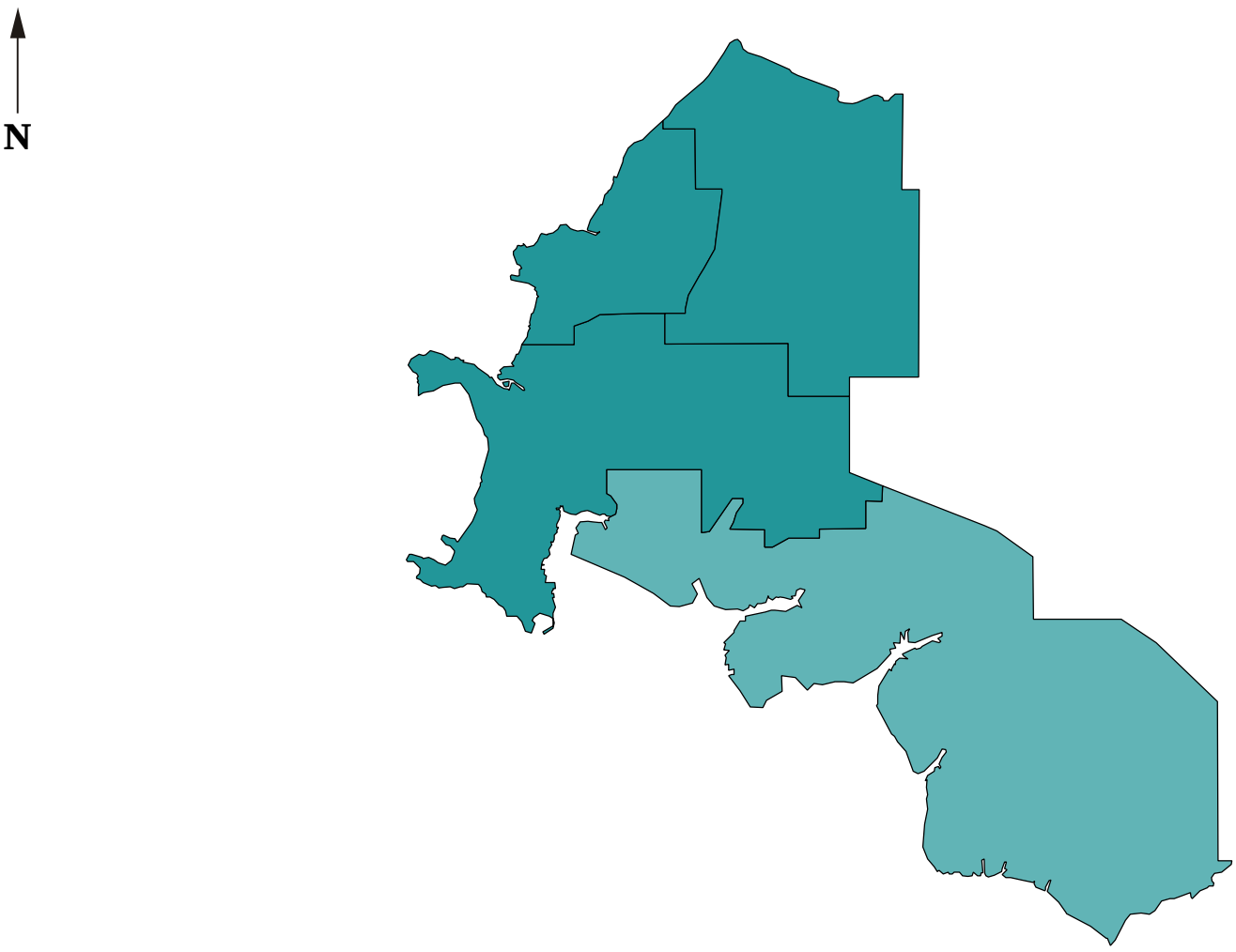
There was little difference between the mean scores recorded in the postcode areas of **Darwin**. Residents aged 15 and over in the northern parts of Darwin fared slightly better, with both Darwin: North West and Darwin: North East recording a PCS score of 51.3 (**Map 5.3**).

A slightly lower PCS score, of 50.9, was estimated for residents of the established, inner city area of Darwin: South West.

The lowest PCS score, of 50.1, was estimated for residents of Palmerston. This area also recorded the lowest IRSD, indicating that it was the most socioeconomically advantaged area in **Darwin**, as well as the highest proportions for other indicators of socioeconomic disadvantage, including the variables for low income families and housing authority rented dwellings.

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

mean Physical Component Summary (PCS) score* in each postcode area



Standardised score*

- 50.5 and above
- 50.00 to 50.4
- 49.5 to 49.9
- 49.0 to 49.4
- below 49.0

The PCS score has been age-sex standardised based on NT totals

#SLAs have been grouped to approximate postcode areas*

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Physical Component Summary, SF-36, 1995

State/Territory comparison

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

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

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

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

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

Rest of Territory (NT as the standard)

The PCS score recorded in the non-metropolitan areas of the Northern Territory was 50.8, as expected from the Northern Territory rates. This was marginally lower than the score recorded for residents of **Darwin** (a score of 51.0).

The highest scores (indicating better physical health) were generally recorded in towns and the semi-urban SLAs immediately adjacent to **Darwin** (**Map 5.4**). All mean scores below 50 were recorded in rural areas that had large Indigenous populations (of above 60 per cent of the total population).

The highest PCS score, 52.1, was recorded in Nhulunbuy in the north east. Other mean scores above 51 were recorded in Jabiru (51.7), Litchfield [Part B] (51.6), Litchfield [Part A] (51.2) and Cox-Finniss (51.1) in the north-west, and in Alice Springs in the south of the Territory (51.3).

The town of Katherine and the SLA of Petermann both recorded a PCS score of 50.9, just above the average for the Northern Territory.

Other PCS scores close to the Northern Territory average were recorded in the SLA of Tennant Creek (50.3) and on Groote Eylandt (50.6) as well in a cluster of SLAs stretching from Coomalie (50.7), in the north west, through South Alligator (50.5), Elsey Balance (50.2) and Victoria (50.4) to Tableland (50.1), in the central region of the Northern Territory.

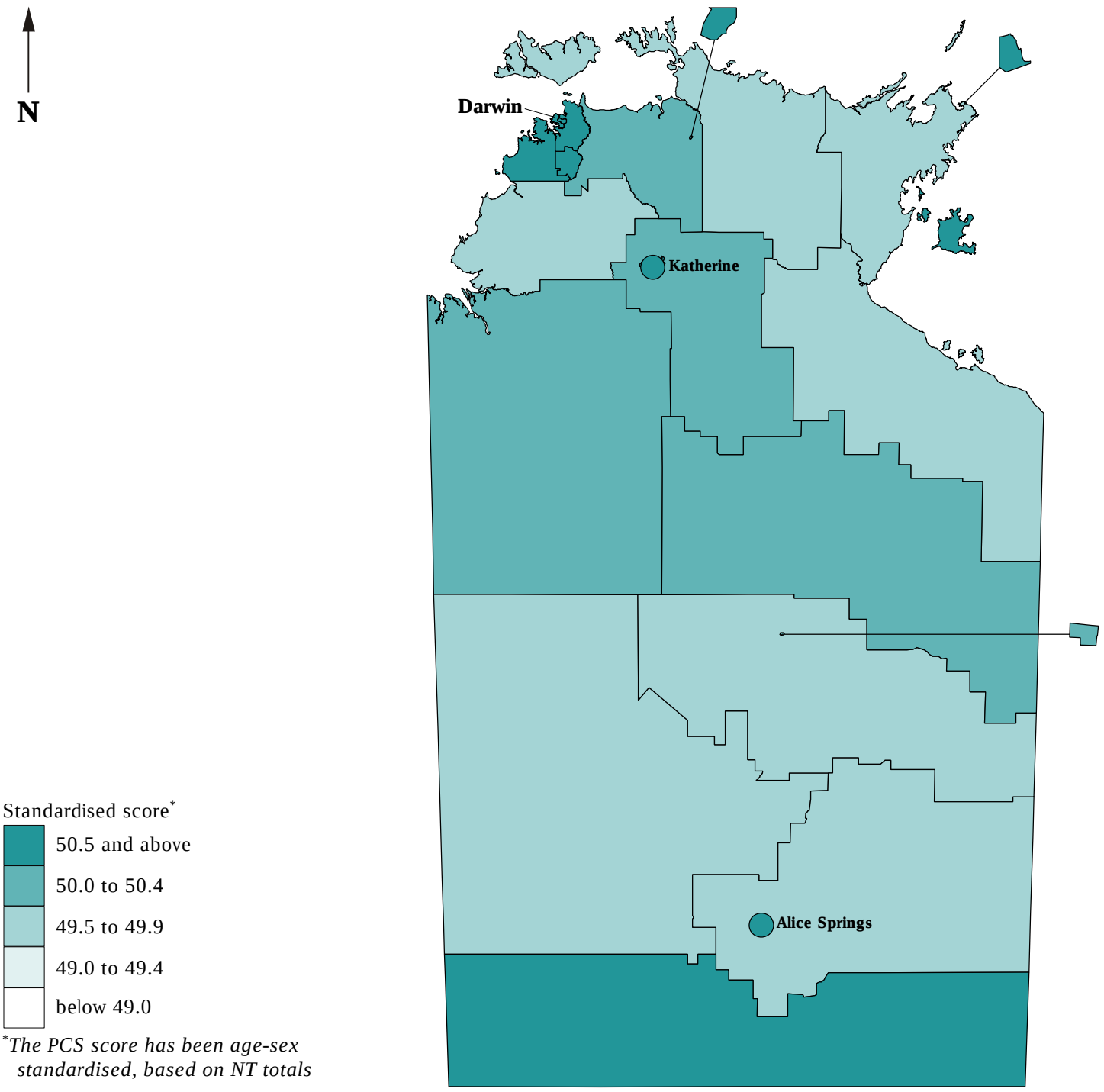
The lowest scores were recorded in East Arnhem-Balance (49.5), Gulf (49.7), West Arnhem (49.7), Daly (49.9) and Bathurst-Melville (50.0) in the north; and in Tanami (49.6), Tennant Creek-Balance (49.6) and Sandover-Balance (49.9) in the southern region of the Territory.

There were correlations of substantial significance with the variables for high income families (0.87) and female labour force participation (0.76); and inverse correlations of substantial significance with the variables for the Indigenous population (-0.89), low income families (-0.88) and single parent families (-0.84).

These results, together with the correlation of substantial significance with the IRSD (0.92), indicate the existence at the SLA level of an association between high PCS scores and high socioeconomic status. There were also inverse correlations of substantial significance with the variable for people reporting their health as fair or poor (-0.97) and years of potential life lost (the summary measure of premature death, of -0.73).

Map 5.4
Physical Component Summary*, SF-36, Northern Territory, 1995

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

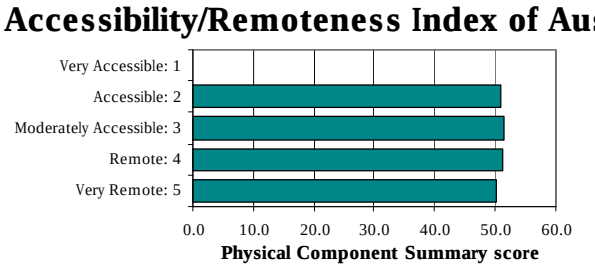


*The PCS score has been age-sex standardised, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



There are only minor differences in Physical Component Summary (PCS) scores across the ARIA categories. The highest score (indicating better physical health) is in the Moderately Accessible ARIA category (with a PCS score of 51.5), with the lowest in the Very Remote category (50.1). Scores in the Accessible and Remote areas were 51.0 and 51.1, respectively.

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.

Darwin (Northern Territory as the Standard)

There were 6,455 people with a handicap resident in Darwin in 1993, 6 per cent fewer than expected from the Northern Territory rates (an SR of 94**).

Statistical Local Areas (SLAs)

SLAs with more people with a handicap than expected from the Northern Territory rates were located in the south eastern and south western areas of **Darwin** (**Map 5.5a**). The northern SLAs recorded fewer people with a handicap than expected from the Northern Territory rates.

Ratios elevated by more than ten per cent above the level expected were recorded in East Arm (with an SR of 164 representing just 10 people with a handicap when 6 were expected from the Northern Territory rates), City-Inner (153**), Winnellie (141), Palmerston Balance (120) and Moulden (114*).

Gray (with an SR of 109), Woodroffe (108), Larrakeyah (106) and Narrows (105) all had between five and ten per cent more people with a handicap than expected.

Just over one quarter (25.7 per cent) of Darwin's SLAs recorded ratios in the lowest range mapped and therefore had over 10 per cent fewer people with a handicap than were expected from the Northern Territory rates. The lowest ratios were recorded in Leanyer (79**), Marrara (80*), Wulagi (83**), Anula (84**) and Karama (85**).

The largest estimated numbers of people with a handicap were in Karama (400 people), Leanyer (350) and Nightcliff (330).

The correlation analysis showed there to be a positive association at the SLA level with indicators of socioeconomic disadvantage. The strongest of these were with the variables for semi-skilled and unskilled workers (0.56), Indigenous people (0.51) and female labour force participation (an inverse correlation of -0.70). These results, together with the inverse correlation with the IRSD (-0.48), indicate an association at the SLA level between high rates of handicap in the population and socioeconomic disadvantage.

Postcodes (Aggregates of suburbs)

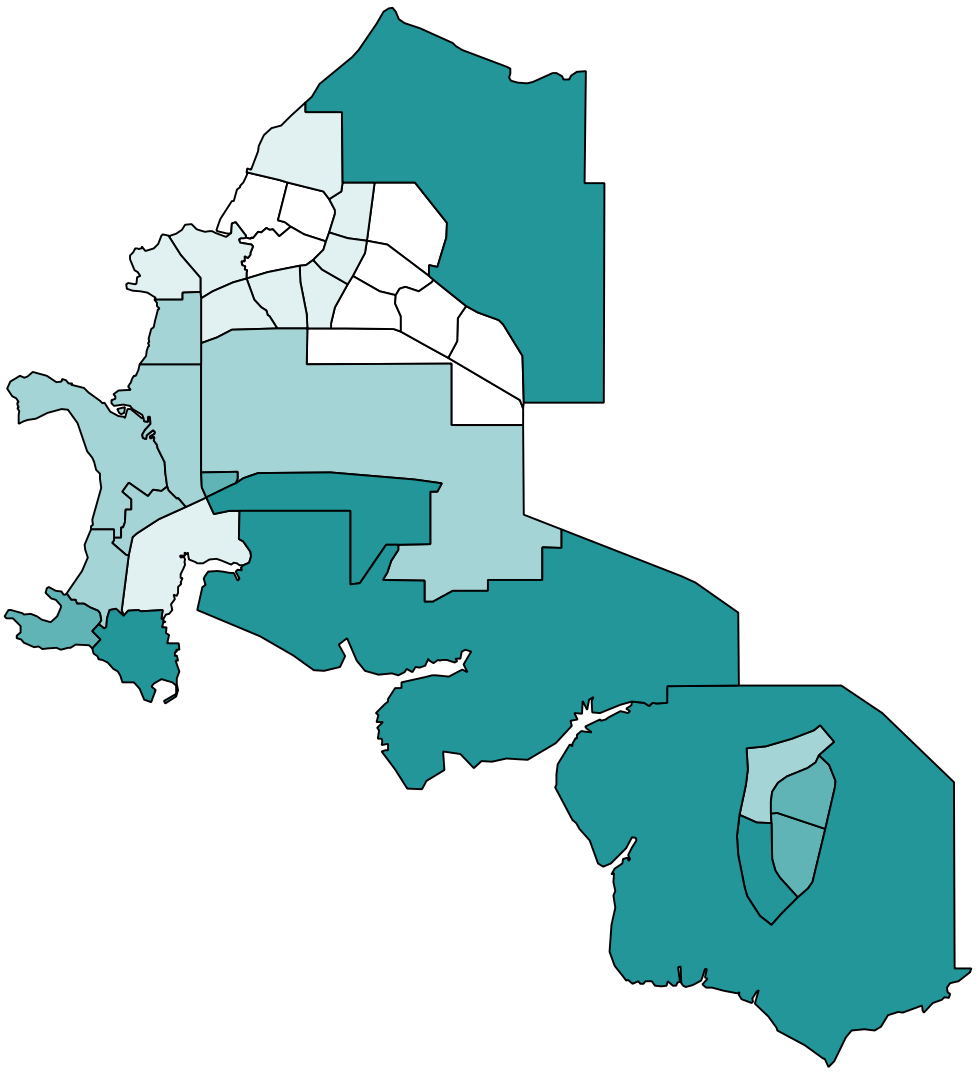
Elevated ratios for this variable at the postcode level were recorded in Palmerston (an SR of 110*, 762 people with a handicap) and Darwin: South West (103, 1,576) (**Map 5.5b**). Fewer than the expected number of people with a handicap were recorded in Darwin: North West (a ratio of 91**, 2,505 people) and in Darwin: North East (84**, 1,612 people)

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

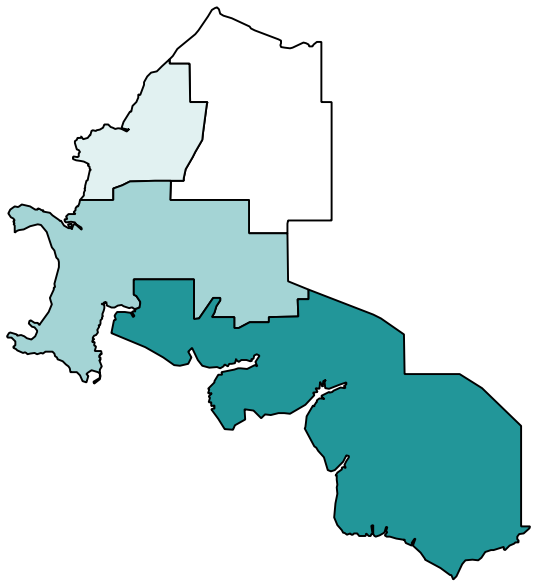
Standardised Ratio: number of people in each area compared with the number expected*

N

Map 5.5a: SLA Map



Map 5.5b: Postcode Map#



Standardised Ratio (as an index)

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

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

#SLAs have been grouped to approximate postcode areas

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 Territory (NT as the Standard)

There were 7,906 people with a handicap in the non-metropolitan areas of the Northern Territory, six per cent more than were expected from the Northern Territory rates (an SR of 106**). People living in these areas are likely to experience more difficulties arising from their handicap (in comparison with those in **Darwin**) because of distance from services that may be of assistance to them.

Map 5.6 shows that the majority (60.9 per cent) of the rural SLAs of the Northern Territory had elevated ratios in the top range mapped. Indeed, there was a clear distinction between the rural areas, which all recorded higher numbers of people with a disability than were expected from the Territory rates, and the towns and Litchfield SLAs, which had lower numbers than were expected.

There were nine SLAs with highly significant elevated ratios including Tennant Creek-Balance (149**), West Arnhem (136**), Tanami (135**), Tableland (130**), Sandover-Balance (129**), East Arnhem-Balance (125**), Gulf (123**) and Daly (121**). With the exception of Tableland (44.5 per cent), these SLAs all had very high proportions of Indigenous Australians (representing over 65 per cent of the population in these SLAs).

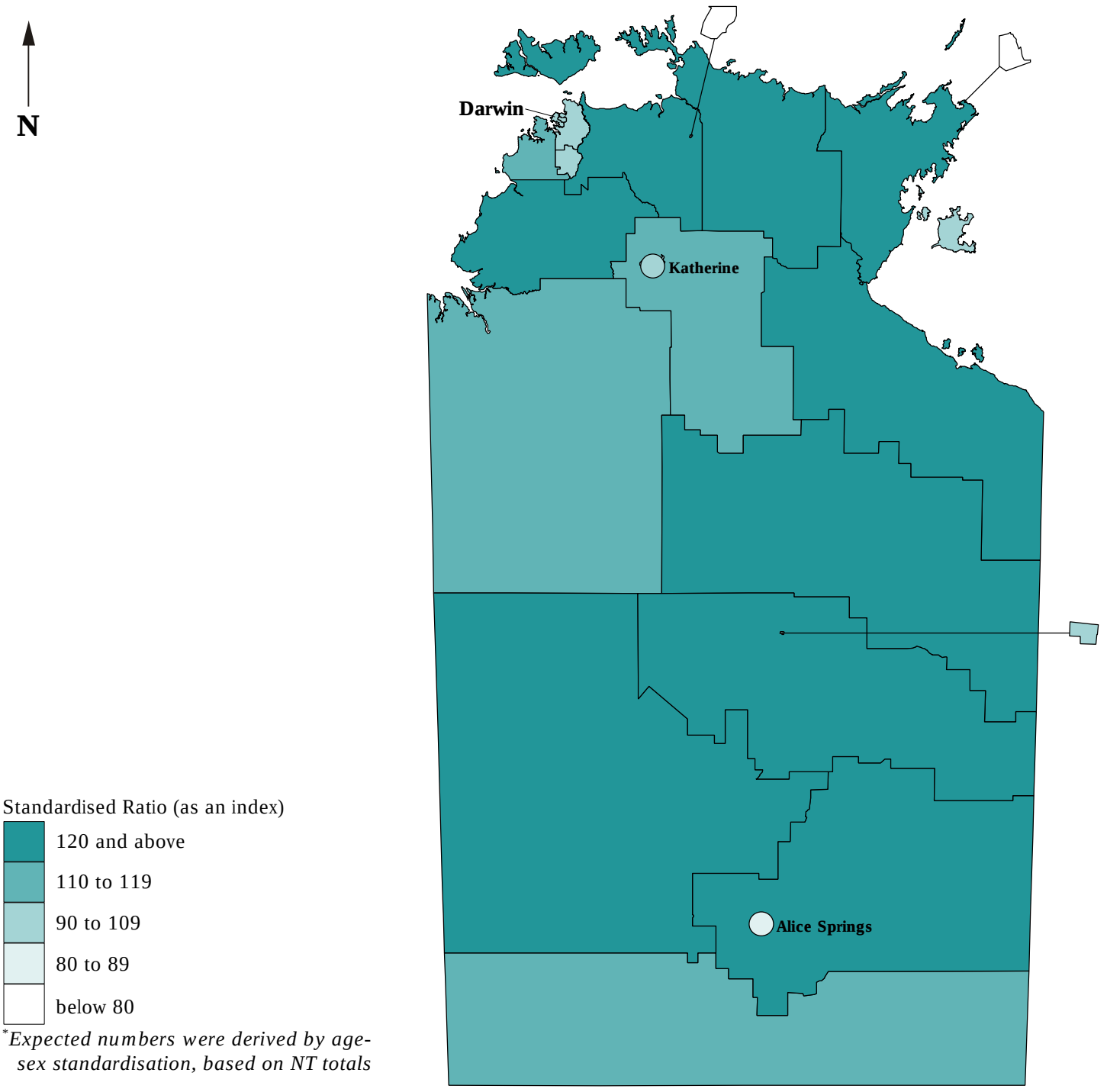
The lowest ratios were recorded in Nhulunbuy (73**) and Jabiru (77*). The other SLAs with fewer people with a handicap than expected were Alice Springs (92**), Litchfield [Part A] (94), Katherine (92*) and Litchfield [Part B] (97).

The largest numbers of people with a handicap were in Alice Springs (1,859 people), Litchfield [Part B] (912) and Katherine (630). These are all urban areas with relatively large populations. The largest numbers of people with a handicap in rural areas were in Tanami (575), East Arnhem-Balance (517) and West Arnhem (394).

The strongest correlations were with the variables for low income families (0.93), the Indigenous population (0.77), early school leavers (0.73) and single parent families (0.70). There were inverse correlations of substantial significance with the variables for high income families (-0.91) and female labour force participation (-0.81). These results, together with the inverse correlation of substantial significance with the IRSD (-0.83), indicate an association between high rates of people with a handicap and socioeconomic disadvantage. Similarly strong correlations were recorded with the variables for people reporting their health as fair or poor health (0.88) and the Physical Component Summary score (an inverse correlation of -0.89).

Map 5.6
Estimated number of people with a handicap, Northern Territory, 1993

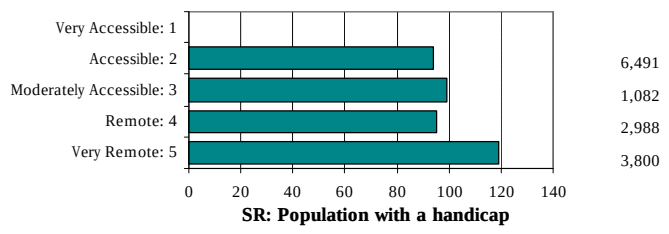
Standardised Ratio: number of admissions in each Statistical Local Area compared with the number expected*



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



	People
Very Accessible: 1	6,491
Accessible: 2	1,082
Moderately Accessible: 3	2,988
Remote: 4	3,800
Very Remote: 5	

The first three ARIA categories in the Northern Territory have similar levels of people with a handicap. The range is from a standardised ratio (SR) of 99 (one per cent fewer people estimated to have a handicap than expected from the Northern Territory rates) in the Moderately Accessible areas to 94 (six per cent fewer) in the Accessible areas. The highest ratio (and the second largest number) is in the Very Remote areas, with 19 per cent more estimated to have a handicap than expected from the Northern Territory rates (an elevated SR of 119).

Source: Calculated on ARIA classification, DHAC

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Deaths

Introduction

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

Variations in death rates by social class

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

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

Changes in numbers and rates, 1986 to 1995

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.

Northern Territory

The number of deaths in the Northern Territory over the nine year period from 1986 to 1995 increased by 23.0 per cent, rising from 661 in 1986 to 813 in 1995. Male deaths increased by 22.6 per cent, while a slightly larger increase of 23.7 per cent was recorded for female deaths. Although there has been an overall increase in the number of deaths, this increase was not experienced among infants (a decrease of 5.7 per cent). In 1995, there were 471 deaths (333 males and 138 females) recorded in the Northern Territory among people aged from 15 to 64 years, an increase of 18.6 per cent since 1986. An increase in the number of deaths was also recorded for people aged 65 years and over, increasing by 40.4 per cent, from 193 deaths in 1986 to 271 deaths in 1995.

Death rates have increased for all ages and in the age groups from 15 to 64 years and 65 years and over. Death rates decreased for children under 12 months,

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).

Northern Territory

In the Northern Territory, death rates of people aged from 15 to 64 years have increased slightly over the period from 1986 to 1995 (**Figure 5.2**). Death rates increased for cancer (an increase of 48.2 per cent) and circulatory system diseases (9.7 per cent). Death rates from the combined causes of accidents, poisonings and violence and respiratory system diseases decreased by 19.8 per cent and 6.7 per cent, respectively.

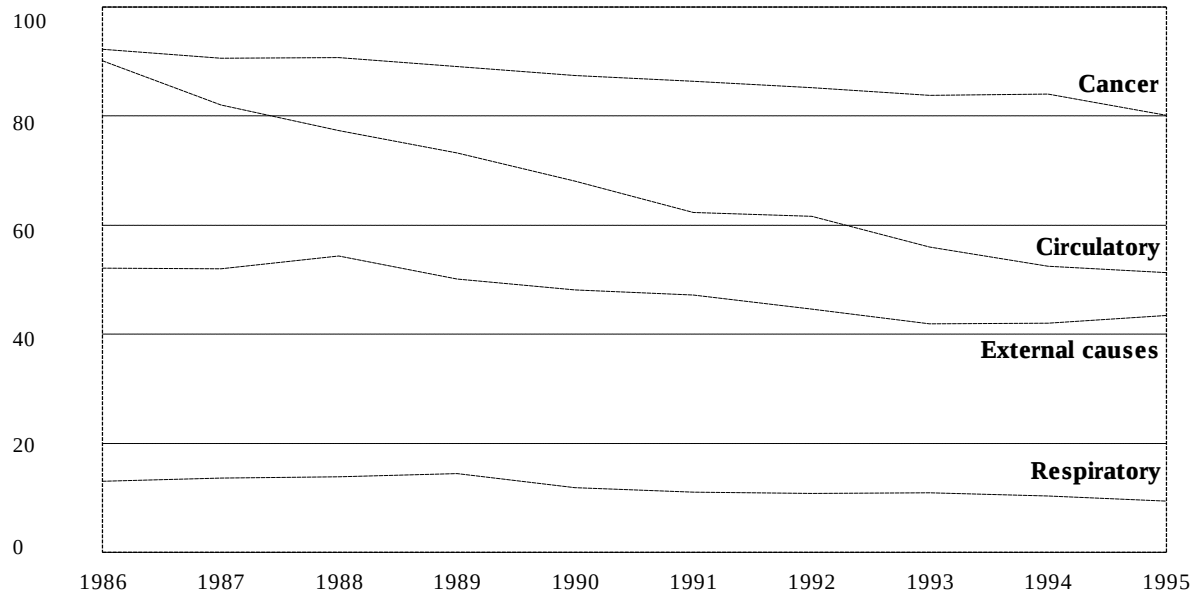
Changes in death rates by age group and sex, 1986 to 1995

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 fewer) over the years from 1986 to 1995. Male death rates from malignant neoplasms declined by 14.1 per cent over this nine year period, whereas female deaths from the same cause decreased by 11.7 per cent.

Figure 5.1: Death rates of people aged from 15 to 64 years, by cause, Australia

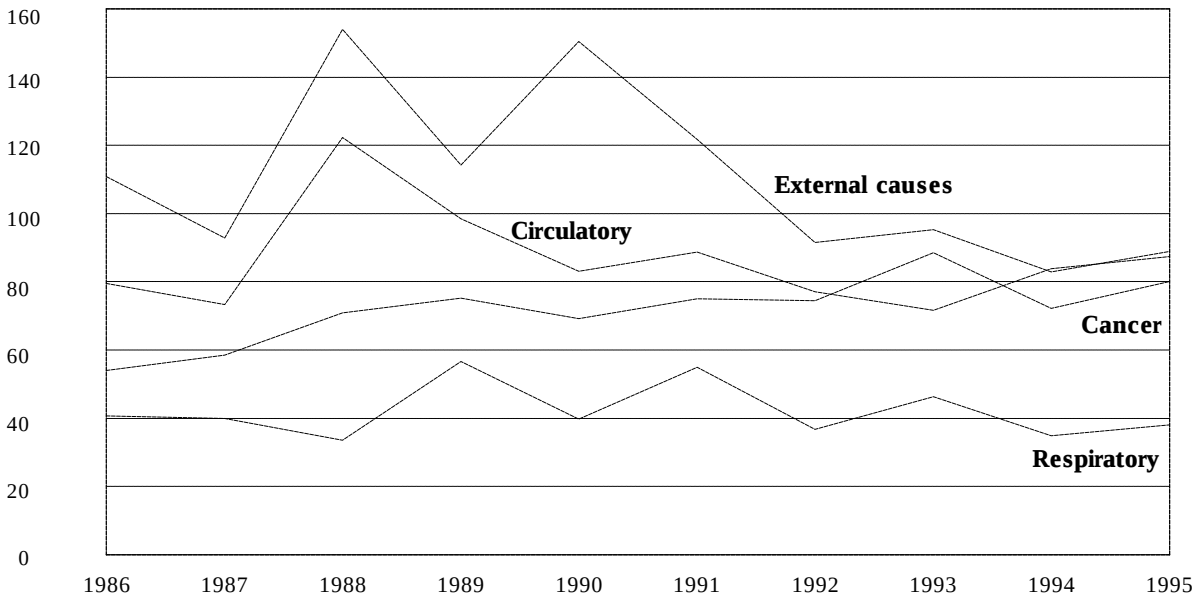
Deaths per 100,000



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, Northern Territory

Deaths per 100,000



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

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

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

Northern Territory

In the Northern Territory, premature death rates of males increased by 3.0 per cent, while female death rates decreased by 1.4 per cent. The overall large increase in the death rates from malignant neoplasms over the ten year period (48.2 per cent), was the result of male death rates in 1995 more than doubling since 1985 (42.5 deaths per 100,000 population compared to 99.2 deaths per 100,000, respectively) and a 13.2 per cent decrease in female death rates (67.3 deaths per 100,000 population in 1986 to 58.5 in 1995). Male death rates from the combined causes of accidents, poisonings and violence decreased by 10.9 per cent, while female death rates decreased by a substantial 49.4 per cent. Between 1986 and 1995 female

death rates from respiratory system diseases decreased by a marginal 0.8 per cent, while male death rates decreased by 10.4 per cent. Death rates for circulatory system diseases increased by 5.9 per cent for males and 26.4 per cent for males.

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 people 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 non-metropolitan areas. Their inclusion increases the rates for SLAs in which nursing homes are largely concentrated and reduce 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 SLA, when it is not necessarily the area, in terms of its socioeconomic profile, in which they would have lived throughout much of their life.

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

Since the mid-1980s (the period on which the analysis in the first edition of the atlas was based) the number of deaths occurring at ages from 15 to 64 years has declined, and the age of people dying in nursing homes has increased. It would have been possible, therefore, to increase the age range in this analysis to include deaths between the ages of 65 and 74 years (thereby increasing the number of cases and strengthening the analysis at the 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 'Darwin' or 'Rest of Territory' has Northern Territory as the standard. In this way the capital cities, States, etc., can be compared to each other against the Australian rates, and the smaller area data within each State and Territory can be compared to 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.

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.

Table 5.9: Deaths by cause and age, Northern Territory, 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)	**0**	**7**	**11**	**4**	**182**	**204**
15 to 64 years	**382**	**381**	**187**	**421**	**382**	**1,753**
males	240	270	118	344	238	1,210
females	142	111	69	77	144	543
Other ages	**269**	**398**	**180**	**69**	**242**	**1,158**
All ages	**651**	**786**	**378**	**494**	**806**	**3,115**

Source: ABS Causes of Death bulletins, 1992 to 1995

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 132.

Table 5.10 shows the number of deaths for the causes mapped for **Darwin** (the Darwin Statistical Division) and the *Rest of the Territory* (the remainder of Northern Territory).

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

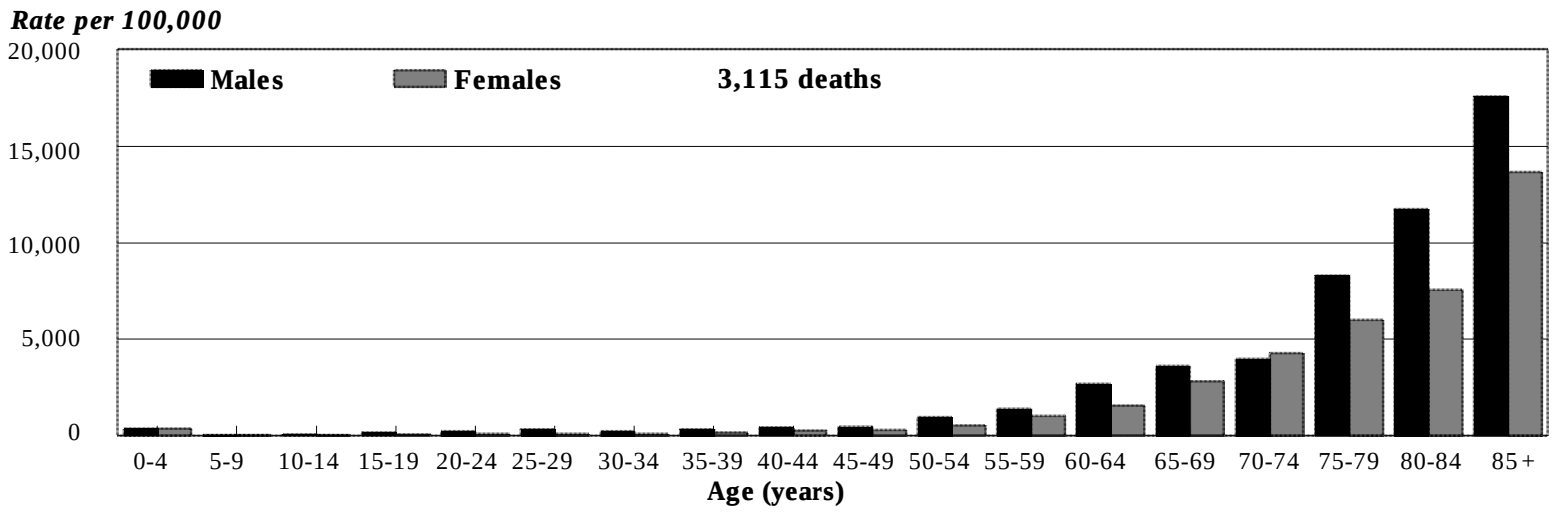
Cause of death	Darwin	Rest of Territory	Total
Infant: all causes	**62**	**142**	**204**
15 to 64 years	**574**	**1,179**	**1,753**
Cancers	167	215	382
Circulatory system diseases	109	272	381
Respiratory system diseases	32	155	187
Accidents, poisonings & violence	143	278	421
15 to 24 years	**38**	**121**	**159**
Accidents, poisonings & violence	31	81	112
All ages	**1,101**	**2,014**	**3,115**

Source: See *Data sources*, Appendix 1.3

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

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

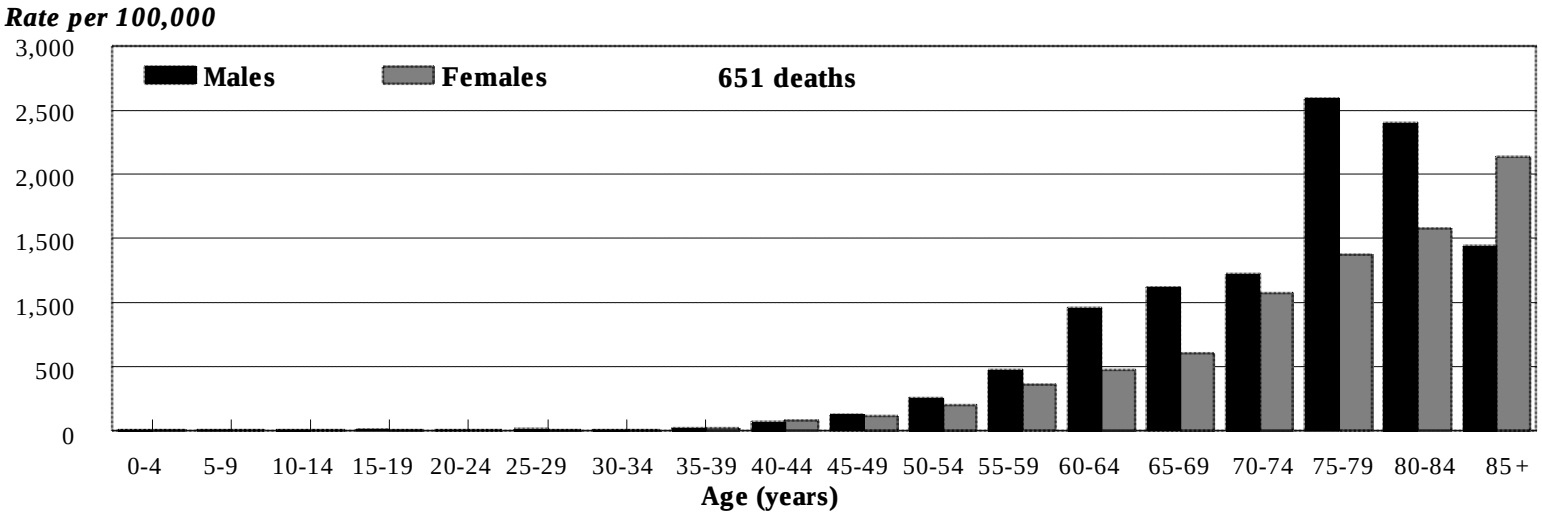
Figure 5.3: Deaths from all causes, by age and sex, Northern Territory, 1992 to 1995



Source: See *Data sources*, Appendix 1.3

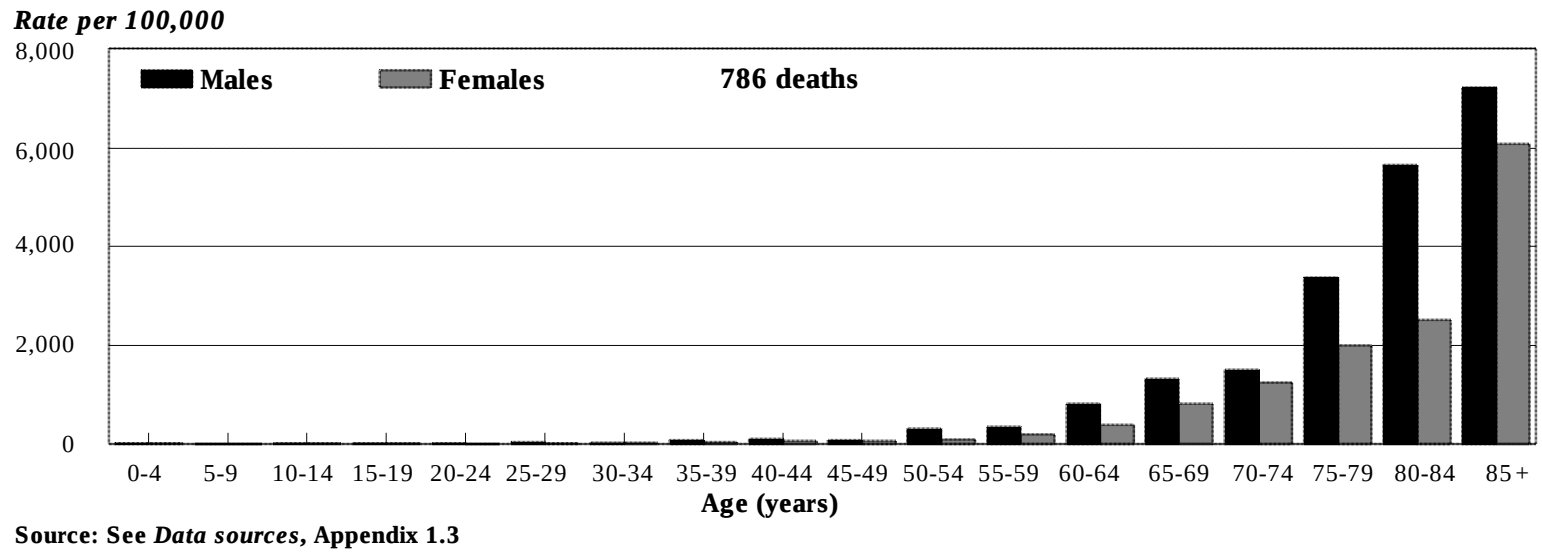
Figure 5.4 shows the predominance of males in deaths from cancer, whereas in **Figure 5.5** the similar pattern for deaths from circulatory system diseases is broken in the 85 years and over age group, where female death rates closely approximate those of males. Death rates from respiratory system diseases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

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



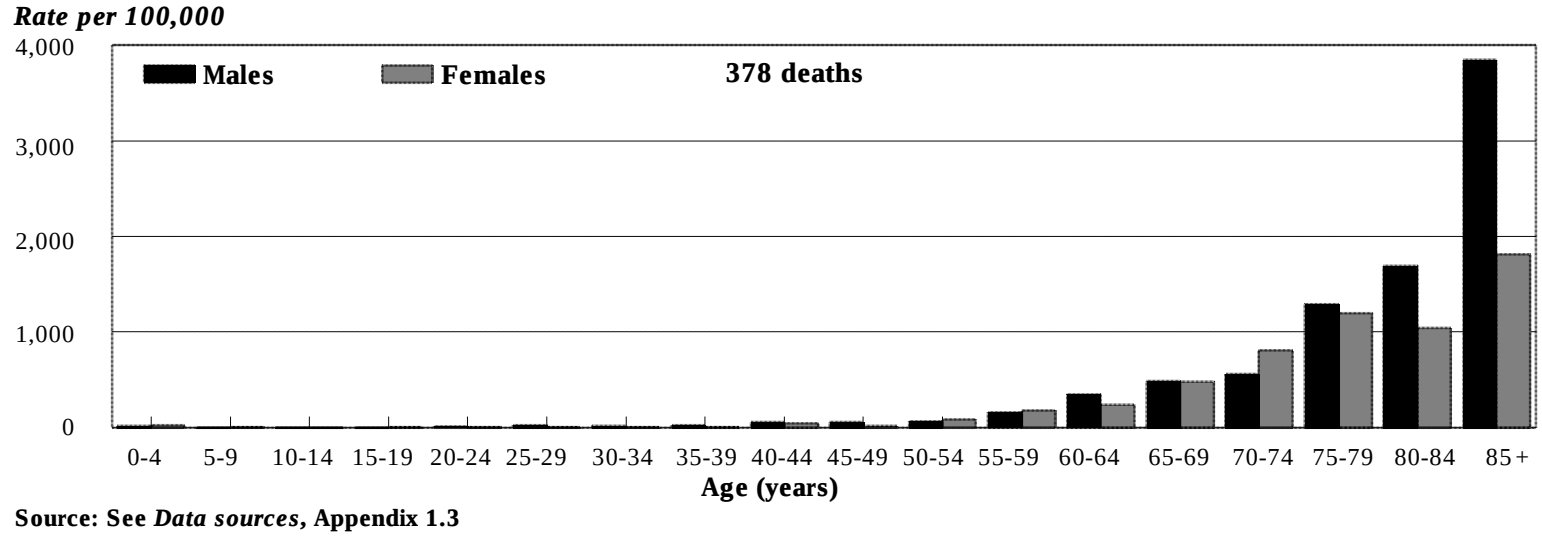
Source: See *Data sources*, Appendix 1.3

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



Source: See *Data sources*, Appendix 1.3

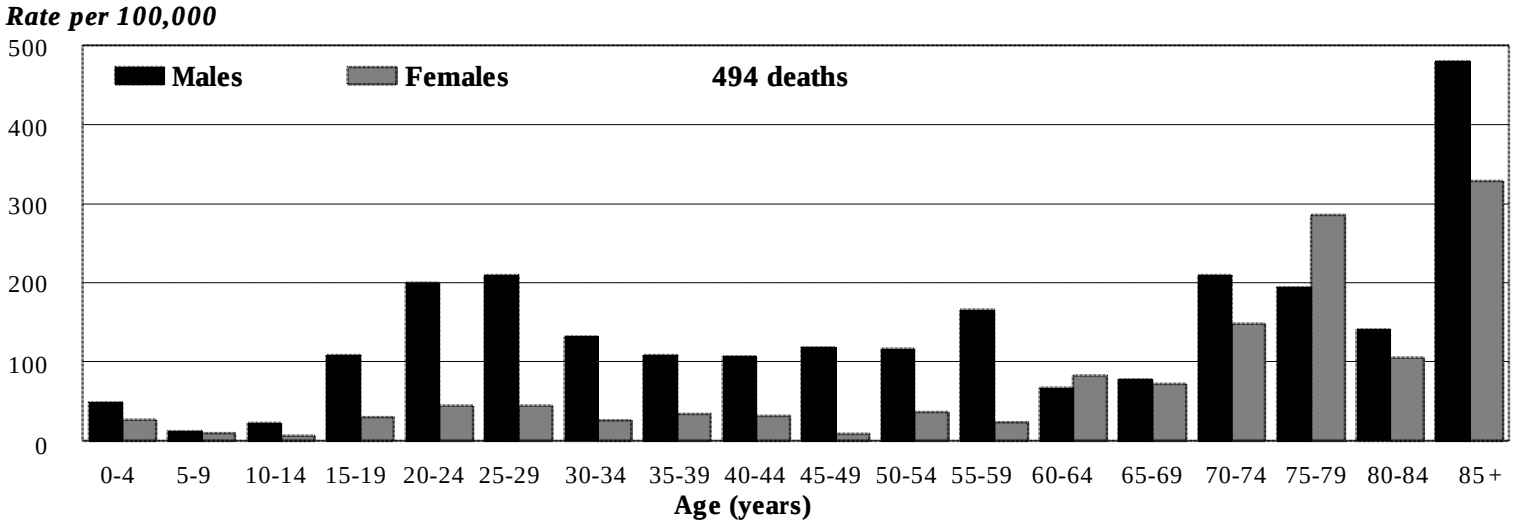
Figure 5.6: Deaths from respiratory system diseases, by age and sex, Northern Territory, 1992 to 1995



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), in middle age (50 to 59) and in the oldest age group shown (85 years and over).

Figure 5.7: Deaths from accidents, poisonings and violence diseases, by age and sex, Northern Territory, 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[4], 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 over the period from 1986 to 1995 for the Northern Territory as a whole, as well as separately for **Darwin** and the *Rest of the Territory*.

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

There were 217 deaths of all ages from suicide in the Northern Territory over the nine year period from 1986 to 1995. Of these, 94.5 per cent (205) were aged from 15 to 64 years and 21.2 per cent (46) were aged from 15 to 24 years at death. Over this time period there has been a 64.3 per cent increase in the number of deaths recorded for suicides at all ages, rising from 14 in 1986 to 23 in 1995. A similar increase was recorded among 15 to 64 year olds, where the number of suicides rose from 13 in 1986 to 21 in 1995, an increase of 61.4 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 88.9 per cent of all suicides of all ages, 89.3 per cent of 15 to 64 year olds and 89.1 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 over the period from 1981 to 1993 attempted suicide rates were considerably higher among females than males, an age standardised rate of 162 compared to 105 per 100,000 person-years respectively. Female rates were highest in the 15 to 19 year age group (455 attempted suicides per 100,000 person-years), followed by those aged from 20 to 24 years (346 per 100,000). For males, rates were highest in the 20 to 24 year age group (273 per 100,000), with slightly lower rates among those aged 25 to 29 (228 per 100,000). Despite the overall higher rates recorded for females, over the years from 1981 to 1993 female rates declined by 2.4 per cent per year while male rates declined by only 0.2 per cent.

Numbers of suicides not only vary by age and sex, but also by place of residency. While there were more deaths from suicide of residents of **Darwin** (119 deaths compared to 98 in the non-metropolitan areas of the Northern Territory over the nine years from 1986 to 1995), because it contains a lower proportion of the

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

Territory's population, it is more informative to consider death rates.

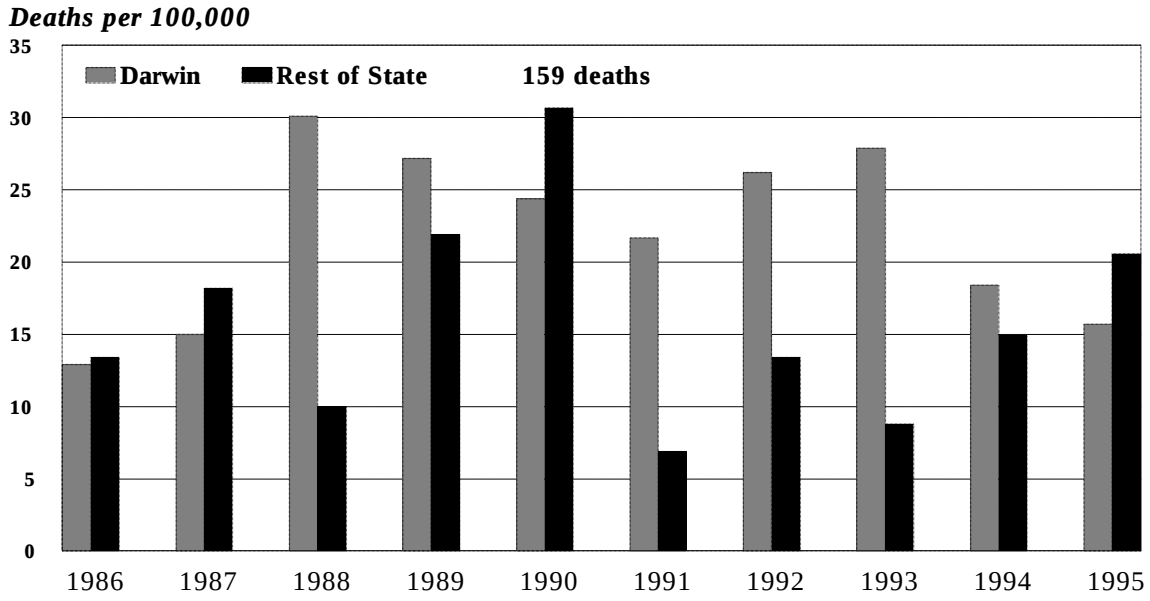
In 1995 death rates from suicide among 15 to 64 year olds were 18.1 per cent higher in the non-metropolitan areas of the Northern Territory than in **Darwin**, a rate of 18.3 per 100,000 population compared to 15.5 per 100,000, respectively. The difference in 1995 was more substantial in the 25 to 64 year age group, with a death rate of 20.6 per 100,000 non-metropolitan residents compared to 15.7 per 100,000 for residents of **Darwin,** a difference of 31.2 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 higher for residents of **Darwin** than of the non-metropolitan areas of the Northern Territory in six of the ten years for which data was analysed (and in four of the last five years).

For the 15 to 24 year age group, rates of death from suicide were higher in country areas of Northern Territory in six of the ten years of data analysed (**Figure 5.9**). The numbers on which these rates are based are, however, quite small and the rates are extremely variable from year to year. In the most recent years analysed the rates are generally higher among the older age group.

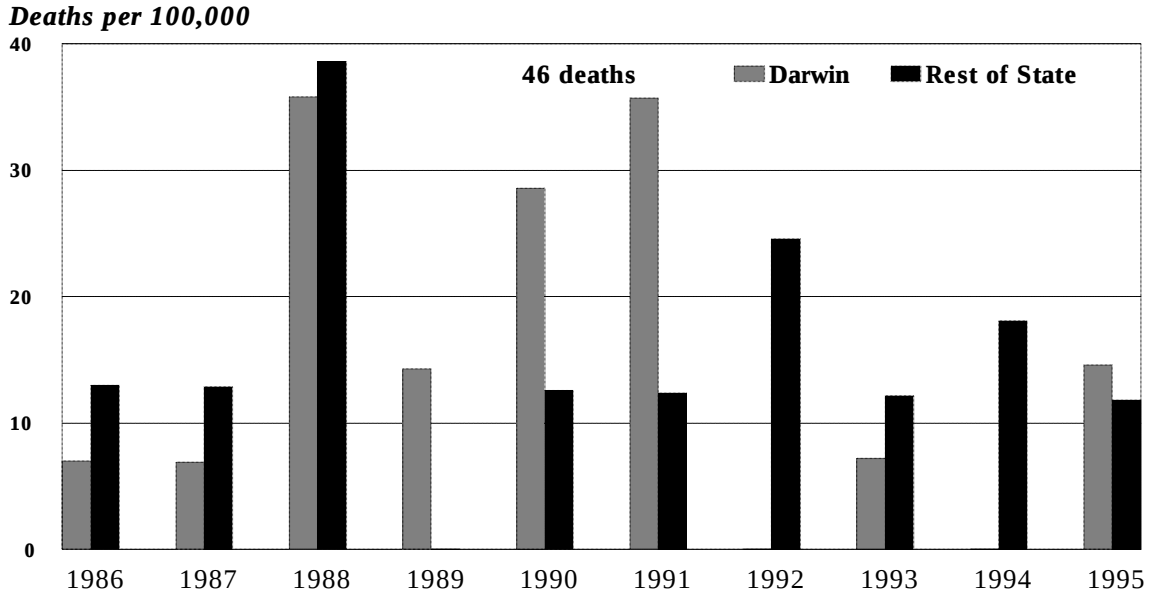
It is likely that the higher rates in country areas relate to factors such as a relative lack of job and training opportunities, the decline of many rural communities and the relatively larger numbers of Indigenous people in the population, a group which has higher suicide rates.

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



Source: Various issues, ABS Causes of Death bulletins

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



Source: Various issues, ABS Causes of Death bulletins

Infant deaths, 1992 to 1995

Capital city comparison

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

The *All capitals* infant death rate has declined by one third between the two periods for which data have been analysed (**Table 5.11**). As noted earlier (page 127), this is largely the result of the decline in deaths from sudden infant death syndrome. There were similar reductions in all of the capital cities other than **Darwin**, where the infant death rate rose, from 9.4 for the period 1985 to 1989, to 10.3 for the years 1992 to 1995. **Darwin** now has the highest infant death rate (10.3 infant deaths per 1,000 live births), followed by **Hobart** (7.3), a reversal of the ranking over the period from 1985 to 1989. All capital cities except these show significant improvements in the rate.

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

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

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

Over the years from 1992 to 1995, there were 204 infant deaths of children resident in the Northern Territory. This represented an increase from an average of 47 to 51 infant deaths per year between the two periods analysed.

Neonatal deaths (deaths of infants aged under 28 days) accounted for 65.2 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.

Darwin

There were only 62 infant deaths in **Darwin** over the four year period from 1992 to 1995 (10.3 infant deaths per 1,000 live births), resulting in a relatively small number of deaths in this cause group for the majority of SLAs.

Statistical Local Areas (SLAs)

The only SLAs to record five or more infant deaths were Tiwi (seven deaths) and City-Inner (eight deaths), with substantially elevated rates of 36.1 infant deaths per 1,000 live births and 45.5, respectively. As the remaining SLAs had fewer than five infant deaths, this variable has not been mapped at the SLA level.

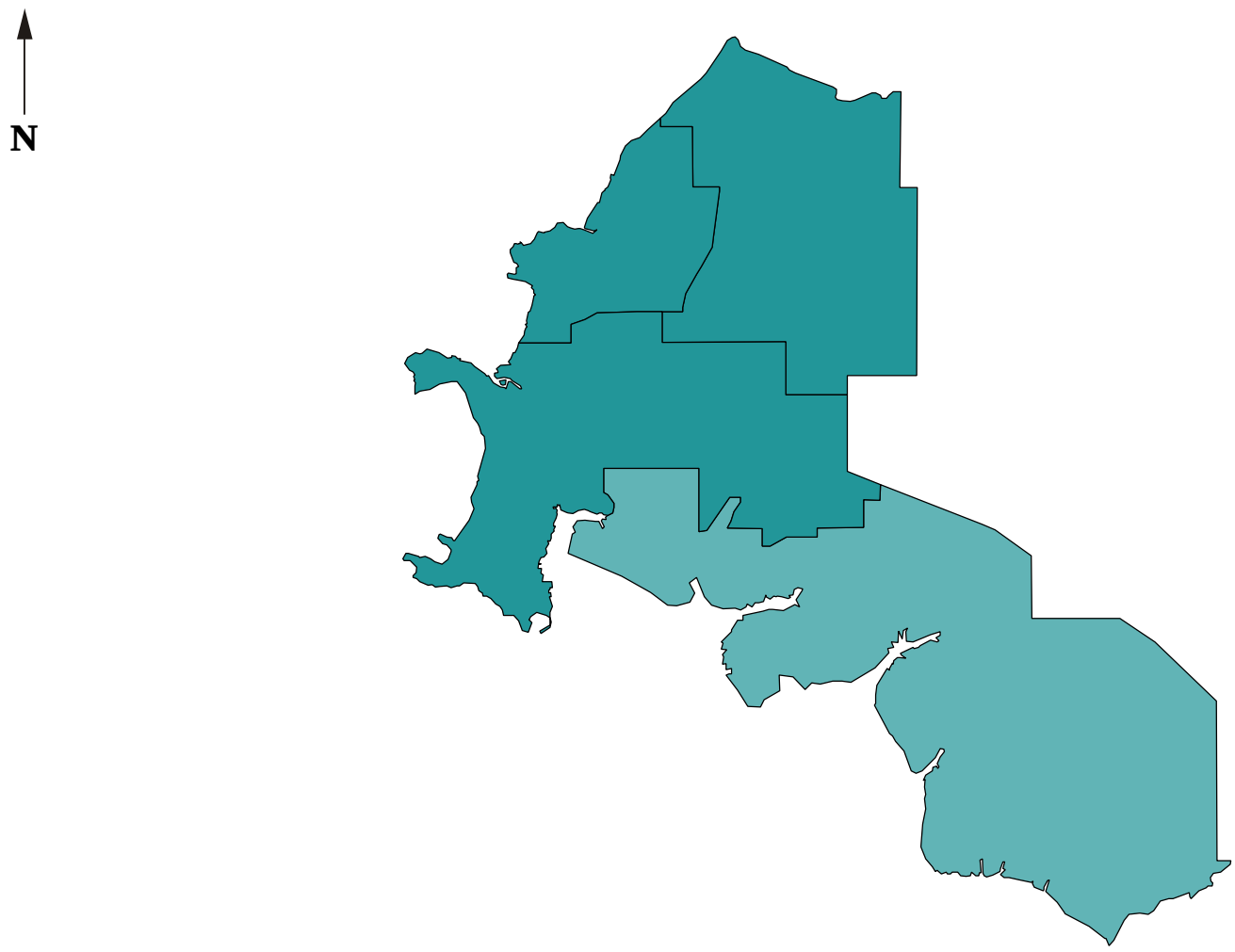
The correlation analysis was not undertaken as there were too many SLAs with small numbers of cases.

Postcodes (aggregates of suburbs)

The highest infant death rates at the postcode level were in the inner city Darwin: South West (16.3 infant deaths per 1,000 live births and 18 deaths) and Darwin: North West (10.8; 22 deaths) (**Map 5.7**). Infant death rates below the **Darwin** average of 10.3 were recorded in Darwin: North East (8.2) and Palmerston, which had the lowest rate (6.9) and the lowest number of deaths (eight deaths).

Map 5.7
Infant deaths, Darwin, 1992 to 1995

infant deaths per 1,000 live births in each postcode 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

SLAs have been grouped to approximate postcode areas

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Infant deaths, 1992 to 1995

State/Territory comparison

The infant death rate is calculated as the number of infant deaths (deaths under one year of age) per 1,000 live births. The rate varied between the States and Territories, from a high of 13.9 in the Northern Territory to less than half that level in a number of States and the Australian Capital Territory. Rates in the *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 5.12**). The largest reductions occurred in the non-metropolitan areas of Tasmania (down by 45.8 per cent) and the smallest in the Northern Territory (down by 10.4 per cent). Western Australia (22.8 per cent) and Queensland (24.4 per cent) experienced the next smallest reductions, with declines of around one third occurring in the remaining States.

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

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

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

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

Rest of Territory

There were 142 infant deaths over the four year period form 1992 to 1995 in the non-metropolitan areas of the Northern Territory, 16.3 infant deaths per 1,000 live births.

There were only 12 SLAs in which five or more infant deaths were expected (based on the Northern Territory rates) and only these have been mapped. All of these SLAs had very high infant death rates (**Map 5.8**).

The most highly elevated infant death rate was in the SLA of Elsey-Balance, with 40.7 infant deaths per 1,000 live births. Residents of West Arnhem (with a rate of 29.8), Bathurst-Melville (25.3), East Arnhem-Balance (24.8), Groote Eylandt (22.8) and Daly, in the States far north, all recorded rates of at least 20.0 infant deaths per 1,000 population. The remaining mapped SLAs included Gulf and Katherine, located in the lower north; Sandover-Balance, Tamami and Alice Springs, situated in the central region; and Litchfield, located on the outskirts of **Darwin.**

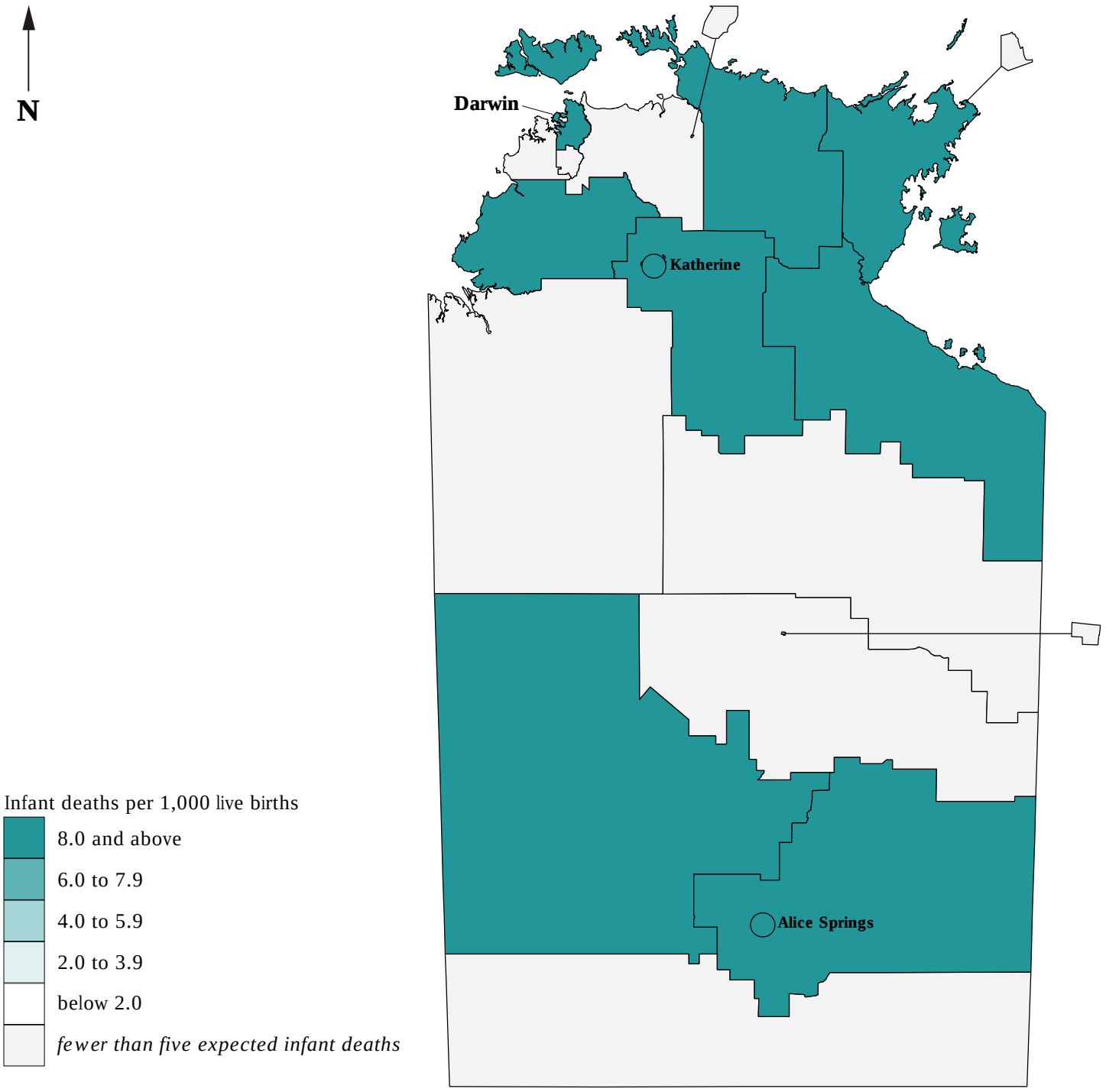
The majority of SLAs with sufficient data to be mapped were in areas where the populations were predominantly Indigenous people, with only Elsey-Balance, Alice Springs, Katherine and Litchfield with less than 50.0 per cent of their population being Indigenous Australians.

Residents of Alice Springs had the largest number of infant deaths in non-metropolitan Northern Territory over this four year period (27 deaths). More than 10 infant deaths were also recorded in East Arnhem-Balance, with 16 deaths; West Arnhem, with 14 deaths; and Elsey-Balance, with 11 deaths.

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

Map 5.8
Infant deaths, Northern Territory, 1992 to 1995

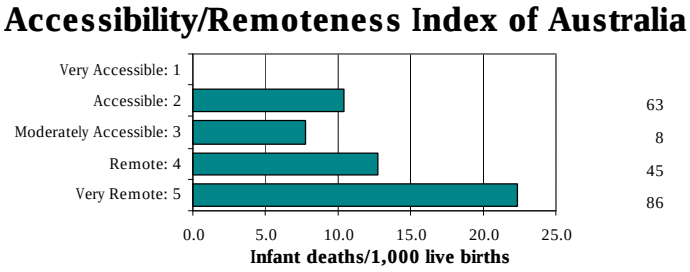
infant deaths per 1,000 live births in each Statistical Local Area



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Infant death rates more than double across the ARIA categories, from 10.4 infant deaths per 1,000 live births in the Accessible areas, through a rate of 12.8 in the Remote areas to the highest rate of 22.3 infant deaths per 1,000 live births in the Very Remote areas. The very high figure in the most remote areas is likely to reflect the high infant death rates among the Indigenous population. The lowest rate is in the Moderately Accessible areas, 7.8 infant deaths per 1,000 live births.

Source: Calculated on ARIA classification, DHAC

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

Capital city comparison (Australia as the Standard)

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

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

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

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

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 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 697 deaths of males in **Darwin** over the period from 1992 to 1995, of which 414 (59.4 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.

Darwin (Northern Territory as the Standard)

There was an increase from 90.5 male deaths per annum in **Darwin** over the period from 1985 to 1989, to 103.5 deaths per annum from 1992 to 1995. Overall, there were 29 per cent fewer deaths of males aged from 15 to 64 years expected from the Northern Territory rates (an SDR of 71**). Males accounted for almost three quarters (72.1 per cent) of all deaths at these ages.

Statistical Local Areas (SLAs)

SLAs where fewer than five deaths of males at these ages were expected from the Northern Territory rates have not been mapped, as they were considered to have too few deaths to produce reliable results.

SDRs in **Darwin** ranged from a highly elevated 235** to a very low 30**. This highest ratio was in City-Inner (an SDR of 235** and 34 deaths) which also had the highest SDR for the period of analysis in the first edition (from 1985 to 1989). Central city areas have served as a point of convergence for the homeless. City-Inner also had high proportions of medium to high density housing, much of it available as rental accommodation. Other SLAs with elevated, but not statistically significant, ratios were Parap (128), Coconut Grove (116), Nightcliff (112), and Ludmilla (103). There was some association between male death ratios and high proportions of low income families in most of these SLAs.

Most of the SLAs with low ratios were found in the northern suburbs of **Darwin,** with several others in the central city area and Palmerston (**Map 5.9a**). Ten SLAs recorded over 50 per cent fewer deaths than expected from the Northern Territory rates, with the lowest ratios in Nakara (30**), Leanyer (32**), Larrakeyah (34**) and Wulagi (36**). It is worth noting that, while numbers of deaths were below 20 in most SLAs, the SDRs were statistically significant.

The largest numbers of deaths of males aged from 15 to 64 years were in Nightcliff (39 deaths), City-Inner (34) and Karama (23).

As there were low numbers of male deaths at the SLA level, the following correlations were prepared using combined data for male and female deaths. There was a correlation of substantial significance with the variable for dwellings without a motor vehicle (0.82), and weaker correlations with the variables for unemployed people (0.48), low income families (0.31) and single parent families (0.27). 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 death rates in the 15 to 64 year old population and socioeconomic disadvantage.

Postcodes (aggregates of suburbs)

Map 5.9b shows the suburbs of **Darwin** grouped into approximate postcodes: this approach was taken to increase the number of cases of death in each area, thereby making the SDRs more reliable. However this averages the data for the individual SLAs and conceals major variations at the smaller area level.

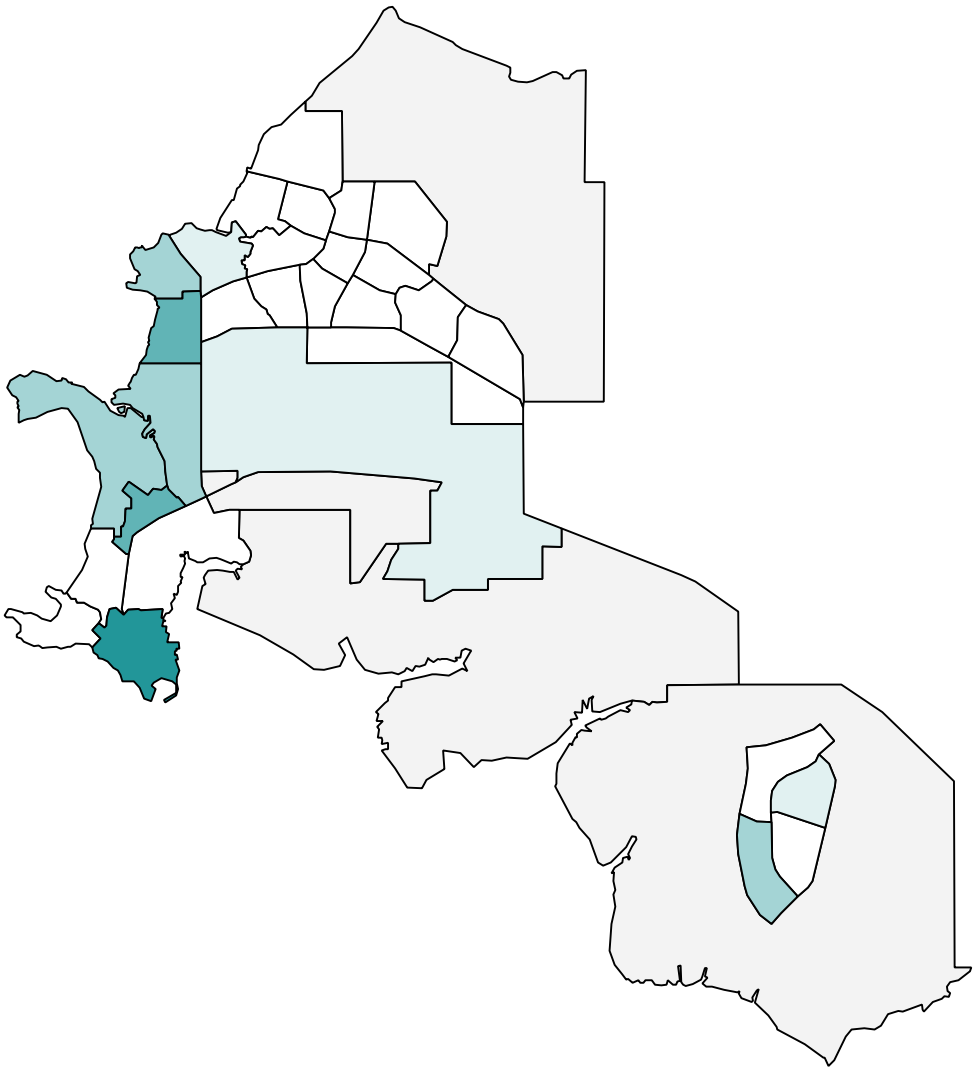
Each of the four postcode areas had fewer male deaths than expected from Northern Territory rates. The highest ratio (an SDR of 98) was recorded in Darwin: South West. The lowest ratio, an SDR of 47** recorded in Darwin: North East, indicated that there were 53 per cent fewer deaths in this area than expected from the Northern Territory rates. Darwin: North West and Palmerston recorded low ratios of 69** and 73* respectively.

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

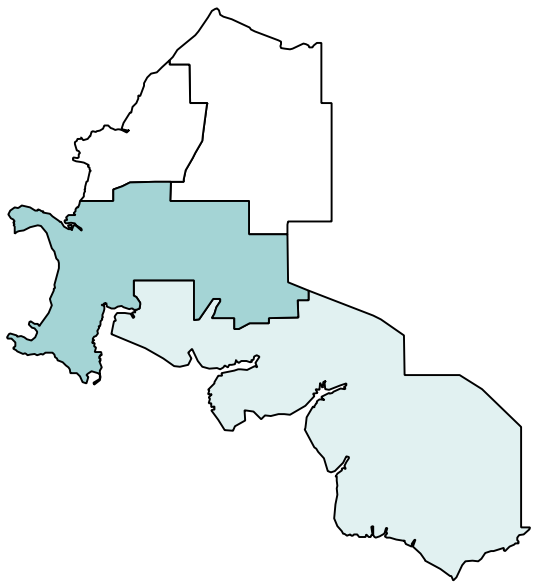
Standardised Death Ratio: number of deaths in each area compared with the number expected*

N

Map 5.9a: SLA Map



Map 5.9b: Postcode Map#



Standardised Death Ratio (as an index)

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

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

#SLAs have been grouped to approximate postcode areas

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 5.14**. The major exceptions were Western Australia, with a higher SDR (suggesting an increase in death rates relative to the Australian experience), and the Northern Territory, with a lower SDR. 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 5.14: Deaths of males aged 15 to 64 years from all causes, State/Territory
Standardised death ratios

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

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

Over the four years from 1992 to 1995, the major cause of premature death for male residents of the non-metropolitan areas of the Northern Territory were circulatory system diseases, the combined causes of accidents, poisonings and violence and malignant neoplasms (cancer). There were 1,245 deaths of male residents in these non-metropolitan areas, 61.8 per cent of all deaths. Of these deaths, 796 deaths were of males aged from 15 to 64 years, 63.9 per cent of all male deaths.

Rest of Territory (NT as the Standard)

The number of deaths of 15 to 64 year old males in the non-metropolitan areas of the Northern Territory (796) far exceeded those in **Darwin** (414). This is reflected in the highly elevated SDR for rural Northern Territory of 127**, compared to the very low 71** for **Darwin**. There was also a disparity between the number of male and female deaths, with twice the number of 15 to 64 year old males dying compared to females.

As many of the SDRs in the map opposite are highly elevated, the ranges mapped have been changed to enhance the pattern of differentiation in the map (**Map 5.10**). The highest and lowest ranges have been set at 60 per cent, rather than 30 per cent as in the map of **Darwin** for this variable. Ten SLAs had highly elevated SDRs, the highest being in areas where the populations were predominantly Aboriginal. Seven of these ten SLAs had more than twice the rate of deaths expected in the Northern Territory. The highest SDRs were in Gulf (232**), Tanami (229**), Bathurst-Melville (227**) and Elsey-Balance (223**). A further six SLAs had elevated ratios ranging from Katherine (SDR of 108) to Groote Eylandt (SDR of 156*).

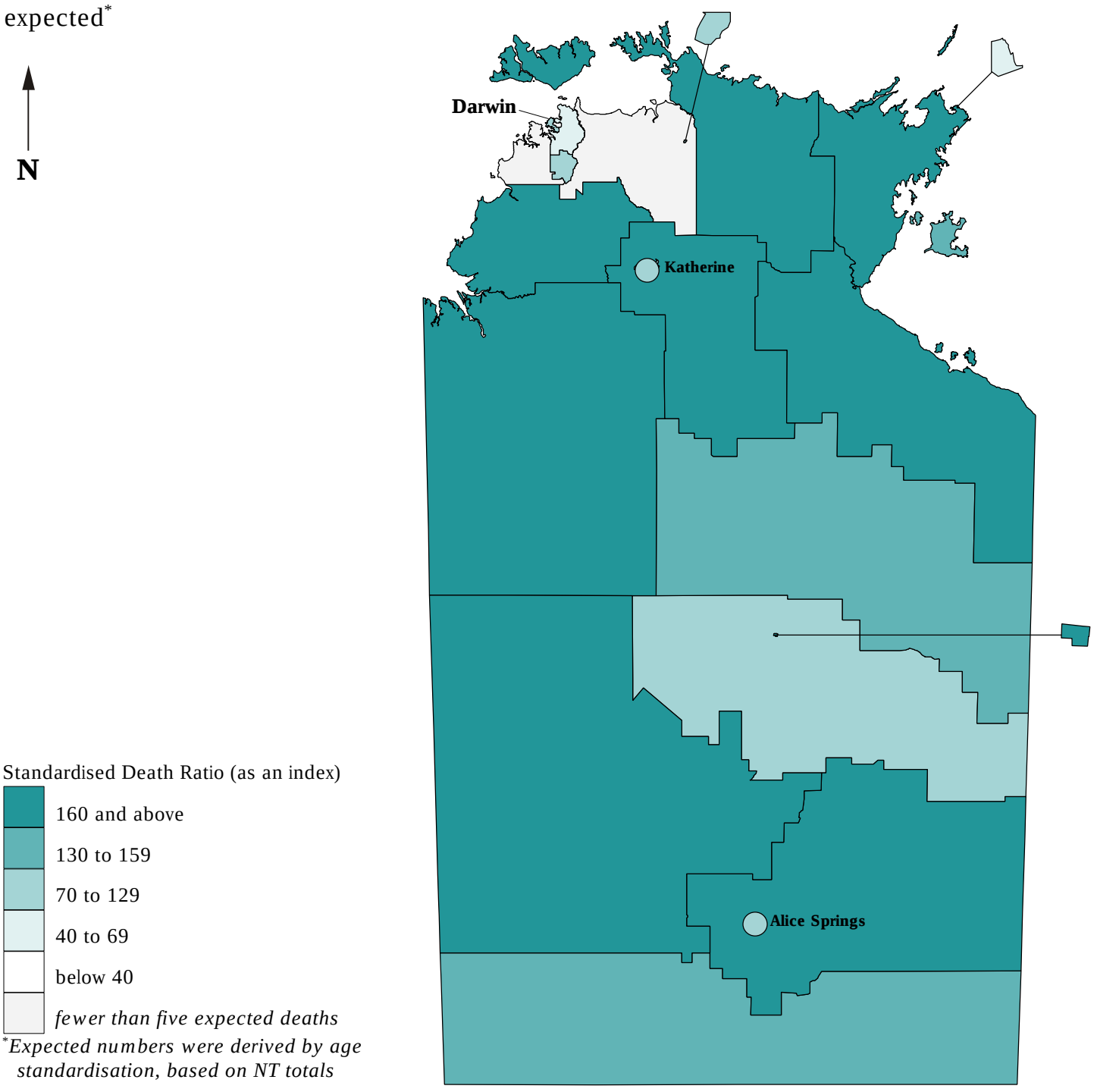
No area had an SDR in the lowest range mapped, and only four had ratios lower than the level expected from the Northern Territory rates. These were Alice Springs (SDR of 89), Jabiru (71), Litchfield [Part B] (62**) and Nhulunbuy (46**).

In terms of absolute numbers of deaths per annum, the largest numbers of deaths of 15 to 64 year old males were recorded in Alice Springs (38), Tanami (17), Katherine (16) and East Arnhem-Balance (15).

As there were low numbers of cases for this variable, the following correlations were prepared using combined data for male and female deaths. The correlation analysis showed there to be a positive association at the SLA level with indicators of socioeconomic disadvantage. The strongest of these were with the variables for the Indigenous population (0.85), dwellings without a motor vehicle (0.81), single parent families (0.78) and low income families (0.71). These results, together with the inverse correlation of substantial significance with the IRSD (-0.85) indicate an association at the SLA level between high death rates in the 15 to 64 year old population and socioeconomic disadvantage. There were also correlations of substantial significance with the variables for fair or poor health status (0.77) and years of potential life lost (a summary measure of premature death, 0.97).

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

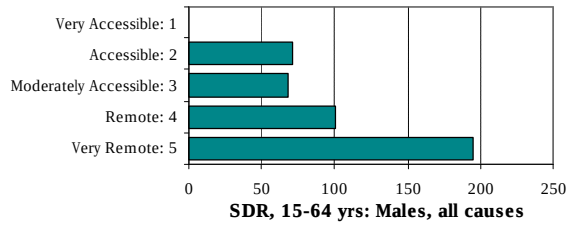
Standardised Death Ratio: number of deaths in each Statistical Local Area compared with the number expected*



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



418
71 Male
265 deaths
437

Standardised Death Ratios (SDRs) for males aged from 15 to 64 years show similarly low ratios in the Accessible (an SDR of 71) and Moderately Accessible (the lowest ratio, an SDR of 68) areas before increasing steeply across the ARIA categories to SDRs of 101 in the Remote areas and 195 (almost twice the expected number of premature male deaths) in the Very Remote areas. The highly elevated SDR in the Very Remote areas is likely to reflect the very high premature death rates experienced by Indigenous males.

Source: Calculated on ARIA classification, DHAC

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

Capital city comparison (Australia as the Standard)

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

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

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

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

[1]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 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 404 deaths of female residents in **Darwin**, of whom 160 were of females aged from 15 to 64 years. The data mapped that have been mapped for this variable therefore represents 39.6 per cent of 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.

Darwin (Northern Territory as the Standard)

Statistical Local Areas (SLAs)

Over the periods from 1985 to 1989 and from 1992 to 1995, there has been an increase in death rates of 15 to 64 year old women in **Darwin**, from 12.1 per cent more deaths than expected from the Northern Territory rates (and SDR of 112 and 132 deaths) to 25 per cent more than expected (125; 160 deaths). For both periods, these numbers were about a third of the number of male deaths for this age group.

The SDRs for the areas mapped were calculated using deaths data for the Northern Territory as a whole. The distribution of SDRs for females was over a narrower range (130 to 0**) than for males (235** to 30**). The highest SDR of 130, in Ludmilla, was also the only elevated value for female deaths in **Darwin** (**Map 5.11a**). This SLA tends to have slightly above average concentrations of lower socioeconomic groups, such as low income families and unemployed people. All other areas mapped recorded fewer female deaths than were expected from the Northern Territory rates. Coconut Grove (SDR of 88), Nakara (78) and Parap (70) were the only other SLAs, along with Ludmilla, that did not have SDRs below 70, the lowest range mapped.

The lowest SDRs were in Larrakeyah (0**; no deaths recorded over the period from 1992 to 1995, although seven deaths were expected from the Northern Territory rates), Marrara (14*), Anula (16**) and Wanguri (22*). All these areas had above-average proportions of high income earners and high female labour force participation rates, and below average concentrations of low income families, single parent families and semi or unskilled workers.

Absolute numbers of premature female deaths over this four year period were very low throughout **Darwin**. Of the areas mapped, the largest numbers were in Karama (11 deaths) and Ludmilla and Nightcliff (both with 10 deaths). The largest number of female deaths was recorded in City-Inner (12 deaths). This SLA was not mapped because only five deaths were expected from the Northern Territory rates, making any analysis statistically unreliable. It is interesting, however, that City-Inner had the second highest number (34) of premature male deaths and the highest male SDR (235**).

As there were low numbers of cases for this variable, the correlations were prepared using combined data for male and female deaths. See page 138 for comments on the main findings in the correlation analysis.

Postcodes (aggregates of suburbs)

Map 5.11b shows the suburbs of **Darwin** grouped into approximate postcodes.

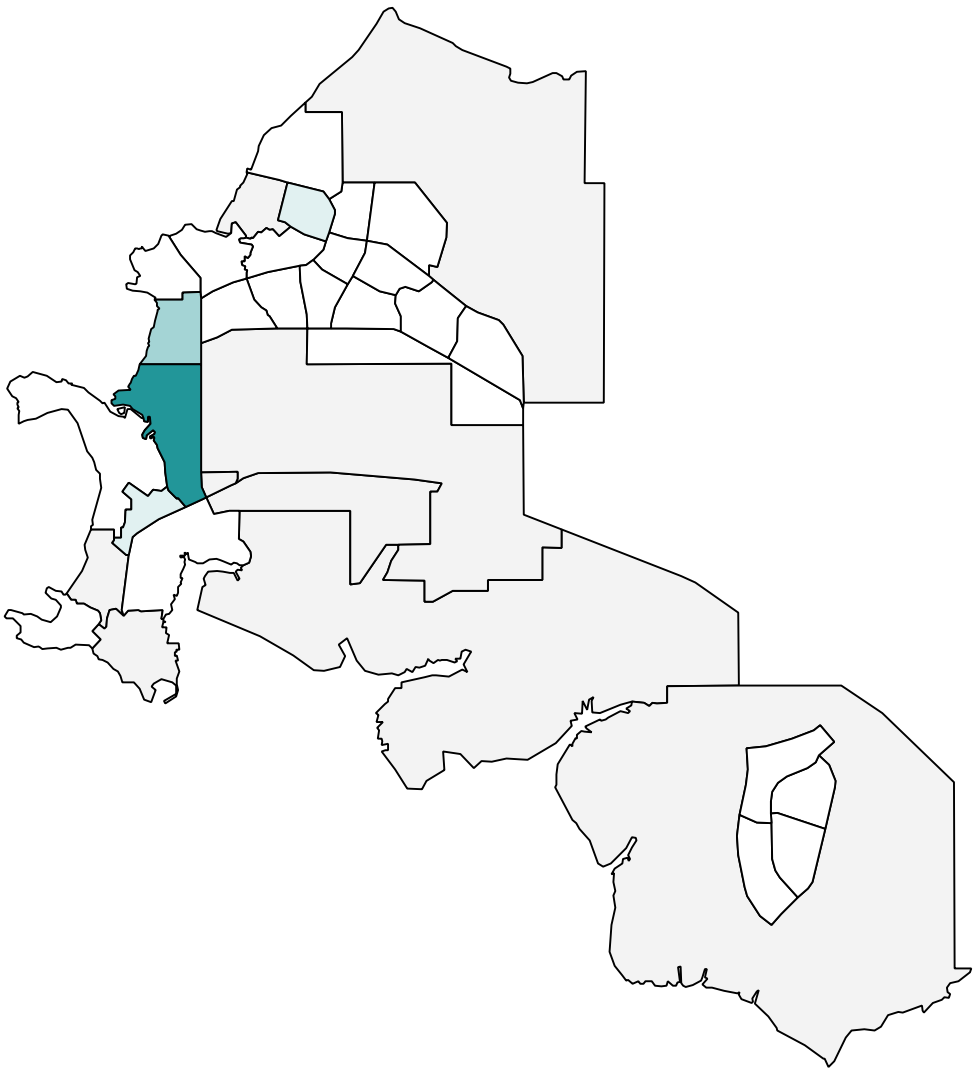
The highest ratio, an SDR of 89 representing a total of 50 female deaths, was recorded in Darwin: South West, which covers the inner city and older suburbs. The lowest ratio, 46** recorded in Darwin: North West, indicated that there were 54 per cent fewer female deaths than expected from the Northern Territory rates. This represented a total of 34 deaths. Darwin: North West and Palmerston recorded ratios of 55** and 58* respectively.

Map 5.11
Deaths of females aged 15 to 64 years from all causes, Darwin, 1992 to1995

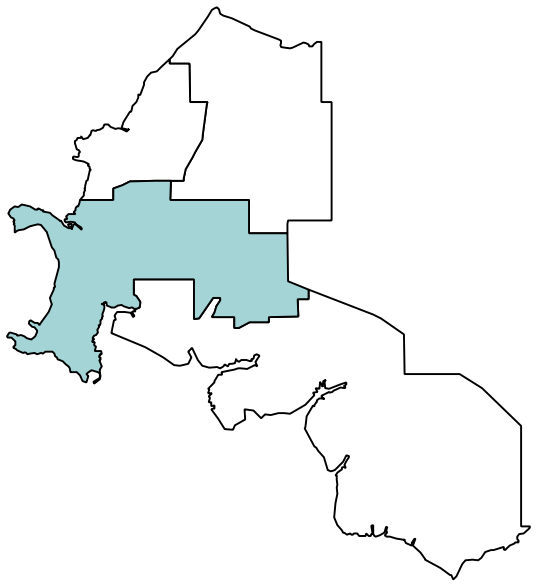
Standardised Death Ratio: number of people in each area compared with the number expected*

N

Map 5.11a: SLA Map



Map 5.11b: Postcode Map#



Standardised Death Ratio (as an index)

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

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

#SLAs have been grouped to approximate postcode areas

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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

State/Territory comparison (Australia as the Standard)

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

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

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

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

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

Unlike males living in the non-metropolitan areas of Northern Territory, 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 49.8 per cent of all female deaths. This figure was 14.1 per cent lower than that recorded for males (63.9 per cent), highlighting the fact that female life expectancy is higher.

Rest of Territory (NT as the Standard)

Over the period from 1992 to 1995, there were 38 per cent more deaths of females aged from 15 to 64 years than expected from the Territory rates (an SDR of 138**). The number of women who died prematurely (before the age of 65) over this period was 96 per annum. Between 1985 and 1989, 106 females per annum died in the Northern Territory, over three times the expected number. For both periods, the number of female deaths was half that of male deaths.

As many of the SDRs in **Map 5.12** were highly elevated, the ranges mapped were changed to enhance the pattern of differentiation in the map. The highest and lowest ranges have been set at 60 per cent, rather than 30 per cent as in the map for **Darwin** for this variable.

There were 10 areas with SDRs of more than two and a half times the level expected from the Northern Territory rates. These included Bathurst-Melville (361**) and West Arnhem (343**), both with roughly three and a half times the number of deaths expected from Northern Territory data. Other areas with highly elevated ratios included East Arnhem-Balance (287**), Groote Eylandt (253**) and Sandover-Balance (234**). As was the case for males, the most highly elevated SDRs were in areas with predominantly Indigenous populations.

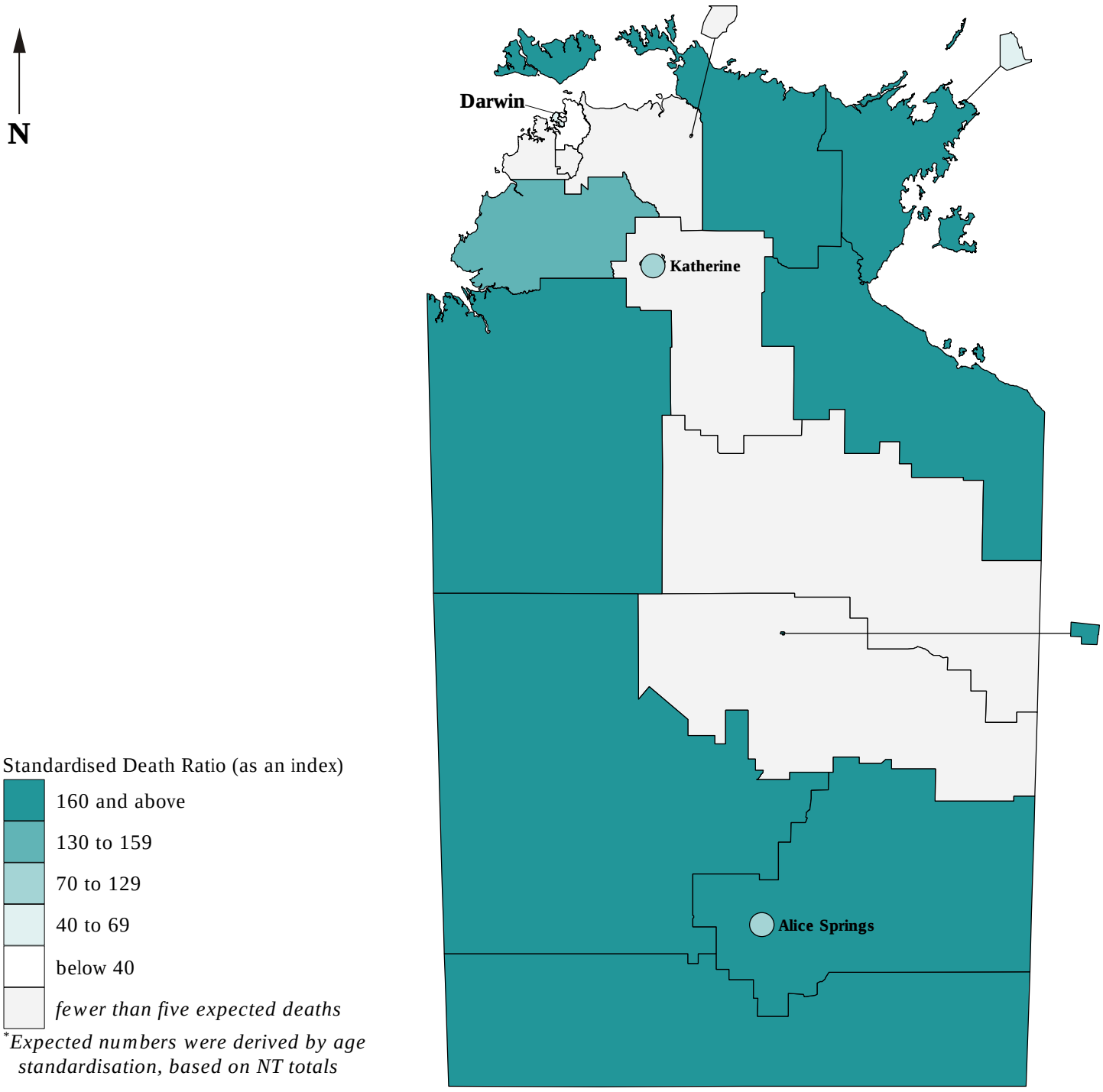
There were only four areas mapped which had female death ratios lower than expected. They were Alice Springs and Katherine, both with 10 per cent fewer deaths than expected from the Northern Territory rates, and Nhulunbuy with 60 per cent fewer deaths than expected. Litchfield [Part B] had the lowest ratio with 62 per cent fewer than expected deaths (SDR of 38**, 15 deaths recorded compared to 39.1 expected). Generally, towns tended to have lower SDRs than rural areas.

The numbers of deaths of females aged 15 to 64 years in non-metropolitan areas of the Northern Territory were greater than those in Darwin. Over the period from 1992 to 1995, a total of 72 deaths were recorded in Alice Springs, 45 deaths in East Arnhem-Balance and 37 deaths in West Arnhem. Of the unmapped areas, Elsey-Balance had the largest number of female deaths with 17, followed by Tennant Creek-Balance with seven deaths.

As there were low numbers of cases for this variable, the correlations were prepared using combined data for male and female deaths. See page 140 for comments on the main findings in the correlation analysis.

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

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

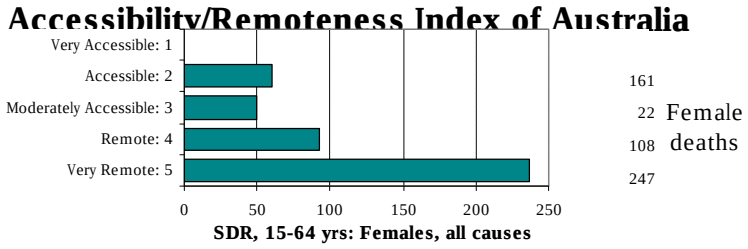


*Expected numbers were derived by age standardisation, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



161	
22	Female
108	deaths
247	

Standardised Death Ratios (SDRs) for females aged from 15 to 64 years show a similar pattern to those for males, although they cover a wider range. They range from a low of 50 in the Moderately Accessible (half the number of premature deaths of females expected from the Northern Territory rates) and 60 in the Accessible areas to 92 in the Remote areas, before increasing sharply to a highly elevated SDR of 237 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 5.17**) 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 5.17: Deaths of people aged 15 to 64 years from cancer, capital cities
Standardised death ratios

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

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

Deaths from cancers (malignant neoplasms) were the second most common cause of death of residents of all ages of **Darwin**, accounting for 26.7 per cent of all deaths (294 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 29.1 per cent of deaths.

Different cancers have different causes and are influenced by a range of risk factors, the most widely accepted being tobacco smoking (it is estimated that as many as one in three cancer deaths are caused by smoking and could therefore be prevented (AIHW 1998)) and dietary influences. Both the incidence and mortality of cancer are higher among males than among females, a fact largely attributed to their greater use of tobacco.

There is a strong association between socioeconomic status and certain types of cancer. Mathers (1994) has examined the extent of disparities in mortality rates, which are related to socioeconomic status of area of residence. Differentials in mortality rates from 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).

Darwin (Northern Territory as the Standard)

There has been an increase in the number of deaths in **Darwin** from cancers, from 29 deaths per annum over the period from 1985 to 1989 to 42 deaths per annum over the period from 1992 to 1995. Despite this, there were 12 per cent fewer deaths than expected from the Northern Territory rates.

Statistical Local Areas (SLAs)

Eight of **Darwin's** SLAs had elevated Standardised Death Ratios for premature deaths from cancer and, as shown on **Map 5.13a**, all were in the inner city and north western areas of **Darwin**. The highest of these were Millner (with an SDR of 164), Nightcliff (149), Stuart Park (137) and Nakara (125). None of the elevated SDRs were statistically significant. SLAs with lower than expected ratios ranged from 13 per cent fewer premature deaths from cancer than expected in Tiwi (an SDR of 87) to 77 per cent fewer than expected in Anula (23*). The SDR of 23* in Anula was the only one of statistical significance in the data for deaths of 15 to 64 year olds from cancer in **Darwin**.

The largest numbers of deaths in individual SLAs were for residents in Nightcliff (17 deaths) and Millner and Stuart Park (both with 11 deaths). Of the 15 SLAs not mapped because there were fewer than five deaths from cancer expected from the Northern Territory rates, six had no cancer related deaths recorded at all over the period from 1992 to 1995. City-Inner recorded the largest number of deaths (nine deaths) for this group.

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

Postcodes (aggregates of suburbs)

Map 5.13b shows the suburbs of **Darwin** grouped into approximate postcodes.

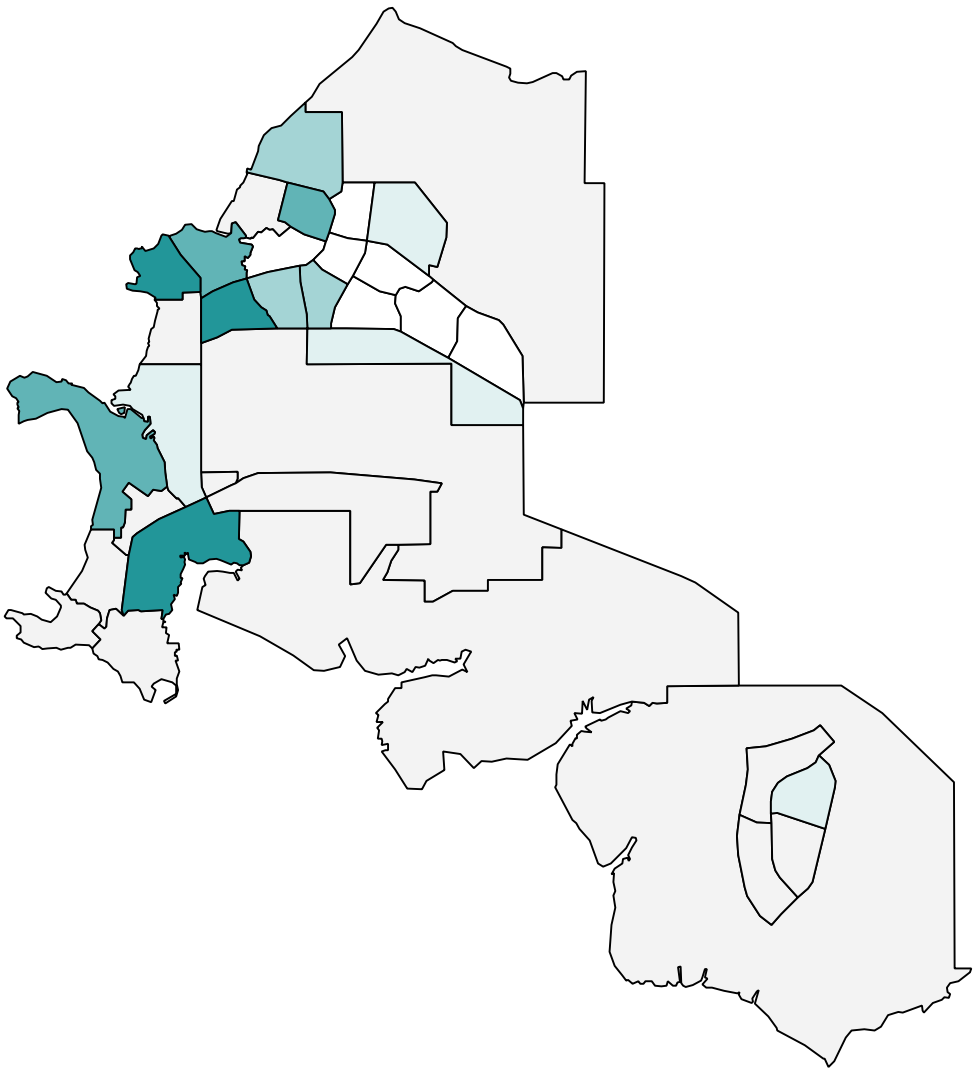
The highest ratio for premature death from cancer, an SDR of 106 (and representing the largest number, of 80 deaths from cancer), was recorded in Darwin: North West. The inner city and older suburbs of Darwin: South West recorded a slightly elevated ratio (an SDR of 102 and 43 deaths). Residents of Palmerston (73) had the lowest number of 16 deaths from cancer, while the lowest ratio, an SDR of 56** recorded in Darwin: North East, represented 28 deaths.

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

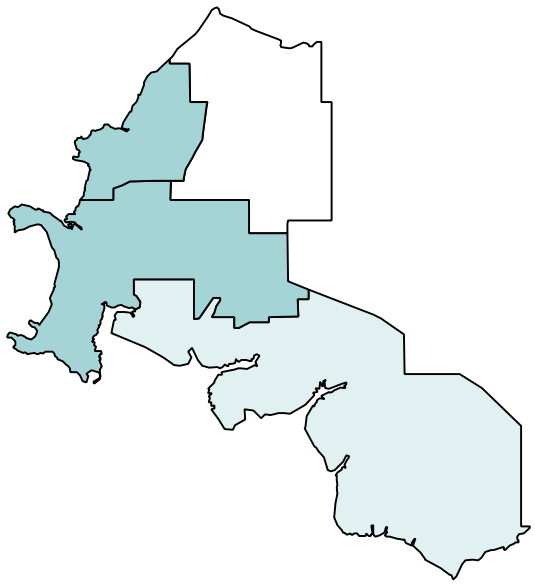
Standardised Death Ratio: number of deaths in each area compared with the number expected*

N

Map 5.13a: SLA Map



Map 5.13b: Postcode Map#



Standardised Death Ratio (as an index)

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

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

**#SLAs have been grouped to approximate postcode areas*

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

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

State/Territory comparison (Australia as the Standard)

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

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

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

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

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

As for **Darwin**, 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 the Northern Territory, accounting for 17.7 per cent of all deaths (357 deaths) over the four year period from 1992 to 1995. Cancer was, however, the third most common cause of premature death (death of people before the age of 65) accounting for 18.2 per cent of all deaths in this age group.

Rest of Territory (NT as the Standard)

Unlike other States and Territories, the non-metropolitan area of the Northern Territory had a considerably higher ratio for cancer related deaths than the **Darwin** ratio (**Table 5.18**). The *Rest of Territory* ratio was 112** (when standardised to the Northern Territory population), indicating that there were 12 per cent more deaths from cancer than expected from the Northern Territory rate over the period from 1992 to 1995; this compared with the SDR for **Darwin** of 88. In absolute numbers, this meant an increase from 41 to 54 cancer related deaths per annum in the rural areas of the Northern Territory. In line with other mortality variables in this chapter, deaths of males outnumbered female deaths, with 60 per cent of cancer related deaths being males. This was a similar proportion to that recorded in **Darwin**.

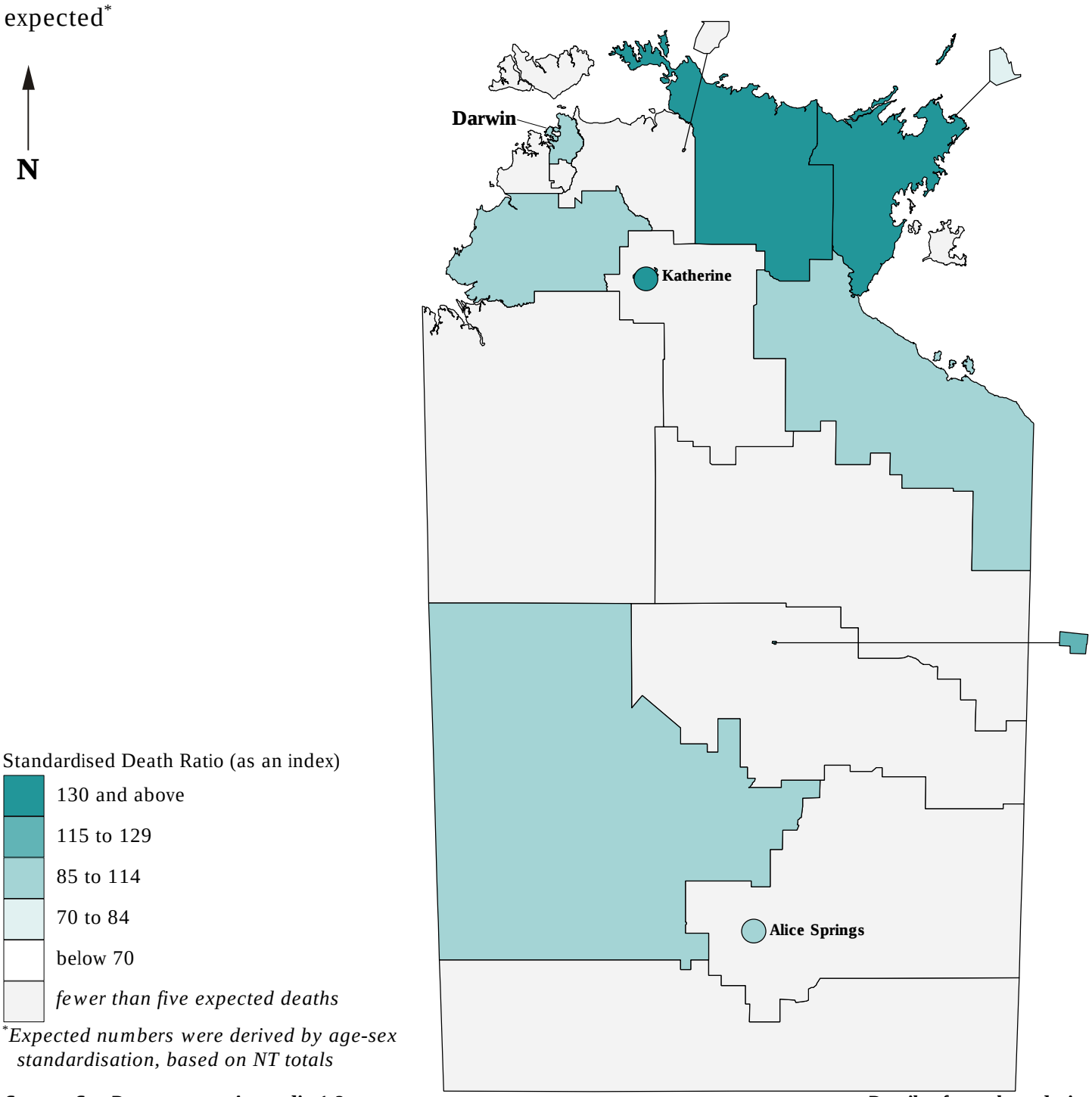
Only ten areas have been mapped, because fewer than five deaths from cancer were expected from the Northern Territory rates in the remaining SLAs (**Map 5.14**). Of the areas mapped, two SLAs stand out with exceptionally high death ratios. West Arnhem (with an SDR of 329**) had a ratio over three times higher than expected from the Northern Territory rates; and East Arnhem-Balance (with an SDR of 259**) had over two and a half times more cancer related deaths than expected. Aboriginal people comprised just over 90 per cent of the populations of these two SLAs. There was a wide gap between these ratios and the next highest figures. Katherine (137), Tennant Creek (115) and Daly (113) were the only other SLAs with elevated SDRs. The remaining five areas had lower than expected death ratios, spread over a relatively narrow range from a ratio of 99 in Tanami to 75 in Nhulunbuy.

The largest numbers of cancer related deaths were for residents in Alice Springs (48 deaths), Litchfield [Part B] (28 deaths) and East Arnhem-Balance (23 deaths). With respect to the unmapped SLAs, the largest number of deaths was in Elsey-Balance (eight deaths). South Alligator was the only SLA to record no cancer related deaths over the period from 1992 to 1995.

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

Map 5.14
Deaths of people aged 15 to 64 years from cancer, Northern Territory, 1992 to 1995

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

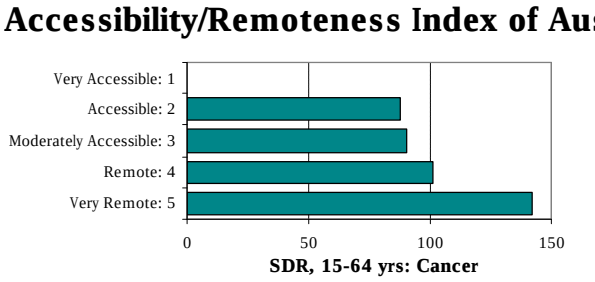


*Expected numbers were derived by age-sex standardisation, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Deaths
168
31
79
98

Standardised Death Ratios (SDRs) for deaths of people aged from 15 to 64 years from all cancers are close to the level expected from the Northern Territory rates in the Remote areas (an SDR of 101) and lower than expected in the Accessible (an SDR of 88, 12 per cent fewer premature deaths from cancer than expected) and Moderately Accessible (90) ARIA categories. The highest ratio is in the Very Remote areas, 42 per cent more premature deaths from cancer than expected from the Northern Territory rates (an SDR of 142).

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 5.19**) were relatively small, with the exception of ratios in **Darwin** and **Hobart**. In **Darwin**, the higher SDR in the later period suggests a worsening (relative to the Australian rates) in the death rates for residents from lung cancer between the periods analysed. 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 5.19: Deaths of people aged 15 to 64 years from lung cancer, capital cities
Standardised death ratios

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

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

In **Darwin**, deaths from cancer of the trachea, bronchus and lung (referred to here as lung cancer) accounted for 25.1 per cent of all cancer deaths among 15 to 64 year olds from 1992 to 1995. Although males account for around three quarters of these deaths, the rate among females has increased sharply since the 1970s, as a result of increased cigarette consumption since the 1950s. For example, the ratio of male to female mortality rates from lung cancer in the 1970s and 1980s was consistently above 5: however, in 1996 the ratio fell to an all time low of 2.9 (AIHW, 1998).

A relationship also exists between socioeconomic status and lung cancer. Standardised death 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.

Darwin[5] (Northern Territory as the Standard)

There were 22 per cent fewer deaths from lung cancer in **Darwin** than expected from the Northern Territory rates over the period from 1992 to 1995. This represented 11 deaths per annum, an increase on the 8 deaths per annum recorded over the period from 1985 to 1989.

Statistical Local Areas (SLAs)

As fewer than five deaths from lung cancer were expected from the Northern Territory rates for all of **Darwin's** SLAs for this variable, SDRs have not been calculated at the SLA level.

The largest number of deaths recorded were for residents in Stuart Park (six deaths) and Millner (four deaths). Thirteen SLAs recorded no deaths of 15 to 64 year olds from lung cancer over the period from 1992 to 1995.

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

Postcodes (aggregates of suburbs)

Map 5.15 shows the suburbs of **Darwin** grouped into approximate postcodes.

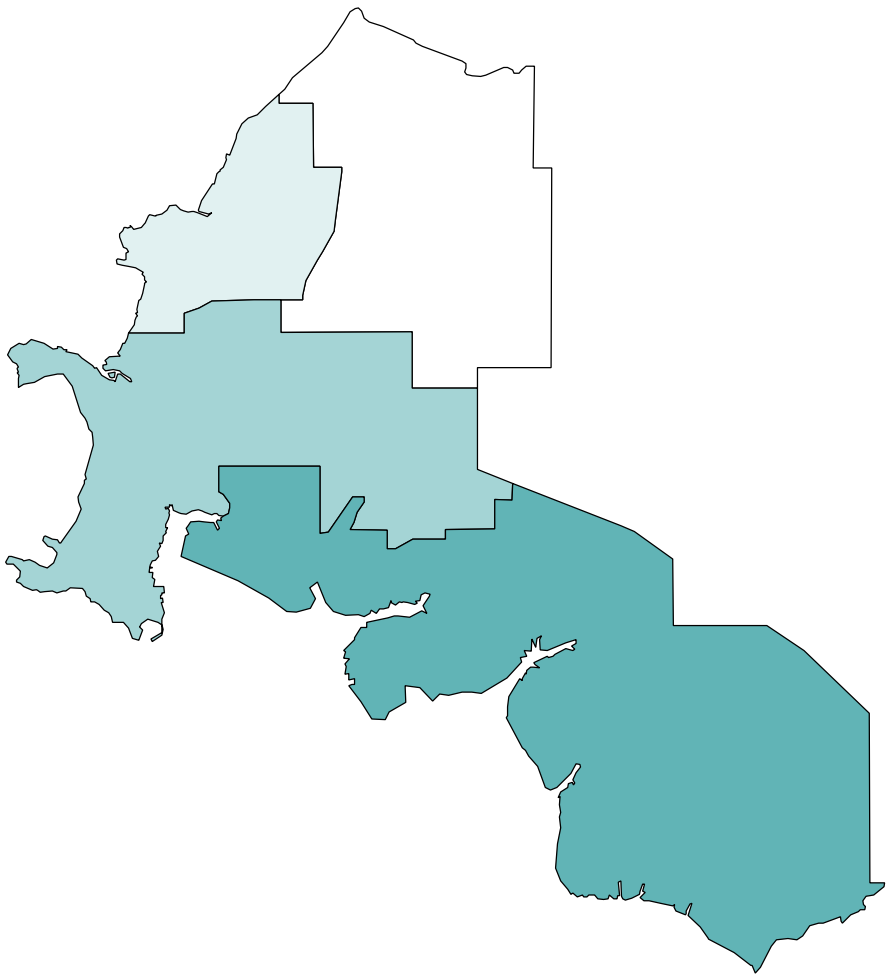
The highest ratio, an SDR of 129, was recorded in Palmerston, however, this represented a total of eight deaths from lung cancer when 6.2 were expected. An elevated ratio of 108, recorded in Darwin: South West, represented 13 deaths and a ratio of 74, recorded in Darwin: North West, represented 16 deaths from cancer. The lowest ratio, 36**, was recorded in Darwin: North East and represented just 5 deaths when 14.1 were expected.

[5]As there are relatively few areas with sufficient numbers of cases for this variable in non-metropolitan Northern Territory, the data has not been mapped. A summary of the main features of the variable is on page 173.

Map 5.15
Deaths of people aged 15 to 64 years from lung cancer, Darwin, 1992 to 1995

Standardised Death Ratio: number of deaths in each postcode area* compared with the number expected#

N



Standardised Death Ratio (as an index)

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

SLAs have been grouped to approximate postcode areas

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

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 5.20**, 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 5.20: 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 **Darwin** they accounted for 25.6 per cent of deaths of all ages (282 deaths) and 19.0 per cent of deaths (109 deaths) of people aged from 15 to 64 years in the years from 1992 to 1995 over the period from 1992 to 1995.

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.

Darwin (Northern Territory as the Standard)

Statistical Local Areas (SLAs)

Between the periods from 1985 to 1989 and from 1992 to 1995, **Darwin** recorded an increase from 25 to 27 deaths per annum respectively among 15 to 64 year olds from circulatory system diseases. Over the latter period, almost three quarters (73.4 per cent) of these deaths were of males. The standardised death ratio for **Darwin** was 42 per cent lower than expected from the Northern Territory rates (an SDR of 58**), emphasising the tendency for death rates to be higher in the rural areas of the Northern Territory.

Only 21 of the SLAs in **Darwin** have been mapped for this variable, as fewer than five deaths were expected from the Northern Territory rates in the remaining SLAs. Of those that could be mapped (**Map 5.16a)**, none had an elevated SDR. The highest ratio was in Driver, which had an SDR of 97 (3 per cent fewer deaths than expected from the Northern Territory rates). The next highest ratios were in Rapid Creek (87) and Ludmilla (77).

Of the SLAs mapped, Nakara and Leanyer had no deaths from circulatory system diseases over the period from 1992 to 1995 and Wulagi recorded one death, giving it an SDR of 16*. Absolute numbers of deaths in individual SLAs were generally low, the highest being six deaths recorded in Rapid Creek, Malak, Nightcliff and Karama.

The largest number of deaths recorded in the unmapped SLAs were in City-Inner (nine deaths) and Coconut Grove (seven deaths). Both East Arm and Lee Point-Leanyer Swamp recorded no deaths of 15 to 64 year olds from circulatory system diseases over the period from 1992 to 1995.

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

Postcodes (aggregates of suburbs)

Map 5.16b shows the suburbs of **Darwin** grouped into approximate postcodes.

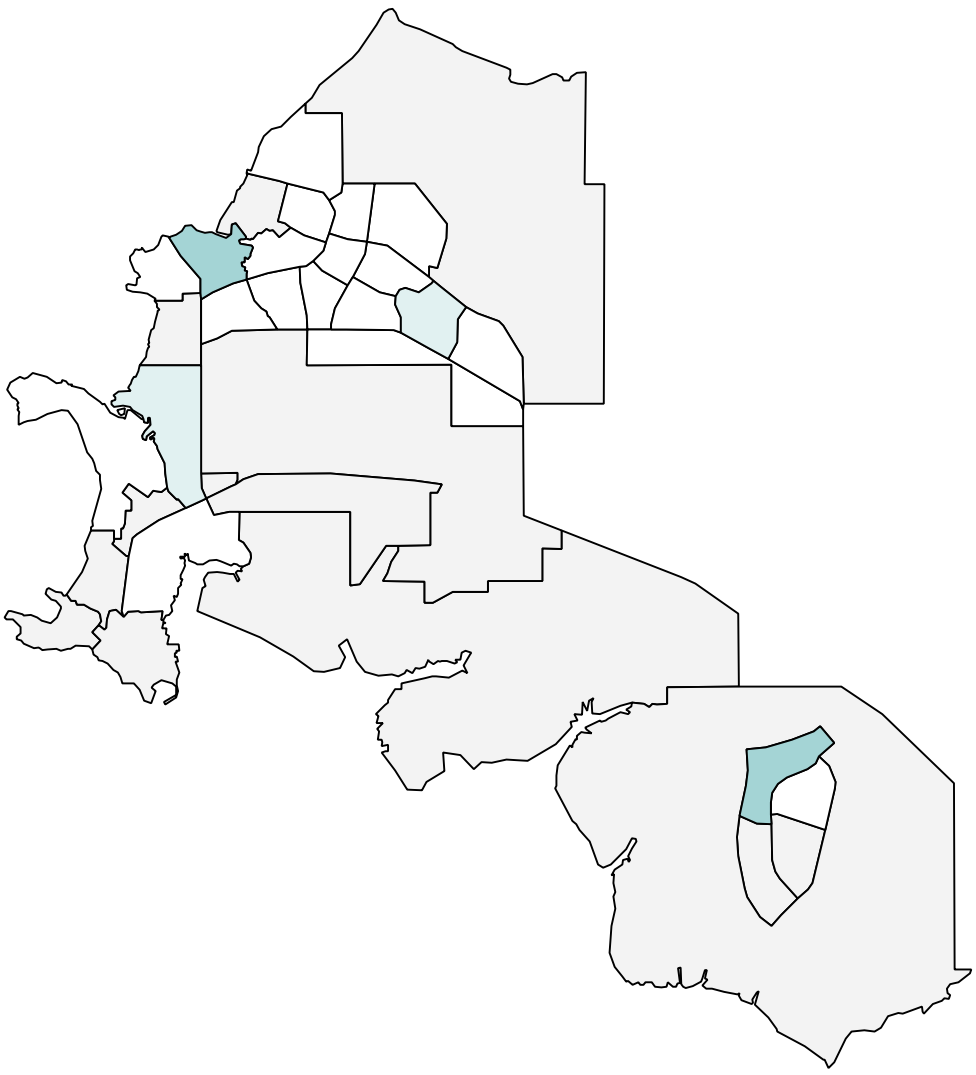
All postcode areas shown on **Map 5.16b** recorded fewer deaths of the 15 to 64 year old population from circulatory system diseases than expected from Northern Territory rates. The highest ratio, an SDR of 86 and 36 deaths, was recorded in the inner city and older suburbs of Darwin: South West. The southern suburbs of Palmerston had an SDR of 67, with the lowest number of deaths from circulatory system diseases (15 deaths) at these ages. Highly significant ratios were recorded in Darwin: North West (an SDR of 54**, with 39 deaths) and Darwin: North East (38**, 19 deaths).

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

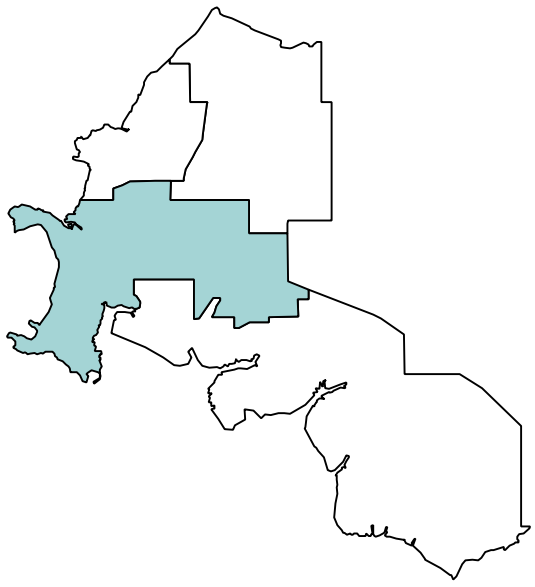
Standardised Death Ratio: number of deaths in each area compared with the number expected*

N

Map 5.16a: SLA Map



Map 5.16b: Postcode Map#



Standardised Death Ratio (as an index)

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

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

#SLAs have been grouped to approximate postcode areas

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

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

State/Territory comparison

Residents of the non-metropolitan areas of all States and the Northern Territory had higher Standardised Death Ratios (SDRs) from diseases of the circulatory system than those living in the capital cities. The largest differentials were in the Northern Territory and Western Australia, with the Northern Territory also recording the highest non-metropolitan SDR, of 289**. At the *Whole of State/Territory* level SDRs ranged from 26 per cent lower than expected in the Australian Capital Territory, an SDR of 74**, to almost twice the number of deaths expected in the Northern Territory, an SDR of 191**.

There was little difference in the SDRs for the two periods shown in **Table 5.21** for most States and Territories, although the higher SDRs in the later period for the Northern Territory, Tasmania and Western Australia suggest a worsening (relative to the Australian rates) in the death rates from these causes.

Table 5.21: 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, 25 per cent of deaths of people of all ages (504 deaths) in the non-metropolitan areas of Northern Territory were attributable to circulatory system diseases. These causes of death accounted for 23 per cent of deaths of people aged from 15 to 64 year olds and 34.9 per cent of deaths of people aged 65 years and over.

Rest of Territory (NT as the Standard)

Although the standardised death ratios for deaths of 15 to 64 year olds from circulatory system diseases increased over the two periods analysed (see discussion above), the absolute number of deaths decreased, from 302 to 272 deaths over the same periods. Of the 272 deaths, 190, or 69.9 per cent, were males. This again reflects the trend for males to have higher premature death rates than females. The overall SDR for the non-metropolitan areas of the Northern Territory was 140**.

Only 10 areas have been mapped for this variable, as fewer than five deaths were expected from the Northern Territory rates in the remaining SLAs (**Map 5.17**). However, in contrast to the situation in **Darwin**, most of these areas had elevated SDRs, and all but one of these was highly elevated. The highest ratio, an SDR of 336** in Gulf, indicated that there were over three times more deaths than expected from the Northern Territory rates. The other highly elevated SDRs ranged from 274** in West Arnhem to 248** in Tennant Creek. Katherine had ratio of 105, just five per cent higher than expected. Most of the areas with highly elevated ratios also had high proportions of Indigenous people in their populations.

The lowest ratios for deaths of 15 to 64 year olds from circulatory system diseases were in Alice Springs (an SDR of 80), Litchfield [Part B] (40**) and Nhulunbuy (12**; with one death when nine were expected from the from the Northern Territory rates).

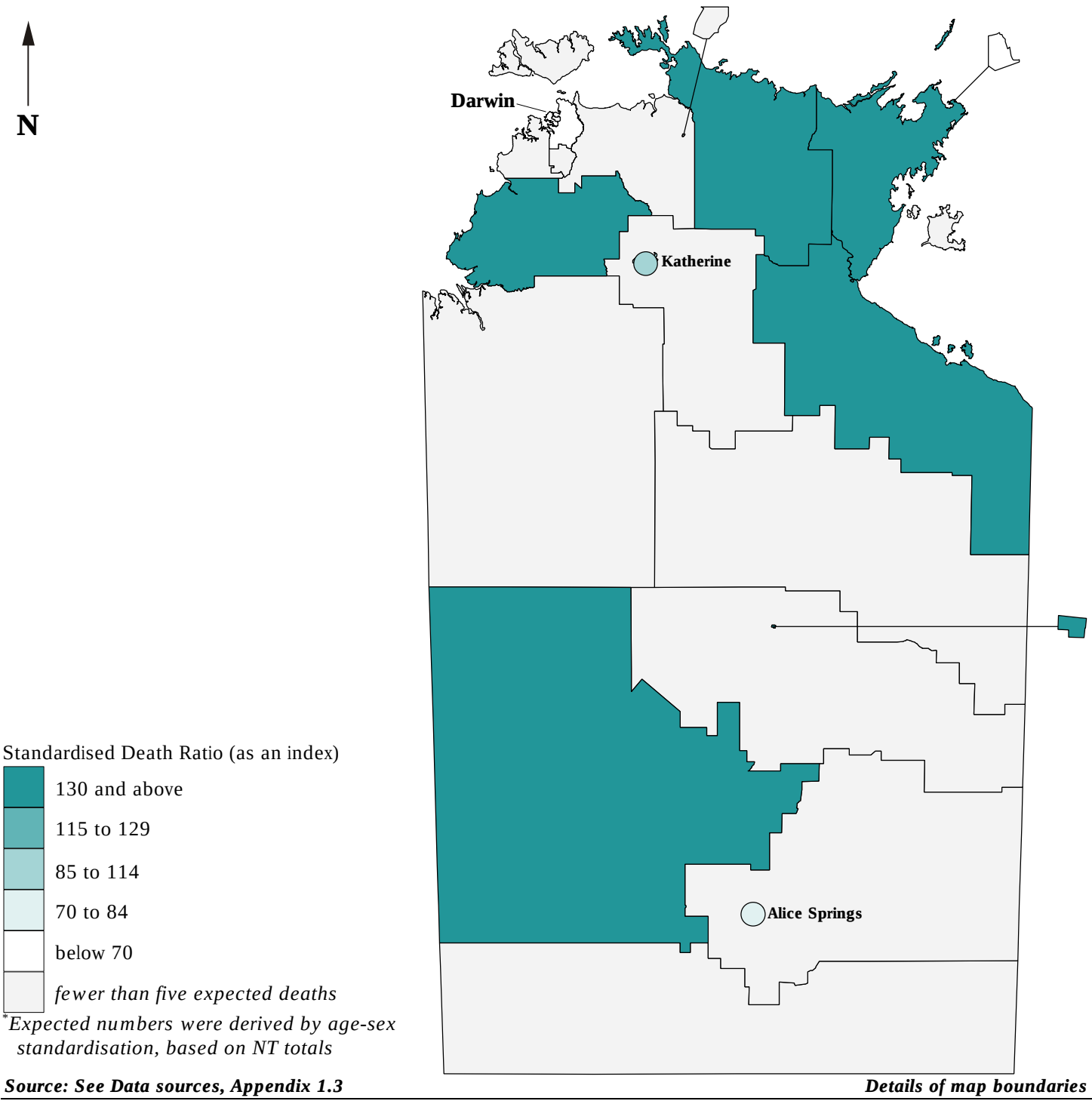
The largest numbers of deaths were recorded in Alice Springs (43 deaths), Tanami (25) and East Arnhem-Balance (23).

Of the unmapped SLAs, relatively high numbers of deaths were recorded in Bathurst-Melville (18 deaths), Victoria (14 deaths) and Elsey-Balance (13 deaths). Jabiru and Cox-Finniss recorded no deaths from circulatory system diseases over the period from 1992 to 1995.

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

Map 5.17
Deaths of people aged 15 to 64 years from circulatory system diseases, Northern Territory, 1992 to 1995

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

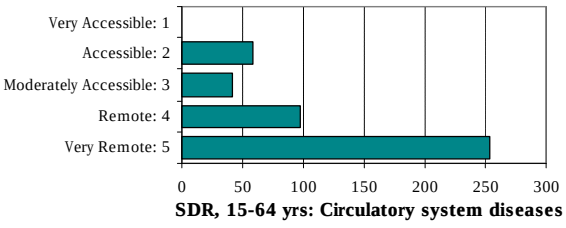


*Expected numbers were derived by age-sex standardisation, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



110
14
79
175
Deaths

There are very low SDRs for circulatory system diseases in the Moderately Accessible (an SDR of 41, less than half the number of premature deaths from these causes expected from the Northern Territory rates) and Accessible areas (59) and near the expected level in the Remote areas (98). Ratios then increase sharply to a highly elevated ratio of 254 in the Very Remote areas (over two and a half times more premature deaths from lung cancer than expected, and the largest number of deaths). This highly elevated ratio is likely to reflect the very 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. 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 5.22**, 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 5.22: 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 82 deaths from diseases of the respiratory system over the period from 1992 to 1995, 7.4 per cent of all deaths of residents of **Darwin**. Just under a quarter (20.7 per cent) of deaths from diseases of the respiratory system were from the diseases of pneumonia and influenza, while 67.1 per cent from chronic obstructive pulmonary disease (largely deaths from bronchitis, emphysema, and asthma). People aged from 15 to 64 years accounted for 3.9 per cent of respiratory system deaths, or 5.6 per cent of all deaths for this age group. It is these premature deaths that are presented in **Map 5.18**.

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. Over the period 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).

Darwin [6] (Northern Territory as the Standard)

Consistent with the increase in the SDR between the periods from 1985 to 1989 and from 1992 to 1995 relative to Australian figures **Table 5.22**), the number of respiratory related deaths in **Darwin** increased from six to eight deaths per annum for the same periods. Although **Darwin** had an elevated SDR based on Australian standards, the city recorded an SDR of just 35** when compared to Northern Territory standards, indicating the extent of over-representation of respiratory related deaths in the non-metropolitan areas (with an SDR of 162**).

Statistical Local Areas (SLAs)

Seventeen SLAs in **Darwin** recorded no deaths for this variable. As a result of these low numbers, deaths from respiratory system diseases of 15 to 64 year olds were not mapped by SLA. The largest number of deaths was recorded in Ludmilla and Karama, both with five deaths of 15 to 64 year olds from respiratory system diseases, and SDRs of 195 and 94, respectively.

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

Postcodes (aggregates of suburbs)

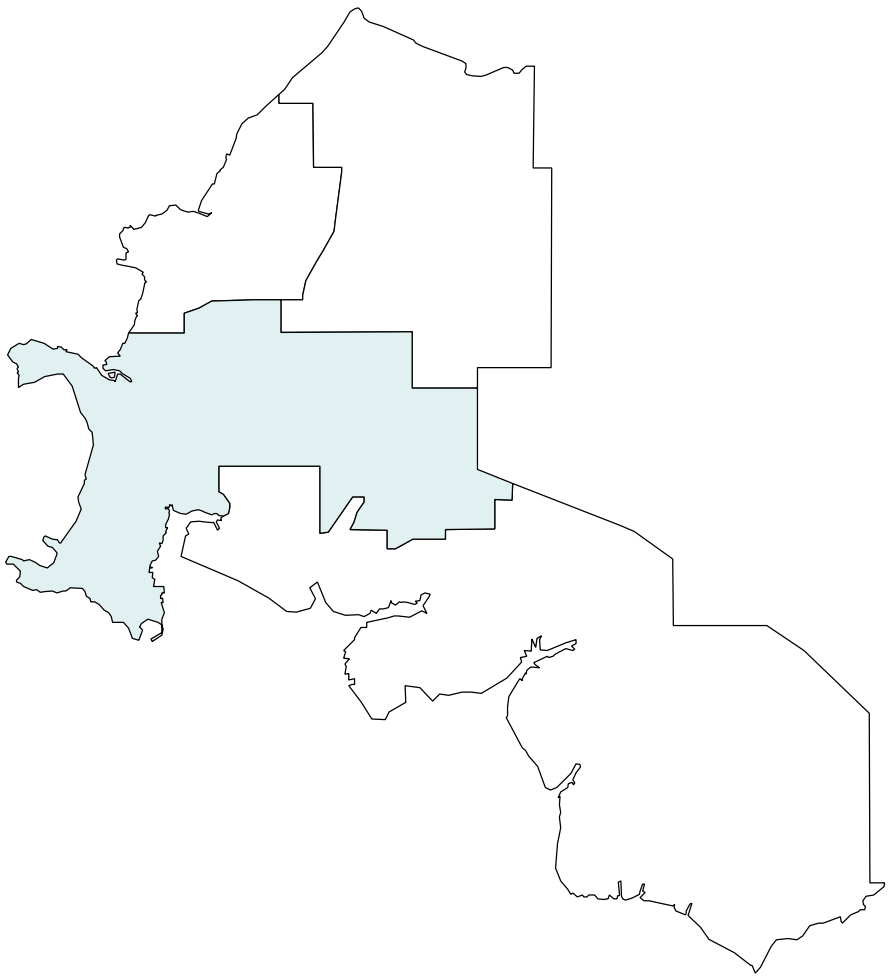
Each postcode area recorded considerably fewer deaths from respiratory system diseases than were expected from the Northern Territory rates (**Map 5.18b**). The highest ratio, an SDR of 77, was recorded in Darwin: South West and represented the largest number of 16 deaths. The next highest ratio, 33** representing just eight deaths, was recorded in Darwin: North East. Very low ratios were recorded in Palmerston (27*, three deaths when 11 were expected) and Darwin: North West (14**, five deaths when 35 were expected).

[6]As there are relatively few areas with sufficient numbers of cases for this variable in non-metropolitan Northern Territory, the data has not been mapped. A summary of the main features is on page 174.

Map 5.18
Deaths of people aged 15 to 64 years from respiratory system diseases, Darwin, 1992 to 1995

Standardised Death Ratio: number of deaths in each postcode area* compared with the number expected#

N



Standardised Death Ratio (as an index)

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

SLAs have been grouped to approximate postcode areas

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

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Accidents, poisonings and violence as a cause of death

Introduction

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

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

- motor vehicle traffic accidents (33.4 per cent);
- suicide (17.4 per cent);
- assault without weapon or weapon not specified (14.4 per cent); and
- accidental drownings (9.1 per cent).

Although representing only 15.9 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 24.0 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:

- motor vehicle traffic accidents (35.6 per cent);
- suicide (18.6 per cent);
- assault without weapon or weapon not specified (16.5 per cent); and
- accidental drownings (6.2 per cent).

In the years from 1992 to 1995, there were 112 deaths in the Northern Territory from the combined causes of accidents, poisonings and violence among people aged from 15 to 24 years, representing 70.4 per cent of all deaths in this age group. Motor vehicle traffic accidents and suicide account for the majority of these deaths (58.0 per cent in total: 46.4 per cent from motor vehicle traffic accidents and 11.6 per cent from suicide).

Males predominated in these causes of death, accounting for 81.7 per cent of deaths from these causes in the 15 to 64 year age group (ranging from 89.7 per cent of suicides and 80.5 per cent of motor vehicle traffic accidents) and 81.2 per cent of deaths among 15 to 24 year olds (see **Table 5.23**).

Table 5.23:Deaths from accidents, poisonings & violence, by cause, Northern Territory, 1992 to 1995

Age (years) and sex	Motor vehicle traffic accidents		Suicides		All accidents, poisonings & violence[1]	
	No.	%	No.	%	No.	%
15–24						
Males	43	82.7	11	84.6	91	81.2
Females	9	17.3	2	15.4	21	18.8
Persons	**52**	**100.0**	**13**	**100.0**	**112**	**100.0**
15–64						
Males	120	80.5	70	89.7	344	81.7
Females	29	19.5	8	10.3	77	18.3
Persons	**149**	**100.0**	**78**	**100.0**	**421**	**100.0**

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

As can be seen from **Table 5.24**, death rates from the combined causes of accidents, poisonings and violence were substantially higher, across all age groups, in the non-metropolitan areas of Northern Territory than in **Darwin**. The biggest difference was recorded among males aged from 15 to 64 years, where the rates ranged from 174.4 per 100,000 population in the non-metropolitan areas to 100.8 per 100,000 population in **Darwin**.

Table 5.24: Deaths from accidents, poisonings and violence, by area of residence, Northern Territory, 1992 to 1995

Age (years) and sex	Darwin		Rest of Northern Territory		Total	
	No.	Rate	No.	Rate	No.	Rate
15 to 24						
Males	28	151.5	63	197.9	91	157.6
Females	3	11.8	18	60.7	21	38.1
Total	**31**	**60.4**	**81**	**131.7**	**112**	**99.2**
15 to 64						
Males	116	100.8	228	174.4	344	139.9
Females	27	24.9	50	42.1	77	33.9
Total	**143**	**64.0**	**278**	**111.5**	**421**	**89.0**
All ages						
Males	132	80.5	256	134.9	388	109.7
Females	37	24.0	69	39.1	106	32.1
Total	**169**	**53.2**	**325**	**88.6**	**494**	**72.2**

[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 168 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 64 years) it is estimated that 180,234 years of (potential) life have been lost due to premature deaths from these external causes. This is 34.2 per cent of the total number of YPLL from all causes of death, of which 15.0 per cent were from road crashes, 8.9 per cent from suicides, 8.4 per cent from other accidents, and 1.9 per cent from violence. For males, 32.5 per cent of YPLL during their working life were from these external causes and, for females, 16.0 per cent.

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

Capital city comparison (Australia as the Standard)

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

There was a higher differential (from the Australian rates) in the SDRs recorded for **Hobart** and **Darwin** in the later period shown in **Table 5.25**, 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 5.25: 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 **Darwin**, there were 169 deaths from the combined causes of accidents, poisonings and violence (34.2 per cent of all deaths from these causes). Some 84.6 per cent of these (143 deaths) were deaths of 15 to 64 year olds, and 92.3 per cent were males. There were 16.1 per cent more deaths of 15 to 64 year olds resident in **Darwin** from these external causes over the period from 1992 to 1995 than over the years from 1985 to 1989, rising from an average of 31 per year to 36 per year.

Darwin (Northern Territory as the Standard)

Deaths of **Darwin** residents from this group of external causes were 27 per cent lower than expected from the Northern Territory rates (an SDR of 73**). This indicated the extent to which deaths from these causes were over represented among residents of the non-metropolitan areas. Over the period from 1992 to 1995, there were 36 deaths per annum of 15 to 64 year olds from accidents, poisonings and violence. Of these, 81.1 per cent were males and 18.9 per cent were females. Younger males, in particular, formed a relatively large proportion of males dying from this group of causes. For example, 32.6 per cent of males of all age groups dying from these causes were aged from 20 to 29 years.

Statistical Local Areas (SLAs)

All of the SLAs in **Darwin** had fewer than 20 deaths of 15 to 64 year olds from accidents, poisonings and violence and, over one third (34.3 per) of the SLAs had fewer than five expected deaths for this variable, and therefore have not been mapped.

The only three SLAs in **Darwin** which had elevated SDRs were in the western, established suburbs; Ludmilla (with an SDR of 158, and eight deaths when five were expected), Rapid Creek (133, 10 deaths when eight were expected) and Nightcliff (117, 13 deaths when 11 were expected) (**Map 5.19a**).

Residents of the remaining SLAs had fewer deaths than were expected, all with fewer than eight deaths.

The largest number of premature deaths from these external causes was recorded for residents of the unmapped SLA of City Inner (19 deaths). No deaths were recorded in the unmapped SLAs of East Arm and Lee Point-Leanyer Swamp.

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

Postcodes (aggregates of suburbs)

Map 5.19b shows the suburbs of **Darwin** grouped into approximate postcodes.

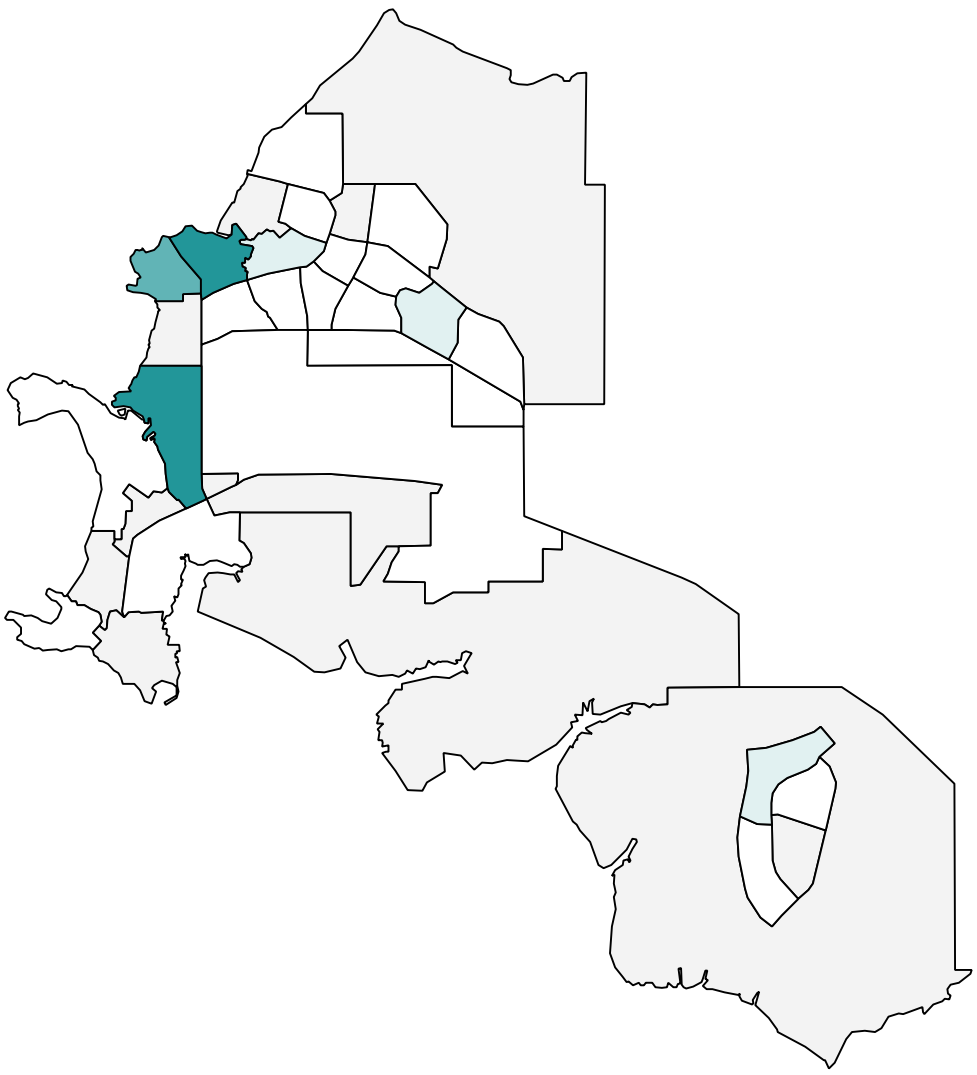
Darwin: South West was the only postcode area to record an elevated ratio (an SDR of 105, representing 50 deaths) for deaths of 15 to 64 year olds from accidents, poisonings and violence over the period from 1992 to 1995. The second highest ratio, 74*, was recorded in Darwin: North West and accounted for the largest number of 54 deaths. The lowest ratios, 65 recorded in Palmerston and 45** recorded in Darwin: North East, accounted for 16 and 23 deaths from these external causes, respectively.

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

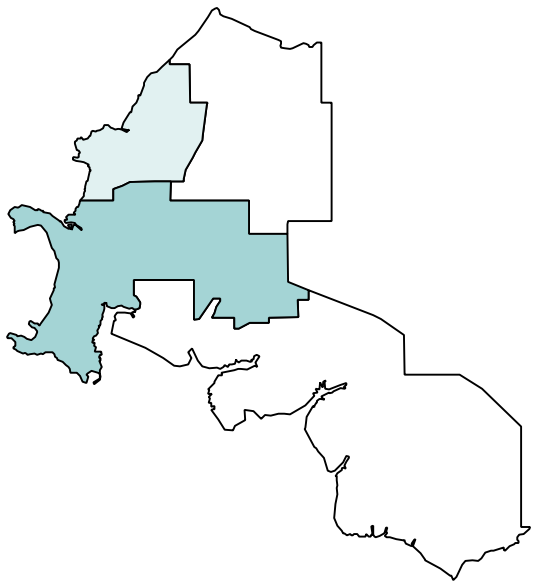
Standardised Death Ratio: number of deaths in each area compared with the number expected*

N

Map 5.19a: SLA Map



Map 5.19b: Postcode Map#



Standardised Death Ratio (as an index)

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

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

#SLAs have been grouped to approximate postcode areas

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 being in the Northern Territory: the Northern Territory also had the highest non-metropolitan SDR, of 254**.

The main differences from the Australian rates in the SDRs for the two periods shown in **Table 5.26** 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 5.26: 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 325 deaths in the non-metropolitan areas of Northern Territory attributable to accidents, poisonings and violence, representing 16.1 per cent of deaths for all ages. Unlike deaths from all causes, where the highest per cent is experienced among people aged 65 years and over, deaths from accidents, poisonings, and violence are a major cause of premature death, of people between the ages of 15 and 64 years. Premature deaths accounted for 85.5 per cent of the 325 deaths recorded in the non-metropolitan areas of Northern Territory; in comparison only 7.1 per cent of these deaths occurred at the age of 65 years and over.

Rest of Territory (NT as the Standard)

Deaths from the combined causes of accidents, poisonings and violence of 15 to 64 year old residents of the non-metropolitan areas of the Northern Territory were two and a half times higher than expected from the Australian rates. This represented 70 deaths per annum over the period from 1992 to 1995, lower than the 87 deaths per annum recorded over the period from 1985 to 1989.

Accidents, poisonings and violence combined were the major cause of death in the rural areas of the Northern Territory from 1992 to 1995. The number of males aged 15 to 64 by far outnumbered females, with 82.0 per cent of deaths in this category being of males. The distribution of deaths over the age groups had the reverse pattern to other variables in this chapter. The concentration of deaths was greater among younger people, particularly males, than among older age groups.

As **Map 5.20** shows, most of the areas mapped had ratios in the top two ranges. The highest ratio was in the SLA of Victoria (an SDR of 233**) where there were two and a third times more deaths than expected from Northern Territory rates. Other high ratios were in Gulf (227**), Sandover-Balance (188*), Groote Eylandt (184*) and Tanami (170**). Four other areas had elevated ratios. The relatively higher death rate of Indigenous people from this group of causes is likely to have been an influence in the high SDRs recorded for the more remote areas.

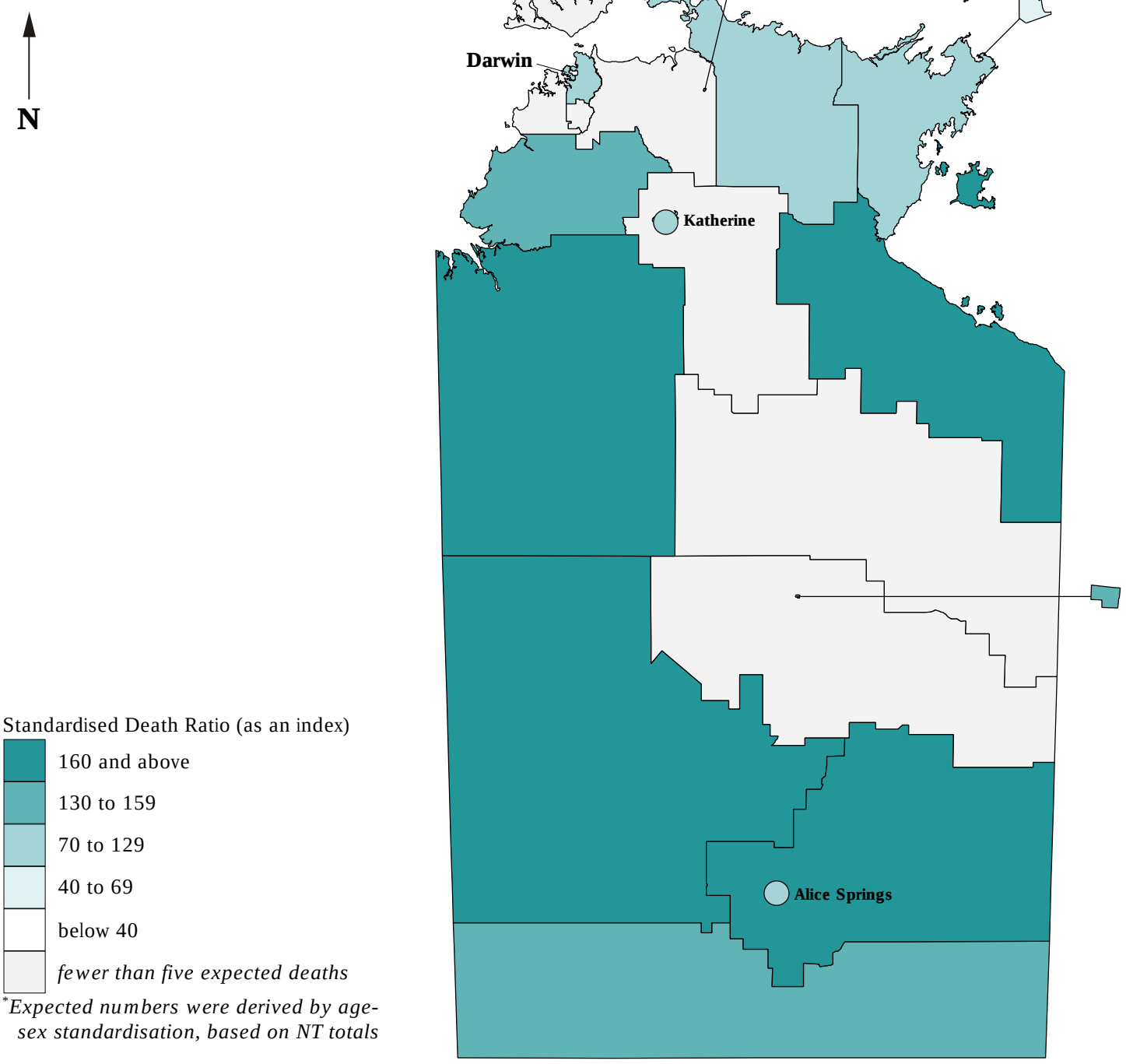
The lowest ratio was in Nhulunbuy (an SDR of 65) where there were 35 per cent fewer deaths than expected from the Northern Territory rates. West Arnhem also had a lower than expected ratio of 74, accounting for seven deaths, when 9.5 expected.

The largest numbers of deaths were recorded in the mapped areas of Alice Springs (58 deaths), Litchfield [Part B] (22 deaths) Katherine (21 deaths) and Tanami (20 deaths). A total of 51 deaths were recorded in the unmapped areas, of which the highest was 14 in Elsey-Balance.

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

Map 5.20
Deaths of people aged 15 to 64 years from accidents poisoning and violence, Northern Territory, 1992 to 1995

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

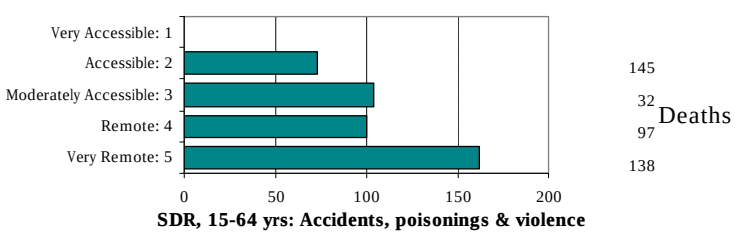


*Expected numbers were derived by age-sex standardisation, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



SDRs for accidents, poisonings and violence increase steeply across the ARIA categories. The lowest ratio is in the Accessible areas (an SDR of 73). Ratios near or at the level expected from the Northern Territory rates were recorded in the Moderately Accessible (an SDR of 104) and Remote (100) areas, with a highly elevated ratio of 162 in the Very Remote areas, 62 per cent more premature deaths from these external causes than expected. Again, the influence of Indigenous deaths is likely to be an important influence in the high ratios in the most remote areas.

Source: Calculated on ARIA classification, DHAC

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

Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, Standardised Death Ratios (SDRs) for deaths from accidents, poisonings and violence of people aged from 15 to 24 years ranged from 65** in **Canberra** to 127* in **Hobart**. With the exception of **Darwin** (with an SDR of 124) and **Brisbane** (104), the other capital cities recorded fewer deaths than expected. **Sydney** and **Melbourne** also had relatively low ratios, of 76** and 78**, respectively.

There was a higher differential (from the Australian rates) in the SDRs recorded for **Perth**, **Brisbane**, **Hobart** and **Darwin** in the later period shown in **Table 5.27**, 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 5.27: 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 to 24 years. Over the four year period form 1992 to 1995, they represented 81.6 per cent of all deaths in Northern Territory in this age group - 90.3 per cent of male deaths and 42.9 per cent of female deaths. Males predominated, accounting for 90.3 per cent of all deaths from these external causes. Almost half (47.3 per cent) of male deaths were from motor vehicle traffic accidents and 12.1 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.

Darwin[7] (Northern Territory as the Standard)

There were two fewer deaths per annum among 15 to 24 year olds in **Darwin** in the four years from 1992 to 1995 than from 1985 to 1989, a fall from 10 deaths per annum to eight deaths per annum. From 1992 to 1995, residents of **Darwin** recorded 39 per cent fewer deaths from these external causes than were expected from the Northern Territory rates, an SDR of 61**. This indicates the extent to which deaths from these causes are over represented among residents of the non-metropolitan areas in this age group.

Statistical Local Areas (SLAs)

As almost half (48.6 per cent) of the SLAs in **Darwin** had no deaths for this variable, the data have not been mapped at the SLA level. The largest number of deaths of 15 to 24 year olds from accidents, poisonings and violence was recorded for residents of City Inner (five deaths).

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

Postcodes (aggregates of suburbs)

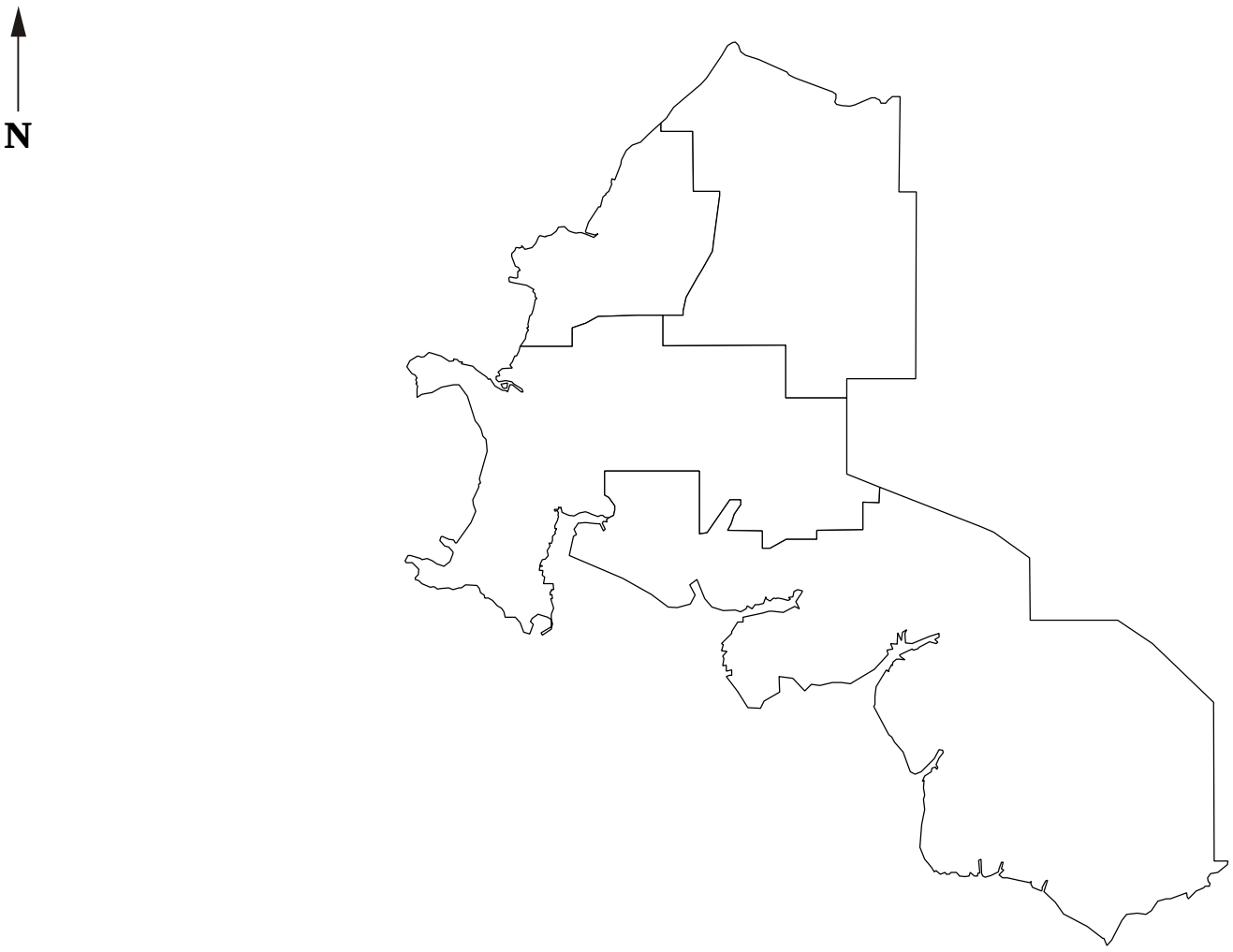
Map 5.21 shows the suburbs of **Darwin** grouped into approximate postcodes.

There were fewer people aged 15 to 24 years who died from these external causes over the period from 1992 to 1995 than expected from the Northern Territory rates in all postcode areas of **Darwin**. The highest ratio, an SDR of 67, was recorded in the southern Palmerston area and represented a total of four deaths when six were expected from the Northern Territory rates. An SDR of 66, recorded in Darwin: South West, represented eight deaths and an SDR of 59, recorded in Darwin: North East, represented seven deaths. The lowest ratio, an SDR of 58 recorded in Darwin: North West, represented the largest number of deaths from accidents, poisoning and violence in this age group (12 deaths).

[7]As there are relatively few areas with sufficient numbers of cases for this variable in non-metropolitan Northern Territory, the data has not been mapped. A summary of the main features of the variable is on page 175.

Map 5.21
Deaths of people aged 15 to 24 years from accidents, poisonings and violence, Darwin, 1992 to 1995

Standardised Death Ratio: number of deaths in each postcode 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

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

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 year olds: 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 5.28**). **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 5.28**).

Table 5.28: 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

Darwin (Northern Territory as the Standard)

From 1992 to 1995, there were 17,133 years of potential life lost from premature deaths of the 15 to 64 year old population of **Darwin**. This was 35 per cent fewer deaths than expected from the Northern Territory numbers, an SR of 65**, and indicates the over-representation of years of life lost in the non-metropolitan areas of the Territory. The number of YPLL of males in **Darwin** over the period analysed was 11,978, or 69.9 per cent.

Statistical Local Areas (SLAs)

As can be seen from **Map 5.22a,** the majority of SLAs in Darwin (almost three quarters) had ratios in the lowest range mapped. Just six SLAs recorded elevated ratios, and five of these were in the older, western suburbs of **Darwin**.

The highest ratio, an SR of 329**, was recorded in Palmerston Balance, in the south east, where the total of 355 YPLL was over three times the number expected from the Northern Territory totals. Other highly significantly elevated ratios were recorded in City-Inner (264**), The Narrows (197**) Ludmilla (136**) and Coconut Grove (113**). Parap had a ratio of 102.

Nightcliff (with an SR of 95*), Rapid Creek (79**) and Fannie Bay (76**) were the only SLAs that had fewer YPLL than were expected and were not in the lowest range mapped.

Twenty six of the SLAs in **Darwin** had ratios below 70. The relatively sparsely populated SLAs of East Arm and Lee Point-Leanyer Swamp recorded no losses of years of potential life between 1992 and 1995. A number of SLAs recorded over 50 per cent fewer YPLL than were expected from the Northern Territory rates. All but Larrakeyah (with an SR of 19**) are located in the north of **Darwin**, in an area which includes Marrara (with an SR of 29**), Leanyer (31**), Jingili (33**) and Anula (36**).

The Palmerston suburbs recorded between 39 per cent fewer YPLL than expected in Moulden (61**) and 48 per cent fewer in Woodroffe (52**).

The largest numbers of YPLL were recorded in City-Inner (1,511 years), Nightcliff (1,400 years), Karama (1,053 years) and Ludmilla (955 years).

Correlations with the indicators of socioeconomic status were all weak, the strongest being with the variables for private dwellings without a vehicle (0.49) and single parent families (0.33). There were, however, correlations of meaningful significance at the SLA level with the variables for total deaths (0.69) and admissions to public acute hospitals (0.57).

Postcodes (aggregates of suburbs)

Map 5.22b shows the suburbs of **Darwin** grouped into approximate postcodes.

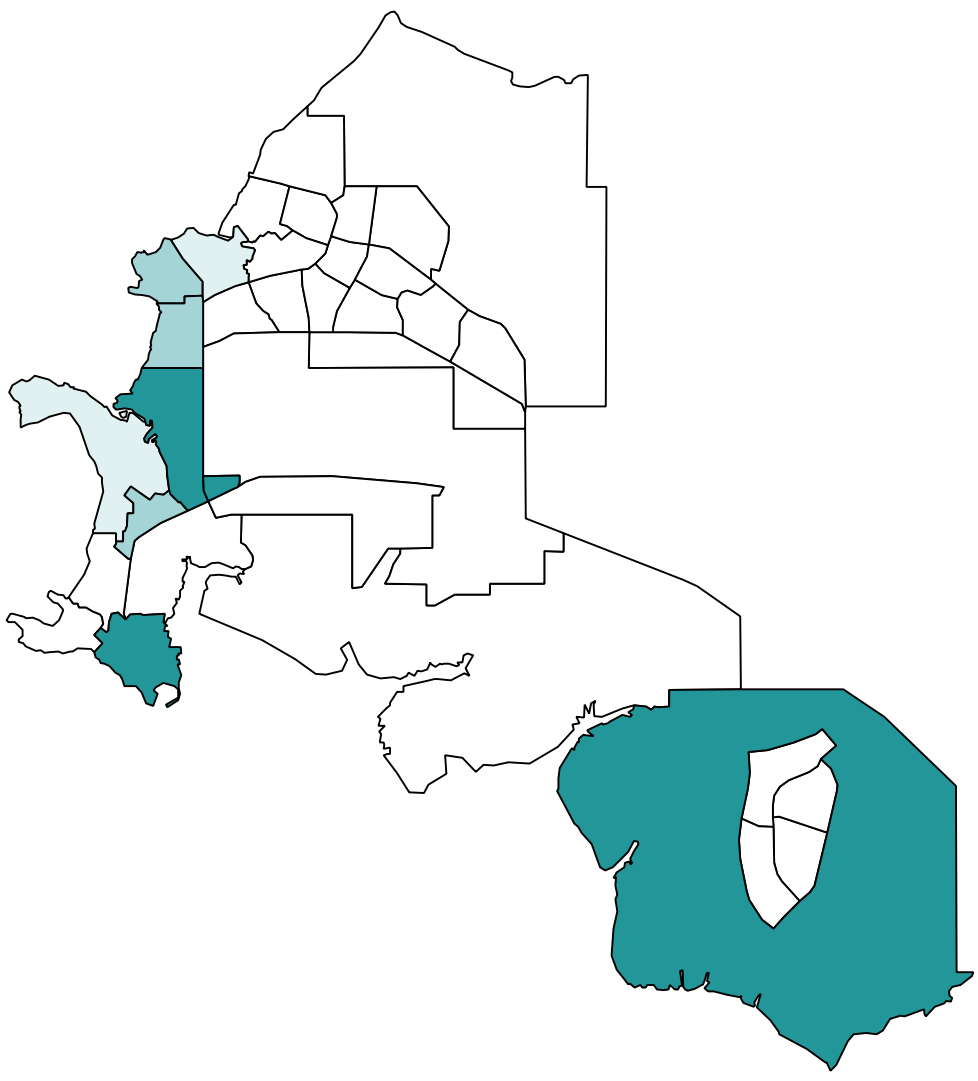
All postcode areas of **Darwin** had fewer years of potential life lost than were expected from the Northern Territory rates. The highest ratio, an SR of 91** recorded in the established inner city areas of Darwin: South West, represented 5,538 YPLL. A ratio of 63** was recorded in both Darwin: North West (with the largest number of 6,272 YPLL) and Palmerston. The lowest ratio, an SR of 47** recorded in Darwin: North East, represented a total of 3,282 YPLL.

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

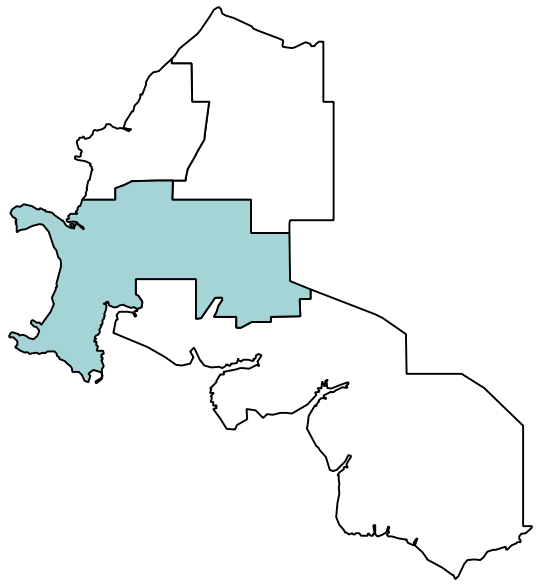
Standardised Ratio: number of years of potential life lost in each area compared with the number expected*

N

Map 5.22a: SLA Map



Map 5.22b: Postcode Map#



Standardised Ratio (as an index)

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

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

#SLAs have been grouped to approximate postcode areas

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 5.29** 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 5.29: 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 Territory (NT as the Standard)

Between 1992 and 1995, there were 37,890 years of potential life lost from premature deaths of the 15 to 64 year old population of the non-metropolitan areas of the Northern Territory. The SR of 132** indicates that there were 32 per cent more YPLL than were expected from the Northern Territory rates, and emphasises the over-representation of premature death by Northern Territory standards in the non-metropolitan areas. Males accounted for almost two thirds (66.1 per cent) of the YPLL.

Map 5.23 shows that most SLAs in the non-metropolitan areas of the Northern Territory had considerably higher numbers of YPLL than were expected (and all but two of the elevated ratios were highly significant). There was also a differentiation between the rural areas and towns, with all but one rural area, South Alligator with a ratio of 67**, recording elevated ratios. Tennant Creek (168**) and the semi-urban SLA of Litchfield [Part A] (102) were the only urban areas to record elevated ratios for this variable.

Eight SLAs had over twice the expected number of YPLL including Elsey Balance (with an SR of 291**, and almost three times the number of YPLL expected). Other SLAs in this group were Bathurst Melville (267**), Gulf (243**), Tanami (241**), East Arnhem-Balance (221**) and West Arnhem (210**). These latter five SLAs also had exceptionally high proportions, above 70 per cent, of Indigenous Australians. Five SLAs had between 60 and 90 per cent more YPLL than were expected from the Northern Territory totals, including Petermann (162**) and Victoria (187**).

Just three SLAs had ratios in the second highest range mapped. Tableland (123**) and adjacent Tennant Creek-Balance (118**) recorded 23 per cent and 18 per cent more YPLL than were expected from the Territory totals. In the north, Coomalie had a ratio of 111*.

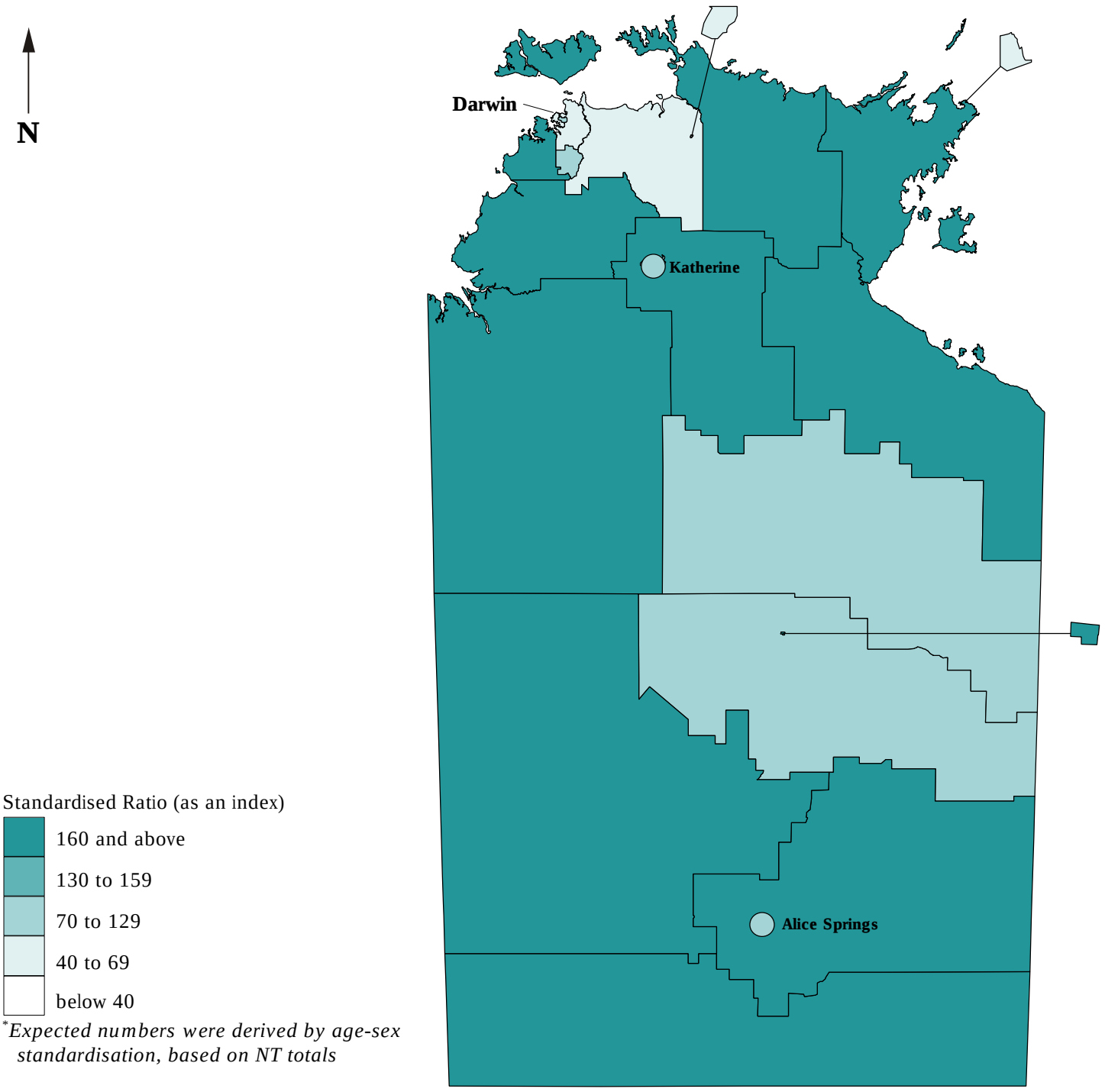
Six non-metropolitan SLAs recorded fewer YPLL than were expected from the Northern Territory rates, five of them highly statistically significant. The lowest ratio (an SR of 51**) was recorded in Nhulunbuy, with a total of 625 YPLL. Low ratios were also recorded in Litchfield [Part B] (54**), Jabiru (61**) and South Alligator (67**). The total number of 7,229 YPLL in Alice Springs was nine per cent less than expected (a ratio of 91**). This was also the highest number of YPLL recorded in any area in the Northern Territory.

Other high numbers of years of potential life lost were recorded in Tanami (3,618 years), West Arnhem (2,324 years) and Katherine (2,590 years).

The correlation analysis showed there to be a positive association with indicators of socioeconomic disadvantage. The strongest of these were with the variables for the Indigenous population (0.79), single parent families (0.74), low income families (0.72) and private dwellings without a vehicle (0.71). These results, together with the inverse correlation of substantial significance with the IRSD (-0.81), indicate the existence of an association at the SLA level between high levels of years of potential life lost and socioeconomic disadvantage. There were also correlations of substantial significance with the variables for all deaths (0.97), people reporting fair or poor health status (0.74) and the PCS score (an inverse correlation of -0.73).

Map 5.23
Deaths of people aged 15 to 64 years: years of potential life lost, Northern Territory, 1992 to 1995

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

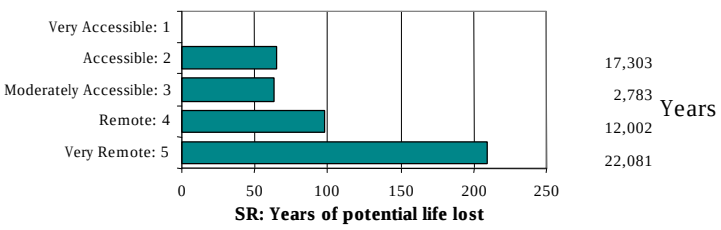


Expected numbers were derived by age-sex standardisation, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



17,303	Years
2,783	
12,002	
22,081	

The ARIA graph of years of potential life lost (YPLL) from deaths at ages from 15 to 64 years summarises the overall impact of premature death. The lowest ratios are in the Moderately Accessible and Accessible areas (SRs of 63 and 65, respectively). The Very Remote areas have more than twice the number of premature deaths expected from the Northern Territory rates (an SR of 209) and the largest numbers of years of life lost. The impact of Indigenous deaths is again likely to be important in the most remote areas.

Source: Calculated on ARIA classification, DHAC

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The information on these three pages provides summary details for a variable for which 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 8.1. The correlation analysis was not undertaken for these variables as there were too many SLAs with small numbers of cases.

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 region of the Northern Territory**,** 29.1 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 5.2 per cent of deaths at all ages; 5.9 per cent of deaths of people aged 65 years and over; and 5.6 per cent of all deaths before age 65.

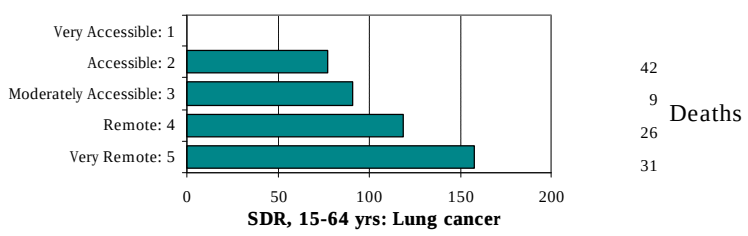
Rest of Territory (NT as the Standard)

There was a substantial rise in the number of deaths from lung cancer, from 11 deaths per annum over the period from 1985 to 1989 to 17 deaths per annum from 1992 to 1995.

Only two SLAs in non-metropolitan Northern Territory had five or more deaths expected from the Northern Territory rates. Both of these (Alice Springs (with an SDR of 94) and Litchfield [Part B] (with an SDR of 92)) recorded fewer deaths than expected from Northern Territory rates.

The largest numbers of lung cancer deaths of 15 to 64 year olds were recorded in Alice Springs (14 deaths), East Arnhem-Balance (13 deaths) and West Arnhem (10 deaths). Ten SLAs recorded no deaths at these ages from lung cancer over the period from 1992 to 1995.

Accessibility/Remoteness Index of Australia



Standardised Death Ratios (SDRs) for deaths from lung cancer have a similar pattern across the ARIA categories to that evident for all cancers, although they cover a wider range. SDRs increase steeply from a low of 77 in the Accessible areas (23 per cent fewer premature deaths from lung cancer than expected from the Northern Territory rates), through ratios of 91 and 119 in the Moderately Accessible and Remote areas, respectively, to the most highly elevated ratio, of 158 (58 per cent more premature deaths from lung cancer than expected from the Northern Territory rates), in the Very Remote areas.

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 296 deaths from diseases of the respiratory system over the period from 1992 to 1995 in the non-metropolitan areas of Northern Territory, 14.7 per cent of all deaths**.** Less than half of these deaths (42.6 per cent, 126 deaths) were of people aged 65 years and over, with 52.4 per cent being of people aged from 15 to 64 years. Deaths from these causes represented 13.1 per cent of all deaths for this age group.

Rest of Territory (NT as the Standard)

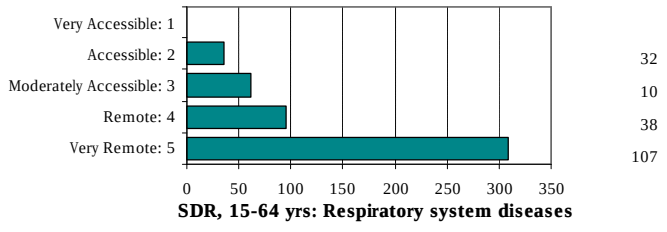
Comparisons between the periods from 1985 to 1989 and from 1992 to 1995 show that there has been an increase (relative to the Australian rates) in standardised death ratios for respiratory related deaths in the non-metropolitan areas of the Northern Territory. However, the increase in SDRs from 805 to 905 was based on a small decrease in absolute numbers, from 40 to 39 deaths per annum. This indicated that the increased rate for the Northern Territory was more a function of a greater decline in the national rates. The Northern Territory had conformed with the Australia wide trend, where respiratory related death rates in non-metropolitan areas exceeded those in the capital cities. However, the gap between rural and urban ratios was considerably wider in the Northern Territory. As with other deaths in the Northern Territory, more males between the ages of 15 to 64 died of respiratory causes than females in the same age group. Of all respiratory related deaths in non-metropolitan areas of the Northern Territory, 63 per cent were males.

The overall SDR for the non-metropolitan areas of the Northern Territory was a highly elevated 162**.

There were only four areas with five or more deaths expected from the Northern Territory rates, and for which SDRs were calculated. Of the four, the highest ratio was in Tanami with an elevated SDR of 217**, representing 11 deaths when five were expected. The other three areas which had lower than expected ratios were the towns of Katherine (with an SDR of 96) and Alice Springs (68) as well as rural Litchfield [Part B] (49).

Of the areas not mapped, four SLAs stood out with high absolute numbers of respiratory related deaths. They were East Arnhem-Balance (24 deaths), West Arnhem (18 deaths), Bathurst-Melville (16 deaths) and Daly (11 deaths). These four SLAs had predominantly Aboriginal populations.

Accessibility/Remoteness Index of Australia



Standardised Death Ratios (SDRs) for deaths of people aged from 15 to 64 years from respiratory system diseases increase by nearly nine (8.8) times across the ARIA categories. They range from a very low SDR of 35 in the Accessible areas (around one third of the number of premature deaths from these causes than expected from the Northern Territory rates) to a highly elevated SDR of 305 in the Very Remote category (more than three times the number of premature deaths expected). The Moderately Accessible (with an SDR of 61) and Remote (96) areas both had fewer deaths than expected. The highly elevated SDR in the Very Remote areas 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 81 deaths of people aged from 15 to 24 year olds from this group of external causes in the non-metropolitan areas of Northern Territory. Although this was a relatively small number of deaths, they accounted for 67 per cent of all deaths in this age group, 69 per cent of male deaths and 60 per cent of female deaths. The data analysed for this variable represented 24.9 per cent of deaths at all ages from this cause.

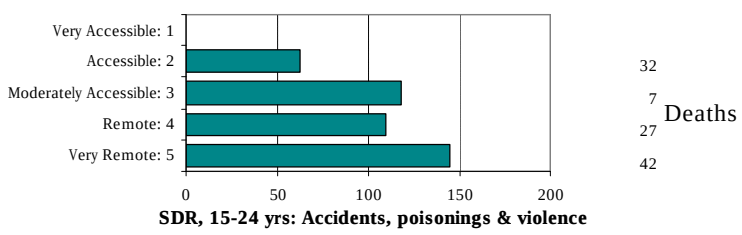
Rest of Territory (NT as the Standard)

Deaths of 15 to 24 year old non–metropolitan residents from the combined causes of accidents, poisonings and violence were substantially (32 per cent) higher than expected from the Northern Territory rates (and SDR of 132*).

There were only three areas with five or more expected deaths and, hence, only three statistically valid SDRs. Katherine had 31 per cent more deaths than expected from Northern Territory rates (an SDR of 131). Alice Springs and Litchfield [Part B] had 11 per cent (an SDR of 89) and six per cent (94) fewer deaths than expected from the Northern Territory rates, respectively.

The largest number of deaths of 15 to 24 year olds from external causes was recorded in Alice Springs (14 deaths). This was followed by eight deaths recorded in Tanami and seven deaths in Katherine. Coomalie and West Arnhem recorded no deaths for this variable over the period from 1992 to 1995.

Accessibility/Remoteness Index of Australia



There are three levels evident in SDRs for accidents, poisonings and violence across the ARIA categories in the Northern Territory. The first is in the Accessible areas, where there were 37 per cent fewer premature deaths from these external causes than expected from the Northern Territory rates, an SDR of 63); the second comprises ratios near or at the level expected from the Northern Territory rates in the Moderately Accessible (with an SDR of 118) and Remote (110) areas; and the third level is marked by the highly elevated ratio of 145 in the Very Remote areas, where there were 45 per cent more premature deaths from these external causes than expected from the Northern Territory rates. Again, the influence of Indigenous deaths is likely to be an important influence in the high ratios (and numbers of deaths) in the most remote areas.

Source: Calculated on ARIA classification, DHAC

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Total Fertility Rate

Introduction

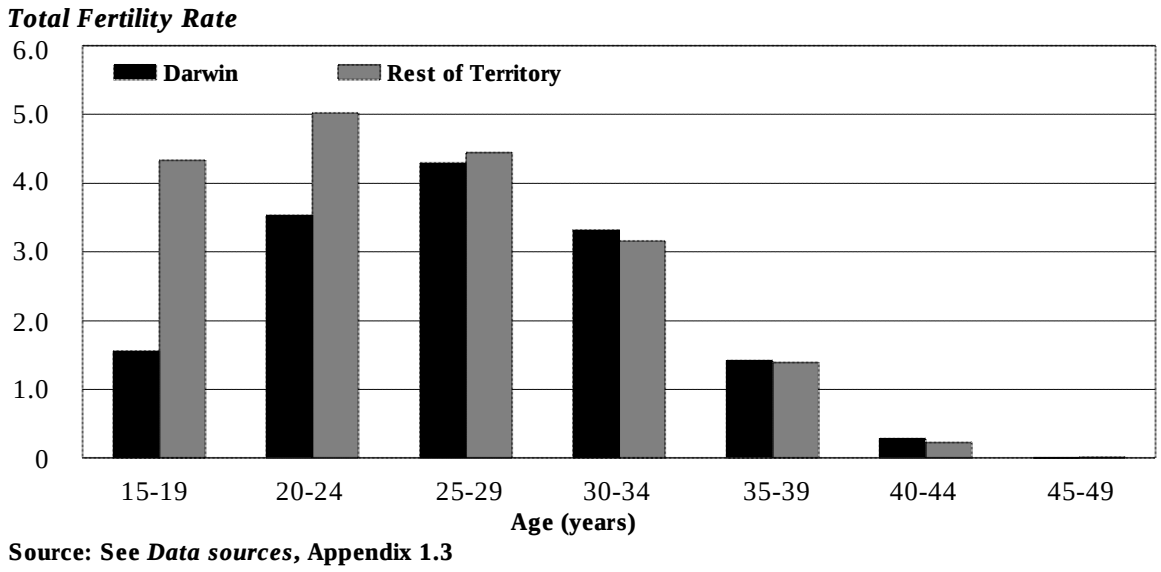
The Total Fertility Rate (TFR) is a measure of the production of children and is calculated from details of the age of the female population, the number of live births and the age of the mother at birth. It represents the mean number of children which females, living right through their child-bearing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

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

Details of the TFR are included in this chapter (rather than in Chapter 3 with the other demographic variables) because they have been compiled on the same boundaries as other data in this chapter. Common boundaries are important in enabling the correlation 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 the Northern Territory are those for females aged from 20 to 24 years living in areas outside **Darwin** (**Figure 5.10**). Females aged from 25 to 29 years, as well as those aged from 15 to 19 years and living in the non-metropolitan areas of Northern Territory, had the next highest TFRs. The largest difference in TFRs between residents of **Darwin** and the rest of Northern Territory was in the 15 to 19 year age group.

Figure 5.10: Total fertility rates, Darwin and Rest of Territory, 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.

Darwin

Statistical Local Areas (SLAs)

The Total Fertility Rate (TFR) in **Darwin** over the four year period from 1992 to 1995 was 2.06, lower than the Territory rate of 2.38. The highest rates were recorded for women aged from 25 to 29 years (a TFR of 4.30) and those aged 20 to 24 (a TFR of 3.53) (see **Figure 5.10**, previous page).

Map 5.24a identifies a cluster of SLAs with high TFRs in the south-east of **Darwin**, with low rates mainly concentrated in the inner region. High rates to the south-east of the city were recorded in Moulden (with a rate of 3.42), Gray (with a rate of 3.21), Palmerston Balance (with a rate of 2.83) and Driver (with a rate of 2.58). Also mapped in the highest range were the SLAs of City-Inner (3.53), Winnellie (2.82), Jingili (2.62) and Wagaman (2.50).

One quarter of the **Darwin** SLAs had TFRs of between 1.50 and 2.00. TFRs in this class interval were generally distributed to the north-west and south-west of the city, and included Millner (1.98), Moil (1.97), Tiwi (1.91), Coconut Grove (1.74), Brinkin (1.73), Rapid Creek (1.72), Stuart Park (1.72) and Fannie Bay (1.59).

However, SLAs located in the inner city region generally reported the lowest TFRs, with Marrara recording 1.44, Larrakeyah 1.34 and City-Remainder 1.25. Parap, with a rate of 1.12 had the lowest TFR in **Darwin**.

Over the four year period from 1992 to 1995, there were 5,994 births to mothers aged from 15 to 49 years, with the largest numbers being in Karama (457 births), Leanyer (426), and Moulden (379). At the other end of the scale, under 40 births were recorded in the SLAs of Narrows (34) and Palmerston Balance (24).

The correlation analysis showed there to be a generally weak association at the SLA level between high TFRs and the indicators of socioeconomic disadvantage; the strongest correlations were with the variables for semi-skilled and unskilled workers (0.53), children aged 0 to 4 years (0.43), single parent families (0.42) and the Indigenous population (0.36). These results, together with the weak inverse correlation with the IRSD (-0.33), suggest the existence of an association at the SLA level between high TFRs and socioeconomic disadvantage.

Postcodes (aggregates of suburbs)

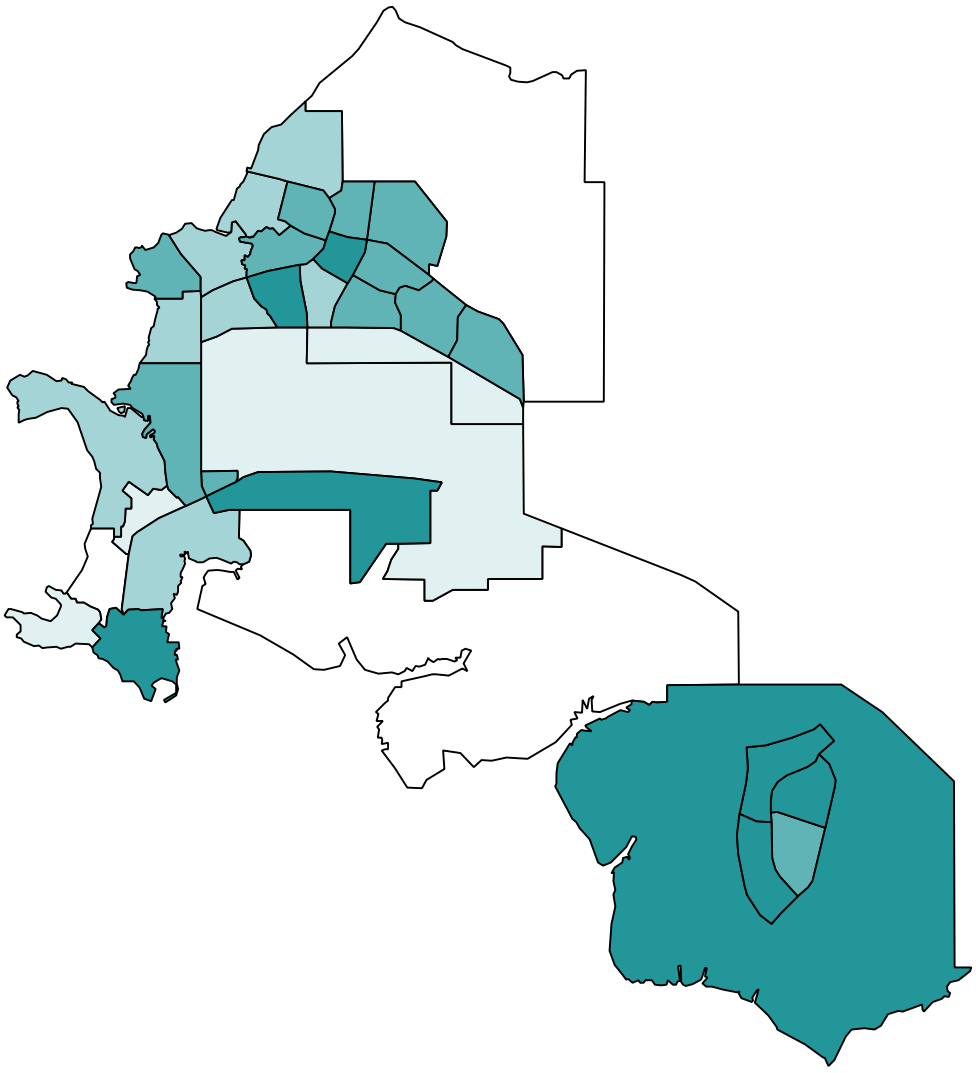
Two of **Darwin's** Postcode Areas recorded TFRs on or above the replacement level of 2.11, with rates of 2.74 in Palmerston and 2.11 in Darwin: North East. Both these areas are comprised of relatively recently established suburbs, with young families. Darwin: North West had a TFR of 2.02 and also recorded the largest number of births to mothers aged from 15 to 49 years (2,033 births). The older inner city suburbs of Darwin: South West recorded the lowest TFR (1.69) as well as the lowest number of births (1,102) (**Map 5.24b**).

Map 5.24
Total Fertility Rate*, Darwin, 1992 to 1995

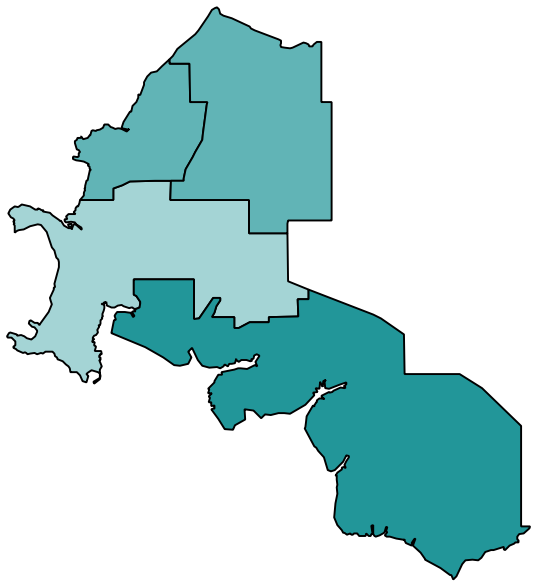
Total Fertility Rate* in each area

N

Map 5.24a: SLA Map



Map 5.24b: Postcode Map#



Total Fertility Rate*

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

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

#SLAs have been grouped to approximate postcode areas

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Total Fertility Rate, 1992 to 1995

State/Territory comparison

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

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

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

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

Rest of Territory

The Total Fertility Rate (TFR) in the non-metropolitan areas of Northern Territory over the four year period from 1992 to 1995 was 2.66, above the **Darwin** rate of 2.06 and the highest of any areas in **Table 5.34**. The highest TFRs were recorded for women aged 20 to 24 years (a TFR of 5.02), and those aged 25 to 29 (a TFR of 4.45) (see **Figure 5.10**, page 177).

As many of the TFRs in **Map 5.25** are high, the ranges have been changed to enhance the pattern of differentiation in the map. The highest and lowest ranges have been set at greater than 3.00 and less than 1.50 respectively, rather than 2.50 and 1.00 as in the map of **Darwin** for this variable.

Map 5.25 shows the distribution of Total Fertility Rates in rural Northern Territory. SLAs with the highest rates were generally concentrated in the north, while those with the lowest were more evenly spread throughout the State. The highest rates were recorded in the northern SLAs of Elsey-Balance (a TFR of 4.89), Coomalie (3.53), Daly (3.43), Gulf (3.15), Tennant Creek (3.07) and West Arnhem (3.04). Also mapped in the highest range was the SLA of Sandover-Balance, with a Total Fertility Rate of 3.69.

Just over one third of SLAs recorded rates of between 2.00 and 2.50 (34.7 per cent). The highest TFRs in this range were in the SLAs of Jabiru and Groote Eylandt, with rates of 2.44 and 2.41 respectively. On the other hand, Alice Springs (a TFR of 2.28), Litchfield [Part A] (2.15) and Tableland (2.08) recorded the lowest values in this class interval.

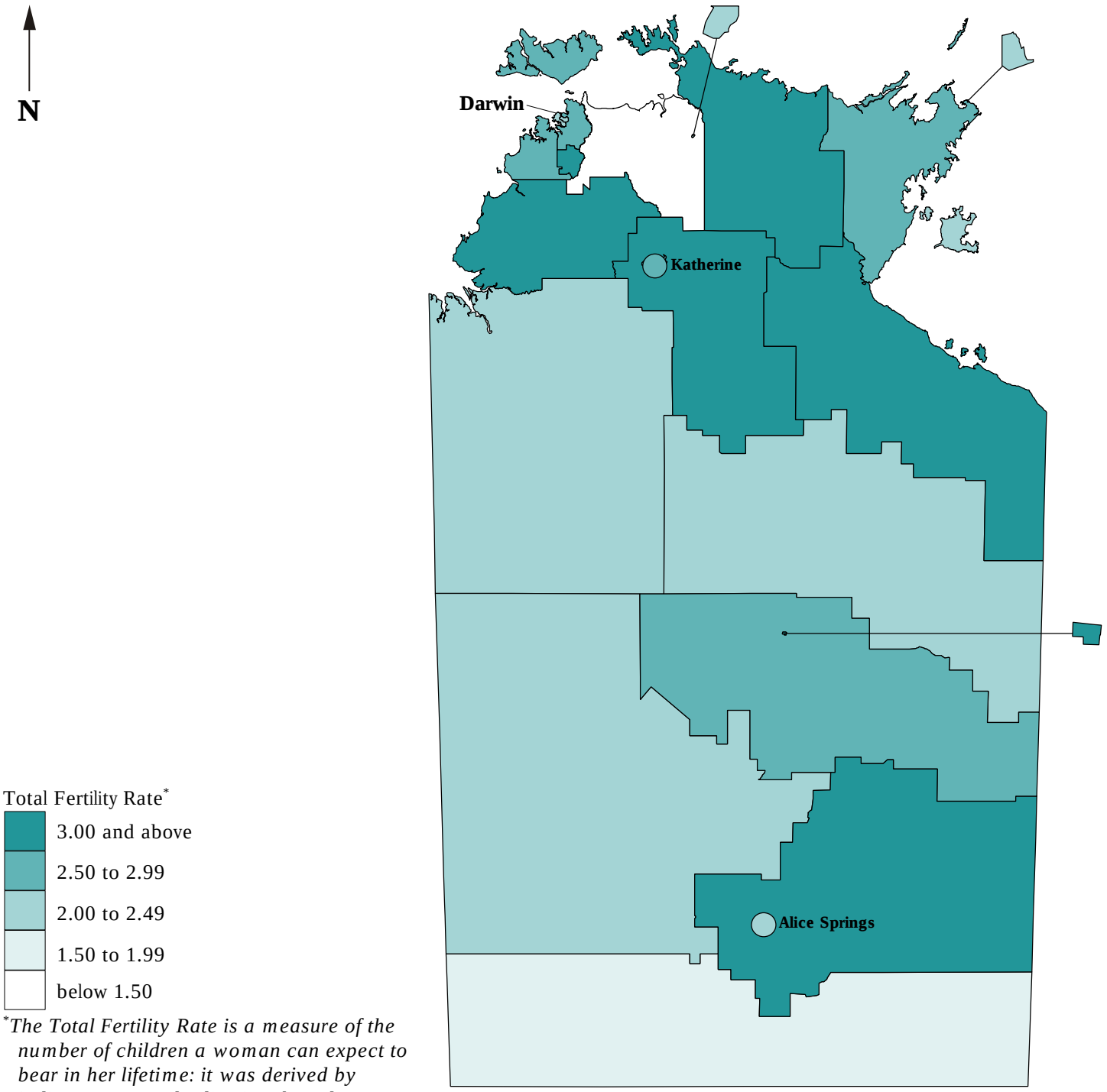
The lowest TFRs were recorded in South Alligator (a TFR of 1.34) and Petermann (1.99).

In the non-metropolitan areas of the Northern Territory the largest number of births to mothers aged from 15 to 49 years were recorded in Alice Springs (2,181 births over the period from 1992 to 1995), and in the SLAs of Litchfield [Part B] (880), Katherine (784) and East Arnhem-Balance (646).

There were weak associations at the SLA level with most indicators of socioeconomic disadvantage, including the variables for single parent families (0.43), low income families (0.30) and the Indigenous population (0.35). These results, together with the weak inverse correlation with the IRSD (-0.32), suggest the existence of an association at the SLA level between high TFRs and socioeconomic disadvantage.

Map 5.25
Total Fertility Rate*, Northern Territory, 1992 to 1995

Total Fertility Rate* in each Statistical Local Area

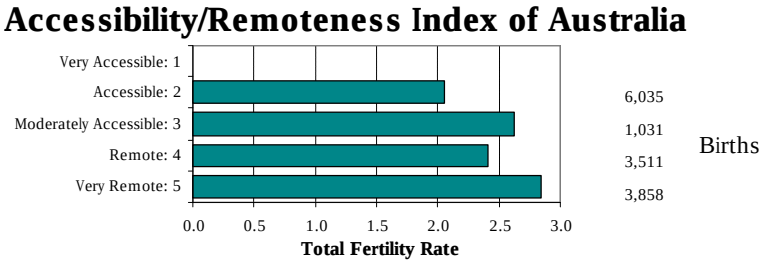


*The Total Fertility Rate is a measure of the number of children a woman can expect to bear in her lifetime: it was derived by indirect age standardisation, based on NT totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



The Total Fertility Rate increases by over one third (37.9 per cent), from a low of 2.06 in areas in the Accessible category to a rate of 2.84 in the Very Remote. The other ARIA categories have a Total Fertility Rates of 2.62 and 2.41 in the Moderately Accessible and Remote areas, respectively.

Source: Calculated on ARIA classification, DHAC

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