# 5 Health status

## Introduction

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

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

## Background

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

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

These differentials exist for both males and females in all 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) and 'adult' (by 43 per cent for males and 53 per cent for females) age groups living in the most disadvantaged areas. Male adult residents of these areas are also at high risk of poor health from high levels of alcohol consumption.

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

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

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

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

**Table 5.2: Rate ratio of mortality inequality by socioeconomic disadvantage of area, 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 C. Australian Institute of Health and Welfare (in press)**

# Measurement of health status

## Current situation

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

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

## Use of Synthetic Predictions

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

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

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

[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 109.

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

## Data mapped

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

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

# Gaps and deficiencies in the data

## Health status of Aboriginal and Torres Strait Islander people

Indigenous people have the poorest health of any group in Australia: they are also the group least well identified in statistical collections. **Table 3.2** in Chapter 3 documents problems in the counts of Indigenous Australians from the population Census. Data for the birth and death records for Indigenous people used in this chapter are similarly inaccurate.

Despite the inclusion of a question to identify Indigenous people on the death information statements and medical certificates of cause of death, they are under-reported in death records[3]. Over the past few years only the Northern Territory, Western Australia, South Australia and the Australian Capital Territory were considered to have had reasonably complete coverage. The coverage in other States has not improved since the early 1990s, with the exception of Queensland, which has been estimated to have moved close to complete coverage since 1996. However, between 1991 and 1996 there has been a largely unexplained increase in the population of Indigenous people: see pages 16 and 17 for further details. Thus, estimates of the completeness of Indigenous birth and death notifications for some States and

[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 is: the estimation of the size and composition of the Indigenous population; the identification of Indigenous people in administrative data collections; and issues related to the collection of survey data about Indigenous people. The availability of data are also affected by the number of Indigenous people included in surveys and the regularity with which the surveys are conducted". The ABS, AIHW, State and Territory health authorities and the heads of Aboriginal and Torres Strait Islander health organisations are currently working together to reduce the long term issues related to the accurate and appropriate collection of an Indigenous people identifier for demographic and health collections.

## Influence of deaths of Indigenous people on ARIA results

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 the location of the

facility responsible for the emission. This spatial element will enable comparisons with data from other sources and will better inform the work in Australia on the impact of air quality and soil and water contamination on the health of Australians.

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

## The homeless

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

Rates of death and hospital admission in inner and near city 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 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.

## Area mapped/Boundary issues

As noted in Chapter 2, under the heading of *Area mapped/Boundary issues*, adjustments have been made to the deaths ’data in a number of cases to maintain comparability at the small area level. Data for deaths used in this chapter were registered over the four year period from 1992 to 1995. For statistical purposes, each death was allocated the code of the Statistical Local Area (SLA) of usual residence of the deceased. However, during the data collection period changes were made to some SLA boundaries in Tasmania. As a result, it has been necessary to merge some SLAs when presenting data for deaths which were registered over the period from 1992 to 1995.

In describing these data in the text, groupings of merged SLAs have been assigned a generic name. The generic names of key SLA groupings, together with the SLAs which comprise the grouping, are shown in **Table 5.3**. Only those SLA groupings which appear regularly in the text have been included in the table.

**Table 5.3: Generic names for merged Statistical Local Areas**

| Grouping of 1996 SLAs resulting from boundary changes | Generic name used in text |
|---|---|
| Launceston (C: [Part B]); Meander Valley (M: [Part A]); Northern Midlands (M: [Part A]) | Launceston/Meander Valley [Part A]/Northern Midlands [Part A] |
| Dorset (M); Launceston (C: [Part C]) | Dorset/Launceston [Part C] |
| Meander Valley (M: [Part B]); West Tamar (M: [Part B]) | Meander Valley [Part B]/West Tamar [Part B] |
| Central Coast (M: [Part A]); Devonport (C) | Central Coast [Part A]/Devonport |
| Break O Day (M); Northern Midlands (M: [Part B]) | Break O Day/Northern Midlands [Part B] |

**Source: Compiled from project sources**

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# Synthetic predictions of selected health status measures

## Introduction

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

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

## Description of the technique[4]

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

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

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

## Cautions

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

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

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

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

## Variables mapped

### Physical Component Summary of the SF-36

As noted on page 105, the SF-36 (the Rand Short Form, 36 questions) is one of a number of multi-dimensional or general health status profiles under development in the world (Ware et al. 1993). Although it is becoming widely used, questions remain as to its validity as a measure of health and wellbeing. There are also concerns as to its applicability to particular population groups (such as Indigenous populations, children, or the elderly) and, in particular, to older people born overseas in countries where English is not the predominant language.

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

### Self-assessed health status

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

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

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 87,300 people in Tasmania (18.5 per cent of the population) had a disability. Of these, 84,300 (17.9 per cent of the population) were living in 'households', the remainder living in establishments such as nursing homes and hostels.

The majority (69,800, or 14.8 per cent of the population) of those with a disability had a handicap of varying levels of severity, ranging from profound (18.6 per cent of all people with a handicap), through severe (12.5 per cent) and moderate (17.8 per cent), to mild (33.8 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 7.2, 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 5.4**, 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 5.4: 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**

## Hobart (Tasmania as the standard)

In 1995, 24,786 people in **Hobart** reported their health as fair or poor (as distinct from those who reported their health as being excellent, very good or good), 19 per cent of the population in **Hobart** aged 18 years and over. This was 3 per cent fewer than expected from the State rates (an SR of 97**).

SLAs with ratios in the highest ranges mapped reflect the patterns of socioeconomic disadvantage mapped in Chapter 3. The highest ratio by far (an SR of 131**) was recorded in Brighton where 31 per cent more residents than expected reported their health as fair or poor. Brighton also recorded the highest proportions for most of the indicators of socioeconomic disadvantage. Elevated ratios were also recorded in New Norfolk [Part A] (an SR of 107*) and Glenorchy (103*). Over one fifth of the population in each of these SLAs reported their health as fair or poor.

The number of people reporting their health as fair or poor in Sorell [Part A] was as expected (an SR of 100).

The lowest ratio, an SR of 88**, was recorded in Kingborough [Part A], where 12 per cent fewer residents than were expected from the State rates reported their health as fair or poor. Slightly higher ratios were recorded in the City of Hobart (with an SR of 91**) and Clarence (92**).

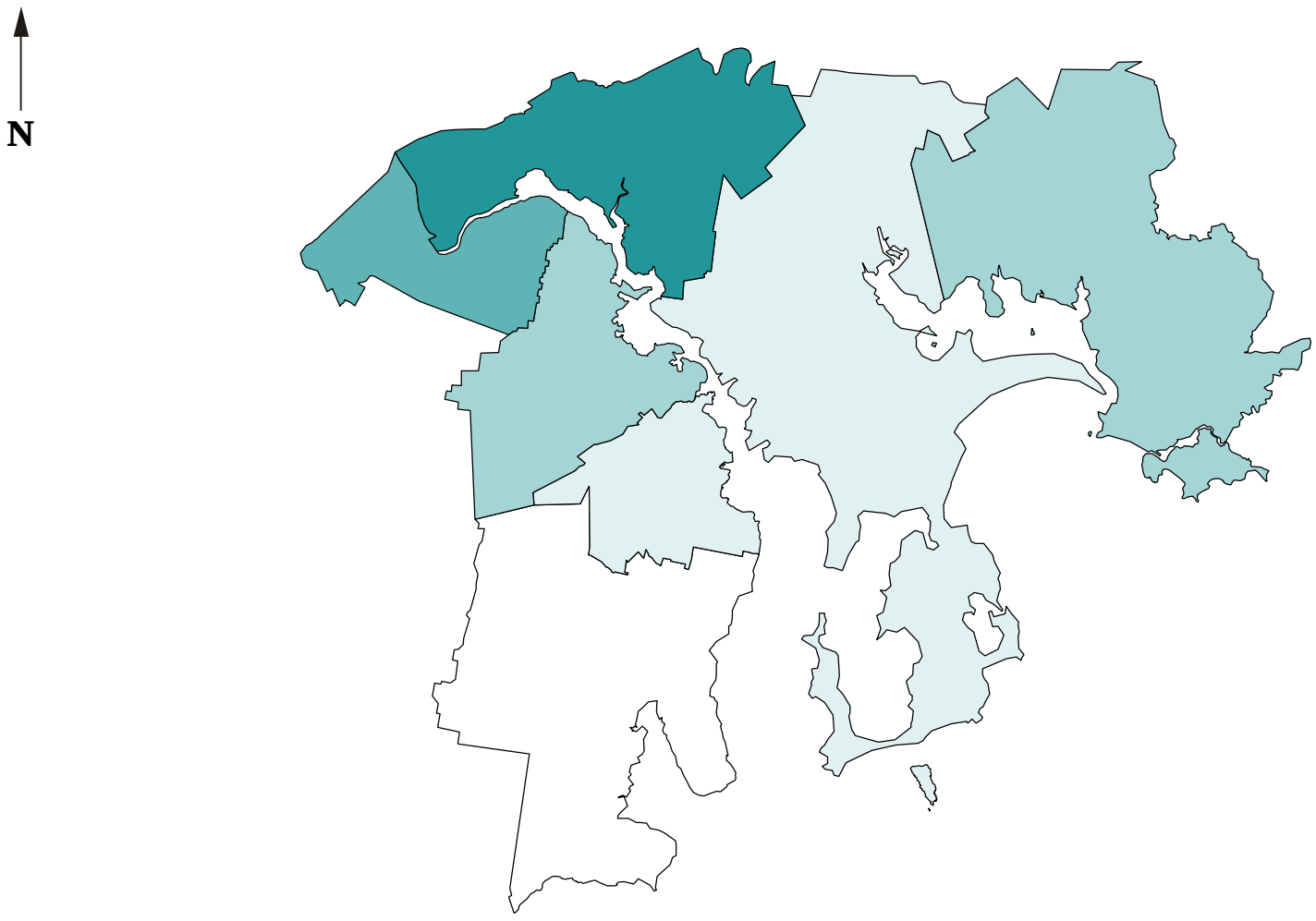
In 1995, the largest numbers of people reporting fair or poor health were residents of Glenorchy (6,504 people), Clarence (6,076) and the City of Hobart (5,851). The lowest number, 917 people, was recorded for residents of New Norfolk [Part A].

The results of the correlation analysis reveal a strong association between people reporting their health as fair or poor and indicators of socioeconomic disadvantage. The strongest of these were correlations of substantial significance with the variables for unemployed people (0.97), low income families (0.93), single parent families (0.93), public rental housing (0.92) and the Indigenous population (0.91).

There were inverse correlations with the variables for female labour force participation (-0.97), high income families (-0.75) and managers and administrators, and professionals (-0.74). These results, together with the inverse correlation of substantial significance with the IRSD (-0.96), indicate the existence of an association at the SLA level between high rates of people reporting fair or poor health status and socioeconomic disadvantage.

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

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




Standardised Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

# People reporting their health as fair or poor, 1995

## State/Territory comparison

There was little difference in the levels of fair or poor health reported by residents of the capital cities and the *Rest of State/Territory* areas for Australia as a whole (**Table 5.5**). 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 5.5: People reporting their health as fair or poor, State/Territory**
***Standardised ratios***

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

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

## Rest of State (Tasmania as the standard)

In 1995, there were estimated to be 37,112 people (20.3 per cent of the population aged 18 years and over) who reported their health as fair or poor (as distinct from those who reported their health as being excellent, very good or good) in the non-metropolitan areas of Tasmania**,** marginally more than expected from the State rates (an SR of 102**).

As can be seen from **Map 5.2**, all but four non-metropolitan SLAs had ratios between 95 and 114 with over half (58.8 per cent) of non-metropolitan SLAs recording ratios that were within 5 per cent of the expected level from the State rates.

The highest ratio, an SR of 117**, was recorded in New Norfolk [Part B]. Eleven SLAs had ratios of between 105 and 114. In the north of the State were George Town [Part A] (with an SR of 114**), Burnie [Part A] (107**), West Tamar [Part B] (107), Kentish (106) and Devonport (106**), while in the south were Tasman (107), Huon Valley (106*) and Sorell [Part B] (106). Break O Day (112**), West Coast (111**) and Central Highlands (105) were also in this range.

A further 9 SLAs recorded elevated ratios including Central Coast [Part A] (with an SR of 103), Launceston (102) and Waratah/Wynyard [Part A] (102).

Ratios just below the expected level were recorded in Flinders (with an SR of 98), Northern Midlands [Part A] (97), Dorset (97), Launceston [Part C] (97), Burnie [Part B] (95) and Circular Head (95).

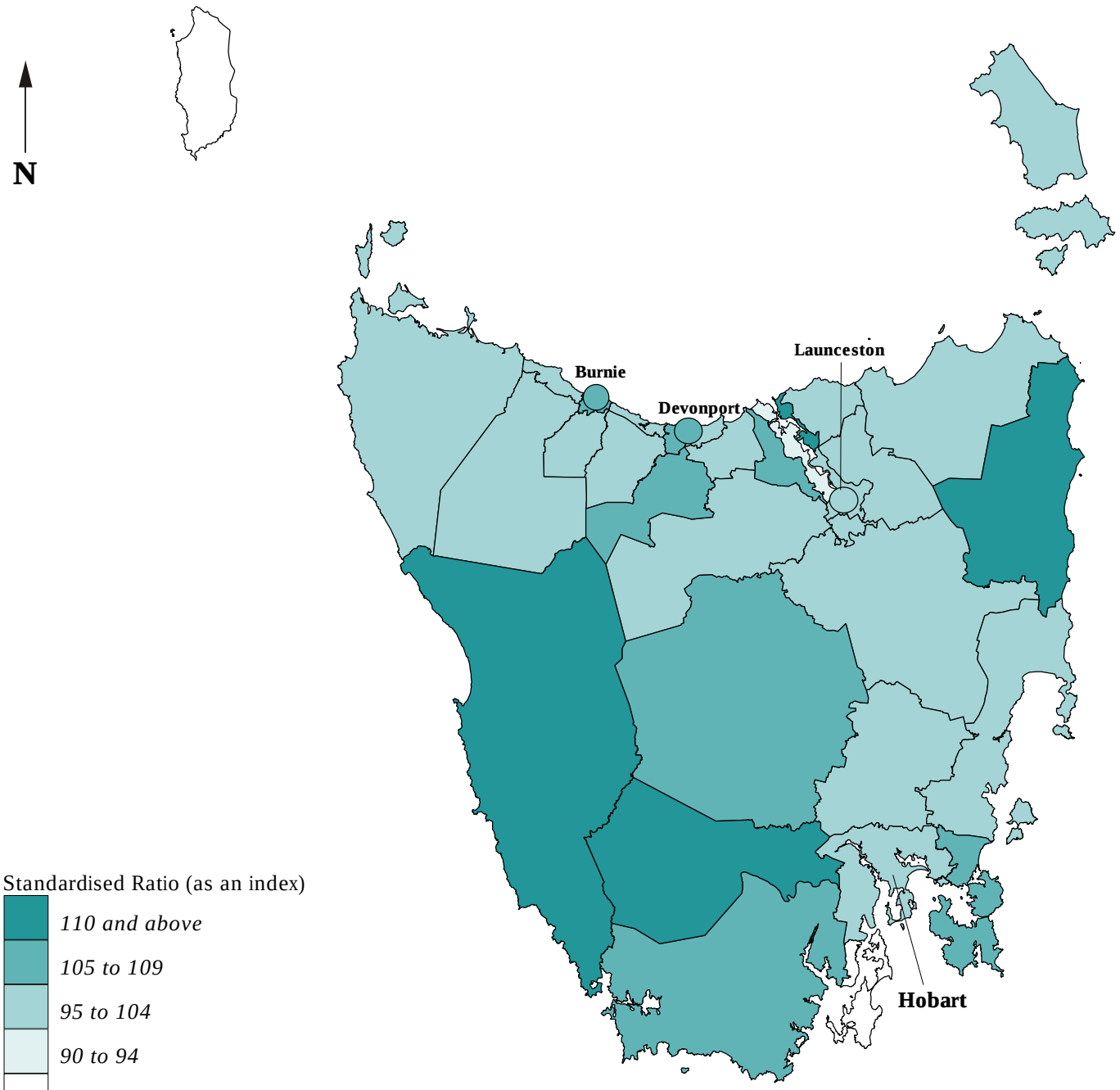
The lowest ratio (an SR of 83**) was recorded on King Island, where 17 per cent fewer residents than expected reported their health as fair or poor. Low ratios were also recorded in Kingborough [Part B] (89) and West Tamar [Part A] (92**).

The largest numbers of people reporting their health as fair or poor in the non-metropolitan areas of Tasmania were residents of Launceston (8,428 people), Devonport (3,536), Central Coast [Part A] (2,498), Burnie [Part A] (2,460) and West Tamar [Part A] (2,173).

The only significant correlation with indicators of socioeconomic disadvantage was with the variable for unemployed people (0.69) while there were weaker associations with the variables for low income families (0.46), early school leavers (0.45) and single parent families (0.33). However, there were inverse correlations of meaningful significance with a number of the indicators of high socioeconomic status –the variables for female labour force participation (-0.71), managers and administrators, and professionals (-0.50). There were correlations of meaningful significance with the variables for premature deaths of females (0.55) and deaths from cancer (0.51). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.69), suggest the existence of an association at the SLA level between high rates of people reporting fair or poor health status and socioeconomic disadvantage.

## Map 5.2
## People reporting their health as fair or poor, Tasmania, 1995

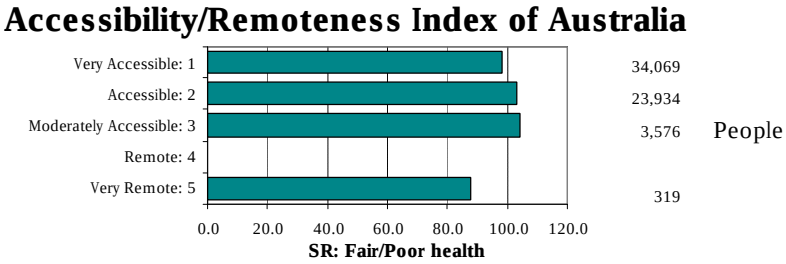
Standardised Ratio: number of people in each Statistical Local Area compared with the number expected*




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

***Source: Calculated on data from ABS 1996 Census*** ***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




The Very Accessible, Accessible and Moderately Accessible areas under ARIA all had similar levels (and close to the level expected from the State rates) of people reporting their health as fair or poor, with SRs of 98, 103 and 104, respectively. A lower ratio was estimated for people aged 18 years and over in the Very Remote areas, 12.0 per cent fewer people than expected from the State rates reporting their health as fair or poor (an SR of 88).

***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 5.6**), from 49.4 in **Adelaide** to 50.2 in **Melbourne**.

**Table 5.6: 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**

## Hobart (Tasmania as the standard)

The PCS score estimated for **Hobart** was 49.7, which is as expected from the State rates for a population of this size and age/sex composition.

The distribution of mean scores across **Hobart** presents an inverse pattern to that recorded for many of the indicators of socioeconomic disadvantage. The highest scores (indicating better physical health) were recorded in the south western SLAs of Hobart and Kingborough [Part A] (both with a PCS score of 50.1). Both of these SLAs recorded the highest proportions for indicators of socioeconomic advantage such as high income families and high status occupations.

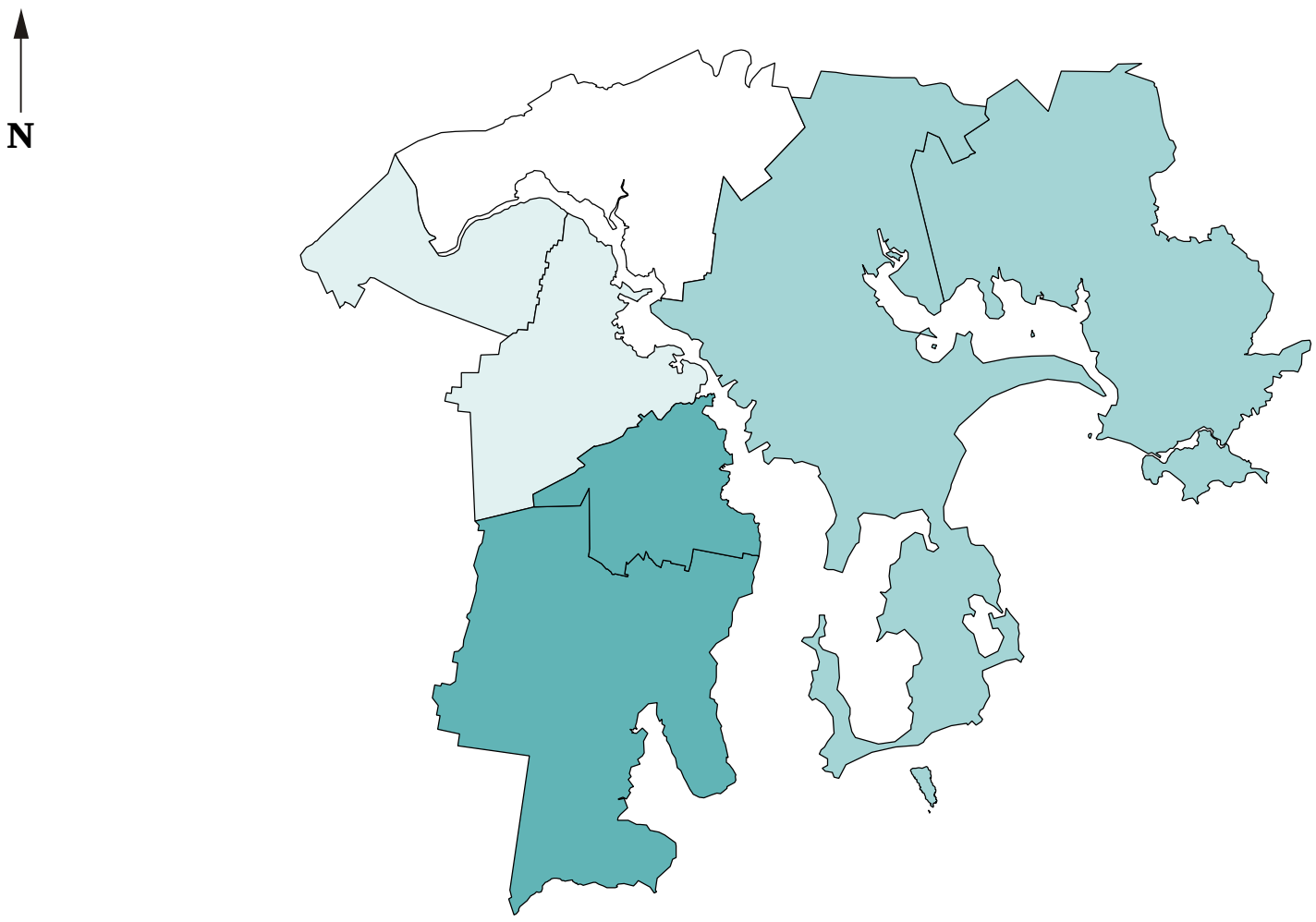
Mean scores of between 49 and 50 were estimated for residents of Clarence (a PCS score of 49.9), Sorell [Part A] (49.6), Glenorchy (49.4) and New Norfolk [Part A] (49.3).

The lowest PCS score, 48.4, was recorded for residents of Brighton, the most socioeconomically disadvantaged SLA in **Hobart**.

The results of the correlation analysis reveal a strong positive association between high PCS scores (indicating better physical health) and many of the indicators of socioeconomic advantage. The strongest correlations (all of substantial significance) were recorded with the variables for female labour force participation (0.98), high income families (0.83) and managers and administrators, and professionals (0.83). There were inverse correlations of substantial significance with most indicators of socioeconomic disadvantage. The substantially significant correlation with the IRSD (0.98) also indicates a positive association at the SLA level between high PCS scores and high socioeconomic status.

## Map 5.3
## Physical Component Summary*, SF-36, Hobart, 1995

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




Standardised score*

- *50.5 and above*
- *50 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 Tasmanian totals*

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

# Physical Component Summary, SF-36, 1995

## State/Territory comparison

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

The scores in the non-metropolitan areas are all either the same as, or lower than, those in the capital cities (**Table 5.7**). The lowest PCS score was in the Northern Territory (a score of 49.3) and the highest in Victoria (50.2).

**Table 5.7: Physical Component Summary, State/Territory, 1995**
***Standardised score***

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

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

## Rest of State (Tasmania as the standard)

The PCS score recorded in the non-metropolitan areas of Tasmania was 49.5 which was as expected from the State rates for a population of this size and age/sex composition. This was marginally lower than the score recorded for residents of **Hobart** (a PCS score of 49.7).

There was little variation between the mean scores, with all but five SLAs recording scores of between 49.0 and 50.0. The only differentiation that was evident within this range was that mean scores below the *Rest of State* average tended to be more common in the southern and eastern SLAs. The two mean scores above 50.0 (indicating better physical health) were recorded on King Island (50.3), to the north west of the State and in Kingborough [Part B] (50.2), in the south east of Tasmania.

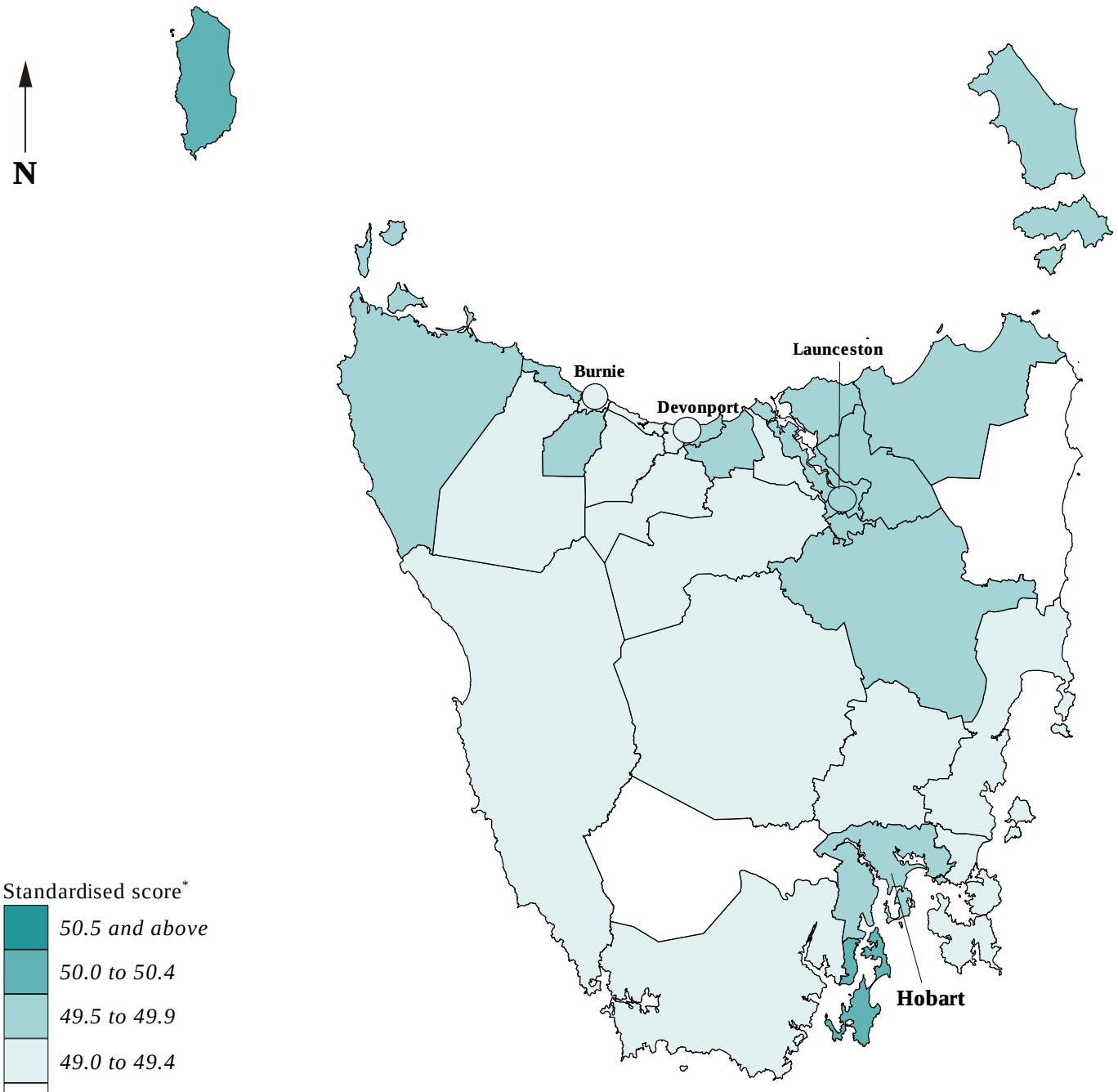
West Tamar [Part A] and Burnie [Part B] both recorded a PCS score of 50.0. Lower scores were recorded in Circular Head (49.8), Northern Midland [Part A] (49.8), Flinders (49.7), Dorset (49.7) and Launceston [Part C] (49.7). Other SLAs in the range from 49.0 to 50.0 included Latrobe [Part A] (49.5), Launceston (49.5), Central Coast [Part A] (49.4), Burnie [Part A] (49.3) and Devonport (49.3). The lowest scores in this range were recorded in Sorell [Part B] (49.1) and West Tamar [Part B]; Huon Valley, West Coast, Tasman, Central Highlands and Kentish all recorded a PCS score of 49.2.

The lowest scores were recorded for residents of New Norfolk [Part B] (48.6) in the south, Break O Day (48.8) in the east and George Town [Part A] (48.9) on the northern coast.

There was a correlation of meaningful significance with the variable for female labour force participation (0.67), and there was a weaker association with the variable for managers and administrators, and professionals (0.48). Inverse correlations of meaningful significance were recorded with two indicators of socioeconomic disadvantage: low income families (-0.53) and unemployed people (-0.67). These results, together with the correlation of substantial significance with the IRSD (0.73), indicate the existence of an association at the SLA level between high PCS scores and high socioeconomic status.

# Map 5.4
# Physical Component Summary*, SF-36, Tasmania, 1995

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




Standardised score*

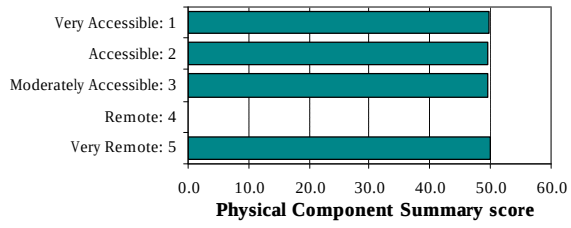
- *50.5 and above*
- *50.0 to 50.4*
- *49.5 to 49.9*
- *49.0 to 49.4*
- *below 49.0*

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

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




There is virtually no difference in Physical Component Summary (PCS) scores across the ARIA categories. The highest score is in the Very Remote areas (a PCS score of 50.1), and the lowest scores are in the Accessible and Very Accessible categories (both 49.4). People in the Very Accessible areas had a score of 49.7.

***Source: Calculated on ARIA classification, DHAC***

# Estimated number of people with a handicap, 1993

## Capital city comparison (Australia as the Standard)

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

Age-sex standardised ratios (SRs) calculated from the 1993 Survey of Disability and Ageing of the estimated number of people with a handicap ranged from 14 per cent lower than expected (in relation to the Australian rates) in **Sydney** (86**) 13 8 per cent lower in **Darwin** (87**), to 11 per cent higher in **Perth** (111**). The ratios cover a wider range than those calculated from the 1988 Survey (**Table 5.8**). Most other capital cities had SRs in 1993 which were close to the level expected from the Australian rates.

**Table 5.8: Estimated number of people with a handicap, capital cities**
***Standardised ratios***

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

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

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

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

There were correlations of substantial significance with the variables for unemployed people (0.98), single parent families (0.92), low income families (0.90), public rental housing (0.89) and female labour force participation (an inverse correlation of –0.96). These results and the inverse correlation of substantial significance with the IRSD (-0.92) indicate a positive association between high levels of people with a handicap and socioeconomic disadvantage.

## Hobart (Tasmania as the standard)

There were an estimated 25,619 people with a handicap in **Hobart,** one per cent fewer than were expected from the State rates (an SR of 99*).

Brighton, with 29 per cent more people with a handicap than were expected from the State rates, was the only SLA mapped in the top range (an SR of 129**) (**Map 5.5**).

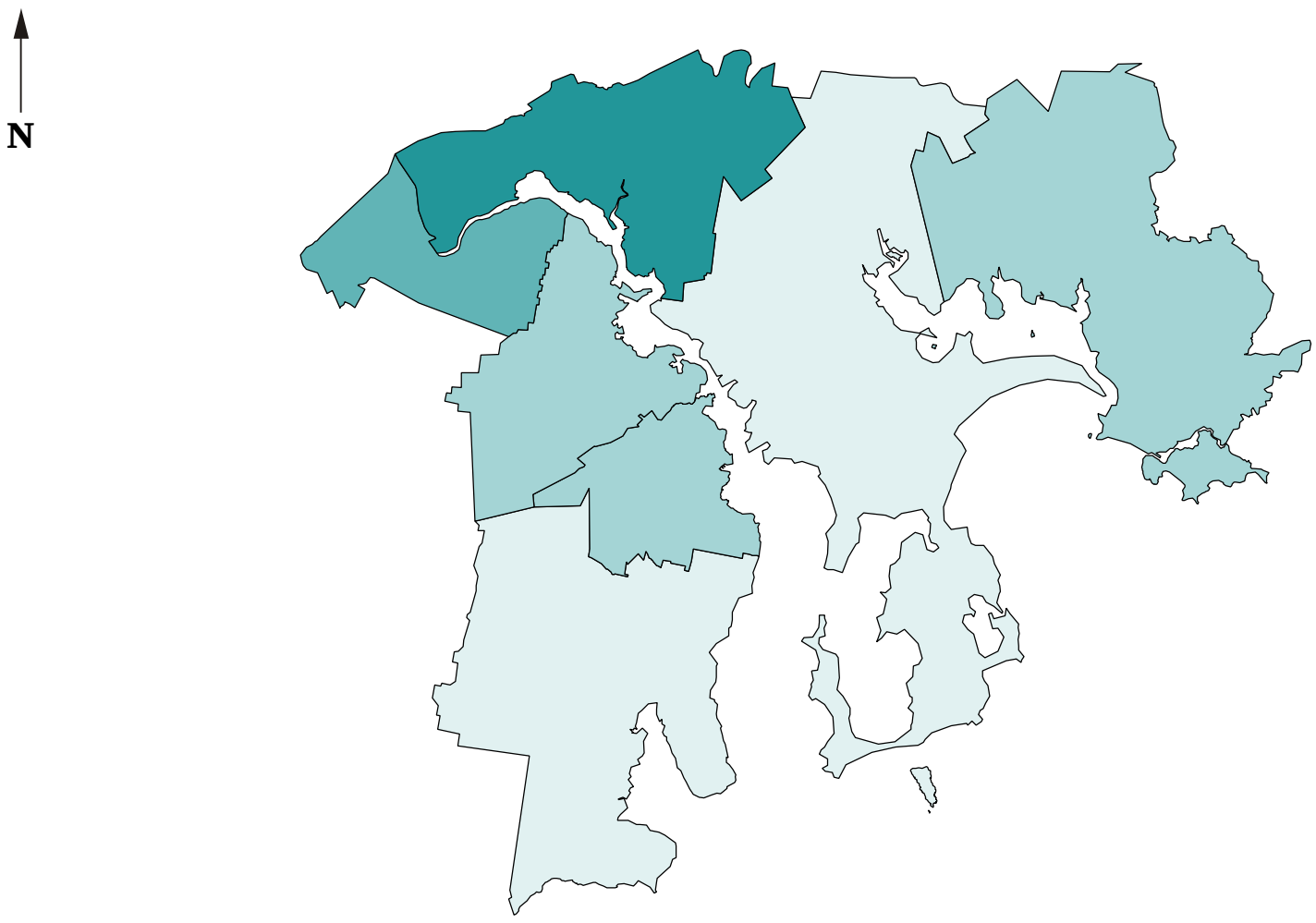
New Norfolk [Part A] (with an SR of 109**), Sorell [Part A] (103) and Glenorchy (102) also had elevated ratios.

Lower than expected ratios were recorded in Kingborough [Part A] (with an SR of90**), Clarence (94**) and Hobart (97**).

The largest estimated numbers of people with a handicap were recorded in Glenorchy (6,639 people), the City of Hobart (6,519 people) and Clarence (6,277 people). The lowest numbers of people with a handicap were recorded in New Norfolk [Part A] (916 people) and Sorell [Part A] (1,045 people).

## Map 5.5
## Estimated number of people with a handicap, Hobart, 1993

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




Standardised Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

# Estimated number of people with a handicap, 1993

## State/Territory comparison

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

At the *Whole of State/Territory* level, standardised ratios (SRs) calculated from the 1993 Survey of Disability and Ageing of the estimated number of people with a handicap ranged from a high of 112** in Western Australia and 110** in South Australia to a low of 91** in New South Wales (**Table 5.9**). 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 5.9: Estimated number of people with a handicap, State/Territory**
***Standardised ratios***

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

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

## Rest of State (Tasmania as the standard)

In 1993, there were an estimated 38,096 people with a handicap in the non-metropolitan areas of Tasmania, one per cent more than were expected from the State rates (an SR of 101).

**Map 5.6** shows that just over two thirds (67.9 per cent) of Tasmania's non-metropolitan SLAs were mapped in the middle range, and none were mapped in the highest or lowest ranges.

Ratios in the range from 105 to109 were recorded in Central Highlands (108); in the southern SLAs of New Norfolk [Part B] (107), Sorell [Part B] (107) and Huon Valley (106*); and in Break O Day/Northern Midlands [Part B] (105*) and Kentish (105).

Of the SLAs with ratios within five per cent of the level expected from the State rates, those with elevated ratios included Waratah/Wynyard [Part A] (with an SAR of 104), Burnie [Part A] (103) and Central Coast [Part A]/Devonport (103**). Lower than expected ratios within this range were recorded in Circular Head (95) and West Tamar [Part A] (95*). The combined SLAs of Launceston/Meander Valley [Part A]/Northern Midlands [Part A] had the expected number of people with a handicap (an SR of 100).

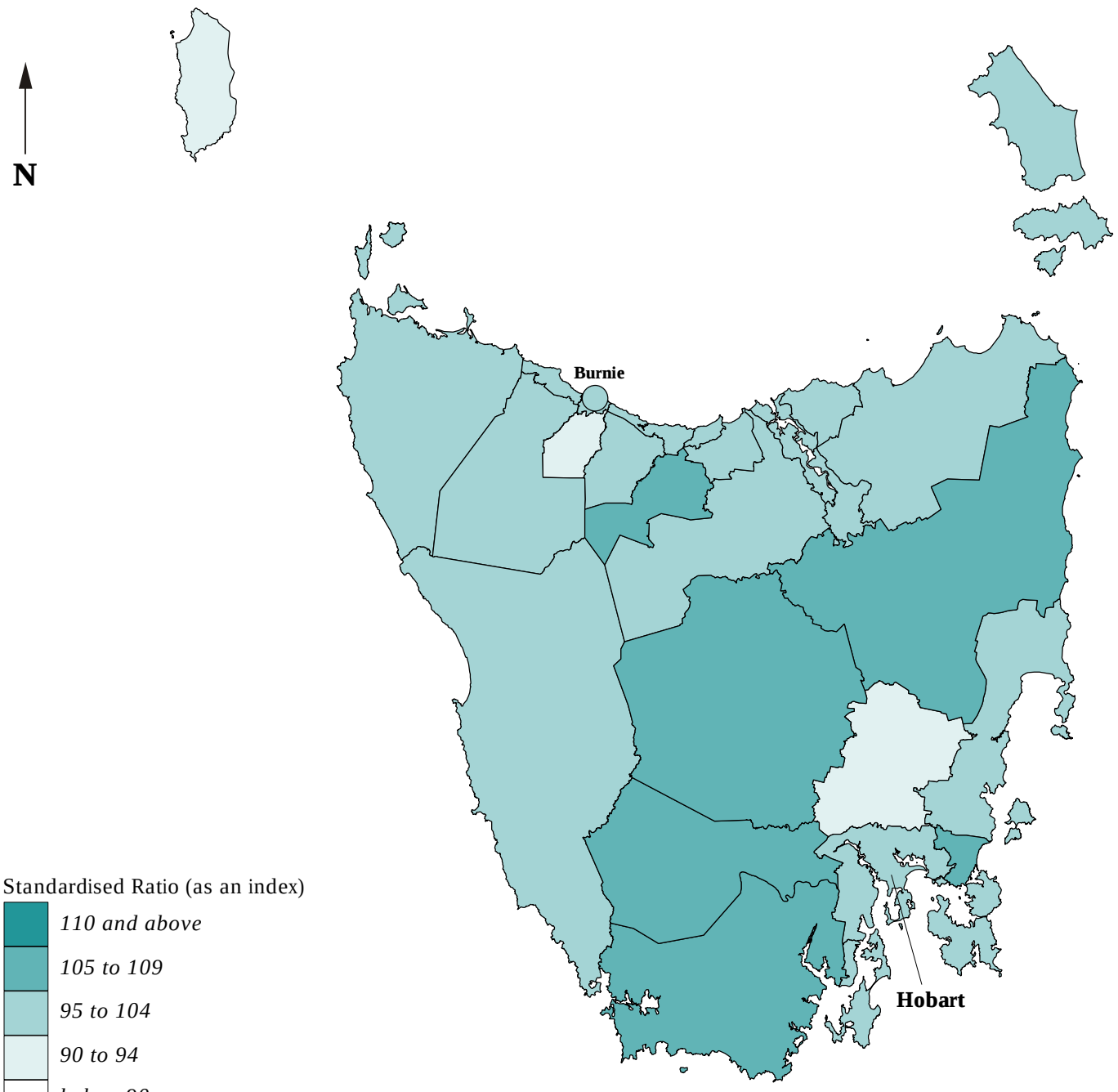
The lowest ratios were recorded in Burnie [Part B] and King Island (both with an SAR of 90) and Southern Midlands (91*).

The largest numbers of people with a handicap were found in Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (10,249 people), Central Coast [Part A]/Devonport (6,253 people), Burnie [Part A] (2,608 people) and West Tamar [Part A] (2,138 people).

There was a weak association evident in the correlation analysis at the SLA level with indicators of socioeconomic disadvantage: the strongest of these were with the variables for unemployed people (0.35), low income families (0.30) and female labour force participation (an inverse correlation of (-0.47). These results, together with the weak inverse correlation with the IRSD (-0.38), suggest the existence of an association at the SLA level between high levels of people with a handicap and socioeconomic disadvantage.

## Map 5.6
## Estimated number of people with a handicap, Tasmania, 1993

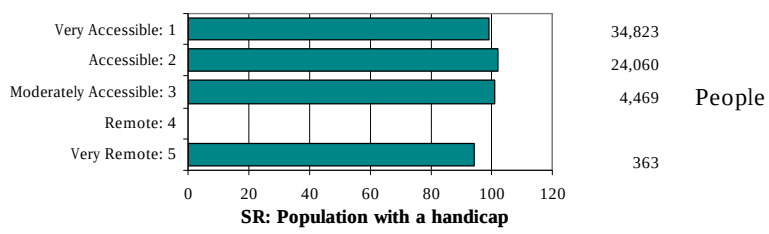
Standardised Ratio: number of people in each Statistical Local Area compared with the number expected*




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

***Source: Calculated on data from ABS 1996 Census*** ***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




The Very Accessible, Accessible and Moderately Accessible areas under ARIA all had similar levels (and close to the level expected from the State rates) of people with a handicap, with SRs of 99, 102 and 101, respectively. A lower ratio was estimated for people in the Very Remote areas, 6.0 per cent fewer people than expected from the State rates reporting their health as fair or poor (an SR of 94).

***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 from premature death 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 (AHIW 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.

### Tasmania

The number of deaths in Tasmania over the nine year period from 1986 to 1995 increased by 8.7 per cent, rising from 3,454 in 1986 to 3,754 in 1995. Male deaths increased by 7.0 per cent, while a more substantial increase of 10.6 per cent was recorded for females. Although there has been an overall increase in the number of deaths, this increase was evident only for people aged 65 years and over (an increase of 18.1 per cent). In 1995, there were 38 infant deaths (27 males and 11 females) recorded in Tasmania, a decrease of 51.9 per cent since 1986. There was also a decrease in the number of deaths of people aged from 15 to 64 years, down by 10.6 per cent, from 840 deaths in 1986 to 751 deaths in 1995.

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

## Changes in death rates by cause, 1986 to 1995

### Australia

Over the period from 1986 to 1995, death rates of people aged from 15 to 64 years have declined for all major causes of death, with the largest decline occurring for deaths from circulatory system diseases, a decrease of 43.1 per cent (**Figure 5.1**). Other large decreases were recorded for deaths from respiratory system diseases (28.3 per cent); accidents, poisonings and violence (16.7 per cent); and cancer (13.1 per cent).

### Tasmania

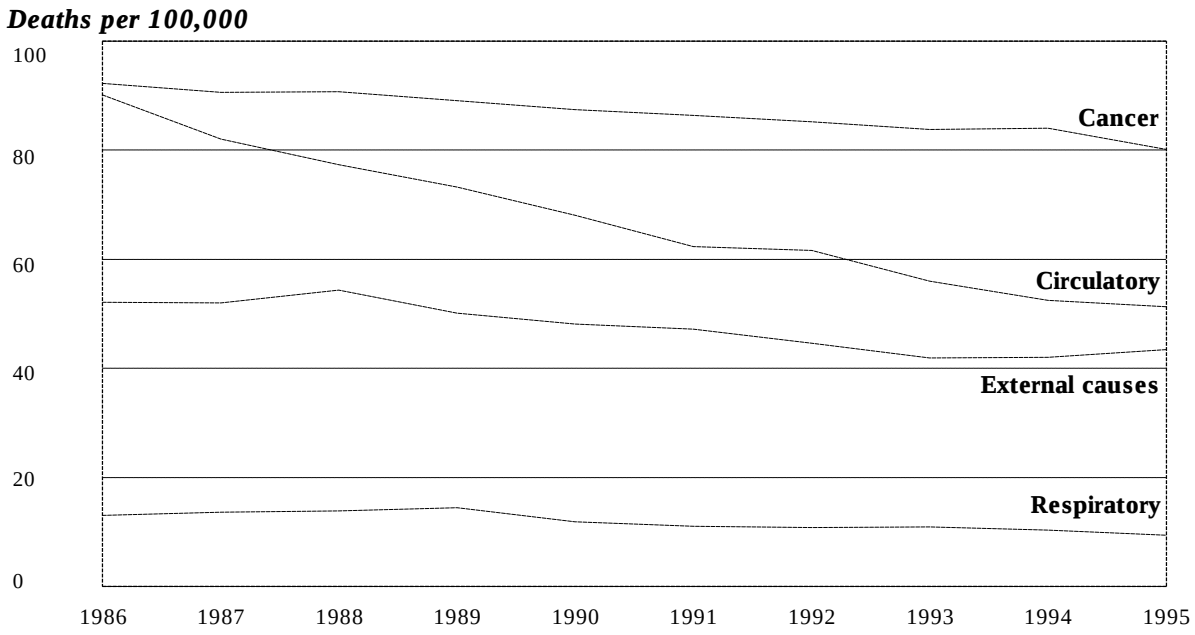
In Tasmania, death rates of people aged from 15 to 64 years have declined for all major causes of deaths, with the exception of deaths from cancer (an increase of 1.1 per cent). The largest declines were recorded for deaths from circulatory system diseases (a decrease of 36.7 per cent) and from the combined causes of accidents, poisonings and violence (**Figure 5.2**).

## 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**




**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, Tasmania**


**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.

## Tasmania

In Tasmania, premature death rates of males declined at a greater rate (down by 21.2 per cent) than for females (4.2 per cent). A similar pattern was evident for all of the major causes of death analysed. Male death rates from malignant neoplasms declined by 10.6 per cent, while female death rates from this cause increased by 15.9 per cent, and male death rates from respiratory system diseases declined by 23.2 per cent compared with an increase of 44.3 per cent for females. Between 1986 and 1995, male death rates from the combined causes of accidents poisonings and violence decreased by 21.6 per cent, while female death rates declined by 6.2 per cent. Death rates from circulatory system disease also declined at a greater for males than females, decreasing by 37.6 per cent and 34.0 per cent respectively.

# Data mapped

## Age range

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

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

The exclusion of deaths of persons aged 65 years or more (which account for three quarters of all deaths) is important not only because of the focus on prematurity. A significant proportion of people aged 65 years and over die while residents of nursing homes and other aged care facilities. Aged care facilities are unlikely to be located in the same area as the person's previous (domestic) home and are over-represented in capital cities compared with the non-metropolitan areas. Their inclusion would increase the rates for those SLAs in which nursing homes are largely concentrated and reduce the rates in other areas, thereby distorting the analysis. The concern is that deaths of people resident in aged care facilities may influence the rate for that 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 'Hobart' or 'Rest of State' has Tasmania as the standard. In this way the capital cities, States, etc, can be compared with each other against the Australian rates, and the smaller area data within each State and Territory can be compared with each other against the State/Territory rates.

## Variables mapped

Only a selection of the total number of causes of death of the population aged from 15 to 64 years has been mapped. These include deaths from all causes (separately for females and males) and from four major cause groups – deaths from diseases of the circulatory system, diseases of the respiratory system, from all cancers (and separately for deaths from lung cancer) and from the external causes of accidents, poisonings and violence. **Table 5.10** 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 5.10: Deaths by cause and age, Tasmania, 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** | **1** | **0** | **6** | **168** | **175** |
| **15 to 64 years** | **1,161** | **816** | **164** | **633** | **393** | **3,167** |
| males | 621 | 575 | 95 | 495 | 250 | 2,036 |
| females | 540 | 241 | 69 | 138 | 143 | 1,131 |
| **Other ages** | **2,782** | **5,707** | **1,193** | **280** | **1,727** | **11,689** |
| **All ages** | **3,943** | **6,524** | **1,357** | **919** | **2,288** | **15,031** |

**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 130.

**Table 5.11** shows the number of deaths for the causes mapped for **Hobart** (the Hobart Statistical Division) and the *Rest of the State* (the remainder of Tasmania).

**Table 5.11: Deaths by selected cause and area, Tasmania, 1992 to 1995**

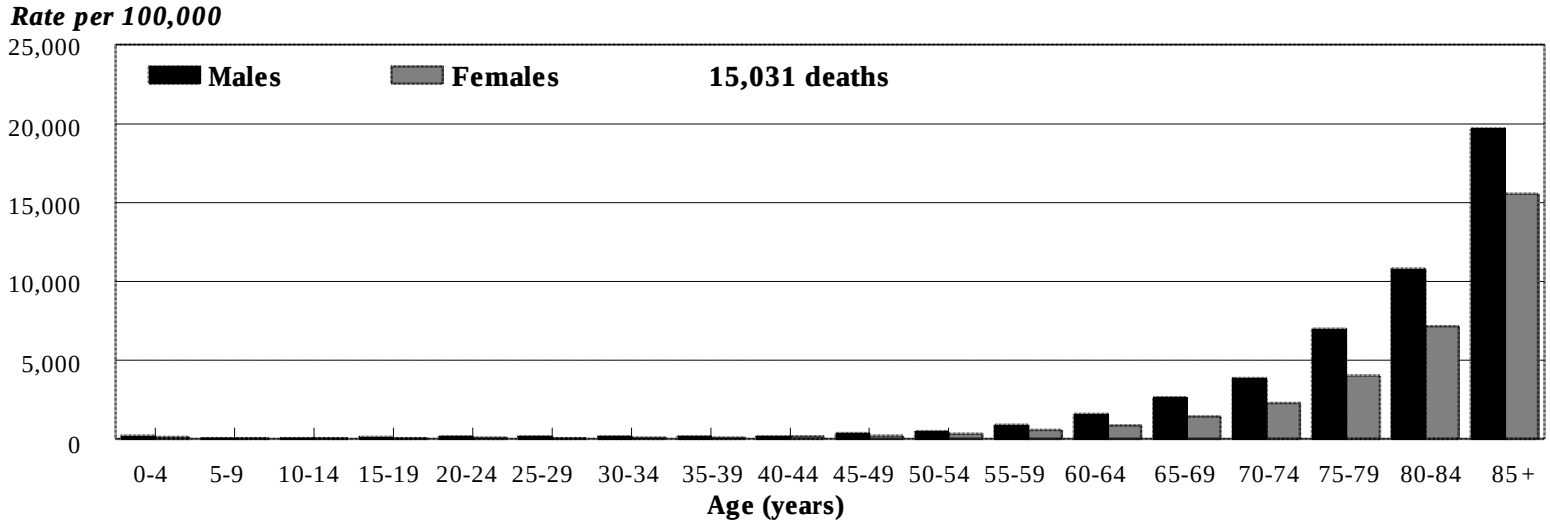
| Cause of death | Hobart | Rest of State | Total |
|---|---|---|---|
| **Infant: all causes** | **79** | **96** | **175** |
| **15 to 64 years** | **1,223** | **1,944** | **3,167** |
| Cancers | 475 | 686 | 1,161 |
| Circulatory system diseases | 289 | 527 | 816 |
| Respiratory system diseases | 60 | 104 | 164 |
| Accidents, poisonings & violence | 241 | 392 | 633 |
| **15 to 24 years** | **97** | **150** | **247** |
| Accidents, poisonings & violence | 73 | 112 | 185 |
| **All ages** | **5,990** | **9,041** | **15,031** |

**Source: See *Data sources*, Appendix 1.3**

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

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

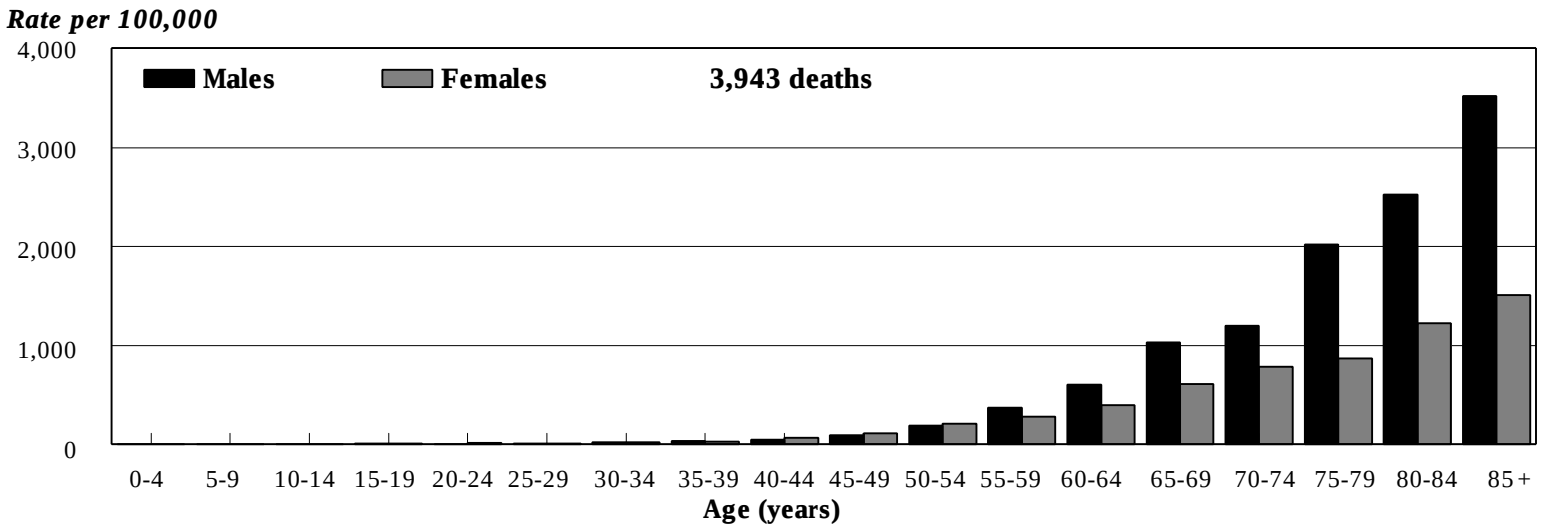
**Figure 5.3: Deaths from all causes, by age and sex, Tasmania, 1992 to 1995**




**Source: See *Data sources*, Appendix 1.3**

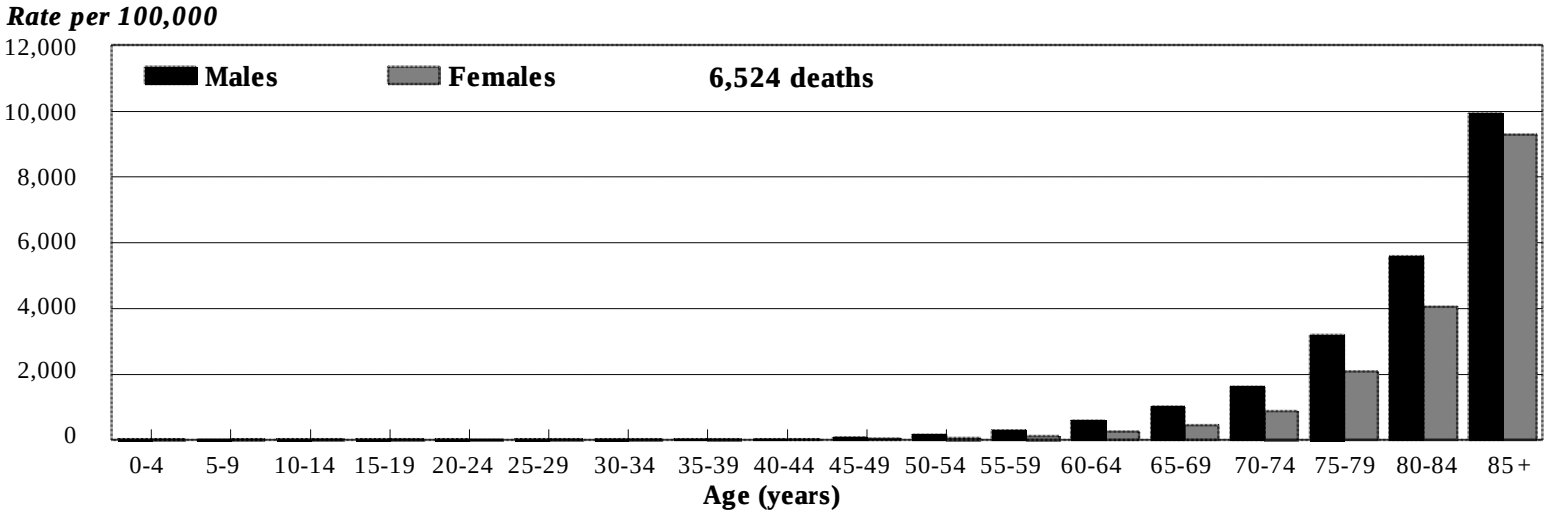
**Figure 5.4** shows the predominance of males in deaths from cancer, whereas in **Figure 5.5** the similar pattern for deaths from circulatory system diseases is broken in the 85 years and over age group, where female death rates closely approximate those of males. Death rates from respiratory system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

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



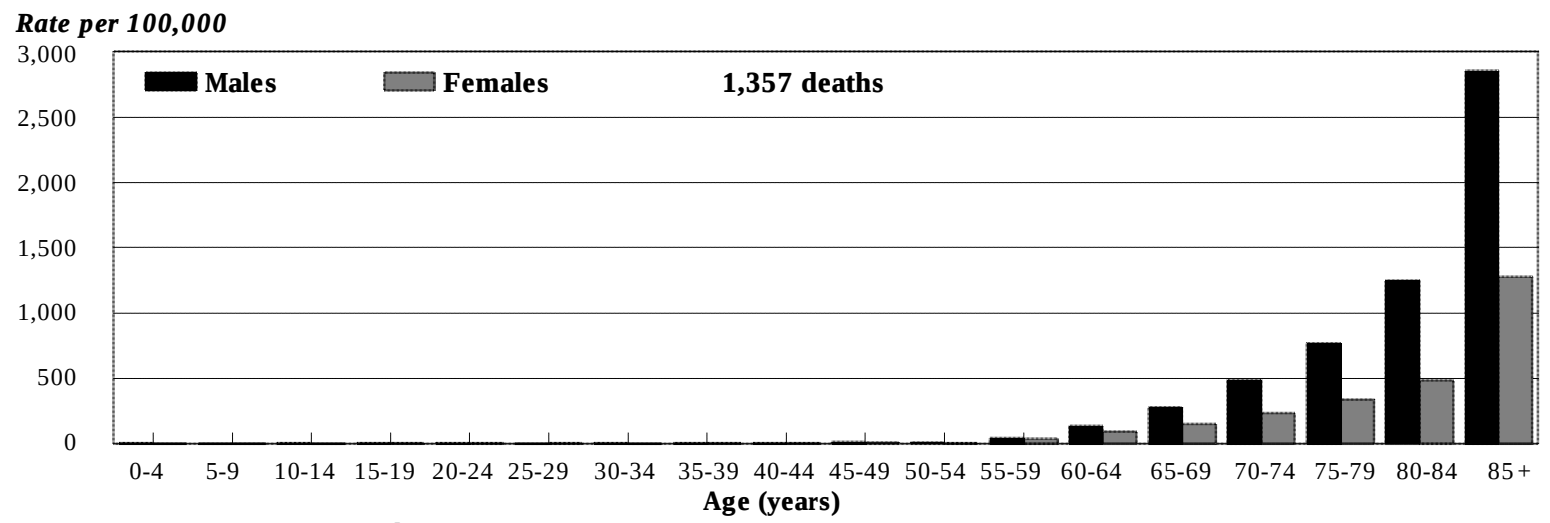

**Source: See *Data sources*, Appendix 1.3**

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




**Source: See *Data sources*, Appendix 1.3**

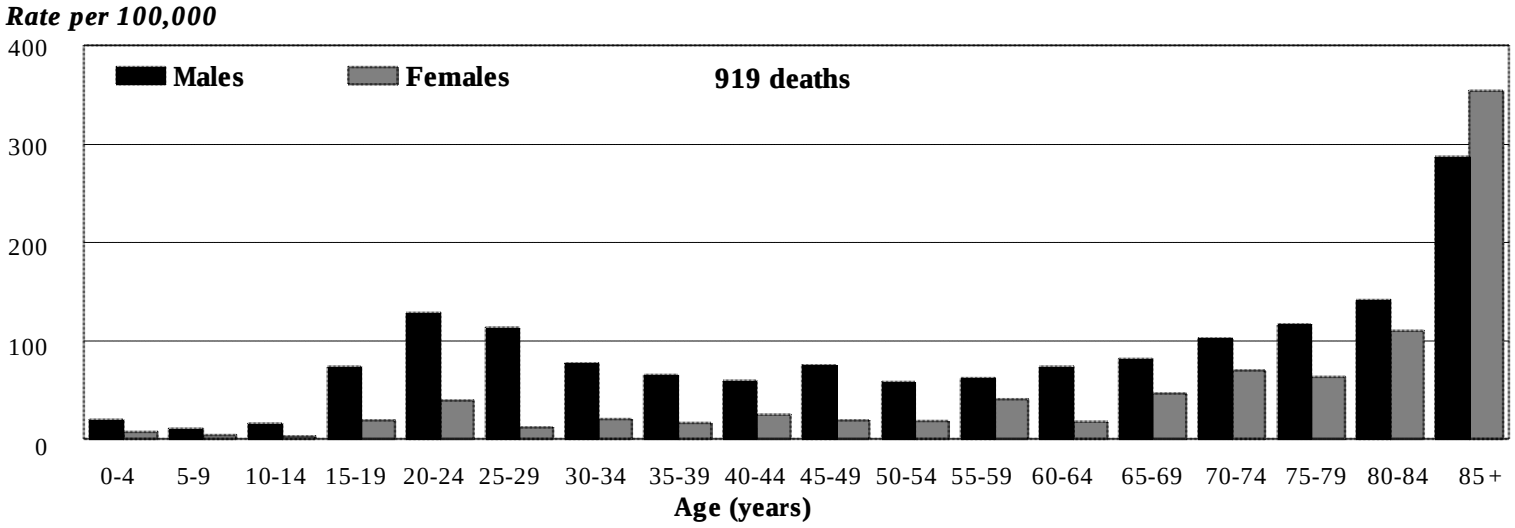
**Figure 5.6: Deaths from respiratory system diseases, by age and sex, Tasmania, 1992 to 1995**




**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, Tasmania, 1992 to 1995**




**Source: See *Data sources*, Appendix 1.3**

## Deaths from suicide

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

Despite suicide being an important cause of death, in particular amongst young people[5], it has not been mapped in this chapter. As the number of recorded suicides is quite low at the SLA level there is a possibility that mapping them will lead to misinterpretation of results. The following is an overview of the deaths recorded for suicides over the period from 1986 to 1995 for Tasmania as a whole, as well as separately for **Hobart** and the *Rest of the State*.

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

There were 720 deaths from suicide in Tasmania over the nine year period from 1986 to 1995. Of these, 84.0 per cent (605) were aged from 15 to 64 years and 21.1 per cent (152) were aged from 15 to 24 years. Over this time period there has been a 4.3 per cent decrease in the number of deaths recorded for suicides, dropping marginally from 69 in 1986 to 66 in 1995. An even more substantial decrease was recorded among 15 to 24 year olds, where the number of suicides dropped from 17 in 1986 to 11 in 1995, an decrease of 35.3 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 81.9 per cent of suicides of all ages, 81.5 per cent of 15 to 64 year olds and 83.6 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.

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

Numbers of suicide not only vary by age and sex, but also by place of residency. While there were more deaths from suicide of residents of the non-metropolitan areas of Tasmania (433 deaths compared to 287 in **Hobart** over the nine years from 1986 to 1995), because it contains a higher proportion of the State's population, it is more informative to consider death rates.

In 1995, death rates from suicide among 15 to 64 year olds were 23.0 per cent higher in **Hobart** than in the non-metropolitan areas of Tasmania, a rate of 21.9 compared to 17.8 per 100,000, respectively.

In the following charts suicide rates are shown separately for the 15 to 24 and 25 to 64 year age groups. Among the older age group (**Figure 5.8**) rates were higher for residents of the non-metropolitan areas than for **Hobart** in six of the ten years, lower in three years and virtually the same in1990.

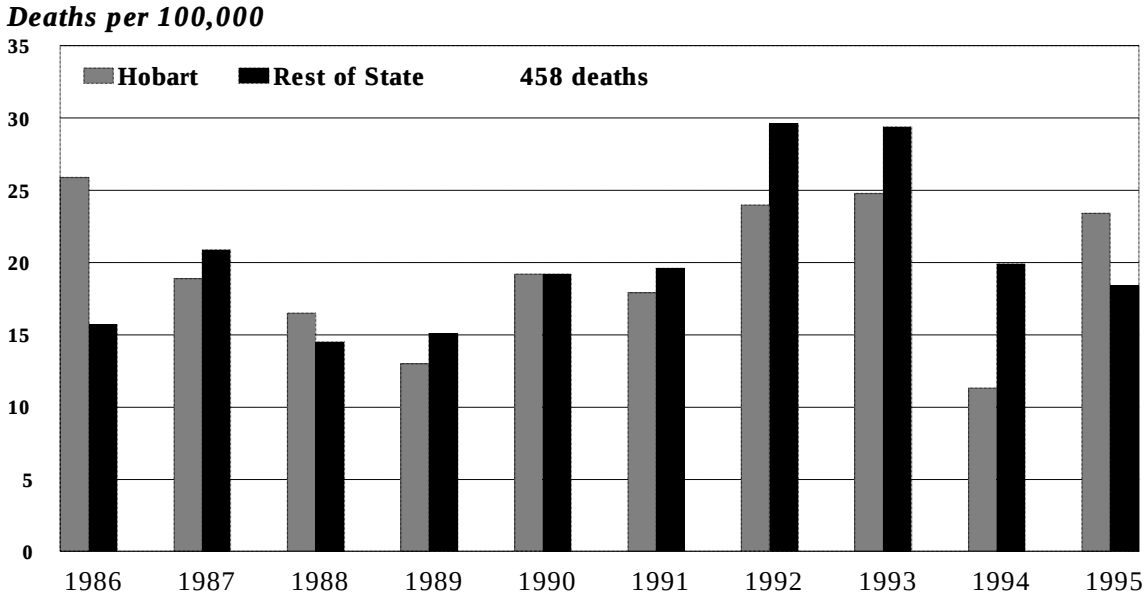
In comparison with the population aged from 25 to 64 years the differentials in suicide rates for 15 to 24 year olds between the capital city and non-metropolitan rates were more marked in several of the years (**Figure 5.9**). The overall rates over the ten years were also slightly higher for the 15 to 24 year age group.

However, the difference between the two areas were far less substantial than those recorded among 15 to 24 year olds. For the 15 to 24 year age group, rates were higher in country areas of Tasmania in six of the ten years of data analysed (**Figure 5.9**).

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 the Indigenous population in the population, a group which has higher suicide rates.

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

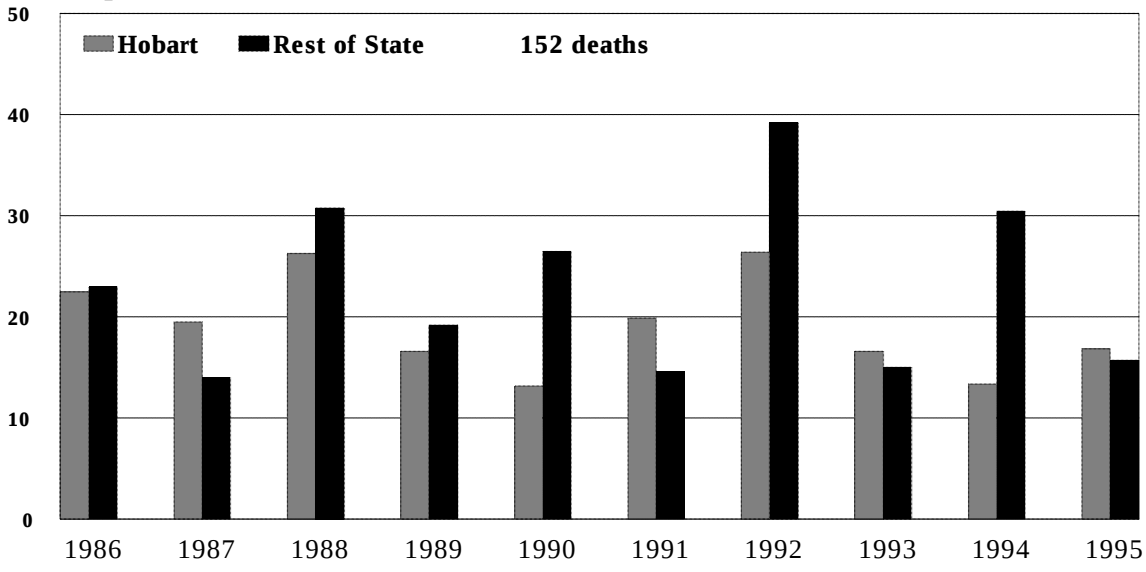
***Deaths per 100,000***




**Source: Various issues, ABS Causes of Death bulletins**

**Figure 5.9: Suicide rates of people aged from 15 to 24 years, Hobart and rest of State**

***Deaths per 100,000***




**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 5.12**). As noted earlier (page 125), this is largely the result of the decline in deaths from sudden infant death syndrome. There were similar reductions in all of the capital cities other than **Darwin**, where the infant death rate rose, from 9.4 for the period 1985 to 1989, to 10.3 for the years 1992 to 1995. **Darwin** now has the highest infant death rate (10.3 infant deaths per 1,000 live births), followed by **Hobart** (7.5), a reversal of the ranking over the period from 1985 to 1989. All capital cities except these show significant improvements in the rate.

**Table 5.12: 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 175 infant deaths of children resident in Tasmania. This represented a decline from an average of 75 to 44 infant deaths per year between the two periods analysed.

Neonatal deaths (deaths of infants aged under 28 days) accounted for 63.4 per cent of infant deaths. Neonatal deaths result mostly from the circumstances of the birth, or from pre–natal conditions resulting in disabilities at birth. The remaining (post–neonatal) deaths are related to infections, respiratory disorders, accidents and deaths attributed to Sudden Infant Death Syndrome and other causes.

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 the Indigenous population in the population, in particular the remote areas of Australia.

## Hobart[6]

There were only 79 infant deaths in **Hobart** over the four year period from 1992 to 1995, resulting in a relatively small number of deaths in this cause group for several SLAs. Overall, there were 7.5 infant deaths per 1,000 live births.

The highest infant death rate (10.9 deaths per 1,000 live births) was recorded in Brighton (**Map 5.7**). Relatively high rates also occurred to the west of the Derwent River in the SLAs of Hobart (9.5) and Glenorchy (7.9).

Rates below the **Hobart** average were recorded in Clarence (6.8 deaths) and Kingborough [Part A] (4.5).

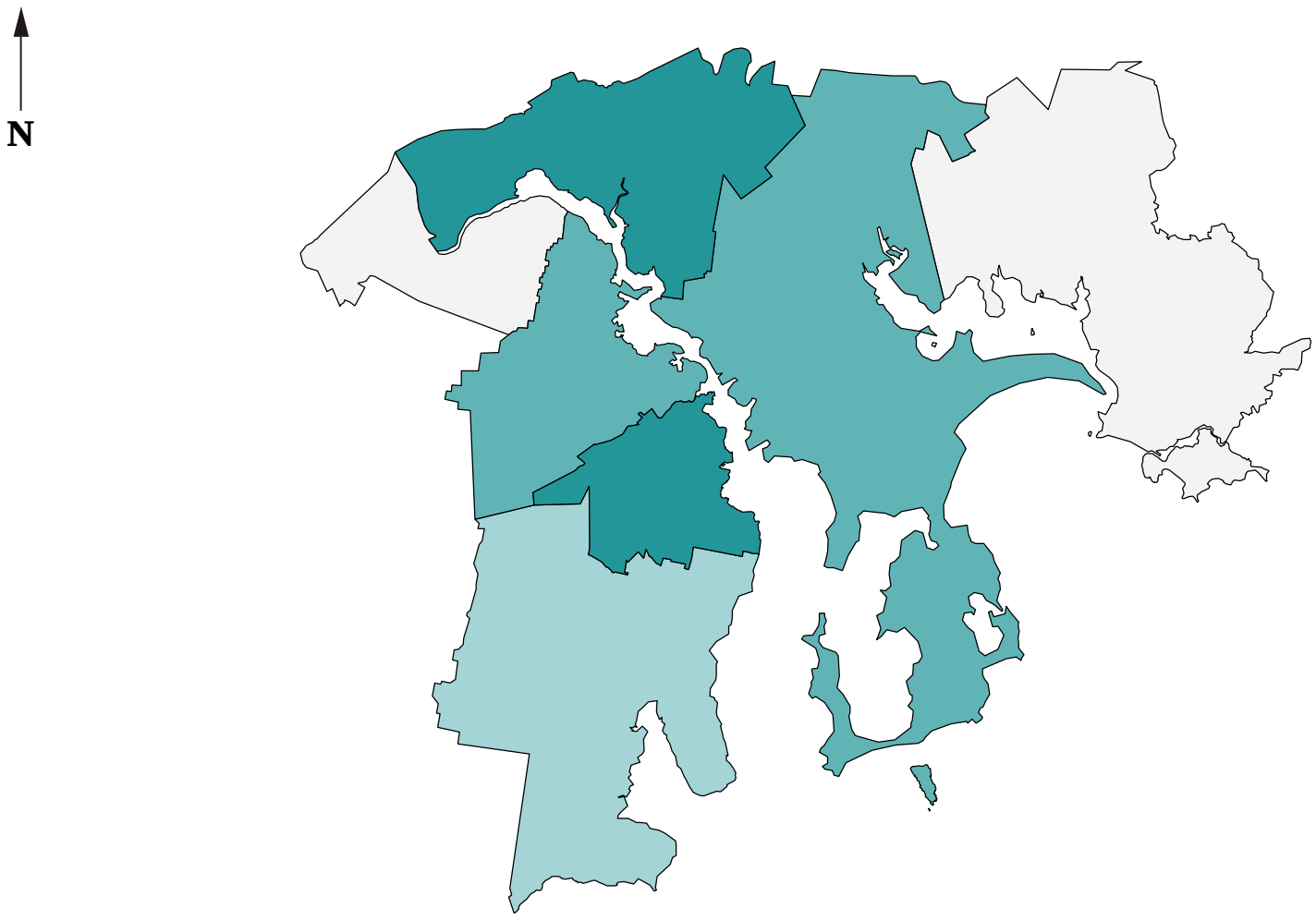
The largest numbers of infant deaths over the four year period from 1992 to 1995 were recorded in the SLA of Hobart (21 infant deaths), Glenorchy (19) and Clarence (17). There were 13 deaths of infants from Brighton and six from Kingborough [Part A], respectively. Fewer than five infant death were recorded in Sorell [Part A] (three deaths) and New Norfolk [Part A] (no deaths).

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

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

## Map 5.7
## Infant deaths, Hobart, 1992 to 1995

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




Infant deaths per 1,000 live births

- *8.0 or more*
- *6.0 to 7.9*
- *4.0 to 5.9*
- *2.0 to 3.9*
- *fewer than 2.0*
- *fewer than five deaths*

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

**National Social Health Atlas Project, 1999**

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

## Capital city comparison (Australia as the Standard)

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

There was a higher differential (from the Australian rates) in the SDR recorded for **Darwin** in the later period shown in **Table 5.13**. 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 and 64 years) for males over this period. There were 3,063 deaths of males in **Hobart** over the period from 1992 to 1995, of which 763 (24.9 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.

## Hobart (Tasmania as the Standard)

There were 191 deaths per year over the four years from 1992 to 1995 from all causes of males aged 15 to 64 years. This was less than that recorded for the period from 1985 to 1989, of 219 deaths per annum. Males in **Hobart** were more likely to die prematurely than females, with almost two thirds (62.4 per cent) of deaths over the period from 1992 to 1995 being of males.

Elevated ratios for deaths of male were recorded in the most socioeconomically disadvantaged SLAs of **Hobart** (**Map 5.8**). The most highly elevated ratio (an SDR of 135) was recorded in New Norfolk [Part A]. Other elevated ratios were recorded in Glenorchy (110) and Brighton (104).

Male residents of Kingborough [Part A] (64**) and Clarence (84*) had the lowest ratios, with 36 and 16 per cent fewer deaths, respectively, than expected from the State rates. The City of Hobart (98) and Sorell [Part A] (92) had slightly fewer male deaths than expected.

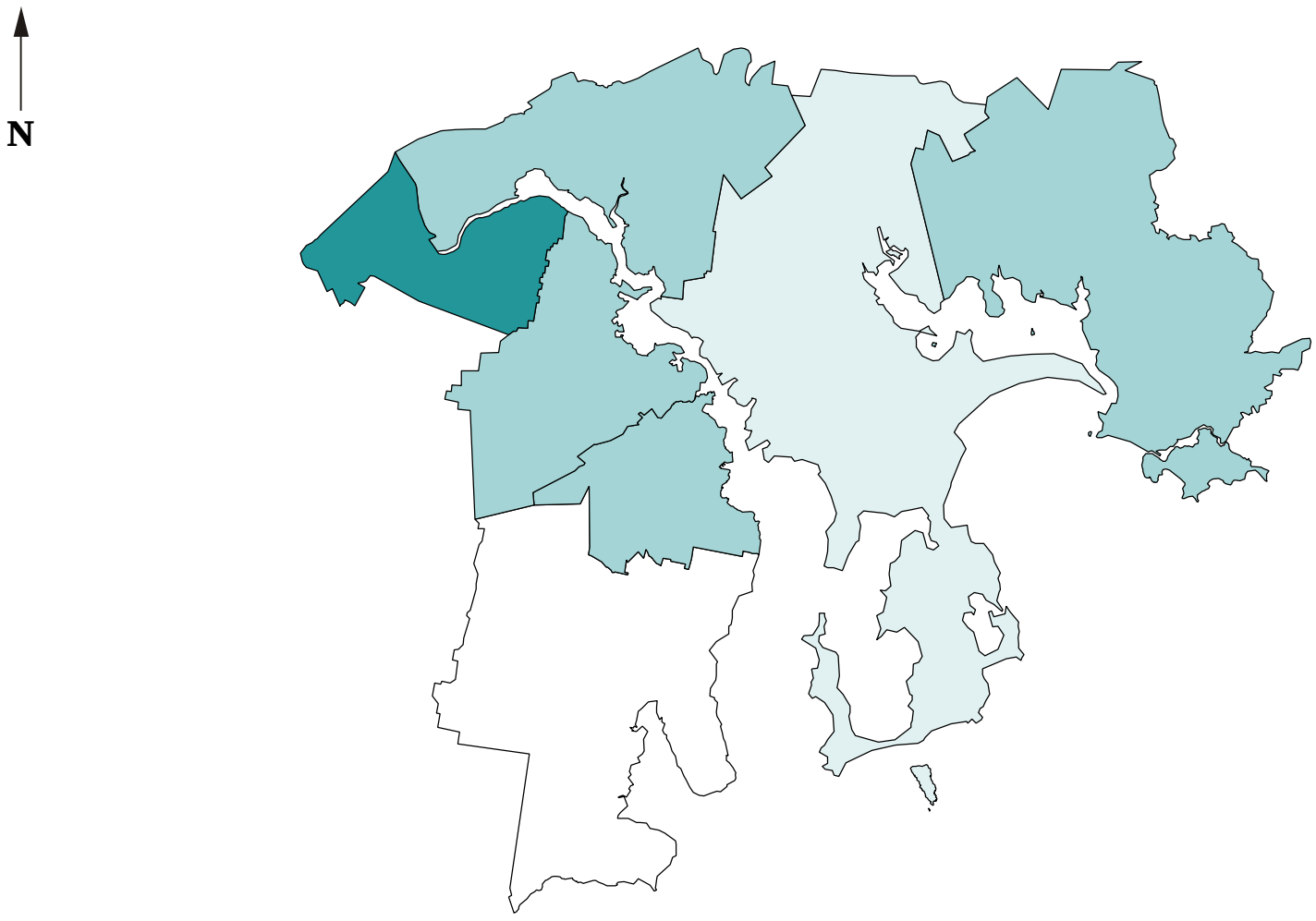
The largest numbers of deaths were of male residents of Glenorchy (211 deaths), the City of Hobart (193 deaths) and Clarence (184 deaths).

There were correlations of meaningful significance with the variables for semi-skilled and unskilled workers (0.69), low income families (0.66), early school leavers (0.54) and private dwellings without a motor vehicle (0.52). Inverse correlations were recorded with a number of the indicators of socioeconomic advantage.

These results, together with the inverse correlation of meaningful significance with the IRSD (-0.58), indicate the existence of an association at the SLA level between high premature male death rates and socioeconomic disadvantage.

## Map 5.8
## Deaths of males aged 15 to 64 years from all causes, Hobart, 1992 to 1995

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




Standardised Death Ratio (as an index

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

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

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

**National Social Health Atlas Project, 1999**

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

## State/Territory comparison (Australia as the Standard)

Standardised Death Ratios (SDRs) for males aged from 15 to 64 years over the years 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 causes of premature death for male residents of the non-metropolitan areas of Tasmania were circulatory system diseases, malignant neoplasms (cancer) and the combined external causes of accidents, poisonings and violence. There were 4,921 deaths of males resident in these non-metropolitan areas, 54.4 per cent of all deaths. Of these deaths, 1,273 deaths were of males aged from 15 to 64 years, 25.9 per cent of all male deaths.

## Rest of State (Tasmania as the Standard)

Over the period from 1992 to 1995, there were 318 deaths of males per annum recorded in the non-metropolitan areas of Tasmania, a decrease from 355 deaths per annum in 1985 to 1989. The 1992 to 1995 number was four per cent higher than expected from the Tasmanian rates (an SDR of 104). There was also a clear differentiation between the numbers of male and female deaths, with almost two thirds (65.5 per cent) of deaths of 15 to 64 year olds being of males.

The majority of the non-metropolitan SLAs in Tasmania had SDRs of between 70 and 129, and just four areas had ratios elevated by 30 per cent or more (**Map 5.9**). The highest ratios were recorded in George Town [Part A] (with an SDR of 162**), West Coast (147**), New Norfolk [Part B] (136) and Burnie [Part A] (131**).

A further seven areas had elevated ratios, including Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (110), Huon Valley (114) and Break O Day/Northern Midlands [Part B] (119).

The ten areas with SDRs that were up to 30 per cent lower than expected from the State rates included Central Coast [Part A]/Devonport (95) and West Tamar [Part A] (76*).

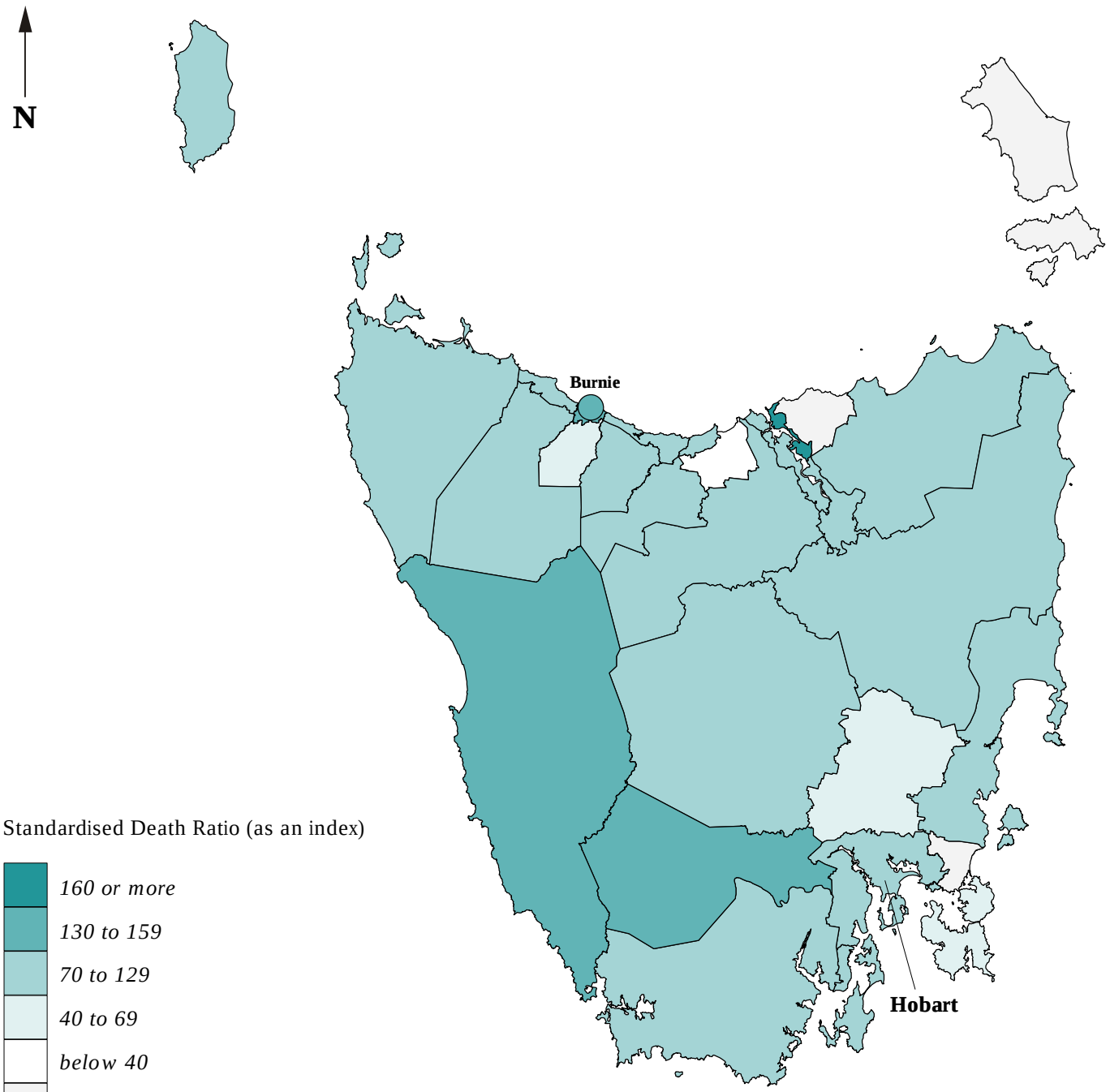
The lowest ratios were recorded in Latrobe [Part B] (31, two male deaths when six were expected), Burnie [Part B] (four deaths when 10 were expected), Southern Midlands (62, 16 deaths when 26 were expected) and Tasman (63, nine deaths when 14 were expected).

The largest numbers deaths of 15 to 64 year old males were recorded in the combined SLAs of Launceston /Meander Valley [Part A]/Northern Midlands [Part A] (332 deaths), Central Coast [Part A]/Devonport (180 deaths), Burnie [Part A] (101 deaths) and Huon Valley (66 deaths).

There were correlations of substantial significance with the variables for private dwellings without a motor vehicle (0.73) and single parent families (0.71) and of meaningful significance with housing authority rented dwellings (0.56). An inverse correlation of substantial significance was recorded with variable for managers and administrators, and professionals (-0.74). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.64), indicate the existence of an association at the SLA level between high premature male death rates and socioeconomic disadvantage.

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

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

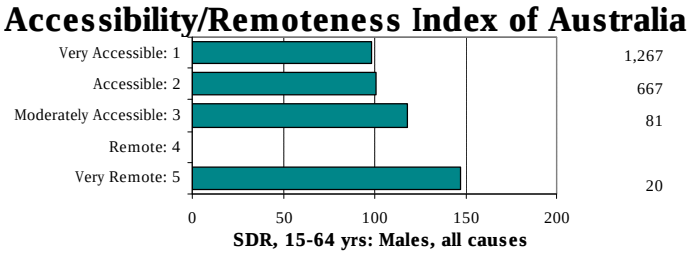



*Expected numbers were derived by indirect age standardisation, based on Tasmanian totals

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




| | Male deaths |
|---|---|
| Very Accessible: 1 | 1,267 |
| Accessible: 2 | 667 |
| Moderately Accessible: 3 | 81 |
| Remote: 4 | |
| Very Remote: 5 | 20 |

Standardised Death Ratios (SDRs) for premature deaths of males increase across the ARIA categories. The lowest ratios, both close to the level expected from the State rates, were recorded in the Very Accessible (an SDR of 98) and Accessible (101) areas. There were 18 per cent more premature deaths of males than expected in the Moderately Accessible areas (an SDR of 118) and a highly elevated 47 per cent more than expected in the Very Remote areas (an SDR of 147).

***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 2,927 deaths of female residents in **Hobart**, of whom 460 were of females aged from 15 to 64 years. The data that have been mapped for this variable therefore represents 15.7 per cent of all female deaths.

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

## Hobart (Tasmania as the Standard)

The number of female deaths in the 15 to 64 year age group has declined, from 126 deaths per annum over the years from 1985 to 1989 to 115 deaths per annum from 1992 to 1995. Females were less likely to die prematurely than males, accounting for just over one third (37.6 per cent) of deaths of 15 to 64 year olds. The SDR of 99 for female deaths in **Hobart** was slightly higher than that for males (94).

New Norfolk [Part A] was the only SLA mapped in the highest range (**Map 5.10**), although the SDR of 137 represented a relatively low number of 21 female deaths. Ratios elevated by between 15 and 29 per cent above the expected level were recorded in Glenorchy (with an SDR of 124**) and Sorell [Part A] (118).

Elevated ratios were also recorded in Brighton (110) and Hobart (101).

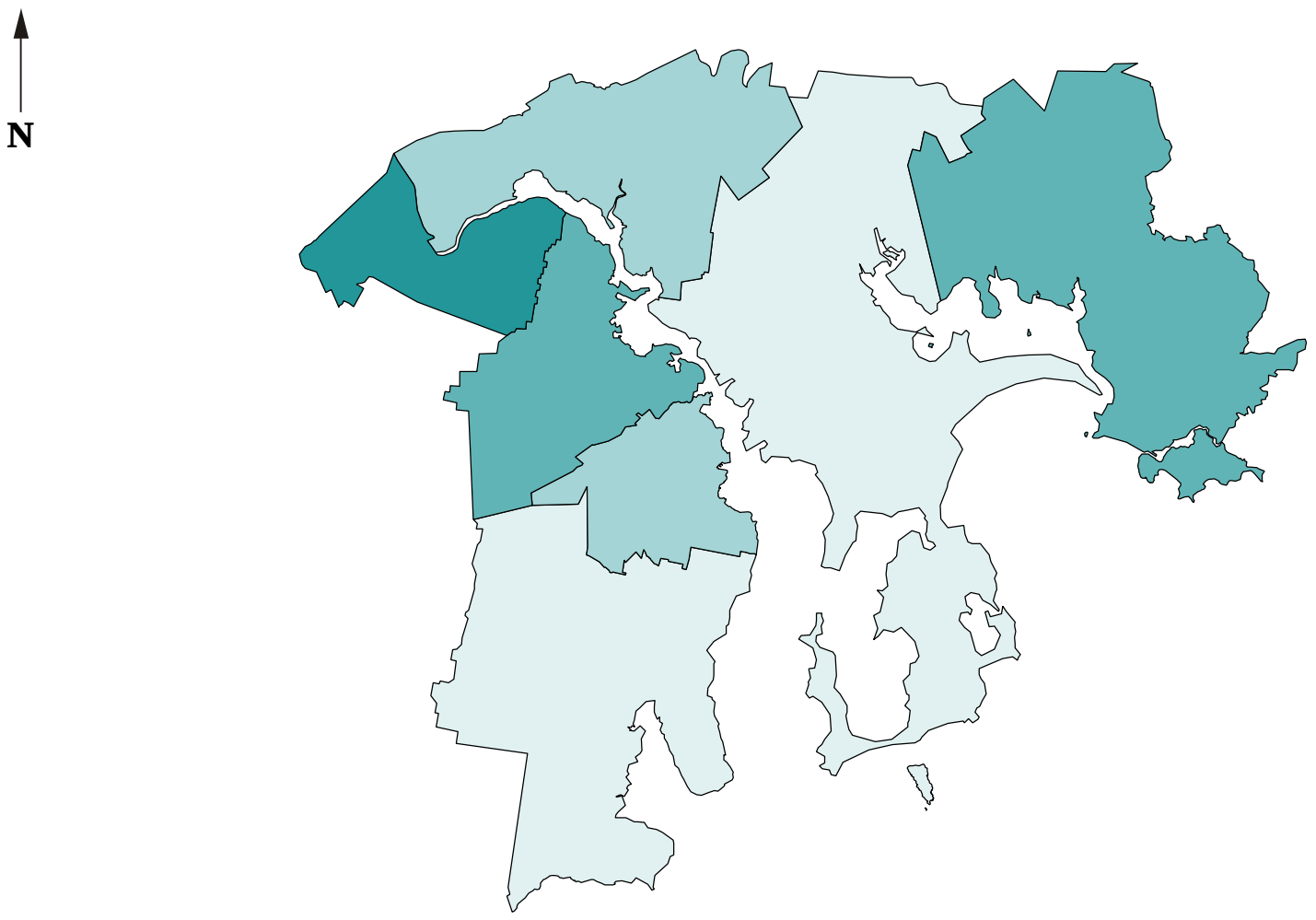
Female residents of Clarence (with an SDR of 76**) and Kingborough [Part A] (77) recorded fewer deaths than were expected from the Tasmanian rates.

An examination of the distribution of the number of deaths shows that two areas had more than a hundred deaths of females aged 15 to 64 years over the period from 1992 to 1995. They were Glenorchy (139 deaths) and the City of Hobart (112 deaths). There were 99 deaths of female residents of Clarence with fewer than 50 deaths of females in the remaining SLAs over this period.

There was a correlation of substantial significance with the variable for semi-skilled and unskilled workers (0.71), and of meaningful significance with low income families (0.68) and early school leavers (0.59). Inverse correlations of meaningful significance were recorded with the variables for high income families (-0.65) and managers and administrators, and professionals (-0.63). These results, together with the inverse correlation of substantial significance with the IRSD (-0.57), indicate the existence of an association at the SLA level between high premature female death rates and socioeconomic disadvantage.

## Map 5.10
## Deaths of females aged 15 to 64 years from all causes, Hobart, 1992 to 1995

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




Standardised Death Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

**National Social Health Atlas Project, 1999**

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

## State/Territory comparison (Australia as the Standard)

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

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

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

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

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

Unlike males living in the non-metropolitan areas of Tasmania, 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 16.3 per cent of all female deaths. This figure was some two thirds of that recorded for males (25.9 per cent), highlighting the fact that female life expectancy is higher.

## Rest of State (Tasmania as the Standard)

Females were less likely to die prematurely than males, with just over one third (34.5 per cent) of all deaths at ages 15 to 64 years in non-metropolitan Tasmania being of females. This proportion was slightly less than that for **Hobart**, although it represented a larger number of 671 deaths.

Half of the SLAs mapped (**Map 5.11**) had SDRs in the middle range, within 30 per cent of the level expected from the State rates. New Norfolk [Part B] (with an SDR of 181*) and Waratah/Wynyard [Part B] (180) were the only areas to have a ratio in the highest range, although these SLAs had just 16 and 10 female deaths respectively over the four years analysed. West Coast (with an SDR of 159*), Break O Day/Northern Midlands [Part B] (142*), George Town [Part A] (141) and Waratah/Wynyard [Part A] (138*) all had ratios in the second highest range. Elevated ratios were recorded in a further four areas, including Burnie [Part A] (118) and Central Coast [Part A]/Devonport (102).

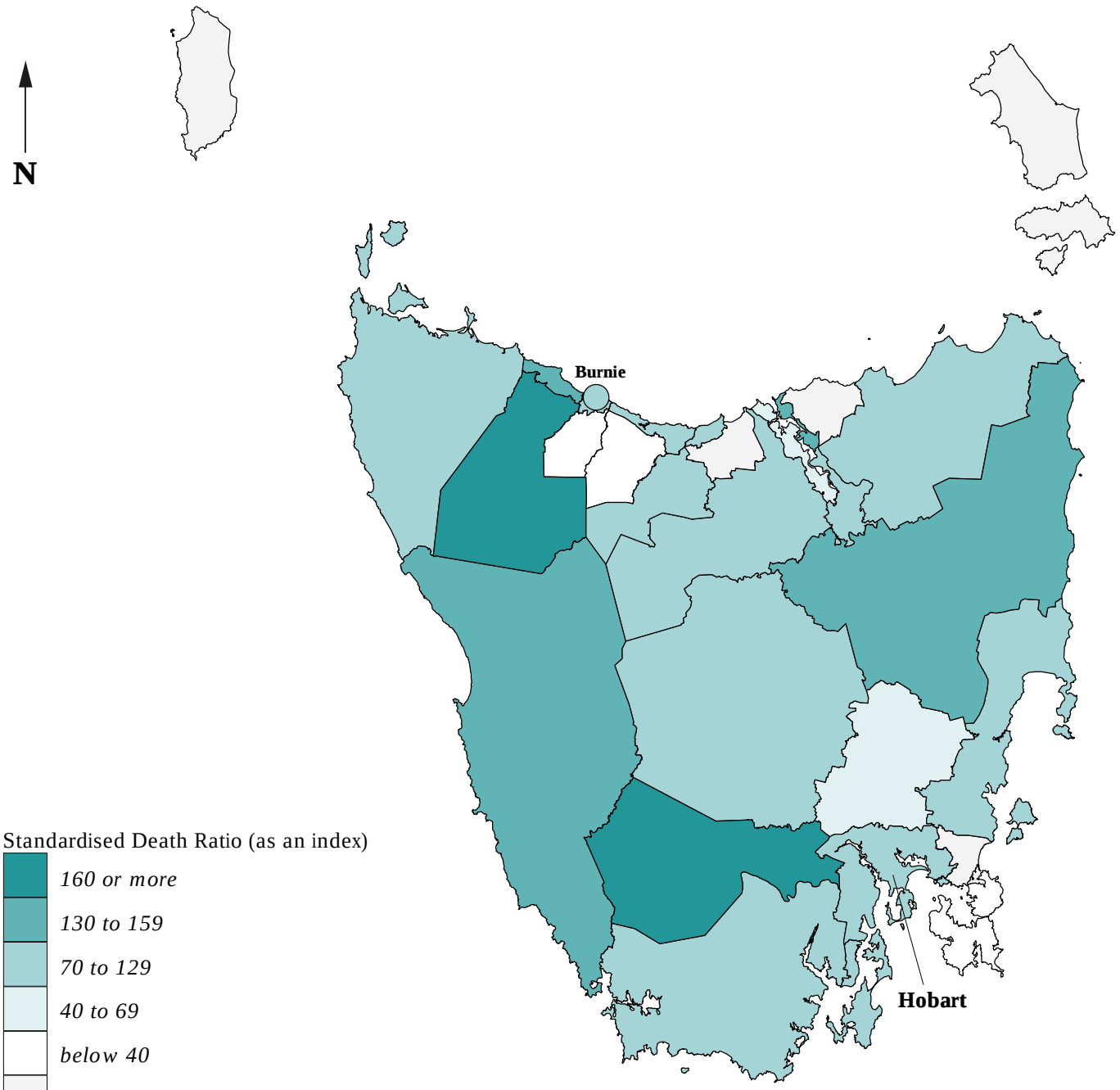
The lowest ratios, all with very low numbers of female deaths, were recorded in Tasman (14*, one death when seven were expected), Burnie [Part B] (20, one death when five were expected) and Central Coast [Part B] (37, three deaths when eight were expected). West Tamar [Part A] (62*) recorded the only other significant SDR.

The combined area of Launceston/Meander Valley [Part A]/Northern Midlands [Part A] recorded the largest number of female deaths (163 deaths), with 114 deaths of female residents of Central Coast [Part A]/Devonport and 53 deaths of females of Burnie [Part A]. All other areas had fewer than 40 deaths.

The correlation analysis showed there to be a generally weak association with the indicators of socioeconomic disadvantage; the strongest of these were with the variables for private dwellings without a motor vehicle (0.39), single parent families (0.28) and unemployed people (0.27). Inverse correlations were recorded with the variables for female labour force participation (-0.48) and managers and administrators, and professionals (-0.42). These results, together with the inverse correlation with the IRSD (-0.40), indicate the existence of an association at the SLA level between high premature female death rates and socioeconomic disadvantage.

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

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

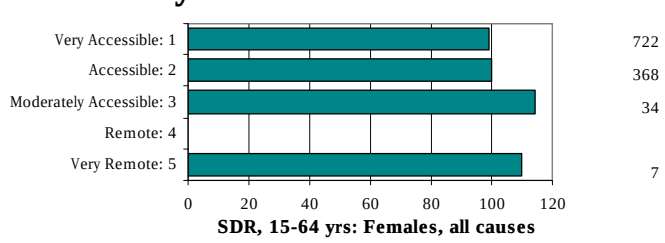



*Expected numbers were derived by indirect age standardisation, based on Tasmanian totals

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




| | |
|---|---|
| Very Accessible: 1 | 722 |
| Accessible: 2 | 368 |
| Moderately Accessible: 3 | 34 |
| Remote: 4 | |
| Very Remote: 5 | 7 |

Female deaths

Standardised Death Ratios (SDRs) for females show a similar pattern to those for males, but with a lower ratio in the Very Remote areas. The lowest ratios, both close to or at the level expected from the State rates, were recorded in the Very Accessible (an SDR of 99) and Accessible (100) areas. There were 14 per cent more premature deaths of females than expected in the Moderately Accessible areas (an SDR of 114) and 10 per cent more than expected in the Very Remote areas (an SDR of 110).

***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 cancer (malignant neoplasms) were the second most common cause of death of residents of all ages of **Hobart**, accounting for 27.4 per cent of all deaths (1,641 deaths) over the four years from 1992 to 1995. Moreover, it was the most common cause of death in the 15 to 64 year age group (475 deaths), representing 38.8 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).

## Hobart (Tasmania as the Standard)

There were 475 deaths from cancer of people aged from 15 to 64 years in **Hobart** over the four years from 1992 to 1995. This was two per cent more deaths than expected from the State rate (an SDR of 102).

The highest SDR recorded in **Hobart** for deaths from cancer at these ages was in Glenorchy, an SDR of 131** (**Map 5.12**). The total of 148 deaths recorded over the four years from 1992 to 1995 was 31 per cent more than expected from the Tasmanian rates. Elevated ratios were also recorded in Sorell [Part A] (an SDR of 121 and 22 deaths) and in New Norfolk [Part A] (106, 17 deaths). There were as many deaths recorded in the City of Hobart as were expected from Tasmanian totals (an SDR of 100).

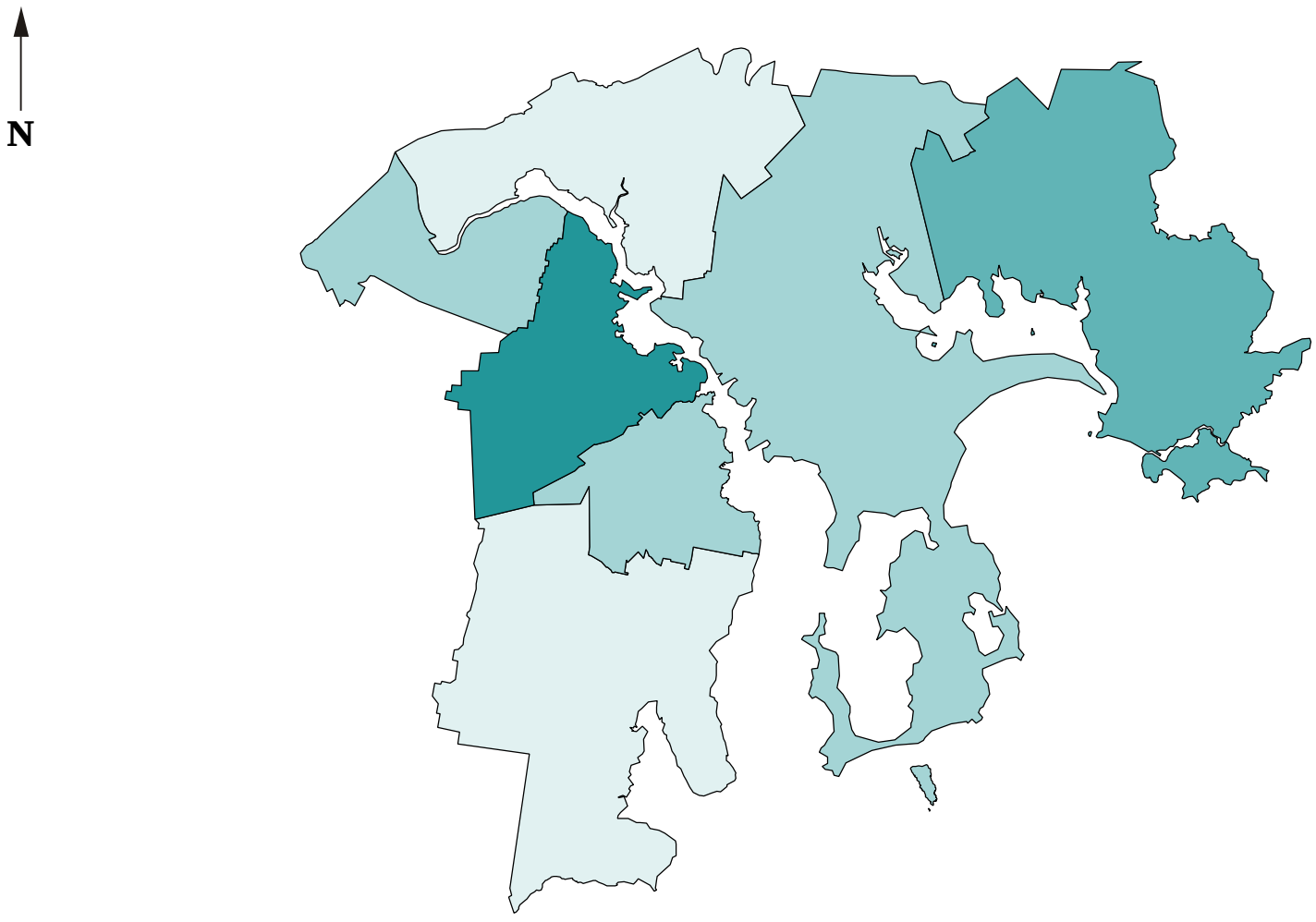
The remaining SLAs had fewer deaths than were expected from the Tasmanian rates, with the lowest rate (an SDR of 80) recorded in both Kingborough [Part A] and Brighton. Residents of Clarence recorded 12 per cent fewer deaths from cancer than were expected from the Tasmanian rates (an SDR of 88).

The largest numbers of deaths from cancer between the ages of 15 and 64 years were recorded in Glenorchy (148 deaths), Clarence (115) and Hobart (109 deaths). Residents of the remaining areas all recorded fewer than 50 deaths from cancer at these ages.

The correlations for this variable were generally weak (although positive with indicators of socioeconomic disadvantage and inverse with indicators of high socioeconomic status, with just one statistically significant association at the SLA level – with the variable for people aged 65 years and over (0.54).

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

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




Standardised Death Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***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 **Hobart**, deaths from cancer (malignant neoplasms) were also the second most common cause of death in the non-metropolitan areas of Tasmania, accounting for 25.5 per cent of all deaths (2,302 deaths) over the four year period from 1992 to 1995. Cancer was, however, the most common cause of premature death, accounting for 35.3 per cent of all deaths of people aged from 15 to 64 years. Although the largest numbers of cancer deaths were recorded for people aged 65 years and over, they only accounted for only 23.2 per cent of deaths at those ages.

## Rest of State (Tasmania as the Standard)

The SDRs for death from cancer of 15 to 64 year old residents of **Hobart** (102) and those living in non-metropolitan Tasmania (99) were similar. There were slightly more deaths from cancer per annum in the non-metropolitan areas over the period from 1992 to 1995 than from 1985 to 1989 with 172 and 166 deaths respectively.

Three SLAs had ratios elevated by at least 30 per cent (**Map 5.13**). Latrobe [Part A] (with an SDR of 157*) and West Coast (154*) recorded 57 and 54 per cent more deaths from cancer than expected from Tasmanian numbers, respectively. New Norfolk had 36 per cent more deaths than expected (an SDR of 136 and 14 deaths).

Break O Day/Northern Midlands [Part B] (129), Burnie [Part A] (122), Kentish (118) and Huon Valley (117) recorded SDRs in the second highest range. There were nine SLAs with SDRs within 15 per cent of the level expected from the State rates, including Central Coast [Part A]/Devonport (112), Waratah/Wynyard [Part A] (111) and Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (94).

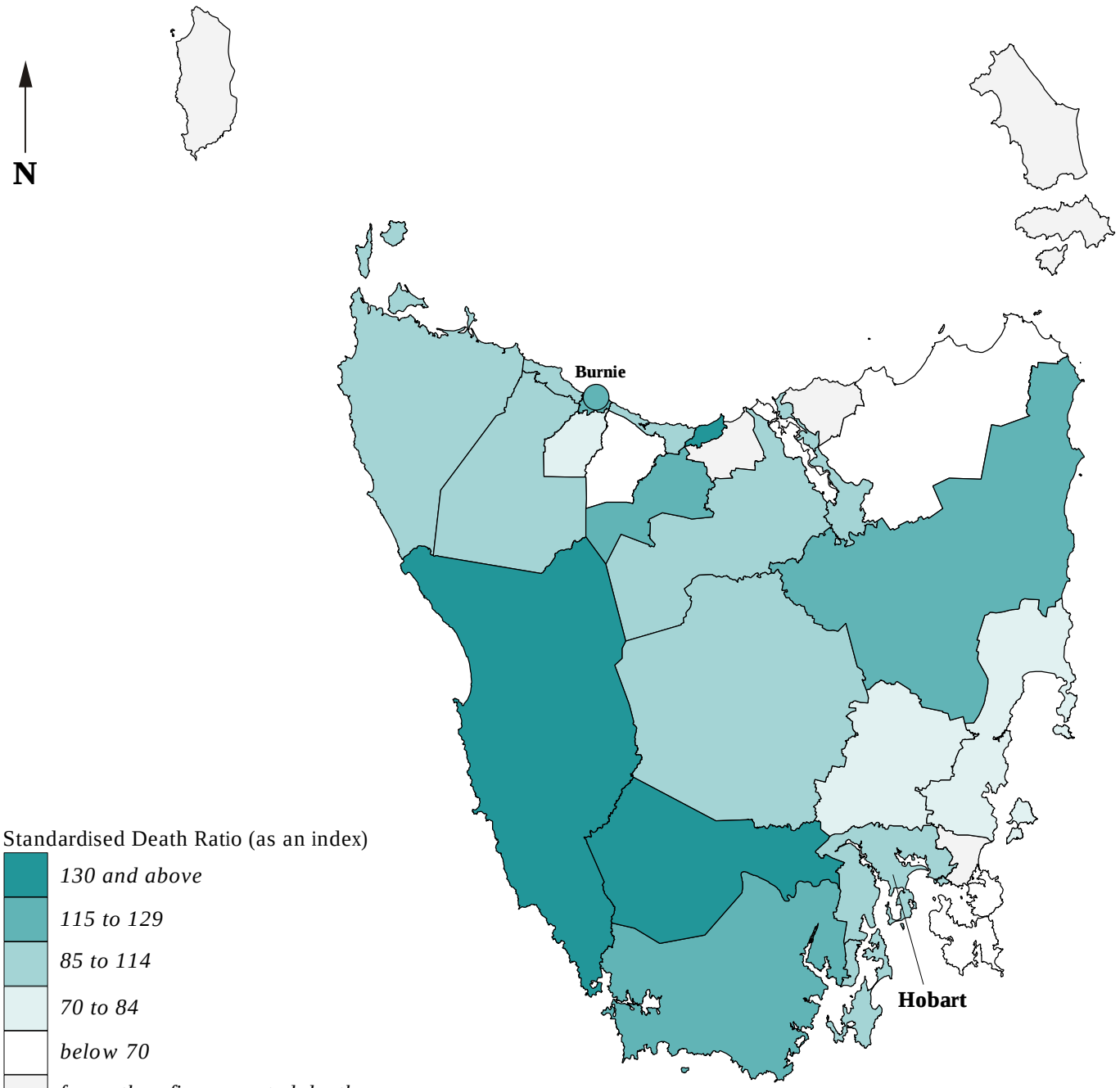
The lowest ratios were recorded in West Tamar [Part A] (with an SDR of 52**), Dorset/Launceston [Part C] (55*, 15 deaths), Central Coast [Part B] (59, five deaths) and Tasman (61, five deaths).

The largest numbers of deaths were of residents of the combined area of Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (159 deaths) and Central Coast [Part A]/Devonport (126 deaths). All other areas recorded fewer than 60 deaths from cancer. The five areas with fewer than five deaths from cancer expected from the Tasmanian rates recorded a total of just nine deaths from cancer.

The correlation analysis showed there to be a generally weak association with indicators of socioeconomic disadvantage; the strongest of these were with the variables for private dwellings without a motor vehicle (0.42) and single parent families (0.37). Weak inverse correlations were recorded with a number of variables, including managers and administrators, and professionals (-0.48) and female labour force participation rates (-0.38). These results, together with the weak inverse correlation with the IRSD (-0.39), suggest the existence of an association at the SLA level between high premature death rates from cancer and socioeconomic disadvantage.

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

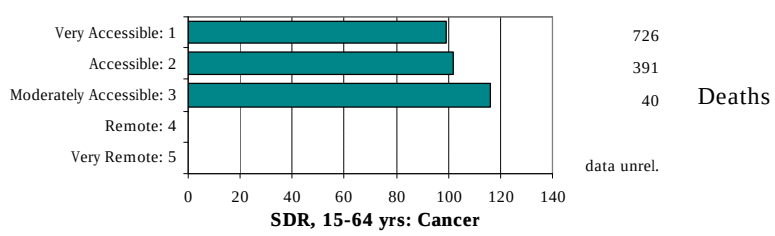
Standardised Death Ratio: number of deaths in each Statistical Local Area compared with the number expected*




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

***Source: Calculated on data from ABS 1996 Census*** ***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




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 State rates in both the Very Accessible (an SDR of 99) and Accessible (102) areas. There were 16 per cent more premature deaths from cancer than expected in the Moderately Accessible areas (an SDR of 116). As there were fewer than five expected deaths from cancers in the Very Remote areas, the ratio has not been calculated.

***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 **Hobart**, deaths from cancer of the trachea, bronchus and lung (referred to here as lung cancer) accounted for 20.4 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 smoking 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.

## Hobart (Tasmania as the Standard)

Just as the SDR for deaths of 15 to 64 year olds from lung cancer in **Hobart** was lower (relative to the Australian rates) over the period from 1992 to 1995 than it was over the five years from 1985 to 1989, so was the number of deaths. The number of deaths decreased from 31 per annum to 24 per annum between the same time periods.

Overall, deaths from lung cancer were low in **Hobart** (**Map 5.14**). The highest ratio, an SDR of 152* recorded in Glenorchy, represented the largest number of deaths from cancer (34 deaths) at the SLA level. The only other elevated ratio, an SDR of 114 representing 24 deaths when 21 were expected, was recorded in the City of Hobart.

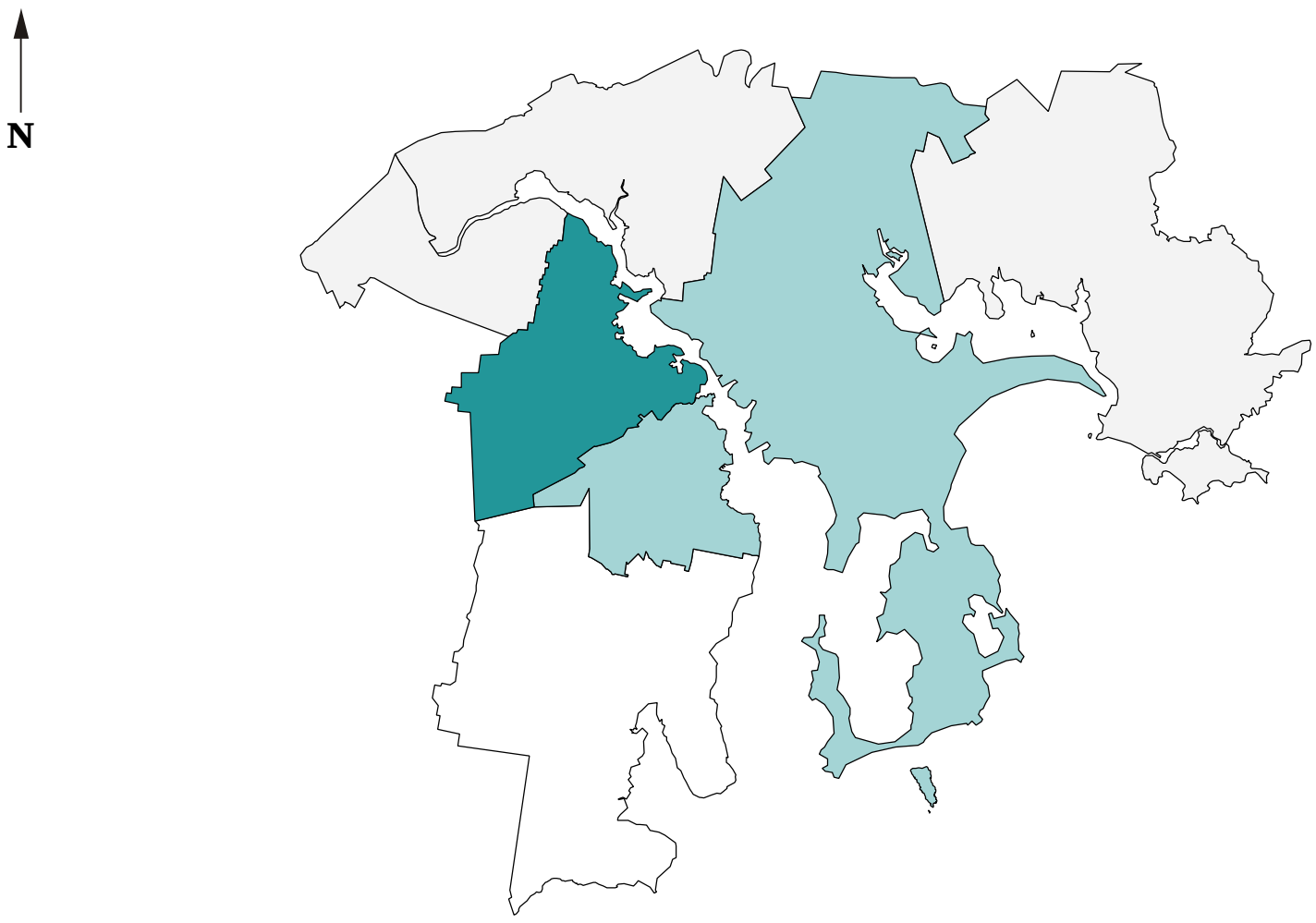
The lowest ratio, an SDR of 51 recorded in Kingborough [Part A], accounted for just six deaths and residents of Clarence (with an SDR of 93) had seven per cent fewer deaths from lung cancer than were expected from the Tasmanian rates (24 deaths).

The SLAs of Brighton, Sorell [Part A] and New Norfolk [Part A] have not been mapped as fewer than five deaths were expected from the State rates. Each of these SLAs had three deaths from cancer of the lung.

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 lung cancer, Hobart, 1992 to 1995

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




Standardised Death Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

**National Social Health Atlas Project, 1999**

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

## State/Territory comparison (Australia as the Standard)

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

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

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

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

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

In the non-metropolitan areas of Tasmania**,** 18.4 per cent of all cancer deaths were from cancer of the trachea, bronchus and lung (referred to here as lung cancer). This was a minor cause of death in the non-metropolitan areas, accounting for 4.7 per cent of deaths at all ages; 4.2 per cent of deaths of people aged 65 years and over; and 6.7 per cent of all deaths before age 65.

## Rest of State (Tasmania as the Standard)

With a standardised death ratio of 96, there were 4 per cent fewer deaths of 15 to 64 year olds from lung cancer in the non-metropolitan areas than were expected from the Tasmanian rates over the period from 1992 to 1995. The number of deaths from lung cancer in this age group has fallen, from 39 deaths per annum over the period from 1985 to 1989, to 33 deaths per annum over the period from 1992 to 1995.

As can be seen from **Map 5.15**, there were fewer than five expected deaths from lung cancer in the majority of SLAs and, consequently, these were not mapped. All but two SLAs recorded fewer than 20 deaths from these causes.

Of the nine areas mapped, four had elevated SDRs. The most highly elevated ratios were recorded in Huon Valley (with an SDR of 187* and 12 deaths when six were expected) and Burnie [Part A] (with an SDR of 160, 14 deaths when nine were expected). Elevated ratios were also recorded in Break O Day/Northern Midlands [Part B] (with an SDR of 114, seven deaths) and Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (107, with the largest number of 35 deaths from lung cancer at these ages).

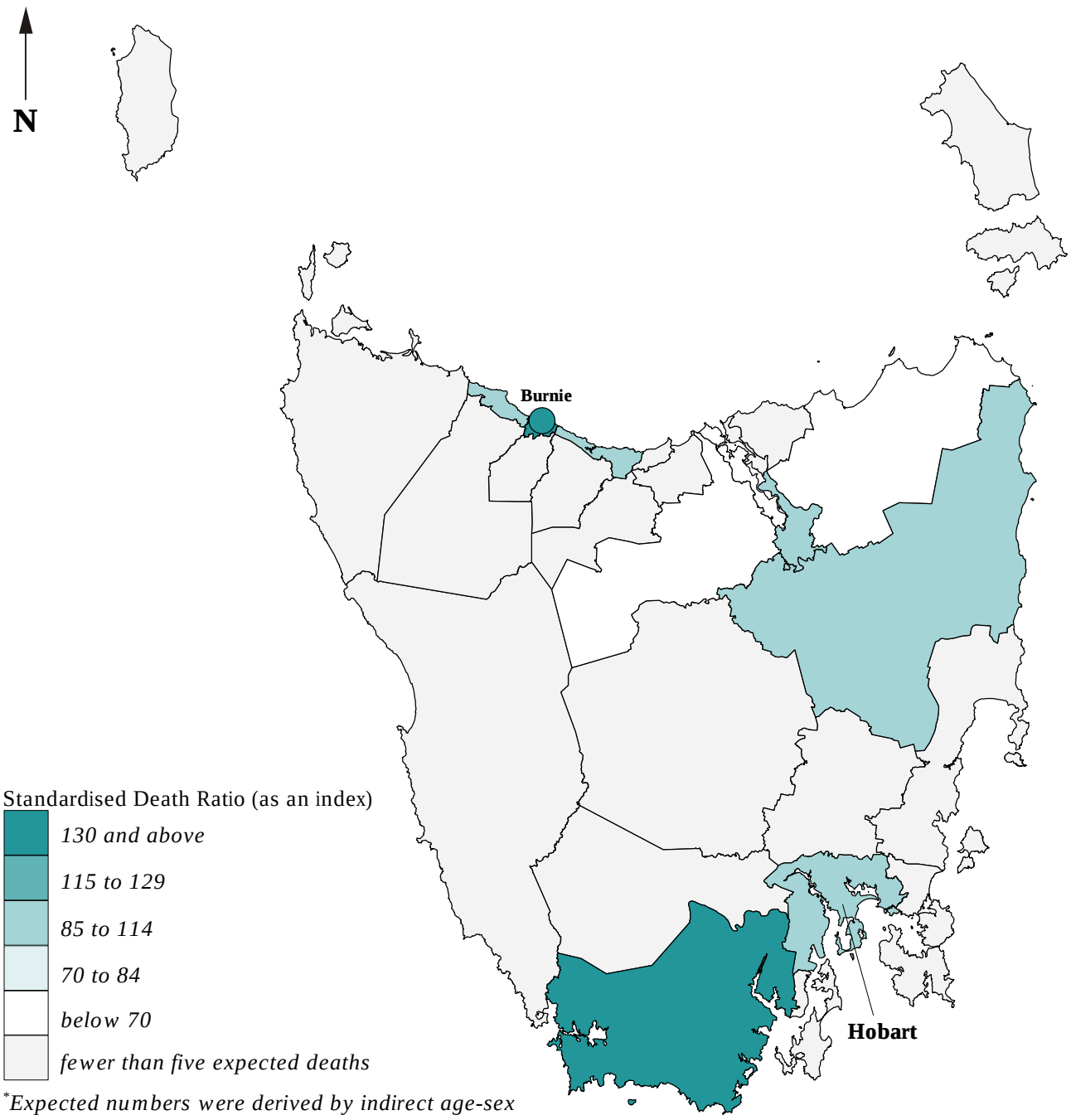
The second largest number of 21 deaths, recorded in Central Coast [Part A]/Devonport, was just below the expected number of deaths of 15 to 64 year olds from lung cancer (an SDR of 94). All other areas recorded five or fewer deaths from lung cancer.

The lowest SDRs were in Meander Valley [Part B]/West Tamar [Part B] (with an SDR of 68 and four deaths), Dorset/Launceston [Part C] (37 and two) and West Tamar (32* and three).

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

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

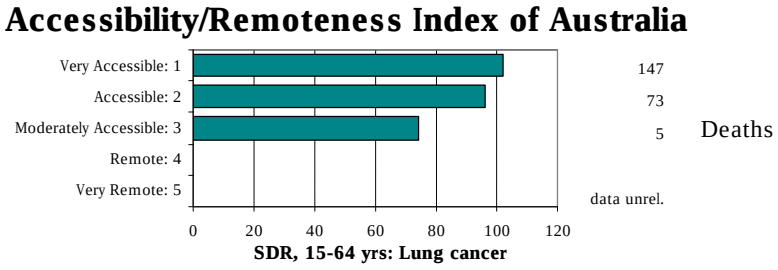
Standardised Death Ratio: number of deaths in each Statistical Local Area compared with the number expected*




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

***Source: Calculated on data from ABS 1996 Census*** ***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




Standardised Death Ratios SDRs for deaths from lung cancer are close to the level expected from the State rates in the areas in the Very Accessible and Accessible ARIA categories (with SDRs of 102 and 96, respectively) and lower in the Moderately Accessible areas. As there were fewer than five expected deaths from lung cancer in the Very Remote areas, the ratio has not been calculated.

***Source: Calculated on ARIA classification, DHAC***

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

## Capital city comparison (Australia as the Standard)

Over the four years from 1992 to 1995, Standardised Death Ratios (SDRs) for deaths from circulatory system diseases of people aged from 15 to 64 years ranged from 77** in **Canberra** to 118 in **Darwin**. With the exception of **Hobart** (with an SDR of 105), the other capital cities had fewer deaths than expected from the Australian rates. **Perth** and **Melbourne** also had relatively low ratios, of 82** and 85**, respectively. There was a higher differential (from the Australian rates) in the SDR recorded for **Darwin** in the later period shown in **Table 5.21**, although neither of the 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 5.21: 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 **Hobart,** they accounted for 42.5 per cent of deaths of people of all ages (2,548 deaths) and 23.6 per cent of deaths (289 deaths) of people aged from 15 to 64 years over the period from 1992 to 1995. Overall, roughly equal numbers of males and females die from these causes, although it is an important cause of death for males at a much earlier age than for females. For example, the ratio of male to female deaths from this cause was approximately 2:1 between the ages of 45 and 64 years, and it is only above age 80 years that it changes to 1:2 (male to female deaths).

The main causes of death within this group were heart disease (67.1 per cent, in particular ischaemic heart disease) and cerebrovascular disease (stroke, 23.4 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.

## Hobart (Tasmania as the Standard)

Over the period from 1992 to 1995, there were 11 per cent fewer deaths of 15 to 64 year olds from circulatory system diseases in **Hobart** than were expected from Tasmanian rates (an SDR of 89*). This was considerably lower than that recorded for the non-metropolitan areas of Tasmania, an SDR of 108. Over the period from 1992 to 1995, there were 72 deaths per annum in **Hobart**, an improvement on the earlier period, from 1985 to 1989, when there were 103 deaths per annum.

Three SLAs had elevated ratios (**Map 5.16**) with the highest in New Norfolk [Part A] (with an SDR of 169* and 19 deaths): other elevated ratios were recorded in Brighton (an SDR of 111 and 15 deaths) and in Glenorchy (108).

There were just two per cent fewer deaths of 15 to 64 year olds from circulatory system diseases recorded in the City of Hobart than were expected from the State rates (an SDR of 98).

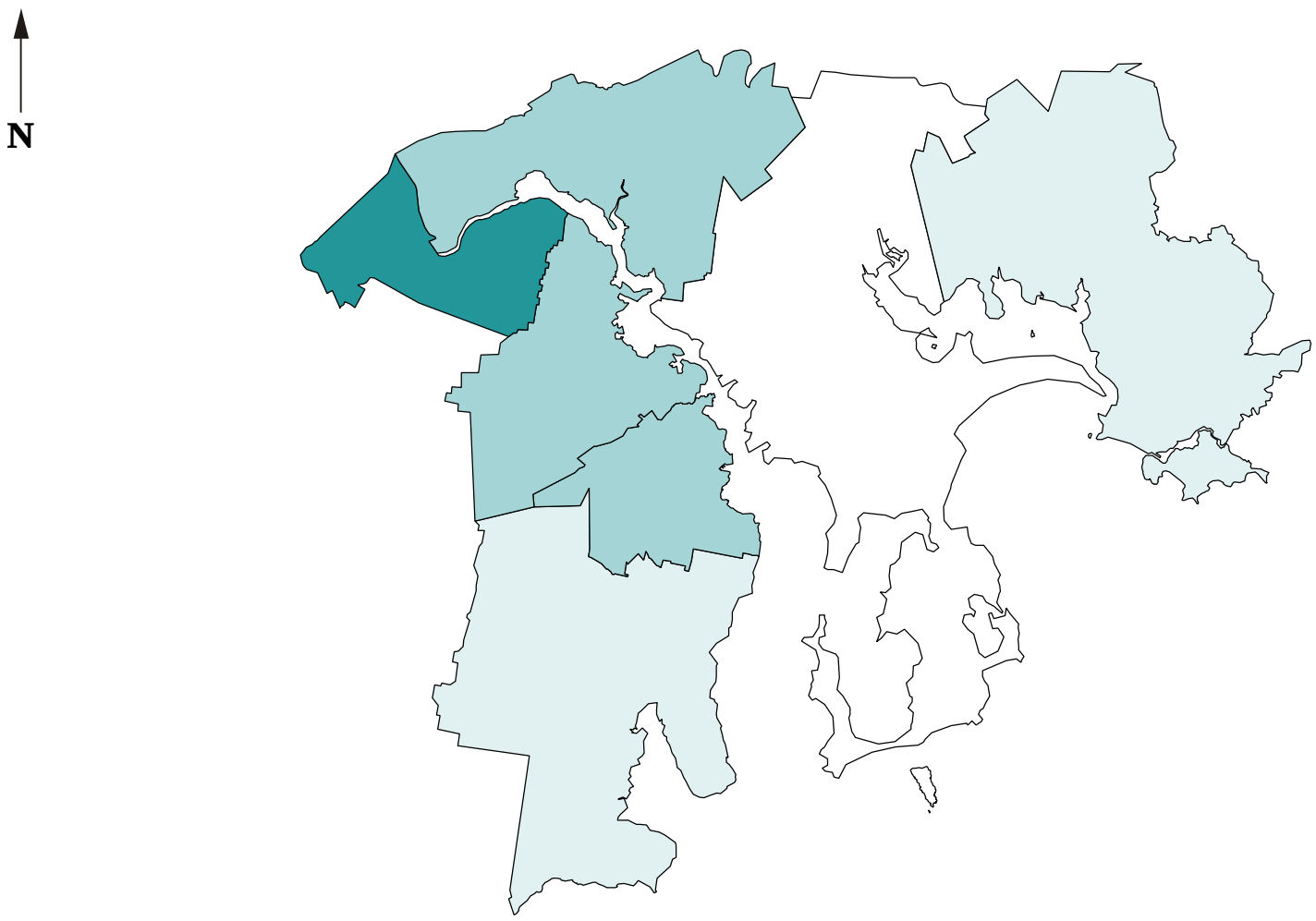
The lowest ratio, an SDR of 59** recorded in Clarence, indicated that there were 41 per cent fewer deaths of residents of this SLA from circulatory system diseases than were expected from the Tasmanian rates. Lower than expected ratios were also recorded in Kingborough [Part A] (74) and Sorell [Part A] (77).

The largest numbers of deaths of 15 to 64 year olds from circulatory system diseases were in Glenorchy (85 deaths), the City of Hobart (75 deaths) and Clarence (54).

There were the correlations of meaningful significance with the variables for semi-skilled and unskilled workers (0.66) and low income families (0.55), with weaker correlations with early school leavers (0.44) and unemployed people (0.33). There were weak inverse correlations with indicators of socioeconomic advantage. These results, together with the inverse correlation of substantial significance with the IRSD (-0.48), suggest the existence of an association at the SLA level between high premature death rates from circulatory system diseases and socioeconomic disadvantage.

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

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




Standardised Death Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

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

## State/Territory comparison (Australia as the Standard)

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

There was little difference in the SDRs for the two periods shown in **Table 5.22** for most States and Territories, although the higher SDRs in the later period for the Northern Territory, Tasmania and Western Australia suggest a worsening (relative to the Australian rates) in the death rates from these causes.

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

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

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

Over the four year period from 1992 to 1995, 44.0 per cent of deaths of people of all ages (3,976 deaths) in the non-metropolitan areas of Tasmania were attributable to circulatory system diseases. These causes of death accounted for 27.1 per cent of deaths of people aged from 15 to 64 years and 49.6 per cent of deaths of people aged 65 years and over.

Deaths from circulatory system diseases were a more important cause of death for males at a much earlier age than for females. Between the ages of 45 and 64 years, there were 331 male deaths and only 131 female deaths from these causes (over the years from 1992 to 1995). This relationship turned around at the age of 75 years and over, when the number of female deaths (1,498) exceeded the number of male deaths (1,130).

## Rest of State (Tasmania as the Standard)

Over the period from 1992 to 1995, there were 132 deaths per annum in the non-metropolitan areas of Tasmania, down from 176 deaths per annum over the years from 1985 to 1989.

This was eight per cent more deaths of 15 to 64 year old non-metropolitan residents from circulatory system diseases than were expected from the Tasmanian rates. Males accounted for almost three quarters (71 per cent, 375 deaths) of these deaths.

Generally, there were small numbers of deaths for this variable, with almost two thirds (61.9 per cent) of non-metropolitan SLAs mapped recording fewer than 20 deaths from circulatory system diseases (**Map 5.17**). Five areas were mapped in the highest range. George Town [Part A] (with an SDR of 237**) had over two and a third times more deaths than expected from the Tasmanian rates, and there were 66 per cent more deaths in Burnie [Part A] than expected (an SDR of 166**). Other areas with highly elevated ratios were West Coast (with an SDR of 165*), Waratah/Wynyard [Part A] (159**) and Central Highlands (148, although with just eight deaths when five were expected).

A further four areas had elevated ratios. Break O Day/Northern Midlands [Part B] (with an SDR of 128) was the only area mapped in the second highest range. Elevated ratios in the range from 85 to 114 were recorded in Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (with an SDR of 113), Glamorgan/Spring Bay (111, but just nine deaths) and New Norfolk [Part B] (108, eight deaths). Central Coast [Part A]/Devonport (with an SDR of 91) was also in this range, but recorded nine per cent fewer deaths than were expected from the Tasmanian rates.

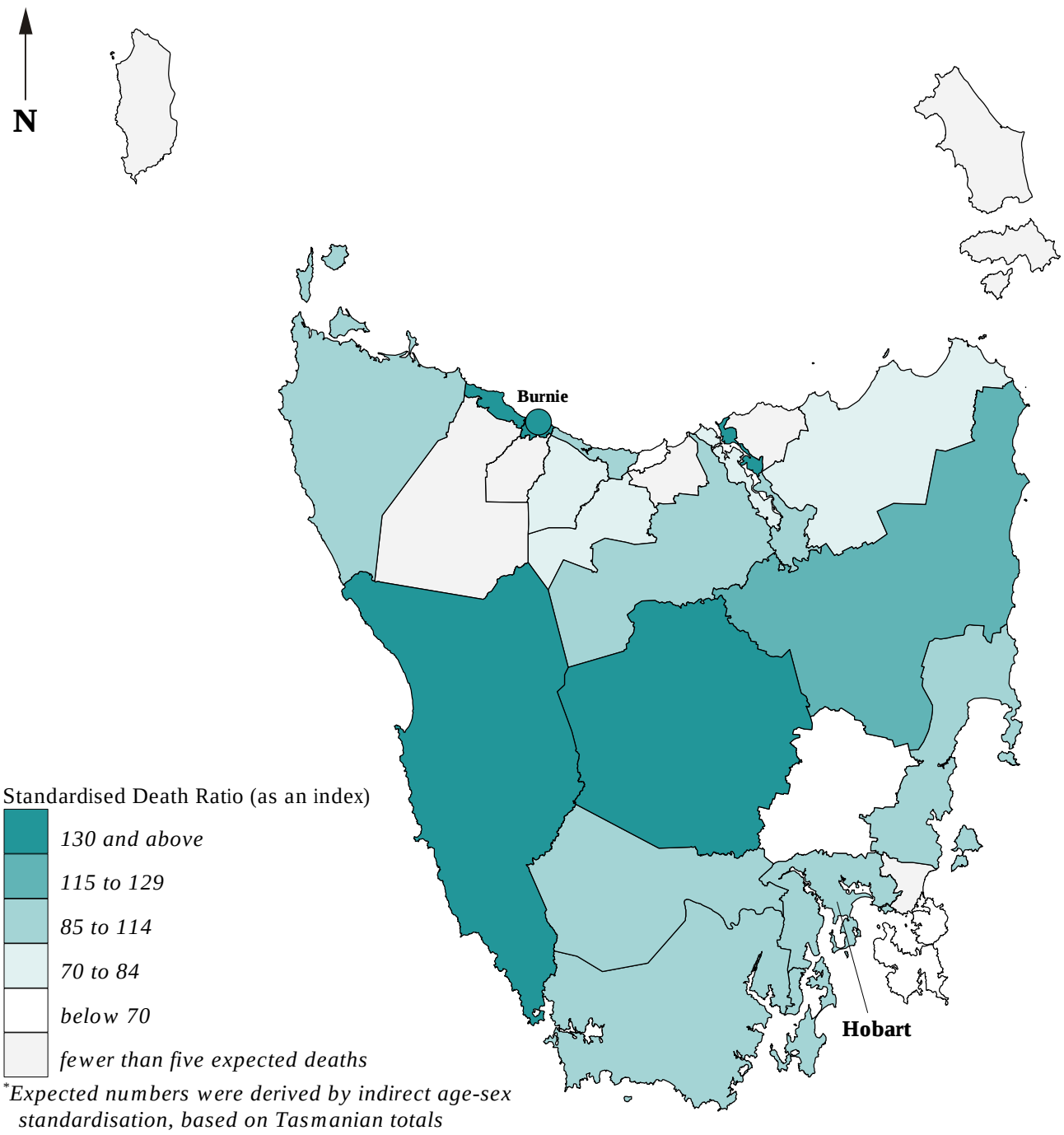
The lowest ratios were recorded in Tasman (an SDR of 34, two deaths when six were expected), Latrobe [Part A] (53, six deaths) and Southern Midlands (58, six deaths).

Over the period from 1992 to 1995, by far the largest number of deaths for this variable was recorded in the combined area of Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (133 deaths). There were 72 deaths of residents of Central Coast [Part A]/Devonport and 52 deaths of residents of Burnie [Part A].

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, Tasmania, 1992 to 1995

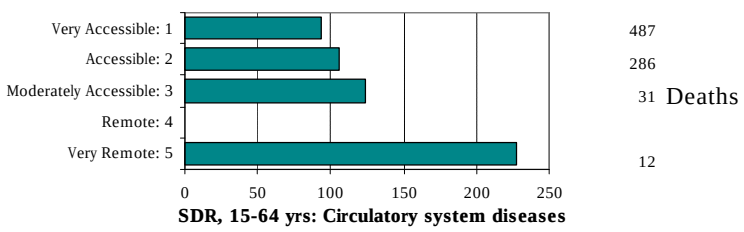
Standardised Death Ratio: number of deaths in each Statistical Local Area compared with the number expected*




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

***Source: Calculated on data from ABS 1996 Census*** ***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




Standardised Death Ratios SDRs for deaths of people aged from 15 to 64 years from circulatory system diseases increase across the ARIA categories, ranging from a low of 94 in the Very Accessible category to SDRs of 106 in the Accessible category and 124 in the Moderately Accessible category. The highly elevated ratio of 228 in the Very Remote areas indicates that there are more than twice the number of premature deaths from these diseases than expected from the State rates, a total of 12 deaths over four years.

***Source: Calculated on ARIA classification, DHAC***

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

## Capital city comparison (Australia as the Standard)

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

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

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

[1]Includes Queanbeyan (C)
**Source: See *Data sources*, Appendix 1.3**
**Statistical significance: * significance at 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 557 deaths from diseases of the respiratory system over the period from 1992 to 1995, 9.3 per cent of all deaths of residents of **Hobart**. Two thirds (66.7 per cent) of deaths from diseases of the respiratory system were from chronic obstructive pulmonary disease (largely deaths from bronchitis, emphysema or asthma), while 22.1 per cent were deaths from pneumonia and influenza. People aged from 15 to 64 years accounted for 10.8 per cent of these deaths. 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 represented 17 per cent of the excess deaths in Indigenous men and 12 per cent of the excess deaths in Indigenous women in these States (ABS/AIHW 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).

## Hobart[7] (Tasmania as the Standard)

**Hobart** had 9 per cent fewer deaths of 15 to 64 year olds from respiratory system diseases than were expected from the Tasmanian rates (an SDR of 91). There has been a decrease in the number of deaths per annum, from 17 deaths per annum over the period from 1985 to 1989 to 15 deaths per annum over the years from 1992 to 1995. Over the latter period, more than half (56.7 per cent) of these deaths were of males.

Generally, there were small numbers of deaths from respiratory system diseases across **Hobart** (**Map 5.18**). The highest ratio and number of deaths (an SDR of 130 and 21 deaths) were recorded in Glenorchy. The next highest ratio and number were recorded in Clarence (an SDR of 86 and 16 deaths).

Low ratios were recorded in the City of Hobart (with an SDR of 46*, seven deaths when 15 were expected) and in Kingborough [Part A] (48, four deaths when eight were expected).

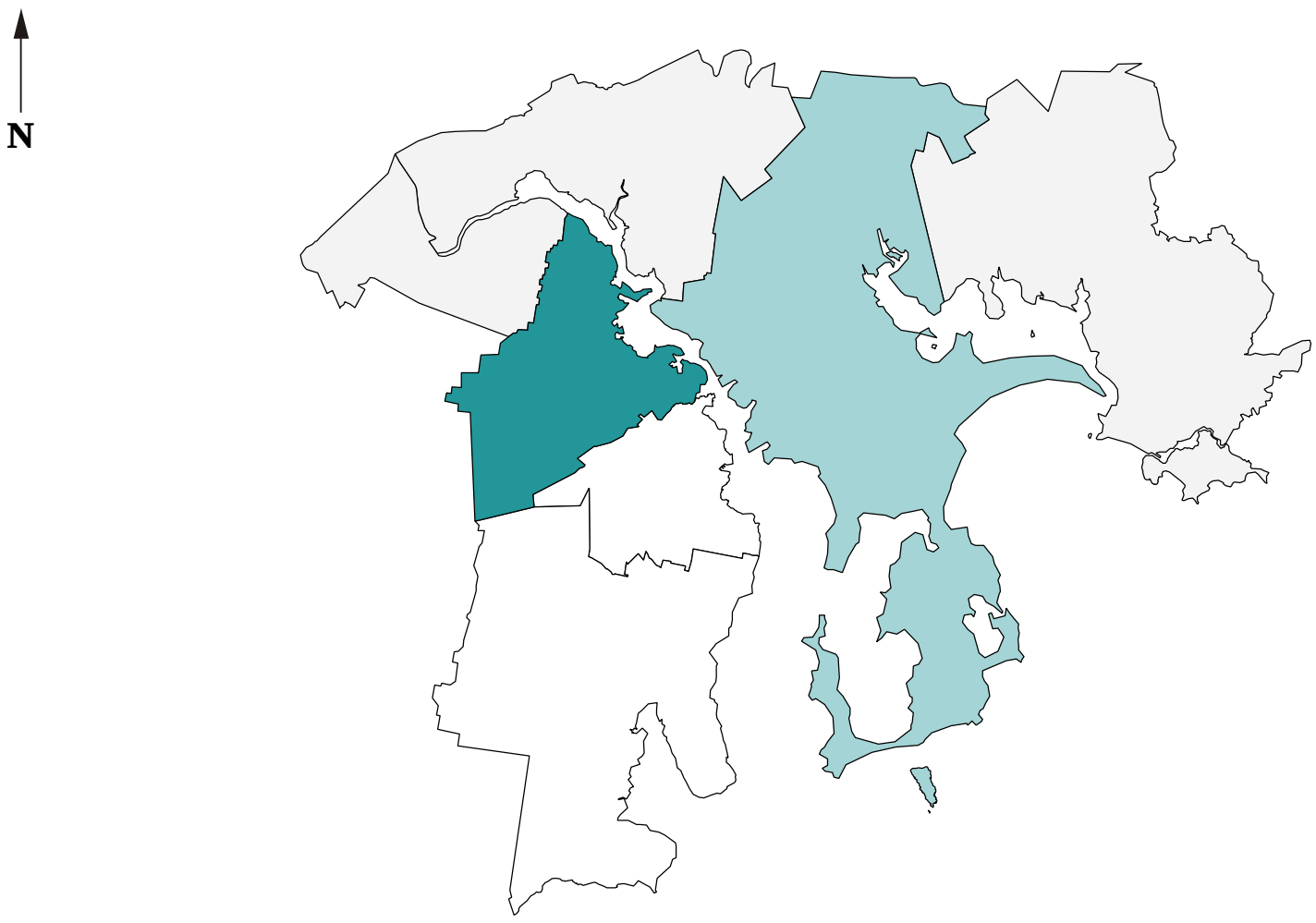
Standardised Death Ratios were not calculated for Brighton (six deaths), Sorell [Part A] (two deaths) or New Norfolk (four deaths), as they were considered to have too few cases to produce reliable results (fewer than three deaths expected in each SLA).

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

[7]As there are relatively few areas with sufficient numbers of cases for this variable in non-metropolitan Tasmania, the data has not been mapped. A summary of the main features of the variable is on page 170.

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

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




Standardised Death Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***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:

- suicide (34.1 per cent);
- deaths from motor vehicle traffic accidents (25.9 per cent);
- accidental falls (12.3 per cent, mainly of elderly people); and
- accidental drownings (5.9 per cent).

Although representing only 6.1 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 20.0 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:

- suicide (43.1 per cent);
- deaths from motor vehicle traffic accidents (26.4 per cent);
- accidental drownings (6.2 per cent); and
- accidental poisonings (5.8 per cent).

Over the period from 1992 to 1995, there were 185 deaths in Tasmania from the combined external causes of accidents, poisonings and violence among people aged from 15 to 24 years, representing 75.7 per cent of all deaths in this age group. Motor vehicle traffic accidents and suicide accounted for the majority of these deaths (75.7 per cent in total: 42.7 per cent form motor vehicle traffic accidents and 33.0 per cent from suicides).

Males predominated in these causes of death, accounting for 78.4 per cent of deaths from these causes in the 15 to 64 year age group (ranging from 80.2 per cent of suicides to 74.9 per cent of motor vehicle traffic accidents) and 78.2 per cent of deaths among 15 to 24 year olds (see **Table 5.24**).

**Table 5.24: Deaths from accidents, poisonings & violence, by cause, Tasmania, 1992 to 1995**

| Age | Motor vehicle traffic accidents | | Suicides | | All accidents, poisonings & violence[1] | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| **15–24** | | | | | | |
| Males | 62 | 78.5 | 49 | 80.3 | 145 | 78.4 |
| Females | 17 | 21.5 | 12 | 19.7 | 40 | 21.6 |
| **Persons** | **79** | **100.0** | **61** | **100.0** | **185** | **100.0** |
| **15–64** | | | | | | |
| Males | 125 | 74.9 | 219 | 80.2 | 495 | 78.2 |
| Females | 42 | 25.1 | 54 | 19.8 | 138 | 21.8 |
| **Persons** | **167** | **100.0** | **273** | **100.0** | **633** | **100.0** |

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

As can be seen from **Table 5.25**, death rates from the combined causes of accidents, poisonings and violence were substantially higher, across all age groups, in the non-metropolitan areas of Tasmania than in **Hobart**. The biggest difference was recorded among males aged from 15 to 24 years, where the rates ranged from 83.5 per 100,000 population in the non-metropolitan areas to 75.8 per 100,000 population in **Hobart**.

**Table 5.25: Deaths from accidents, poisonings and violence, by area of residence, Tasmania, 1992 to 1995**

| Age (years) and sex | Hobart | | Rest of New Tasmania | | Total | |
|---|---|---|---|---|---|---|
| | No. | Rate | No. | Rate | No. | Rate |
| **15 to 24** | | | | | | |
| Males | 62 | 98.0 | 83 | 104.4 | 145 | 101.6 |
| Females | 16 | 26.1 | 24 | 32.4 | 40 | 29.5 |
| **Total** | **78** | **62.6** | **107** | **69.7** | **185** | **66.5** |
| **15 to 64** | | | | | | |
| Males | 204 | 75.8 | 291 | 83.5 | 495 | 80.2 |
| Females | 62 | 22.9 | 76 | 22.3 | 138 | 22.6 |
| **Total** | **266** | **49.3** | **367** | **53.3** | **633** | **51.5** |
| **All ages** | | | | | | |
| Males | 261 | 64.0 | 383 | 72.3 | 644 | 68.7 |
| Females | 127 | 11.8 | 148 | 28.1 | 275 | 28.9 |
| **Total** | **388** | **46.8** | **531** | **50.1** | **919** | **48.6** |

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

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

The NSW Health Department (1997) found an inverse relationship (-0.23) between high socioeconomic status and death by accidents, poisoning and violence in 15 to 64 year olds over the period from 1990 to 94.

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

**Years of potential life lost from accidents, poisonings and violence**

Estimates have been made of the number of years of potential life lost (YPLL: see discussion on page 164 for additional details of this concept) from deaths from the external causes of accidents, poisonings and violence (Ginpil et al 1992). For people of 'working life' (ages 18 to 65 years) it is estimated that 180,234 years of (potential) life have been lost due to premature deaths from these external causes. This is 34.2 per cent of the total number of YPLL from all causes of death, of which 15.0 per cent were from road crashes, 8.9 per cent from suicides, 8.4 per cent from other accidents, and 1.9 per cent from violence. For males, 32.5 per cent of YPLL during their working life were from these external causes and, for females, 16.0 per cent.

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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 5.26**, 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 5.26: 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 **Hobart,** there were 355 deaths from the combined causes of accidents, poisonings and violence (38.1 per cent of all deaths from this cause in Tasmania). Some 67.9 per cent of these (241 deaths) were deaths of 15 to 64 year olds, and 76.8 per cent were males. There were slightly more deaths of 15 to 64 year olds resident in **Hobart** from these external causes over the period from 1992 to 1995 than over the years from 1985 to 1989, increasing from an average of 60.0 deaths per year to 60.3 per year.

## Hobart (Tasmania as the Standard)

Deaths of residents of **Hobart** from this group of external causes were seven per cent lower than expected from the Tasmanian rates (an SDR of 93).

The highest ratios were recorded in New Norfolk [Part A] (with an SDR of 151 and 12 deaths from accidents, poisonings and violence when eight were expected from the Tasmanian rates); and in Sorell [Part A] (126 and 13 deaths) (**Map 5.19**). Residents of the City of Hobart had three per cent more deaths than expected, an SDR of 103.

Of the SLAs with ratios below the level expected from the State rates, only Glenorchy (with an SDR of 91) and Clarence (90) had more than 20 deaths from accidents, poisonings and violence. Lower than expected numbers of deaths from these external causes were also recorded in Brighton (with an SDR of 92, and 15 deaths) and Kingborough [Part A] (53**, 17 deaths).

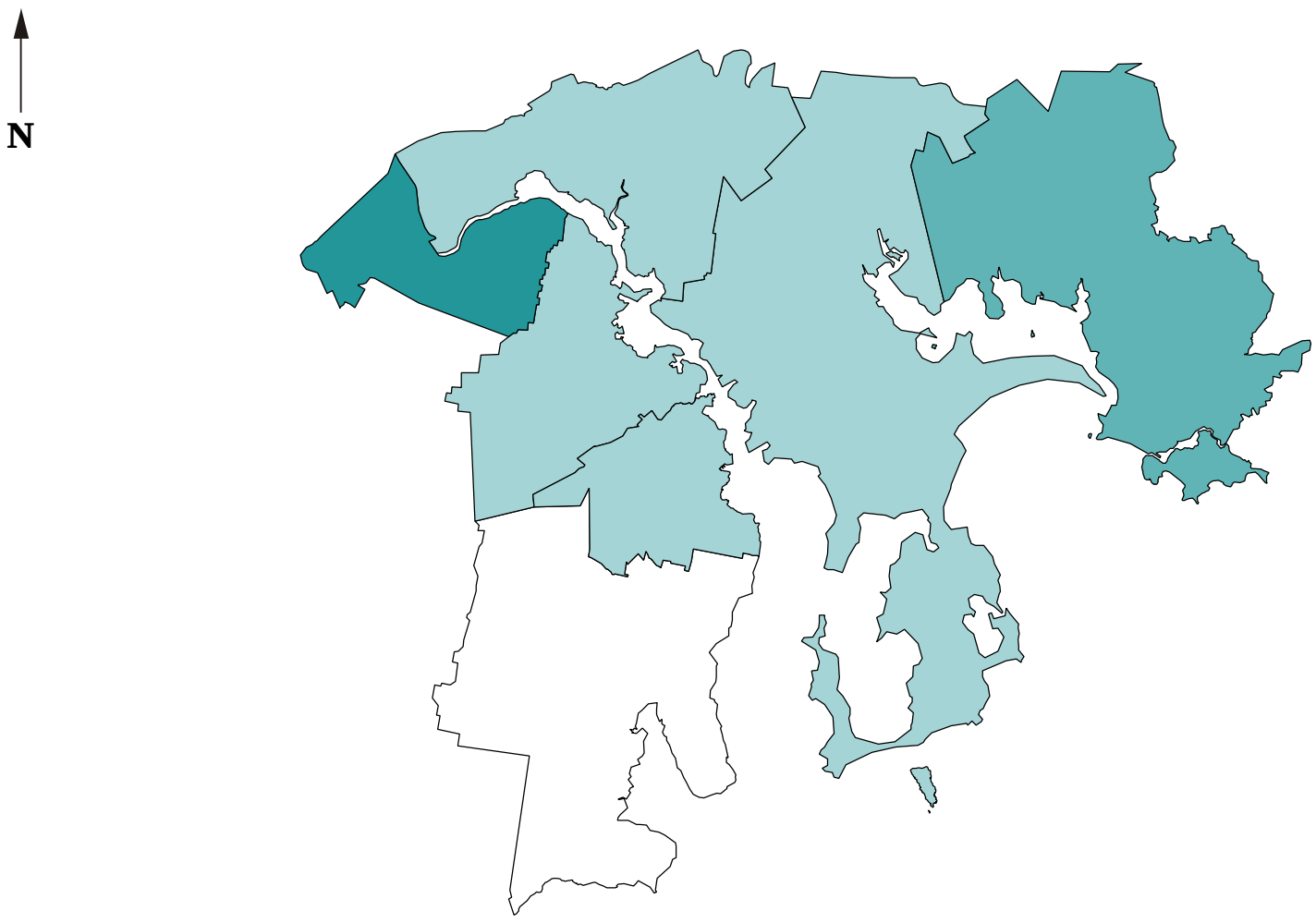
The largest numbers of deaths from these external causes were residents of the SLAs of Hobart (71 deaths), Clarence (59 deaths) and Glenorchy (54 deaths).

The correlation analysis showed there to be a weak association between high death rates from accidents, poisonings and violence and indicators of socioeconomic disadvantage, with the strongest correlation being with the variables for semi-skilled and unskilled workers (0.49), low income families (0.45) and early school leavers (0.41). There was an inverse correlation of meaningful significance with the variable for immigrants resident in Australia for five years or more (-0.55), and weaker inverse correlations with high income families (-0.42) and managers and administrators, and professionals (-0.40). The weak inverse correlation with the IRSD (-0.33) also suggests the existence of an association at the SLA level between high premature death rates from accidents, poisonings and violence and socioeconomic disadvantage.

***Details of deaths of people aged from 15 to 24 years from the external causes of accidents, poisonings and violence are discussed on page 171.***

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

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




Standardised Death Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***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 5.27** 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 5.27: 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 564 deaths in the non-metropolitan areas of Tasmania attributable to accidents, poisonings and violence, representing 6.2 per cent of deaths for all ages. Unlike deaths from all causes, where the highest proportion is experienced among people aged 65 years and over, deaths from accidents, poisonings and violence are a major cause of premature death, of people between the ages of 15 and 64 years. Premature deaths from these external causes accounted for 69.5 per cent of 564 deaths recorded in the non-metropolitan areas of Tasmania; in comparison only 25.7 per cent of these deaths occurred at the age of 65 years and over.

## Rest of State (Tasmania as the Standard)

Deaths of 15 to 64 year old non-metropolitan residents from the combined causes of accidents, poisonings and violence were five per cent higher than expected from the Tasmanian totals (an SDR of 105). The number of deaths from these external causes in non-metropolitan Tasmania decreased from 105 deaths per annum over the period from 1985 to 1989 to 98 deaths per annum over the period from 1992 to 1995. The greater proportion (79.1 per cent) of these deaths was of males.

Data for 11 SLAs have not been mapped for this variable, as there were considered to be too few cases (fewer than five expected deaths) from which to calculate reliable rates.

The most highly elevated ratios for this variable were found in two groups, in the north-eastern and south-western corners of Tasmania (**Map 5 20**). Ratios in the top range were recorded in Glamorgan/Spring Bay (with an SDR of 179 and nine deaths when five were expected), Break O Day/Northern Midlands [Part B] (168*) and Dorset/Launceston [Part C] (163*) in the north east. New Norfolk had the most highly elevated ratio (an SDR of 264**), although this represented a relatively low number of 16 deaths, when six were expected. West Coast (153) and Huon Valley (131), also in the south west of the State, recorded 53 per cent and 31 per cent more deaths from these external causes than expected from Tasmanian rates, respectively. A further five areas had SDRs elevated by between four per cent and 18 per cent.

Six areas had fewer deaths than expected from the Tasmanian rates. The lowest of these was Southern Midlands (with an SDR of 56, and four deaths when seven were expected). Other areas in this group were Kentish (70, five deaths when seven were expected), Waratah/Wynyard [Part A] (82, 12 deaths when 15 were expected), Burnie [Part A] (85), Central Coast [Part A]/Devonport (92) and Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (92).

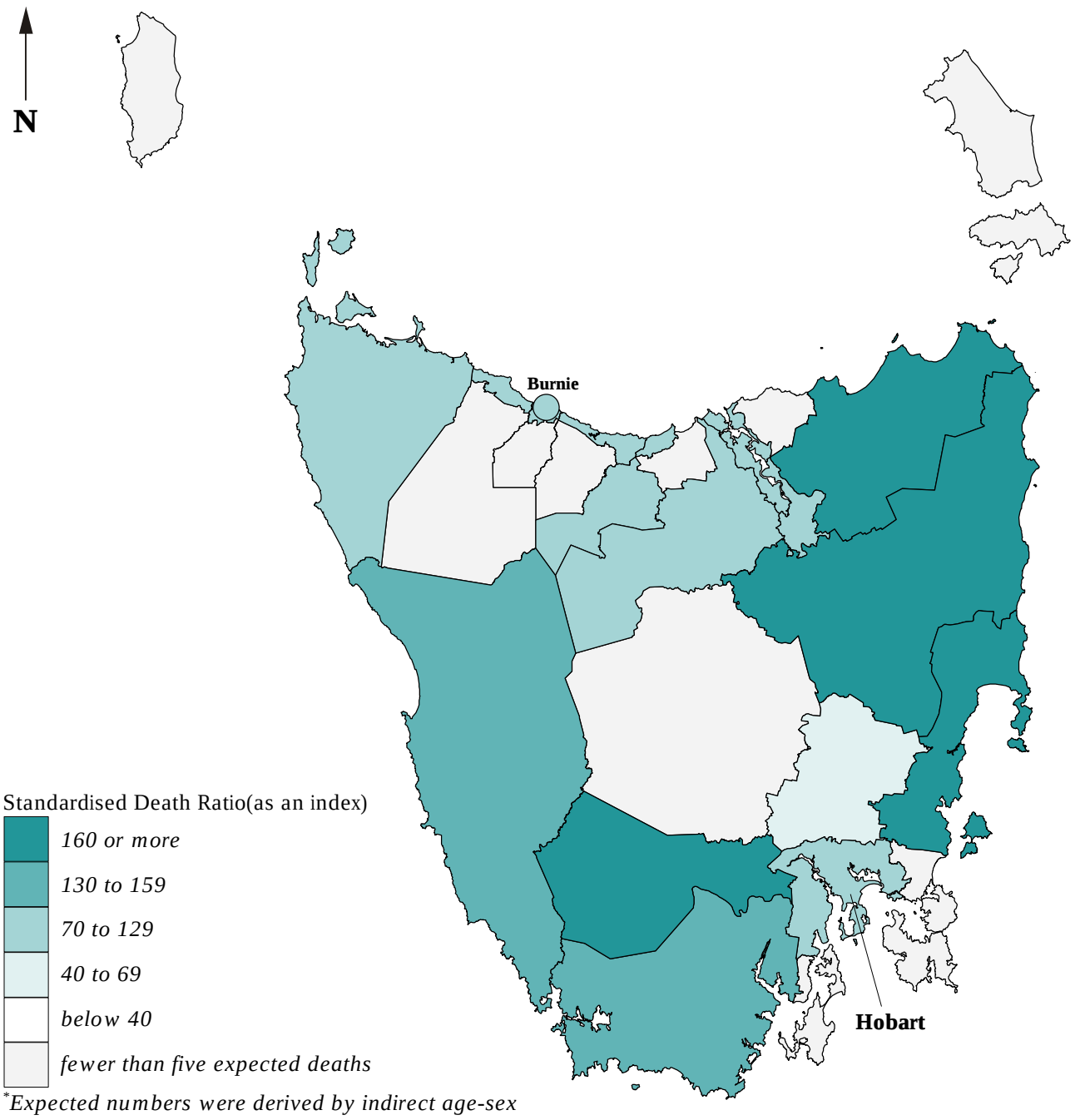
The largest numbers of deaths from accidents, poisonings and violence were of residents in the combined area of Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (94 deaths), Central Coast [Part A]/Devonport (51 deaths) and West Tamar [Part A] (25 deaths).

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

***Details of deaths of people aged from 15 to 24 years from the external causes of accidents, poisonings and violence are discussed on page 172.***

## Map 5.20
## Deaths of people aged 15 to 64 years from accidents, poisonings and violence, Tasmania, 1992 to 1995

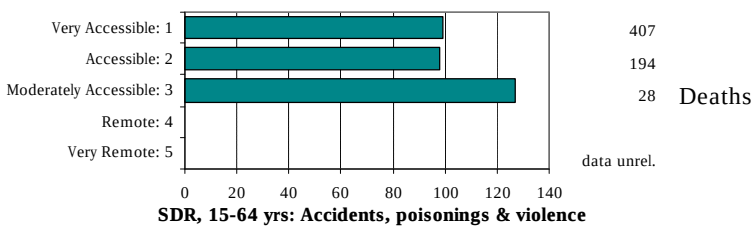
Standardised Death Ratio: number of deaths in each Statistical Local Area compared with the number expected*




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

***Source: Calculated on data from ABS 1996 Census*** ***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




Standardised Death Ratios (SDRs) for deaths of people aged from 15 to 64 years from accidents, poisonings and violence are close to the level expected from the State rates in both the Very Accessible (an SDR of 99) and Accessible (98) areas. There were 27 per cent more premature deaths from these external causes than expected in the Moderately Accessible areas (an SDR of 127). As there were fewer than five expected deaths in the Very Remote areas, the ratio has not been calculated.

***Source: Calculated on ARIA classification, DHAC***

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

## Capital city comparison (Australia as the Standard)

One measure of the impact of premature death is the number of potential years of life lost as a result of death before the age of 65 years. This measure is calculated as the sum of all the years of life that could potentially have been lived had people not died before the age of 65 years. The total number of years of potential life lost (YPLL) is calculated by assuming that people who died at 17 years of age would have otherwise lived to the age of 65 years (ie. 65 minus 17 years), or 48 years. In this analysis, deaths included were of people aged from 15 to 64 years. The results are expressed as rates per 100,000 population, and age standardised to the Australian population.

People in most capital cities had fewer years of potential life lost (YPLL) than were expected from the Australian rates, with the lowest standardised ratios (SRs) in **Canberra** (81**), **Perth** (89**) and **Melbourne** (90**) (**Table 5.28**). **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**

## Hobart (Tasmania as the Standard)

Over the years from 1992 to 1995, there were an estimated 33,288 years of potential life lost as a result of deaths of residents of **Hobart** aged from 15 to 64 years, five per cent fewer than were expected from the State rates (an SR of 95**). Males accounted for just under two thirds (60.1 per cent) of all YPLL.

The highest standardised ratio, an SR of 132**, was recorded in the SLA of New Norfolk [Part A], indicating that the number of YPLL was 32 per cent more than expected from the Tasmanian rates (**Map 5.21**). Less elevated ratios were recorded in Glenorchy (112**), Sorell [Part A] (105) and Brighton (101).

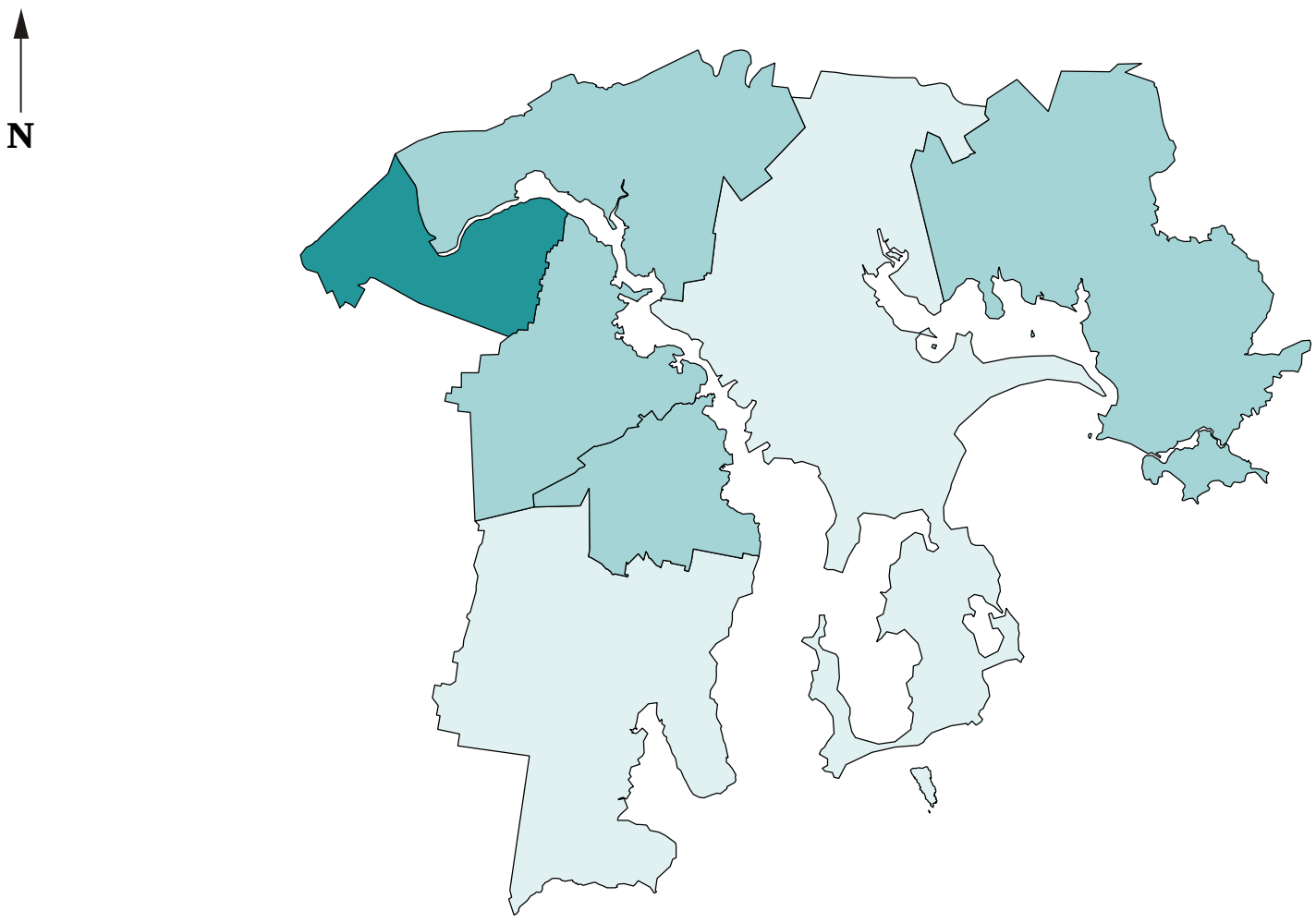
Residents of Clarence (with an SR of 83**) and the City of Hobart (96**) had 17 per cent and four per cent fewer YPLL than were expected from the Tasmanian rates. The lowest ratio, an SR of 73**, was recorded in Kingborough [Part A].

The largest numbers of years of potential life lost were recorded in Glenorchy (9,117 years), the City of Hobart (8,429), Clarence (7,667) and Kingborough [Part A] (3,233). The remaining SLAs recorded between 1,000 and 2,000 YPLL.

The correlation analysis showed there to be a positive association between high rates of YPLL and indicators of socioeconomic disadvantage. The strongest of these were with the variables for semiskilled and unskilled workers (0.71), low income families (0.66) and early school leavers (0.58). There were inverse correlations of meaningful significance with the variables for managers and administrators, and professionals (-0.61) and high income families (-0.59). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.55), indicate the existence of an association at the SLA level between high premature death rates and socioeconomic disadvantage.

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

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




Standardised Ratio (as an index)

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

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

***Source: Calculated on data from ABS 1996 Census***

***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 Death Ratios***

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

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

## Rest of State (Tasmania as the Standard)

There were an estimated 52,637 years of potential life lost as a result of deaths of residents of the non-metropolitan areas of Tasmania aged from 15 to 64 years, three per cent more deaths than were expected from the State rates (an SR of 103**). The elevated ratio is in contrast to the lower than expected ratio calculated for residents of **Hobart**. Males accounted for nearly two thirds (62.9 per cent) of these YPLL, some 33,103 years.

Five SLAs had highly elevated ratios (**Map 5.22**). The highest ratio, an SR of 165** in Flinders, accounted for a relatively small number of 299 YPLL. Other high ratios were recorded in New Norfolk [Part B] (154**), Sorell [Part B] (152**, with just 138 YPLL), West Coast (152**) and Break O Day/Northern Midlands [Part B] (139**).

Almost two thirds (60.7 per cent) of non-metropolitan SLAs were mapped in the middle range, with ratios within 30 per cent of the expected rate. Ratios elevated by more than ten per cent were recorded in George Town [Part A] (127**), Burnie [Part A] (123**), Waratah/Wynyard [Part A] (123**), Glamorgan/Spring Bay (117**), Central Highlands (113**) and Dorset /Launceston [Part C] (112**). Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (102*), Circular Head (98) and Central Coast [Part A]/Devonport (97**) all had SRs close to the level expected from the Tasmanian rates.

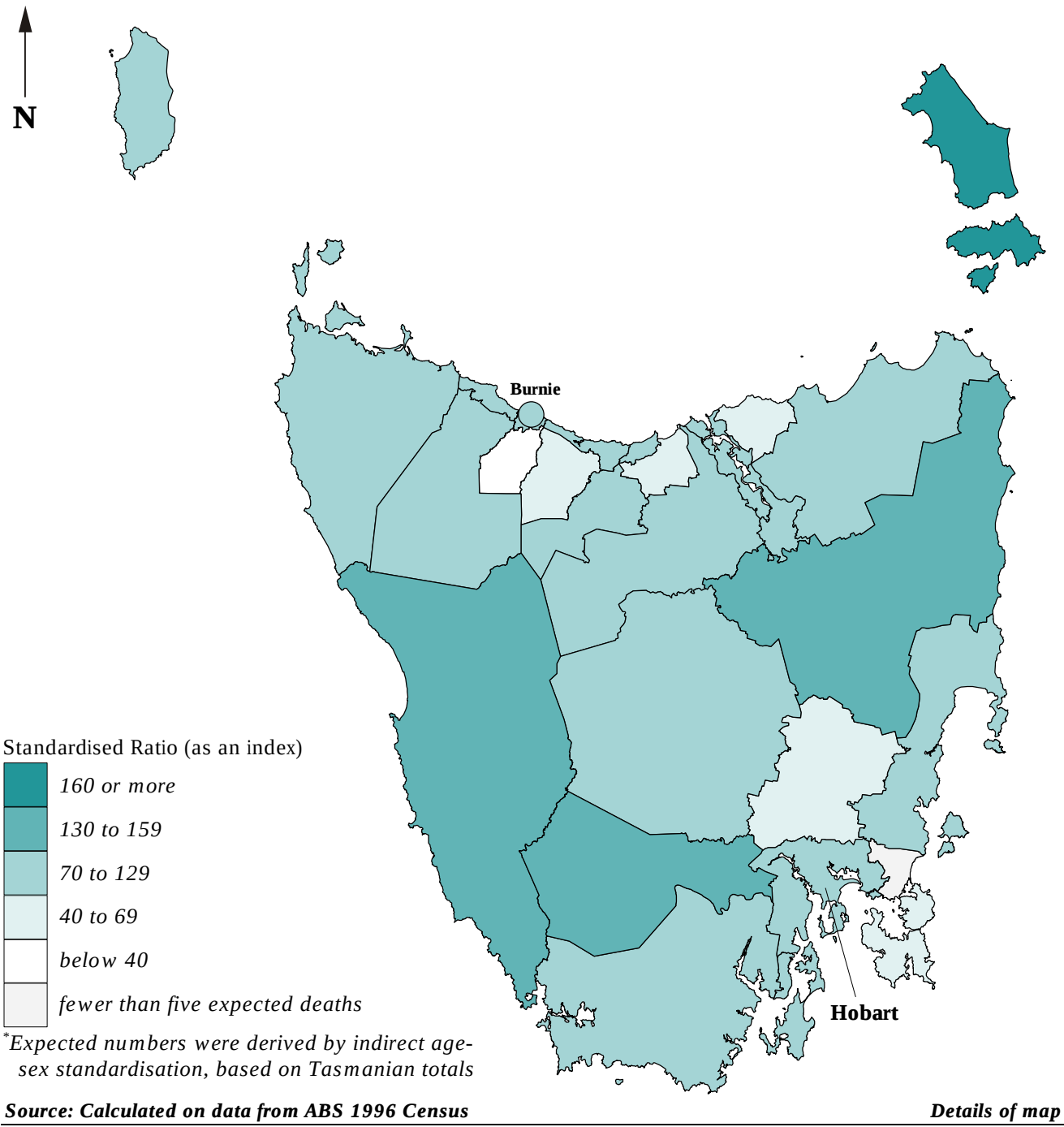
The lowest SR, 39** recorded in Burnie [Part B], represented 165 YPLL when 419 were expected. Of the five SLAs with ratios in the range from 40 to 69, three were located in the north of Tasmania: Latrobe [Part B] (with an SR of 50**), Central Coast [Part B] (54**) and George Town [Part B] (69**). In the south east, Tasman and Southern Midlands recorded ratios of 45** and 60** respectively.

The highest numbers of years of potential life lost were recorded in Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (13,503 years), Central Coast [Part A]/Devonport (7,656), Burnie [Part A] (4,102) and Break O Day/Northern Midlands [Part B] (2,825).

There were correlations of meaningful significance with the variables for private dwellings without a motor vehicle (0.57) and single parent families (0.51), and weaker correlations with housing authority rental dwellings (0.32), low income families (0.30) and the Indigenous population (0.28). These results, together with the inverse correlation with the IRSD (-0.43), suggest the existence of an association at the SLA level between high premature death rates and socioeconomic disadvantage.

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

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

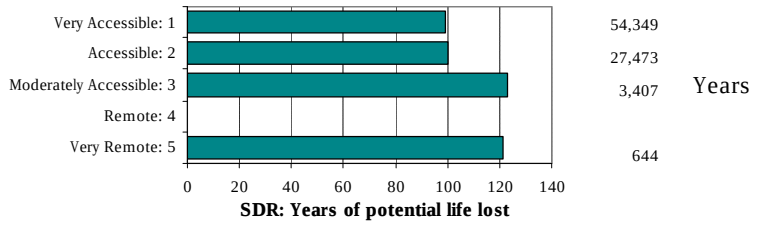



*Expected numbers were derived by indirect age-sex standardisation, based on Tasmanian totals

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




The ARIA graph of years of potential life lost (YPLL) highlights the overall impact of premature death seen in the previous graphs. SRs for premature deaths are close to or at the level expected from the State rates in both the Very Accessible (an SDR of 99) and Accessible (100) areas, with elevated ratios in both the Moderately Accessible (with an SR of 123) and Very Remote areas (an SR of 121).

***Source: Calculated on ARIA classification, DHAC***

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***The information on these four pages provide summary details for variables where it was considered that there were too few cases to map the data at the SLA level. Where SLA data is available it is in the tables in Volume 7.1.***

# Infant deaths, 1992 to 1995

## State/Territory comparison

The infant death rate is calculated as the number of infant deaths (deaths under one year of age) per 1,000 live births. The rate varied between the States and Territories, from a high of 13.9 in the Northern Territory to less than half that level in a number of States and the Australian Capital Territory. Rates in the *Rest of State/Territory* areas were similarly highest in the Northern Territory and were higher than the capital city rates for all but Queensland (where they were the same) and Tasmania (where they were lower).

Infant death rates in the *Rest of State/Territory* areas were 26.7 per cent lower over the years from 1992 to 1995 than over the years from 1985 to 1989 (**Table 5.30**). The largest reductions occurred in the non-metropolitan areas of Tasmania (down by 46.7 per cent) and the smallest in the Northern Territory (down by 10.4 per cent). Western Australia (22.8 per cent) and Queensland (24.4 per cent) experienced the next smallest reductions, with declines of around one third occurring in the remaining States.

**Table 5.30: Infant deaths, State/Territory**
***Infant deaths per 1,000 live births***

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

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

## Rest of State

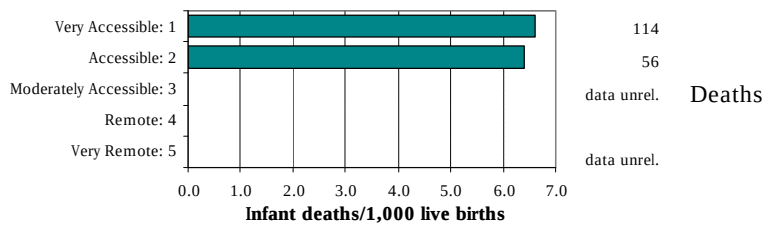
There were 96 infant deaths recorded in the non-metropolitan areas of Tasmania over the four year period from 1992 to 1995, 5.7 infant deaths per 1,000 live births.

Of the five SLAs with more than five infant deaths, the highest rates were recorded in Burnie [Part A] (8.5 infant deaths per 1,000 live births) and Waratah/Wynyard [Part A] (8.2).

Central Coast [Part A]/Devonport (with 6.4 infant deaths per 1,000 live births), Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (6.0) and Huon Valley (5.9) had the lowest rates.

The only SLAs with more than 10 infant deaths over this period were the combined areas of Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (27 deaths), Central Coast [Part A]/Devonport (16 deaths) and Burnie [Part A] (11 deaths).

## Accessibility/Remoteness Index of Australia




Infant death rates were only calculated for the Very Accessible (6.6 infant deaths per 1,000 population) and Accessible (6.4 infant deaths per 1,000 population) ARIA categories, as the other two categories had fewer than five infant deaths over this four year period (four deaths in the Moderately Accessible areas and one death 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 800 deaths from diseases of the respiratory system over the period from 1992 to 1995 in non-metropolitan Tasmania, 8.8 per cent of all deaths**.** The majority of these deaths (86.9 per cent, 695 deaths) were of people aged 65 years and over, with 13.0 per cent being of deaths of people aged from 15 to 64 years. Deaths from these causes represented 5.5 per cent of all deaths for this age group.

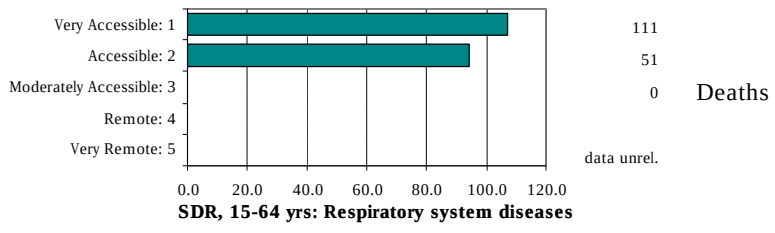
## Rest of State (Tasmania as the Standard)

There were 26 deaths per annum over the period from 1992 to 1995, an increase on the 23 deaths per annum over the period from 1985 to 1989. This was six per cent more deaths of 15 to 64 year old non-metropolitan residents recorded from respiratory system diseases than were expected from the Tasmanian rates (an SDR of 106). As in **Hobart**, more than half (58.7 per cent) of these deaths were of males.

Only four SLAs had sufficient cases (five or more deaths expected from the State rates) to produce reliable results. The combined area of Launceston/Meander Valley [Part A]/Northern Midlands [Part A] had 62 per cent more respiratory system deaths of 15 to 64 year olds than expected from Tasmanian rates (an SDR of 162**). This SLA also had the largest number of deaths from these causes (39 deaths). Burnie [Part A] was the only other area with an elevated ratio (an SDR of 126, and eight deaths when 6.3 were expected). West Tamar [Part A] (with an SDR of 76 and five deaths) and Central Coast [Part A]/Devonport (62, 10 deaths) both had ratios below the expected level.

All other areas had fewer than nine deaths from respiratory system diseases.

## Accessibility/Remoteness Index of Australia



**SDR, 15-64 yrs: Respiratory system diseases**

Standardised Death Ratios SDRs for deaths of people aged from 15 to 64 years from respiratory system diseases are seven per cent higher in the Very Accessible areas than expected from the State rates (an SDR of 107) and are six per cent lower than expected in the Accessible areas. As there were fewer than five expected deaths from lung cancer in the Moderately Accessible and Very Remote areas, the ratios have not been calculated.

***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 5.32**, 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 5.32: 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 from 1992 to 1995, they represented 74.9 per cent of all deaths in Tasmania in this age group –78.8 per cent of male deaths and 63.5 per cent of female deaths. Males predominated, accounting for 78.4 per cent of all deaths from these external causes. Almost half (42.5 per cent) of male deaths were from motor vehicle traffic accidents and almost one third (30.0 per cent) were from suicides.

Mathers (1994) examined the extent of disparities (related to socioeconomic status of areas of residence) in mortality rates according to the major cause of death. Differentials in mortality rates for deaths from injury and poisonings were clearly evident for both males and females (aged from 15 to 24 years) from the most socioeconomically disadvantaged areas - 47 per cent more deaths of males than in the most advantaged areas, and 66 per cent for females. This relationship was also evident between socioeconomic status and 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.

## Hobart (Tasmania as the Standard)

There were seven per cent fewer deaths from these external causes of 15 to 24 year old residents of **Hobart** than expected from the Tasmanian rates. This represented a total of 18 deaths per annum over the four years from 1992 to 1995, with a similar number, 19 deaths per annum, over the period from 1985 to 1989.

Five of **Hobart's** SLAs had sufficient cases (five or more deaths expected from the State rates) to produce reliable results. The highest of these (with an SDR of 114 and 20 deaths) was recorded in Glenorchy. The SDR in Clarence (95, 18 deaths) was just below the expected level. The remaining SLAs of Hobart, Brighton and Kingborough [Part A] recorded SDRs of 91, 72 and 56 respectively.

The largest number deaths was recorded in the City of Hobart (21 deaths).

# 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 5.33** 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 5.33: Deaths of people aged 15 to 24 years from accidents, poisonings and violence, State/Territory**
***Standardised death ratios***

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

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

Over the four year period from 1992 to 1995, there were 112 deaths of people aged from 15 to 24 years from this group of external causes in the non-metropolitan areas of Tasmania. This was a rate of 70.1 per 100,000 population, higher than the **Hobart** rate of 61.6 per 100,000 population. Although this was a relatively small number of deaths, they accounted for 74.7 per cent of all deaths in this age group – 78.6 per cent of male deaths and 63.2 per cent of female deaths. The data analysed for this variable represented 19.9 per cent of deaths at all ages from this cause.

## Rest of State (Tasmania as the Standard)

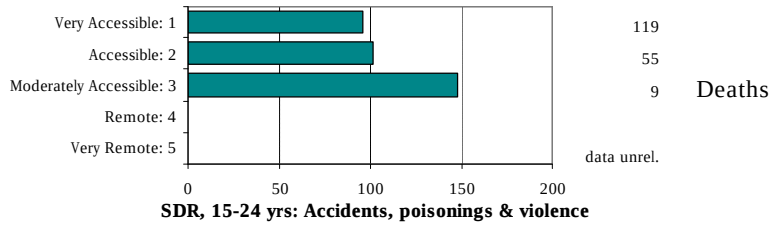
Deaths of 15 to 24 year old non-metropolitan residents from the combined causes of accidents, poisonings and violence were five per cent higher than expected from the Tasmanian rates. There was a substantial decline in the incidence of these deaths, from 37 deaths per annum over the period from 1985 to 1989 to 28 deaths per annum over the period from 1992 to 1995.

Only four SLAs had sufficient cases (five or more deaths of 15 to 24 year olds from accidents, poisonings and violence expected from the State rates) to produce reliable results. The range of SDRs was narrow, with the elevated ratios recorded in West Tamar [Part A] (an SDR of 127, with eight deaths when six were expected), Burnie [Part A] (with an SDR of 122 and nine deaths) and Central Coast [Part A]/Devonport (108, 17 deaths).

The lowest ratio, an SDR of 92 recorded in Launceston/Meander Valley [Part A]/Northern Midlands [Part A], represented the largest number of deaths of 15 to 24 year olds from accidents, poisonings and violence in non-metropolitan Tasmania (31 deaths).

The remaining unmapped areas had fewer than seven deaths for this variable.

## Accessibility/Remoteness Index of Australia



**SDR, 15-24 yrs: Accidents, poisonings & violence**

Standardised Death Ratios (SDRs) for deaths of people aged from 15 to 24 years from accidents, poisonings and violence are close to the level expected from the State rates in both the Very Accessible (an SDR of 96) and Accessible (102) areas. There were 48 per cent more premature deaths from these external causes than expected from the State rates in the Moderately Accessible areas (an SDR of 148, and 9 deaths). As there were fewer than five expected deaths in the Very Remote areas, the ratio has not been calculated.

***Source: Calculated on ARIA classification, DHAC***

# Total Fertility Rate

## Introduction

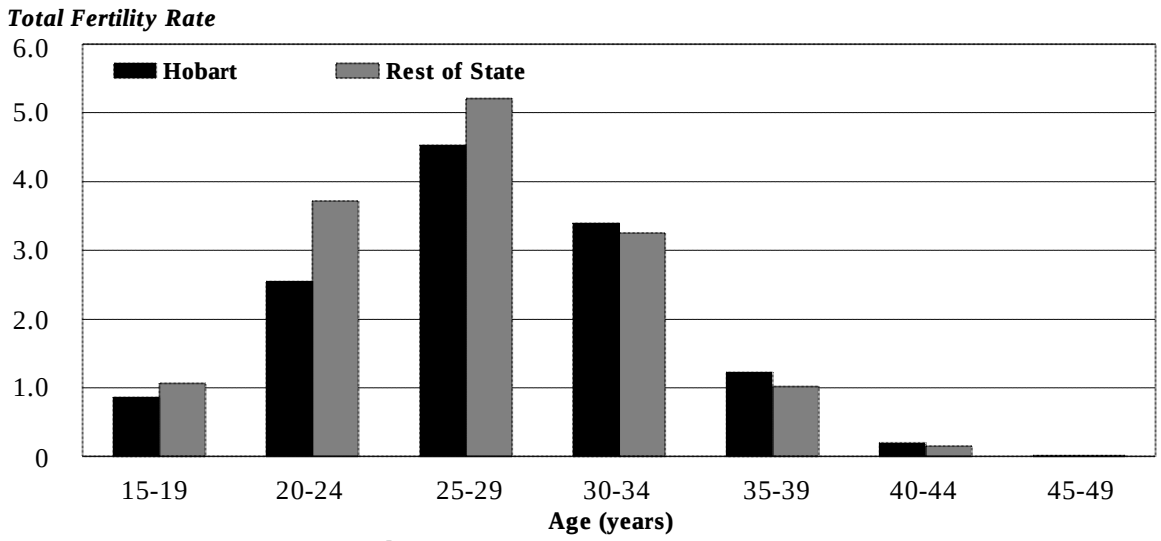
The Total Fertility Rate (TFR) is a measure of the production of children and is calculated from details of the age of the female population, the number of live births and the age of the mother at birth. It represents the mean number of children which females, living right through their child-bearing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

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

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

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

**Figure 5.10: Total Fertility Rates, Hobart and Rest of State, 1992 to 1995**




**Source: See *Data sources*, Appendix 1.3**

# Total Fertility Rate, 1992 to 1995

## Capital city comparison

The capital cities recorded similar Total Fertility Rates (TFRs) over the four years from 1992 to 1995 (**Table 5.34**), with the exception of a higher rate in **Darwin** (2.06). The lowest TFR was that in **Adelaide** (1.64).

**Table 5.34: 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.

## Hobart

The Total Fertility Rate (TFR) for **Hobart** over the four year period from 1992 to 1995 was 1.79, lower than the State rate of 1.95. The highest rates of total fertility were recorded for women aged 25 to 29 years (a TFR of 4.43), followed by those aged 30 to 34 years (a TFR of 3.41) (see **Figure 5.10** on the previous text page).

The highest TFRs were recorded in Brighton (2.63) and Sorell [Part A] (2.45) (**Map 5.23**).

TFRs of between 1.50 and 2.00 were recorded in Kingborough [Part A] (1.99), Clarence (1.83) and Glenorchy (1.81).

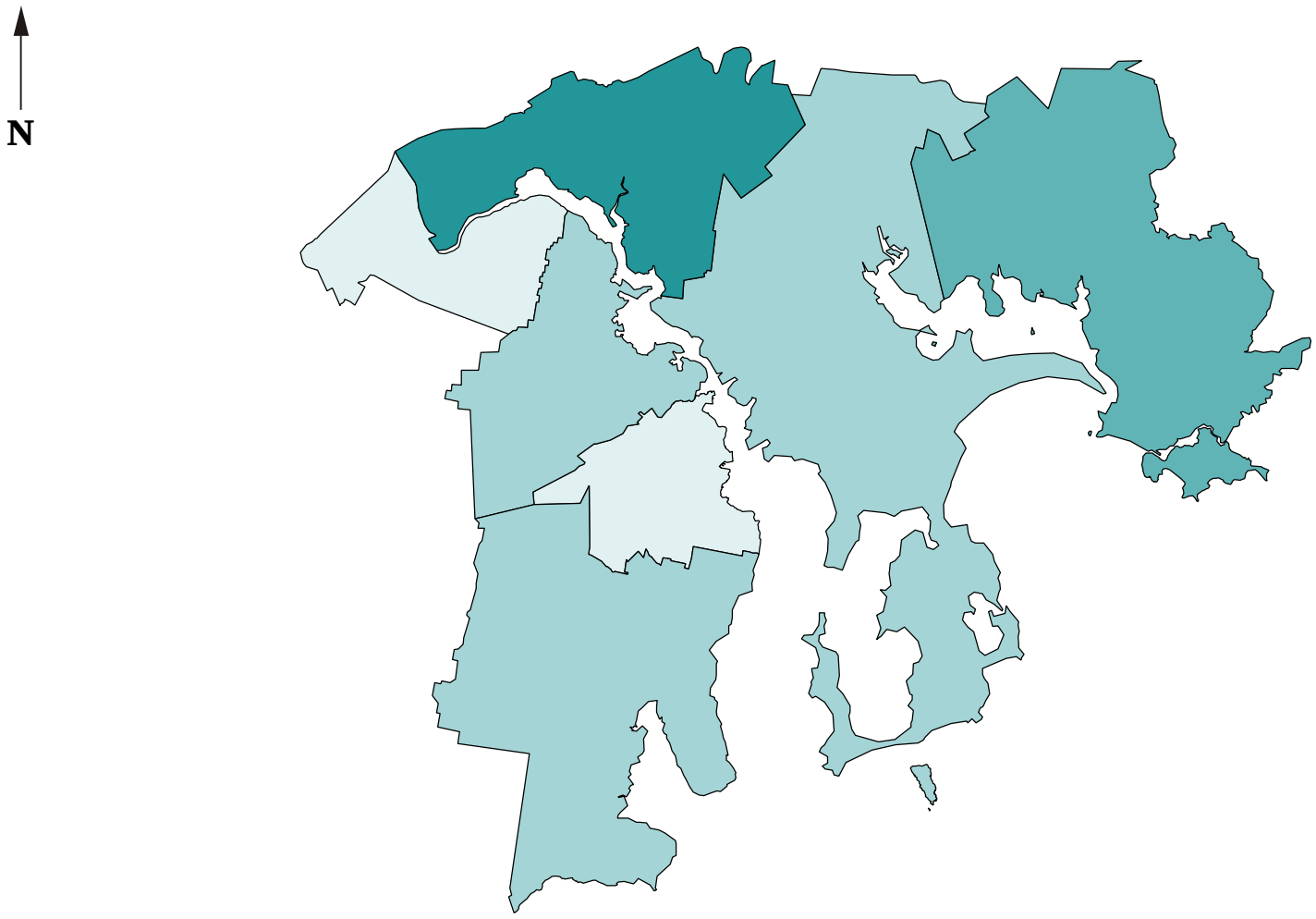
Female residents of the SLAs of Hobart (with a TFR of 1.44) and New Norfolk [Part A] (1.45) had the lowest rates in **Hobart**.

Over the four year period from 1992 to 1995, there were 10,492 births to mothers aged from 15 to 49 years, with over 1,000 births registered for females of Clarence (2,495 births), Glenorchy (2,398), the SLA of Hobart (2,209), Kingborough [Part A] (1,319) and Brighton (1,193). At the other end of the scale, fewer than 1,000 births were recorded in the SLAs of Sorell [Part A] (637 births) and New Norfolk [Part A] (241).

The correlation analysis revealed an association at the SLA level with indicators of socioeconomic disadvantage: the strongest of these were with the variables for children aged 0 to 4 years (0.89), the Indigenous population (0.68), unemployed people (0.64), single parent families (0.56), early school leavers (0.54) and housing authority rental dwellings (0.50). There were inverse correlations with the variables for female labour force participation (-0.60) and high income families (-0.58). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.51), indicate the existence of an association at the SLA level between high Total Fertility Rates and socioeconomic disadvantage. Correlations of meaningful significance were recorded with the variables for people who reported their health status as fair or poor (0.55) and the Physical Component Summary score (an inverse correlation of -0.57).

## Map 5.23
## Total Fertility Rate*, Hobart, 1992 to 1995

Total Fertility Rate* in each Statistical Local Area




Total Fertility Rate*

- *2.5 or 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 Tasmanian totals*

***Source: Calculated on data from ABS 1996 Census***

***Details of map boundaries are in Appendix 1.2***

# Total Fertility Rate, 1992 to 1995

## State/Territory comparison

The Total Fertility Rates (TFRs) were higher in the non-metropolitan areas of Australia in each State and the Northern Territory (**Table 5.35**). 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 (2.08) 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 5.35: Total Fertility Rate, State/Territory, 1992 to 1995**

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

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

## Rest of State

The Total Fertility Rate (TFR) in the non-metropolitan areas of Tasmania over the four year period from 1992 to 1995 was 2.08, well above the **Hobart** rate of 1.79. The highest rates were recorded for women aged 25 to 29 years (a TFR of 5.25), followed by those aged 20 to 24 years (a TFR of 3.79) and women aged 30 to 34 (a TFR of 3.25) (see **Figure 5.10**, page 173).

As many of the TFRs in **Map 5.24** are relatively high, the ranges mapped have been changed to enhance the pattern of differentiation in the map. The highest and lowest ranges have been set at greater than 3.00 and less than 1.50 respectively, rather than 2.50 and 1.00 as in the map of **Hobart** for this variable.

The highest rates were recorded in the SLAs of Sorell [Part B] (a TFR of 4.19) and Kingborough [Part B] (3.21), located on the outskirts of **Hobart,** and Flinders (a TFR of 3.03). Relatively high rates were also recorded in New Norfolk [Part B] (2.98) and Latrobe [Part A] (2.63).

Generally speaking, there was little variation in TFRs across the areas mapped, with half of the SLAs (14 SLAs, 50.0 per cent) recording rates of between 2.00 and 2.50. The highest rates in this range occurred in the SLA of Huon Valley, with a TFR of 2.44 and West Coast and Meander Valley [Part B]/West Tamar [Part B], both with a TFR of 2.41. On the other hand, Tasman (with a TFR of 2.09), Central Coast [Part A]/Devonport (2.10), Break O Day/Northern Midlands [Part B] (2.11), Central Highlands (2.12) and Circular Head (2.13) had the lowest rates in this class interval.

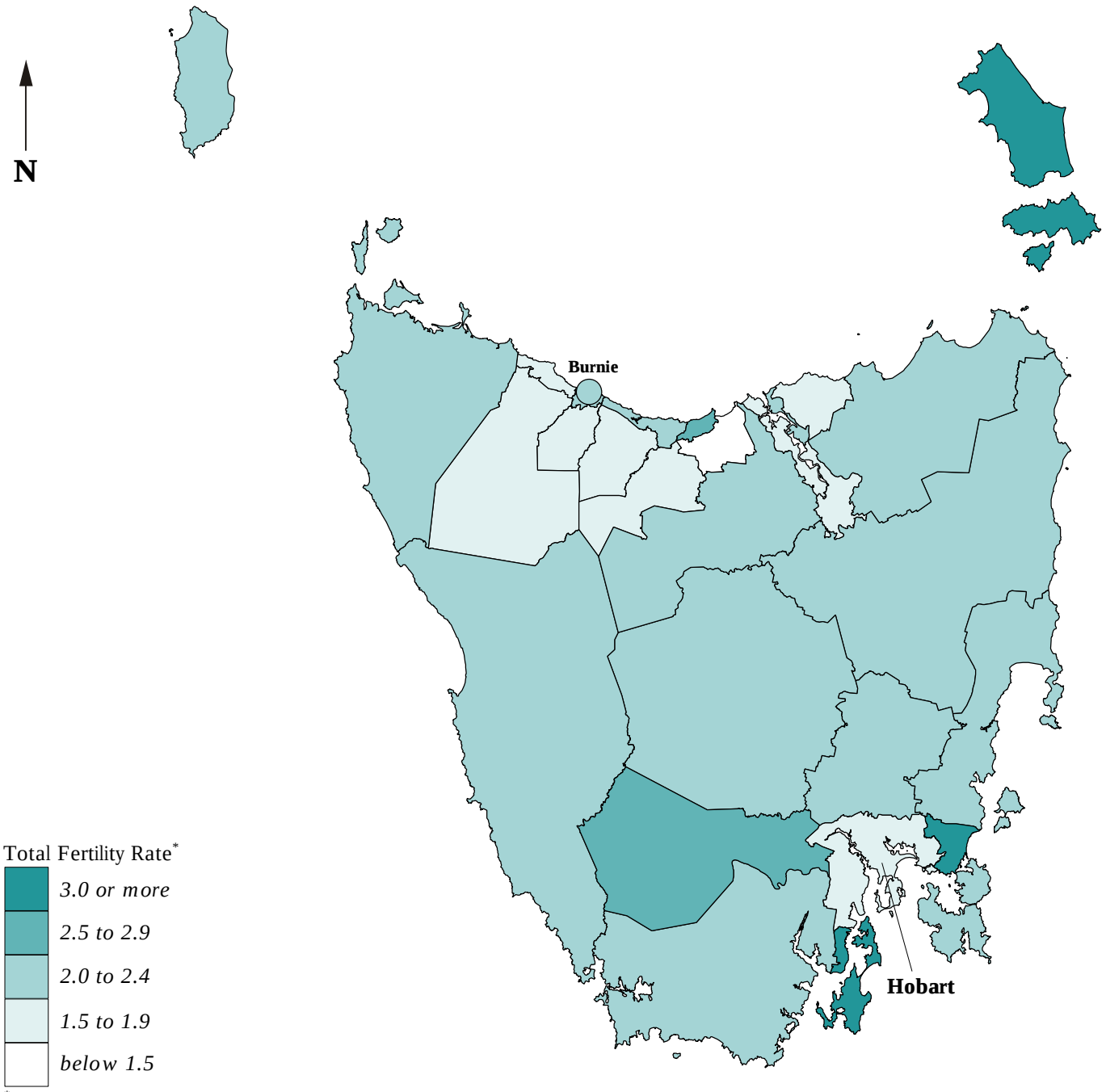
The lowest TFR was recorded in Latrobe [Part B] (a TFR of 0.79), with other low rates in Burnie [Part B] (1.68) and Central Coast [Part B] (1.54). Females in Launceston/Meander Valley [Part A]/Northern Midlands [Part A] had a TFR of 1.90.

In the non-metropolitan areas of Tasmania, the largest number of births to mothers aged from 15 to 49 years were recorded in the combined SLAs of Launceston/Meander Valley [Part A]/Northern Midlands [Part A] (4,519 births), Central Coast [Part A]/Davenport, (2,492 births) and Burnie [Part A] (1,290 births).

There was a weak association evident in the correlation analysis at the SLA level with indicators of socioeconomic disadvantage: the strongest of these were with the variables for low income families (0.45) and single parent families (0.41). These results, together with the weak inverse correlation with the IRSD (-0.20), suggest the existence of an association at the SLA level between high Total Fertility Rates and socioeconomic disadvantage.

# Map 5.24
# Total Fertility Rate*, Tasmania, 1992 to 1995

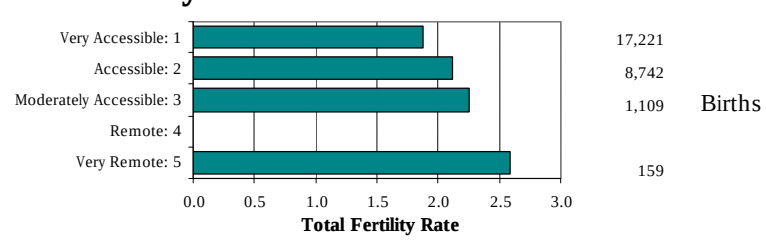
Total Fertility Rate* in each Statistical Local Area




*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 Tasmanian totals

***Source: Calculated on data from ABS 1996 Census*** ***Details of map boundaries are in Appendix 1.2***

## Accessibility/Remoteness Index of Australia




The Total Fertility Rate increases steadily across the ARIA categories, from a low of 1.87 in areas in the Very Accessible category to 2.12 in the Accessible category, 2.25 in the Moderately Accessible category and 2.59 in the Very Remote category (27.8 per cent higher than the TFR in the Very Accessible category).

***Source: Calculated on ARIA classification, DHAC***

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