6 Utilisation of health services

Introduction

Aggregate rates of health service usage provide an important 'proxy' indicator of population health status. For example, the extent of the population's use of general medical practitioner (GP) services, or of episodes of hospitalisation, is likely to be indicative of overall levels of illness in the community. As discussed in Chapter 1, it has been known for some time that the most disadvantaged groups make the most use of primary and secondary health services (especially when there is universal access to services) and make the least use of preventative services. It is also clear that their poorer health status largely explains their greater use. Details of some of the differentials evident in the Australian data are in **Table 6.1.**

Table 6.1: Health service use 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) health status, health service use and risk measures	Rate/ratio for quintile of socioeconomic disadvantage of area			
	Males		Females	
	1st quintile	5th quintile	1st quintile	5th quintile
Children (0 to 14 years)				
hospital episodes	1.00	0.89	1.00	2.21
doctor visits	1.00	1.02	1.00	1.16*
dental visits	1.00	0.80**	1.00	0.59***
Youth (15 to 24 years)				
hospital episodes	1.00	1.30	1.00	1.16
doctor visits	1.00	1.25**	1.00	1.18**
dental visits	1.00	0.70***	1.00	1.01
Adults (25 to 64 years)				
hospital episodes	1.00	0.97	1.00	0.95
doctor visits	1.00	1.24***	1.00	1.04
dental visits	1.00	1.02	1.00	0.85**
Older people (65 years & over)				
hospital episodes	1.00	1.22	1.00	1.26
doctor visits	1.00	0.88*	1.00	1.28***
dental visits	1.00	1.36**	1.00	0.57***
All ages				
hospital episodes	1.00	1.05	1.00	1.16
doctor visits	1.00	1.10***	1.00	1.12***
dental visits	1.00	0.96	1.00	0.79***

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, AGPS, Canberra, 1994

It is possible, however, that despite higher rates of use, health or service needs are not fully met. This means that variations in rates between sub groups of the population (eg. for women, children, the aged, or for Indigenous Australians) may be indicating inequality of access, either physical access (which can be limited by factors such as lack of transport and cost, particularly the cost of services not covered by Medicare), or the quality of care provided (such as the level and quality of information provided as to the options for treatment, and alternatives which might otherwise reduce use of services).

Data mapped

The health services described include the use of public and private hospitals, services provided by GPs and rates of immunisation of children at the age of 12 months. These are services for which data necessary for analysis at a small area level can be obtained: such data includes the age, sex and postcode or Statistical Local Area (SLA) of usual residence of the patient.

Measure mapped

Age-sex standardised ratios have been calculated and mapped for admissions to hospital and services provided by GPs by place of usual residence of the patient or client, to illustrate the extent of variation in health service use between the populations of these areas. A brief description of the technique of standardisation, its purposes, and method of calculation, is in Appendix 1.3.

Variables mapped

The variables mapped represent only a selection of the full range of variables that could potentially be mapped from each data set. For example, admissions to hospital (see box on page 181 for the definition of admission) of patients with any type of cancer and those with lung cancer specifically are mapped, but admissions resulting from cancer of the prostate are not mapped, as there were too few cases at the small area level from which to calculate reliable rates. The number of variables analysed and mapped was also constrained by the size of the atlas. Therefore, the

variables mapped are those that represent a significant proportion of the activity for the topic; are known to be more prevalent among a particular population group; or are known to have a distribution which varies regionally.

A comparison of the mapped distribution of these measures of health service use with the maps in the other chapters indicates the extent of association at the small area level between health service use and socioeconomic status and health status. The extent of association is also indicated by the results of the correlation analysis in Chapter 8.

Gaps and deficiencies in the data

Data collections

The coverage and availability of data from nation-wide statistical collections describing health service provision at the *small area level* has changed little since the first edition of the atlas was published in 1992.

An important development is that hospital inpatient data at the small area level are now largely available from a single source (the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database). This contrasts with the situation in producing the first edition of the atlas when hospital data were collected directly from State and Territory health authorities. Further, only New South Wales, Queensland, South Australia and Western Australia had complete collections at that time[1]. There are, however, relatively small but significant deficiencies in the database. These deficiencies are described under *Deficiencies in the admissions data* (page 189).

As was the case in 1992, only the age and sex of the patients of GPs are available to be mapped. There is, for example, no information at a small area level of consultations with GPs which includes other client characteristics, such as reason for attendance (eg. patient is unwell and nature of illness, has an injury, or is seeking advice), type of services provided (eg. patient referred to other health practitioner, pharmaceutical drugs prescribed), or outcome (eg. patient referred to other health practitioner, course of treatment established). The lack of information on GP services represents a major gap in our ability to describe the work of these important primary health care providers, to understand the appropriateness of the services provided, and to assess the outcomes achieved.

Other major gaps in the availability of service usage data at the small area level are data describing:

- services provided to those using public hospital outpatient departments and accident and emergency clinics (a majority of these services are specialist medical consultations);
- services provided by specialist public psychiatric hospitals and other specialist mental health services; and
- services provided through community based care (eg. community health services. including community mental health services), domiciliary care services and other home based nursing services;
- health promotion and other public health programs, as well as information on community knowledge, attitudes and behaviours as to health, health status and health risks;
- the dispensing of prescribed pharmaceutical items, especially by type of medication; and
- terminations of pregnancy (see additional comments below).

Some of these issues are discussed elsewhere in this chapter and details on statistics for cancer incidence and screening are included. As regards the data for termination of pregnancy, terminations are undertaken both in hospitals and in clinics which are not hospitals. These clinics are not, therefore, included in the State and Territory hospital data collections. In an attempt to obtain a complete dataset, details of the age and area of residence of women undergoing a pregnancy termination other than in a hospital were obtained from Health Insurance Commission data and added to the hospitals' dataset. This combined dataset was compared with the data from States with complete coverage in their hospital collections, to see if it provided an accurate picture. Unfortunately the combined dataset was inconsistent with data from the other sources and therefore, this variable was not mapped.

Other data issues

Similarly, due to inadequate identification of Indigenous Australians in hospital inpatient collections, admissions to hospital of Indigenous Australians remain understated and have not been mapped separately.

As discussed in Chapter 2, the lack of data items, such as income or education, in health statistics collections and the consequent inability to identify and analyse socioeconomic status directly is a major deficiency in the Australian data. Therefore, the socioeconomic status of the area of usual residence of the client or patient is used as a proxy for the socioeconomic status of the client or patient. The limitations of this approach are discussed in Chapter 2, *Methods* under the heading *Usual residence*.

An over-riding deficiency in the hospital inpatient data is the lack of a unique identifier to allow for the analysis of data for individuals rather than admissions. This is discussed in more detail under *Deficiencies in the admissions data* (page 189).

[1]The data for the private hospital in the Northern Territory were not available for the year of analysis (1989), but data for 1987 (before the private hospital was established) were available and used.

Admissions to hospitals

Introduction

There were almost 4.8 million admissions (see the box below) to hospitals in Australia in 1995/96 (130 thousand admissions in Tasmania), providing a major database of information for examining the more serious health problems faced by Australians, subject to the qualifications discussed below (*Deficiencies in the admissions data*, page 189).

Information available for admissions includes the age, sex, diagnoses and surgical and other procedures, as recorded in the patient's case notes at the time of discharge, transfer or death. Importantly for spatial analysis, the postcode or SLA of the address of usual residence of the patient is also recorded.

Recording details for a hospital episode (admissions)

The technical term describing a completed hospital episode (ie. the discharge, death or transfer of a patient) is a 'separation'.

At the time of admission, the age, sex, address of usual residence and other personal details of the patient are recorded. At the end of the episode, at the time of separation from hospital, details of the episode itself are recorded, including the principal diagnosis (and other diagnoses), principal procedure (and other procedures), and the date, time and method (discharge, transfer or death) of separation. Consequently, hospital inpatient data collections are based on separations. In this atlas, the more commonly used term of 'admission' has been used. In an analysis such as this, which excludes long stay patients (other than the few long stay acute patients), there is little difference between the number of admissions and the number of separations in a year. Also, 'admission' is a much more familiar term to many people who will use this atlas.

The maps in this chapter show the spatial patterns of admissions for a range of conditions, diseases and procedures. The following text describes some of the differences evident in the data in hospitalisation rates for specific population groups. Where available, comparisons are made with the data from the first edition of the atlas.

Differences in admission rates for specific population groups

Differences related to socioeconomic status

Those who are socioeconomically disadvantaged have higher admission rates than the population in general. Esterman et al. (1990) examined admissions in **Adelaide** by postcode of usual residence, and compared standardised admission rates of residents of postcodes categorised as low, medium and high income (based on household income). They found that when **Adelaide** postcodes were divided into three categories according to household income, hospital admissions were found to be 34 per cent more frequent for residents of the poorest than for the most affluent category. No condition showed a consistent upward trend in admission rates with increasing affluence, whereas the poorer areas had higher rates for a wide range of diseases and conditions, including ischaemic heart disease; infectious diseases; stroke; digestive system disorders; hypertension; cancer; skin diseases; respiratory diseases; genito-urinary conditions; injuries; musculo-skeletal conditions; diabetes mellitus; nutritional, immunity and other endocrine disorders; perinatal disorders; and metabolic disorders.

Summary results of the analysis of the 1989-90 National Health Survey (noted above in **Table 6.1**) show variations in hospitalisation rates by socioeconomic status. A study by The Centre for South Australian Economic Studies (1993) estimated that the variation in admission rates between postcodes in **Adelaide** that can be linked to socioeconomic effects was as high as 47 per cent.

Differences for the Indigenous population

The Australian Bureau of Statistics and the Australian Institute of Health and Welfare have published age-standardised admission ratios for admissions of Indigenous Australians (ABS/AIHW 1999), highlighting the higher rates of admission of Indigenous people, both overall and for most specific causes (**Table 6.2**). For both men and women, the age-standardised admission rates were 1.7 times higher for Indigenous people than they were for other Australians (1.4 times when admissions for dialysis were excluded). The largest differentials in the rates for Indigenous Australians and other Australians were for admissions for dialysis (10.2 times higher for Indigenous females and 6.1 times higher for Indigenous males); diseases of the skin and subcutaneous tissue (3.2; 2.8); endocrine, nutritional and metabolic diseases and immunity disorders (both 2.8); infectious and parasitic diseases (2.2; 2.0); injury and poisoning (2.2; 1.7); and respiratory system diseases (2.3; 2.0). For Indigenous males, mental disorders were also recorded as a major cause of admission (2.5 times higher). It is likely that, given the low rate of identification of Indigenous people in the hospital admissions data, these statistics understate the extent of differentials in admission rates.

The higher admission rates of Indigenous Australians for individual causes are discussed in the introduction to each topic.

Table 6.2: Admissions of Indigenous Australians to public acute and private hospitals[1], by cause, Australia, 1996/97

Cause	Admissions identified as Indigenous		Age-standardised admission ratio[2]		Proportion of total separations (%)	
	Males	Females	Males	Females	Males	Females
Infectious & parasitic diseases	2,286	2,253	2.0	2.2	3.6	2.8
Malignant neoplasms	1,040	1,396	0.7	0.7	1.7	1.7
Endocrine, nutritional & metabolic diseases & immunity disorders	1,259	1,531	2.8	2.8	2.0	1.9
Diseases of the blood & blood-forming organs	269	455	0.6	1.1	0.4	0.6
Mental Disorders	4,045	2,867	2.5	1.6	6.4	3.5
Diseases of the nervous system	3,197	2,695	1.4	1.3	5.1	3.3
Diseases of the circulatory system	3,143	2,742	1.7	2.0	5.0	3.4
Diseases of the respiratory system	7,665	7,073	2.0	2.3	12.2	8.7
Diseases of the digestive system	5,052	4,943	1.1	1.0	8.0	6.1
Diseases of the genitourinary system	1,558	4,548	1.1	1.2	2.5	5.6
Complications of pregnancy, childbirth and the puerperium	..	13,937	..	1.4	..	17.1
Diseases of the skin & subcutaneous tissue	2,382	2,303	2.8	3.2	3.8	2.8
Diseases of the musculoskeletal system & connective tissue	1,721	1,649	0.8	0.9	2.7	2.0
Congenital anomalies	338	300	0.5	0.6	0.5	0.4
Certain conditions originating in the perinatal period	980	850	0.8	0.9	1.6	1.0
Symptoms, signs & ill-defined conditions	3,459	3,879	1.5	1.5	5.5	4.8
Injury and poisoning	7,888	6,211	1.7	2.2	12.6	7.6
Other reasons for contact						
Dialysis	13,545	18,172	6.1	10.2	21.6	22.3
Other	2,876	3,755	0.8	0.9	4.6	4.6
Total	16,421	21,927	2.9	3.7	26.1	26.9
All causes (excluding dialysis)	**49,293**	**63,454**	**1.4**	**1.4**	**78.4**	**77.7**
All causes (including dialysis)	**62,838**	**81,626**	**1.7**	**1.7**	**100.0**	**100.0**

[1]Excludes admissions to the Darwin Private Hospital

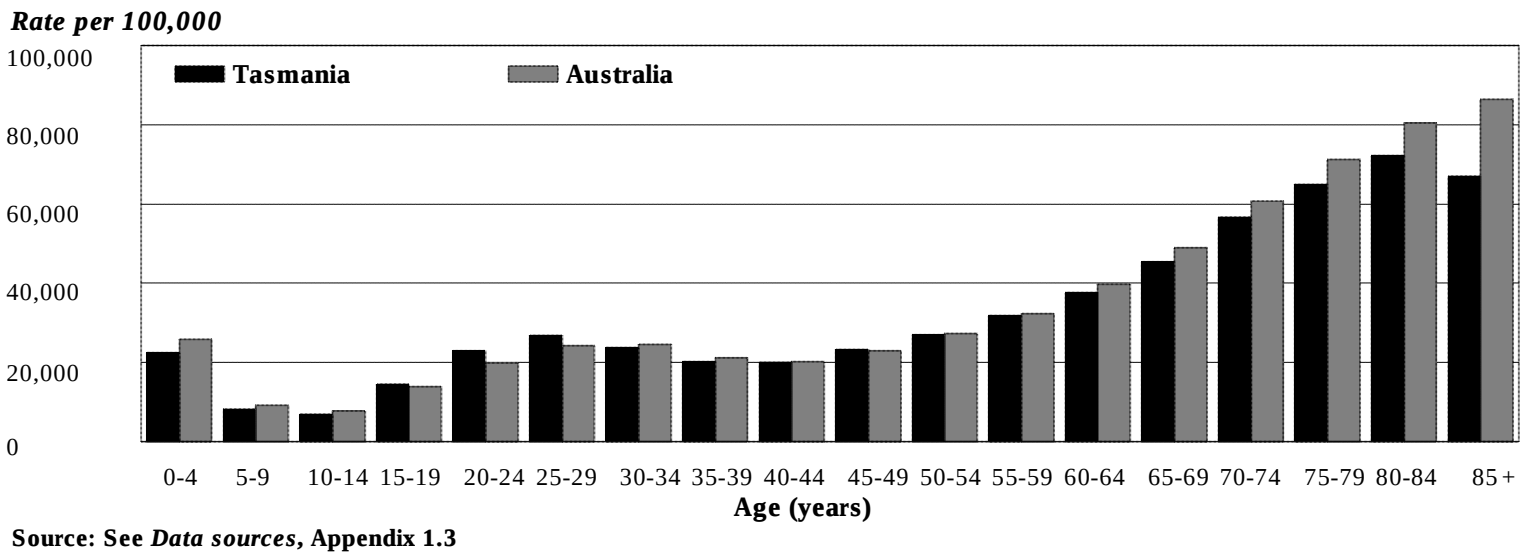
[2]Age-standardised hospital admission ratio is equal to hospital admissions identified as being of Indigenous people, divided by expected admissions, based on all-Australian rates

Source: ABS/AIHW, *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples*, Table 7.19, pp 112, 1999

Differences between Tasmania and Australia

Figures 6.1 shows the rates of admission per 100,000 population for residents of Tasmania and Australia for each five year age group. Admission rates for Tasmania and Australia are similar across the age groups, with Tasmania residents having higher rates among15 to 29 year olds and 45 to 49 year olds.

Figure 6.1: Admissions to public acute and private hospitals, by age, Tasmania and Australia, 1995/96



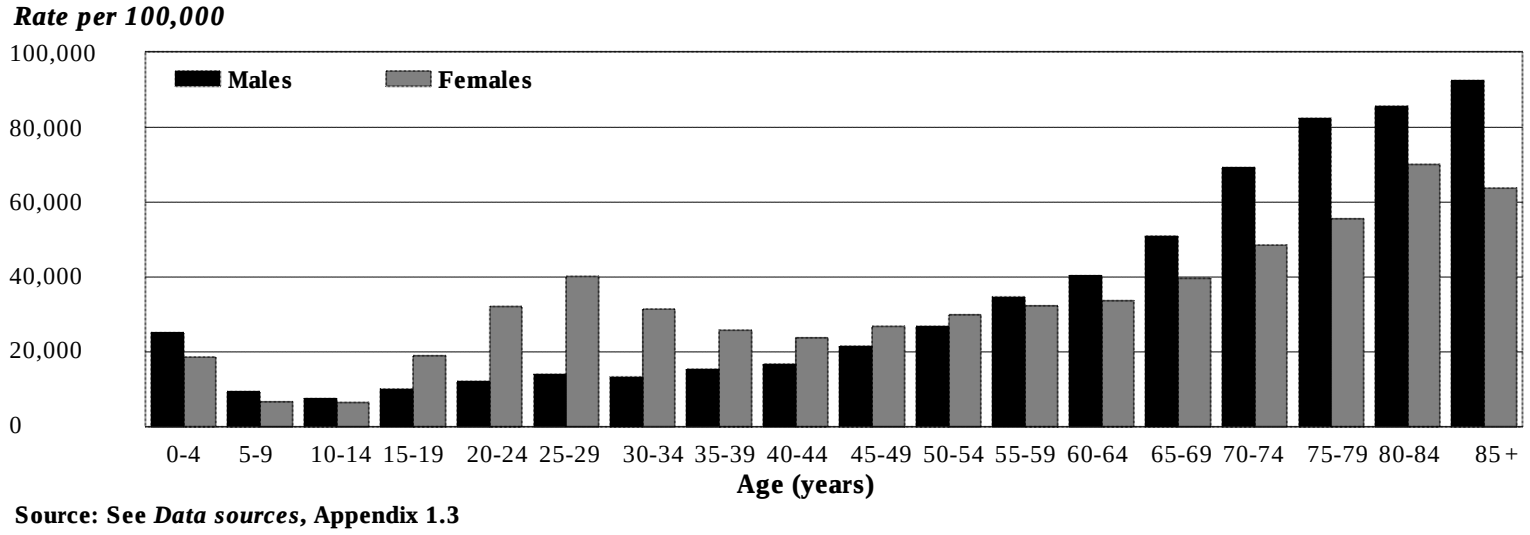
Source: See *Data sources*, Appendix 1.3

Differences related to age, sex, and, hospital type

Figures 6.2 to **6.10** show, for a selection of the variables mapped, the rates of admission for each five year age group per 100,000 population for residents of Tasmania admitted to a hospital.

Females accounted for 55.6 per cent of admissions, 20.2 per cent more than males in 1995/96 (**Figure 6.2**). This pattern is not consistent across all age groups. The largest divergence in admission rates (admissions per 100,000 population) for males and females occurs in the 25 to 29 year age group, with the female rate 2.9 times that for males. Female rates in the 20 to 24 (2.6 times), 30 to 34 (2.4 times) and 35 to 39 (1.7 times) year age groups were slightly lower but still well above those for males. These higher admission rates largely reflect episodes of hospitalisation for childbirth and associated admissions. The rates for males were higher than for females among those aged 0 to 4 and 5 to 9 years (1.4 times as high), and from age 55 (the greatest disparity being the rate for 75 to 79 year old males, 1.5 times higher than the corresponding female rate).

Figure 6.2: Admissions to public acute and private hospitals, by age and sex, Tasmania, 1995/96

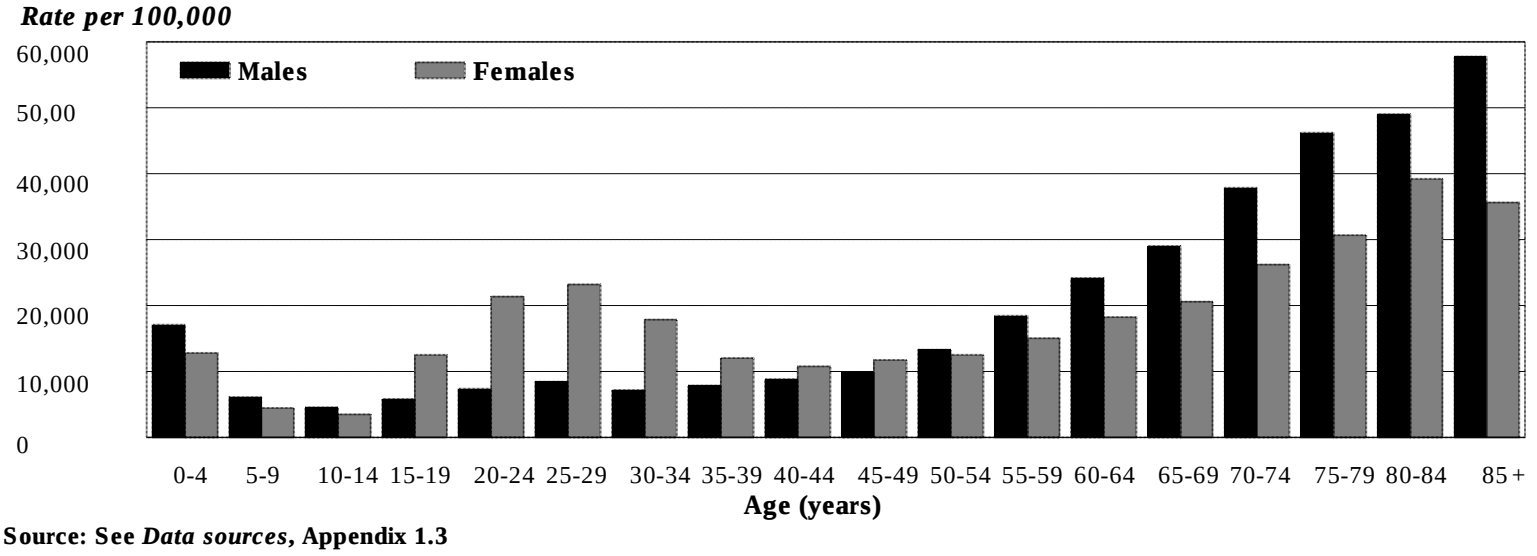


Source: See *Data sources*, Appendix 1.3

The profile of admissions to public acute hospitals (**Figure 6.3**) is markedly similar to that for all admissions (**Figure 6.2**). Higher rates of admissions of females are evident from the 15 to 19 year age group through to the 35 to 39 year age group. Male rates are higher at the youngest ages, and again from the 50 to 54 year age group onwards.

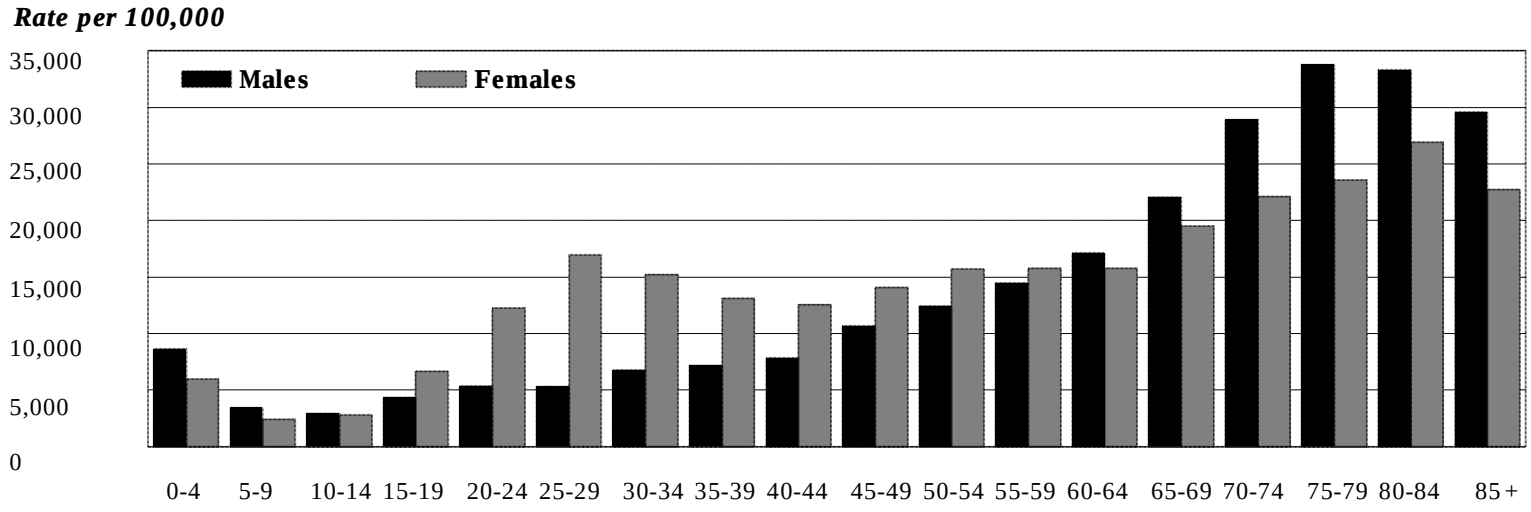
Overall, private hospitals accounted for 44.2 per cent of the admissions analysed for Tasmania. Females make greater use of private hospitals than do males, with admissions to private hospitals representing 45.2 per cent of all female admissions studied (compared with 42.9 per cent for males) and accounting for 56.9 per cent of private hospital admissions (54.6 per cent in public acute hospitals). The pattern of admissions to private hospitals by age and sex (**Figure 6.4**) is again similar to that in the previous graphs. The most noticeable differences are the lower overall rates of admission and the lower admission rates for males above 75 years of age.

Figure 6.3: Admissions to public acute hospitals, by age and sex, Tasmania, 1995/96



Source: See *Data sources*, Appendix 1.3

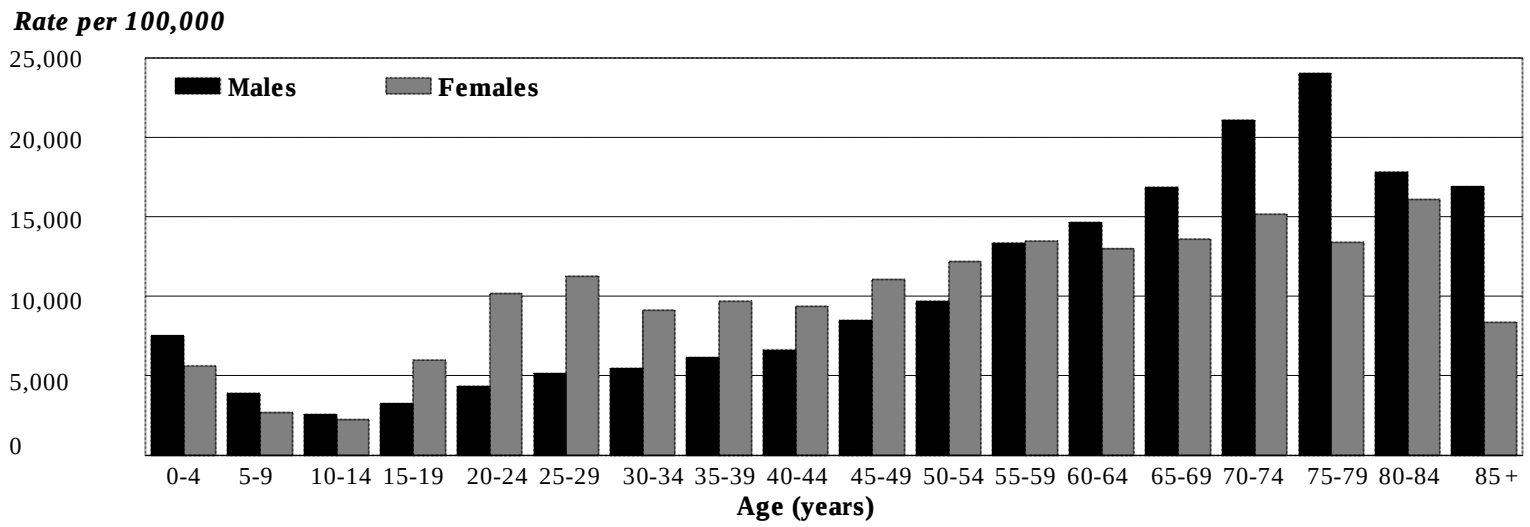
Figure 6.4: Admissions to private hospitals, by age and sex, Tasmania, 1995/96



Source: Based on data from AIHW and project resources

The general pattern of higher admission rates among females aged 15 to 44 years and among males in the youngest and oldest age groups, is also evident for same day admissions (**Figure 6.5**). However, there are some notable differences. From the age of 20 years, female rates remain reasonably consistent, increasing marginally in the 55 to 59 age group before showing a marked declined at the age of 85 years and over. Same day admission rates for males are similar to the rates recorded for total admissions until the 75 to 79 year age group, from where they begin to decline.

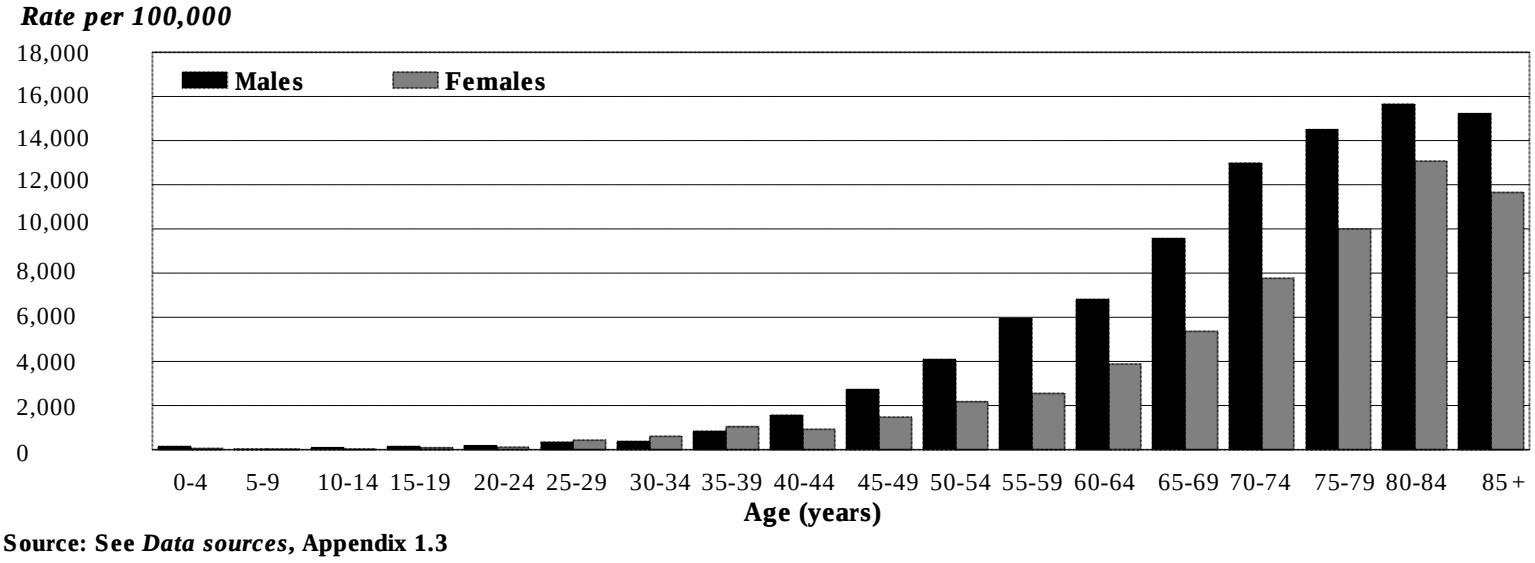
Figure 6.5: Same day admissions, by age and sex, Tasmania, 1995/96



Source: See *Data sources*, Appendix 1.3

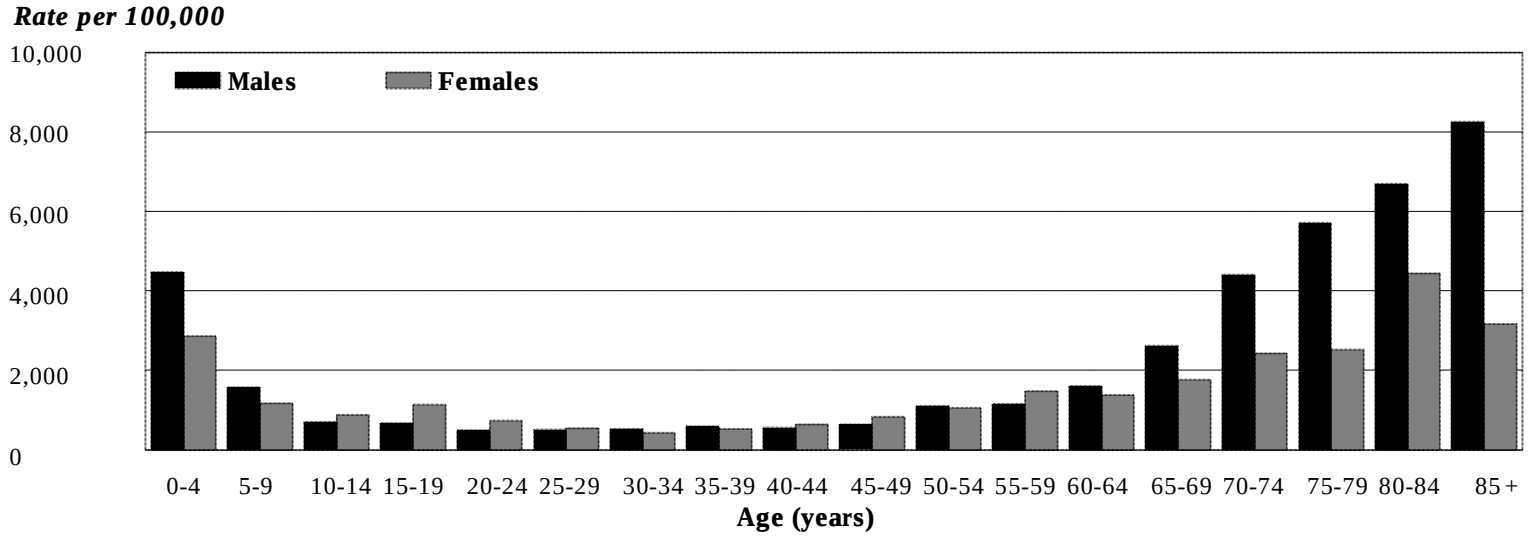
Figure 6.6 and **Figure 6.7** show admissions for circulatory and respiratory system diseases, respectively. **Figure 6.6** highlights the steep rise in hospital admissions for circulatory system diseases from the age of 30 years, with males predominating across all age groups. Admission rates for respiratory system diseases were highest among children aged 0 to 4 years and people aged from 70 years, with little difference between the age groups from 20 to 49 years (**Figure 6.7**): males predominate in the majority of these groups.

Figure 6.6: Admissions for circulatory system diseases, by age and sex, Tasmania, 1995/96



Source: See *Data sources*, Appendix 1.3

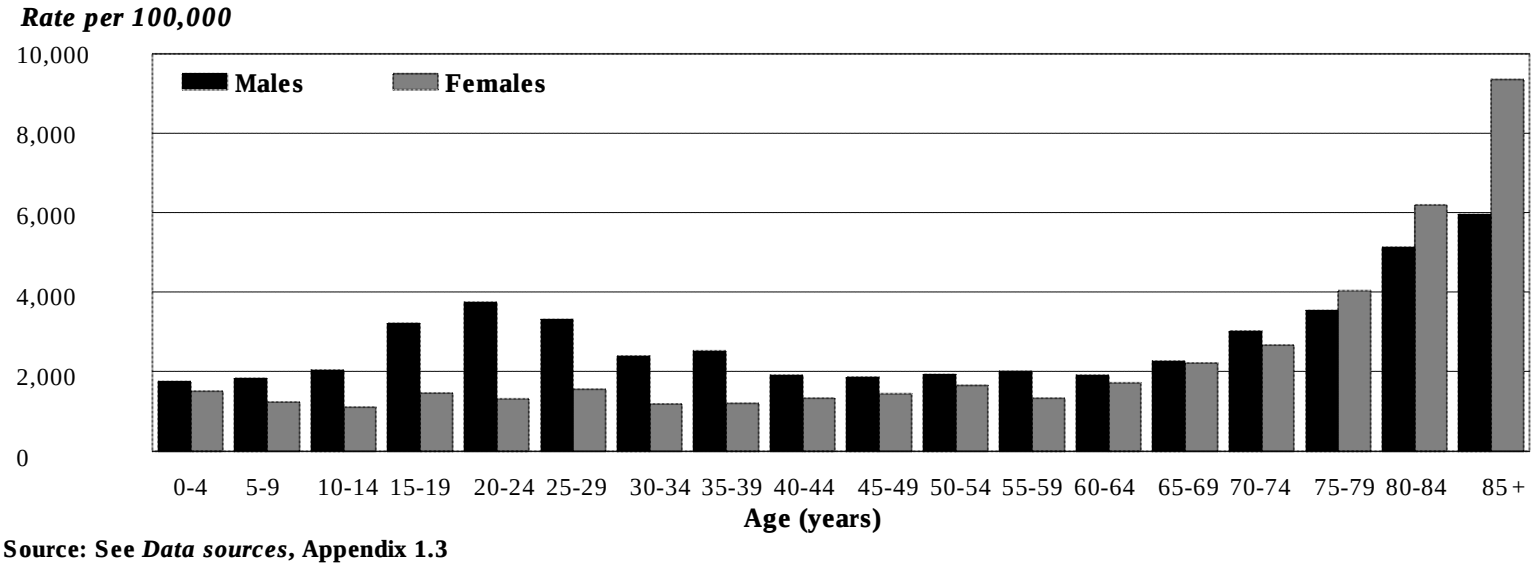
Figure 6.7: Admissions for respiratory system diseases, by age and sex, Tasmania, 1995/96



Source: See *Data sources*, Appendix 1.3

Male and female admission rates for accidents, poisonings and violence (**Figure 6.8)** are in direct contrast with the pattern for total admissions (**Figure 6.2**). Males predominate in all age groups up to and including the 70 to 74 year age group, with the largest differentials between the ages of 10 and 39 years. Female admission rates are consistent across most of the age groups until around the 75 to 79 year age group, after which the rates begin to increase steadily, and to eventually exceed those for males.

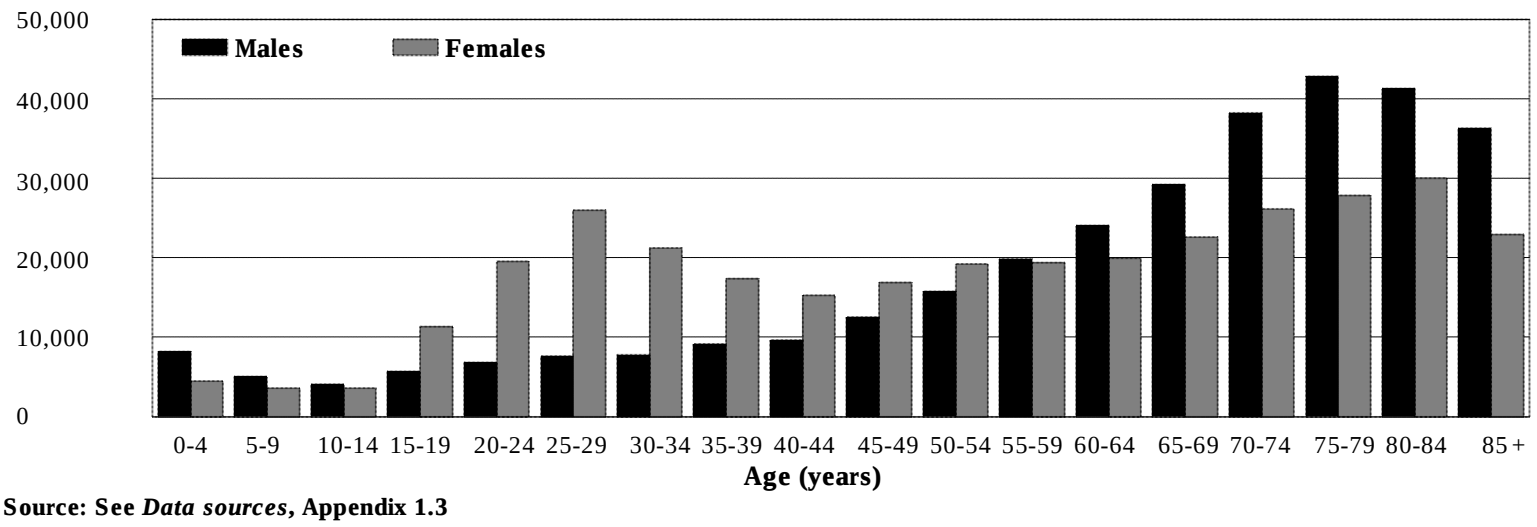
Figure 6.8:Admissions from accidents, poisonings and violence, by age and sex, Tasmania, 1995/96



Source: See *Data sources*, Appendix 1.3

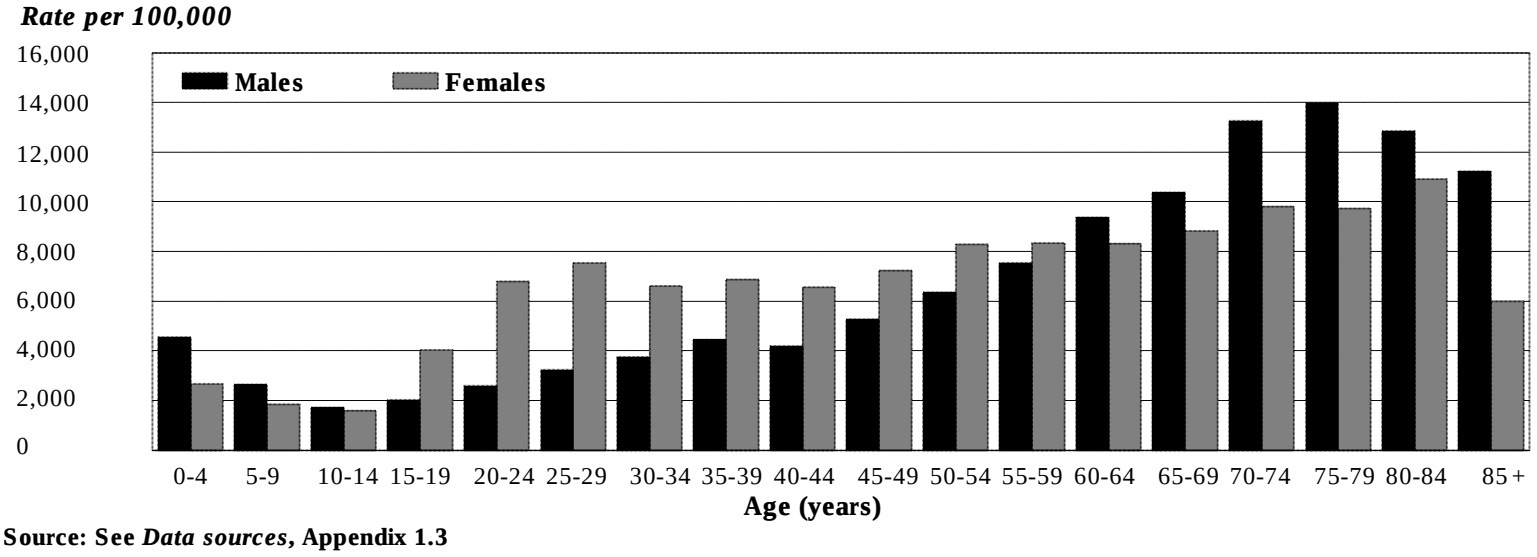
There is little variation in admission rates by either age or sex for admissions for a surgical procedure (**Figure 6.9**) and same day admissions for a surgical procedure (**Figure 6.10**), with the major difference occurring for females aged from 35 to 59 years. Within this age group, rates for same day admissions of females for a surgical procedure increased rather than decreased, as they did for total surgical admissions.

Figure 6.9: Admissions for a surgical procedure, by age and sex, Tasmania, 1995/96



Source: See *Data sources*, Appendix 1.3

Figure 6.10: Same day admissions for a surgical procedure, by age and sex, Tasmania, 1995/96



Source: See *Data sources*, Appendix 1.3

Differences related to area of residence

In addition to the differences noted above in relation to variations in admission rates between population groups, there are notable variations in admission rates between residents of the capital cities and the non-metropolitan areas. In many instances, admission rates are considerably higher for country residents than they are for city residents. Examples of these differences can be seen in many of the tables in this chapter. Some suggested reasons for the higher rates of admissions of residents of these non-metropolitan areas are given below. In some cases, these comments reiterate those for the population groups discussed above.

Some suggested reasons for the higher admission rates of residents of the non-metropolitan areas:

Isolation and distance

Factors such as distance and isolation of people living in these, often remote, areas are important. In country areas, people are more likely to be admitted 'for observation' than be sent home if their homes are a significant distance from the hospital.

Higher risks faced

A higher proportion of the population of these areas are engaged in activities in agriculture and the mining industry, which have relatively high rates of accidents and injuries, often leading to hospitalisation. Higher rates of motor vehicle traffic accidents for people living in rural and remote areas, who are driving longer distances and more often, are also a contributing factor.

Lack of, or inadequate, alternative options/services such as community based care and respite care services

In the absence of community based care, respite care and other services, hospitals in country areas often have a 'surrogate' caring role. This includes, in some instances, admitting people who would otherwise go to specialist psychiatric hospitals; and providing the respite care found in other types of institutions in major urban centres for the aged and younger people with physical and intellectual disabilities. There are also occasions where the circumstances of individuals or families are such that they do not have adequate resources and/or support available which result in hospital admissions. For example, a child of a single parent, living in a country town where there are limited family or community support services, may be more likely to be admitted to hospital for a minor condition, or for observation. This type of situation is often referred to as a 'social admission'.

Ready availability of beds

There is clear evidence that if there is a ready supply of hospital beds, they will be used: this is particularly likely to occur when linked with a lack of appropriate alternative services as mentioned above. Generally more beds are available in country than in city hospitals.

Higher rates of admission of the Indigenous population

In addition to the greater burden of ill health among Indigenous people noted above on page 181, higher rates of hospitalisation for the Indigenous population in the non-metropolitan areas are also likely to reflect significantly larger proportions of Indigenous people resident in these areas.

Explanatory notes

Classification of hospitals

Hospitals can be classified as 'acute hospitals' or 'psychiatric hospitals'. Acute hospitals are those which

> "provide at least minimal medical, surgical or obstetrical services for inpatients, and which provide round-the-clock comprehensive qualified nursing services as well as other necessary professional services. They must be licensed by the State health authority controlled by government departments. Most of the patients have acute conditions or temporary ailments and the average stay per admission is relatively short." (AIHW, 1998).

Acute hospitals are further classified as 'public' (those hospitals recognised under the Medicare agreement, plus Veterans 'Affairs hospital) or 'private'.

Psychiatric hospitals mainly provide treatment and care to patients with psychiatric, mental or behavioural disorders. Public psychiatric hospitals treat people with the most severe psychiatric conditions: this group tends to be mainly older people, and to have longer lengths of stay. Public acute and private hospitals and private psychiatric hospitals treat people with less severe psychiatric conditions[2].

Data for public psychiatric hospitals are not available for all States and Territories in a standard format and was not able to be included.

Coverage

Hospital admissions data presented in this atlas includes episodes of hospitalisation in public acute and private (acute and psychiatric) hospitals. To enhance consistency, admissions of long stay nursing home type patients (patients with a length of stay in hospital of 35 days or longer and not considered to be 'acute' patients) have been excluded because the proportion of these patients in public hospitals varies between, and within, the States and Territories. Almost all (97.2 per cent) of bed days for patients in this category in South Australia occurred in hospitals in the non-metropolitan areas, where there are fewer aged care facilities, and such patients are frequently cared for in an 'acute' hospital. The average across the non-metropolitan areas of Australia was 69.9 per cent.

All admissions, including admissions of same day patients, have been included with the exception of admissions for renal dialysis. Same day admissions for renal dialysis have been excluded as they cover many repeat visits by a relatively small number of patients, who may have several admissions in a week. Further, an examination of the data suggests that some patients have changed address to live close to the location of renal dialysis facilities, thus distorting the patterns of use by address of usual residence. It should be noted that the acute episodes analysed also include repeat admissions, although not to the extent this atlas.

[2]Some larger acute public hospitals (generally teaching hospitals) have dedicated psychiatric units. However patients treated in public acute hospitals (but not in the psychiatric unit) and in private hospitals may also, at the end of their hospital episode, be given a diagnosis indicating their principal condition was a mental disorder. These cases are included in the data analysed and mapped here in

occurring among same day patients (in particular those requiring chemotherapy or renal dialysis).

Data issues

Data mapped

Analysis of admissions has been restricted to examining admissions for all causes (separately for public acute and private hospitals, and for females and males), and selected diagnoses (based on the patient's principal diagnosis) and selected procedures (based on the patient's principal procedure), which are major contributors to variations in the pattern of distribution of hospitalisation at the regional and small level, and are known to be associated with socioeconomic status. These admissions (**Table 6.3**) represent 95.1 per cent of the total acute admissions analysed for 1995/96.

Standardised admission ratios have been calculated for SLAs by indirect age-sex standardisation. A description of the technique of standardisation is in Appendix 1.3.

Table 6.3: Public acute and private hospital admissions included in the analysis[1], Tasmania, 1995/96

Principal diagnosis/procedure	Same day		Overnight		Total	
	No.	%[2]	No.	%[2]	No.	%[2]
Principal diagnosis						
Infectious and parasitic diseases	488	1.2	1,291	1.6	1,779	1.5
Cancer						
lung cancer	102	0.3	347	0.4	449	0.4
cancer of the female breast	36	0.1	319	0.4	355	0.3
Total cancer	1,407	3.5	4,288	5.3	5,695	4.7
Mental disorders						
psychosis	320	0.8	1,690	2.1	2,010	1.7
neurotic, personality or other mental disorders	701	1.7	1,538	1.9	2,239	1.9
Total mental disorders	1,022	2.5	3,232	4.0	4,254	3.5
Circulatory system diseases						
ischaemic heart disease	149	0.4	3,917	4.9	4,066	3.4
Total circulatory diseases/disorders	976	2.4	9,615	12.0	10,591	8.8
Respiratory system diseases						
bronchitis, emphysema or asthma	139	0.3	1,175	1.5	1,314	1.1
Total respiratory diseases/disorders						
0 to 4 year olds	134	0.3	1,137	1.4	1,271	1.1
all ages	682	1.7	5,719	7.1	6,401	5.3
Accidents, poisonings and violence	2,035	5.1	7,882	9.8	9,917	8.2
All causes (excl. renal dialysis)						
Females	21,969	54.5	45,118	56.1	67,087	55.6
Males	18,307	45.5	35,242	43.9	53,549	44.4
Public acute hospitals (excl. renal dialysis)	20,542	51.0	46,814	58.3	67,356	55.8
Private acute & psychiatric hospitals (excl. renal dialysis)	19,734	49.0	33,546	41.7	53,280	44.2
Total admissions (excl. renal dialysis)	40,276	100.0	80,360	100.0	120,636	100.0
Total admissions						
Admissions for renal dialysis	6,149	13.2	52	0.1	6,201	4.9
All other admissions	40,276	86.8	80,360	99.9	120,636	95.1
Total admissions (incl. renal dialysis)	46,425	100.0	80,412	100.0	126,837	100.0
Principal procedure						
Tonsillectomy	3	0.01	579	1.4	582	0.9
Myringotomy	525	2.0	76	0.2	601	0.9
Caesarean section	0	0.0	1,180	2.9	1,180	1.7
Hysterectomy	3	0.01	1,023	2.5	1,026	1.5
Hip replacement	0	0.0	489	1.2	489	0.7
Lens insertion	1,035	3.9	1,212	2.9	2,247	3.3
Endoscopy	7,772	29.6	1,453	3.5	9,225	13.6
Total (incl. all other) procedures	26,280	100.0	41,461	100.0	67,741	100.0

[1]Excludes long stay nursing home type patients: includes admissions of residents of Tasmania, regardless of the State/Territory of the hospital to which they were admitted

[2]Percentage is of Total admissions for Principal diagnosis and of Total procedures for Principal procedures

Source: See *Data sources*, Appendix 1.3

Deficiencies in the admissions data

As noted above, the majority of hospital inpatient data at the small area level are now available from the Australian Institute of Health and Welfare National Hospital Morbidity Database. There are a number of deficiencies for small area analysis in this database.

For example, the database does not include the address of usual residence at the SLA level for admissions of people occurring outside their home State or Territory. These admissions are of particular significance in places such as the Gold Coast, with people from New South Wales (and in particular from Tweed Heads), being major users of Gold Coast hospitals. Other examples are cross-border flows between Albury (in New South Wales) and Wodonga (in Victoria), and between Canberra and Queanbeyan and other surrounding parts of New South Wales (see **Table 6.4**).

Secondly, the Queensland Health Department does not provide the usual residence of the patient to the AIHW by SLA (as do other States and Territories), instead only making the data available by Statistical Subdivision.

In both of these instances, the State and Territory authorities were approached and provided the necessary data to make the database complete to enable mapping at the SLA level.

A third shortcoming of the National Hospital Morbidity Database is that the Darwin Private Hospital is not included in the Northern Territory hospital inpatient collection. This is the only hospital of significant size (across Australia) that was not included in the 1995/96 database, and remains so. As it accounts for some 20 per cent of admissions occurring in the Northern Territory, it is essential that it be included in any analysis and mapping at the SLA level. Fortunately the Manager of Patient Services at the Darwin Private Hospital arranged for the necessary details (of the age, sex, principal diagnosis, principal procedure and location of address (eg. suburb, town or locality) of each admission) to be provided to the atlas project. To maintain confidentiality of the hospital's data, admissions to the private hospital in the Northern Territory have not been mapped separately as they have for the other States and the Australian Capital Territory.

The lack of a unique patient identifier represents a major deficiency in analysing data for individuals rather than admissions. Although many hospitals have unique identifiers for patients within their hospitals, such identifiers do not exist between the hospital[3]. Thus the data includes repeat admissions and are, therefore, of limited value in describing patterns of hospitalisation for individuals. These issues also apply to many other collections of service utilisation data.

Differences in data treatment between editions

In the first edition of the atlas all same day patients were excluded from the analysis, and were not mapped. The decision to exclude this group of patient episodes was based on a concern that the inclusion of such admissions could distort the patterns of admission at the SLA level. This could occur because the measure mapped is the number of admissions, and not the number of individuals (for which data are not available). In any year an estimated 20 per cent of the population is admitted to hospital (ABS 1997) and most of those admitted have only one admission in any year. However, some conditions, because of their nature, require many repeat admissions. Admission rates for SLAs with above average proportions of such repeat admissions will be distorted. Examples of such admissions are those for renal dialysis and chemotherapy, which may require admission to hospital (or to a same day clinic) every few days, or even daily. It became evident from an examination of the patterns of distribution of admissions for same day patients that some people had moved residence to live in close proximity to the unit they attended for treatment. For this reason same day admissions were excluded from the analysis in the first edition.

Same day admissions have increased to comprise an even greater proportion of all admissions, and to cover a growing range of conditions and procedures, and this approach is no longer appropriate. Instead the data analysed for this second edition includes all same day procedures with the exception of admissions for renal dialysis, as it is for these admissions that it appears likely that people may have moved residence. The exclusion of admissions for renal dialysis resulted in the exclusion of 6,201 admissions in 1995/96, 4.9 per cent of all admissions (**Table 6.3**). In this way the major distorting influence is removed, but the large number of other same day admissions is included. It should be noted that the admissions for renal dialysis excluded were admissions specifically for dialysis (ie. for continuous ambulatory dialysis). Admissions during which renal dialysis was undertaken as an integral component of the episode are included.

In hindsight, it might have been more appropriate to have used this approach in the first edition of the atlas. Had this been done, a major differential evident between the standardised ratios for many of the variables for South Australia in relation to those for the other States could well have been explained (and, at least in part, removed). For example, in 1989-90, the standardised admission ratio (SAR) for both male and female residents of New South Wales was 80. The equivalent ratios for South Australians were 104 for males and 102 for females. For both males and females this represents a differential of just over 25 per cent.

In 1989-90, same day patients accounted for some 27.8 per cent of all admissions in New South Wales and a lower 22.7 per cent in South Australia (1989) (**Table 6.4**)[4]. It is likely that the inclusion of the same day figures in the analysis for the first edition may have reduced, or eliminated, the differentials reported. It is interesting to note that the differential in the proportion of admissions represented by same day patients in these two States has declined substantially, from 22. 5 per cent in 1989, to 7.1 per cent in 1995/96. A similar narrowing has occurred across all of the States.

[3]Although potentially useful as an identifier, the Medicare number is not always included on inpatient records. Nor is it a unique identifier, with some individuals having more than one number.

[4]The comparison in **Table 6.4** has been limited to these two States out of the four mapped in the first edition because of the ready availability of the data for the earlier period shown: they were also the States with the greatest differentials in standardised ratios.

Table 6.4: Public acute and private hospital admissions, by type of admission: Comparison between editions[1]

Admission type	1989[2]		1995/96	
	Number	Per cent	Number	Per cent
South Australia				
Same day				
Renal dialysis	13,927	3.9	34,766	7.6
Other	67,881	18.8	144,725	31.6
Total same day	81,808	22.7	179,491	39.2
Overnight stay	278,521	77.3	278,437	60.8
Total admissions	360,329	100.0	457,928	100.0
New South Wales				
Same day				
Renal dialysis	60,022	4.8	111,065	6.3
Other	289,489	23.0	627,508	35.7
Total same day	349,511	27.8	738,573	42.0
Overnight stay	904,099	72.2	1,017,892	58.0
Total admissions	1,253,610	100.0	1,756,465	100.0

[1]The comparison in this table has been limited to these two States out of the four mapped in the first edition of the atlas because of the ready availability of the data for the earlier period shown: they were also the States with the greatest differentials in standardised ratios

[2]1989-90 for New South Wales

Source: See *data source*, Appendix 1.3

There were 118,217 admissions to hospitals of residents of Tasmania in 1995/96, of which 98.0 per cent were admissions to hospitals within the State, 1.31 per cent were to hospitals in Victoria and 0.22 per cent were to hospitals in Queensland (**Table 6.5**).

Note that it is the residential location of the person admitted to hospital that is mapped in this atlas, irrespective of the location of the hospital.

Table 6.5: Admissions of residents of Tasmania by State/Territory of location of hospital, 1995/96

	Location of hospital								
	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Number	328	1584	264	104	57	118,217	70	12	120,636
Per cent	0.27	1.31	0.22	0.09	0.05	97.99	0.06	0.01	100.00

Source: See *Data sources*, Appendix 1.3

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Admissions to public acute hospitals and private hospitals, 1995/96

Capital city comparison (Australia as the Standard)

The admissions included in this analysis are described in detail on page 187. In brief, they include acute admissions to hospitals in Australia, including admissions of same day patients (other than for renal dialysis), whether to a hospital or to a same day surgical unit. The area for which admissions are mapped relates to the address of usual residence recorded in the hospital's administrative records.

The low standardised admission ratios (SARs) in **Canberra** (70**) and **Perth** (88**) provided the largest variation from the *All capitals* ratio of 97**, with only **Hobart** (102**), **Adelaide** (101**) and **Darwin** (101) recording ratios above the level expected from the Australian rates. The main difference evident in standardised admission ratios between the two periods shown in **Table 6.6** was the substantially lower differential (from the Australian rates) in the SAR recorded for **Sydney** in 1995/96. The higher SAR in this later period suggests an increase (relative to the Australian rates) in admission rates between the periods analysed. A similar, although substantially smaller, increase occurred in **Darwin**, while there was a small decrease (relative to the Australian rates) for admissions of residents of **Adelaide** and **Perth**.

Table 6.6: Admissions to public acute hospitals and private[1] hospitals, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
1995/96[3]	99**	97**	98**	101**	88**	102**	101	70**	97**
1989[4]	80**	..	98*	103	93*	..	100*	..	89**

[1]Includes acute and psychiatric hospitals and day surgery facilities
[2]Includes Queanbeyan (C)
[3]Includes same day admissions, other than for renal dialysis
[4]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Hobart (Tasmania as the Standard)

There were 52,989 admissions to public acute and private hospitals of residents of **Hobart**, six per cent more admissions than were expected from the State rates (an SAR of 106**). Females accounted for over half (55.9 per cent) of these admissions.

The most highly elevated ratio was recorded in Brighton (with an SAR of 127**), which also had the highest rates for most indicators of socioeconomic disadvantage including low income families, unemployed people and public rental housing. Residents of Sorell [Part A] recorded a similarly elevated ratio, of 126**, with 26 per cent more admissions than were expected from the Tasmanian rates. Elevated ratios were also recorded in New Norfolk [Part A] (with an SAR of 119**), Glenorchy (112**) and Clarence (104**) (**Map 6.1**).

On the western side of the Derwent River, residents of the SLAs of the City of Hobart (with an SAR of 98*) and Kingborough [Part A] (94**) had two per cent and six per cent fewer admissions than were expected from the State rates, respectively. Both of these SLAs tend to have the highest values for indicators of high socioeconomic status such as high income families and female labour force participation.

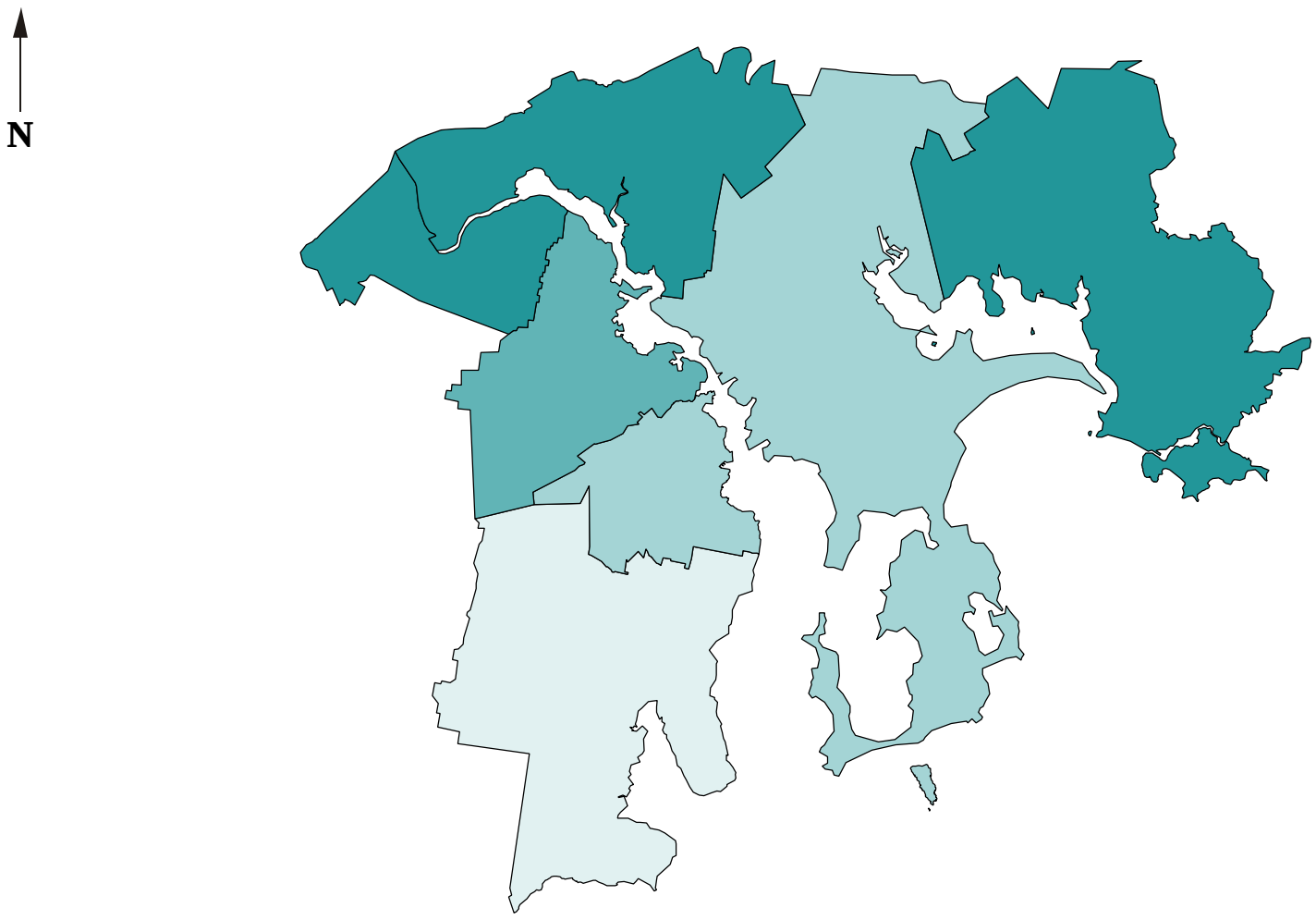
Residents of Clarence and Glenorchy had the largest numbers of admissions, with similar numbers of 13,259 and 13,253 admissions, respectively. Residents of the City of Hobart had 12,628 admissions.

There were correlations of note with many of the indicators of socioeconomic disadvantage. The strongest of these were correlations of substantial significance with the variables for low income families (0.91), early school leavers (0.90), unskilled and semi-skilled workers (0.87) and unemployed people (0.82). Inverse correlations of substantial significance were recorded with the indicators of high socioeconomic status.

These results, together with the inverse correlation of substantial significance with the IRSD (-0.86), indicate the existence of an association at the SLA level between high rates of hospital admissions and high socioeconomic status.

Map 6.1
Admissions to public acute hospitals and private hospitals, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions to public acute hospitals and private hospitals, 1995/96

State/Territory comparison (Australia as the Standard)

The admissions in this chapter include all acute admissions to hospitals in Australia, as well as including admissions of same day patients (other than for renal dialysis), whether to a hospital or to a same day surgical unit.

The most highly elevated standardised admission ratios (SARs) for residents of the non-metropolitan areas were those for the Northern Territory (123**) and South Australia (118**), with elevated SARs in all but Tasmania (**Table 6.7**). The notes on page 187, under the heading *Some suggested reasons for the higher rates of hospitalisation in country areas*, are of relevance in understanding these high admission rates. At the *Whole of State/Territory* level, the Northern Territory had the highest SAR in 1995/96 for this dataset (an SAR of 113**), followed by South Australia (105**) and Queensland (103**).

In all of the States and Territories for which data are available for both periods, SARs were lower in the later period. The main differences are the substantially lower differentials (from the Australian rates) in the SARs recorded for the Northern Territory, Western Australia and South Australia in 1995/96. The lower SARs in this later period suggest a reduction (relative to the Australian rates) in admission rates for non-metropolitan residents between the periods analysed.

Table 6.7: Admissions to public acute hospitals and private[1] hospitals, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[2]									
Capital city	99**	97**	98**	101**	88**	102**	101	70**	97**
Other major urban centres[3]	94**	83**	97**	..	..	..	..	..	94**
Rest of State/Territory	107**	105**	111**	118**	112**	92**	123**	–[4]	108**
Whole of State/Territory	101**	99**	103**	105**	95**	96**	113**	69**	100
1989[5]									
Rest of State/Territory	118**	..	123**	136**	151**	..	172**	..	127**

[1]Includes acute and psychiatric hospitals and day surgery facilities
[2]Includes same day admissions, other than for renal dialysis
[3]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[4]Data unreliable: included with ACT total
[5]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 67,647 admissions of residents of non-metropolitan SLAs to public acute and private hospitals in 1995/96, four per cent fewer than were expected from the State rates (an SAR of 96**). Females accounted for over half (55.4 per cent) of these admissions.

There were no SLAs with ratios in the highest range mapped, and almost half (47.1 per cent) of the SLAs recorded ratios in the middle range, with SARs between 90 and 109 (**Map 6.2**).

The highest ratio (an SAR of 126**) was recorded on King Island, where residents had 26 per cent more admissions to public acute and private hospitals than were expected from the State rates. Elevated ratios of significance were also recorded in Latrobe [Part A] (with an SAR of 122**), Northern Midlands [Part A] (121**), Break O Day (117**), West Coast (116**) and Southern Midlands (115**). Sorell [Part B] (111) also recorded a ratio in this range.

Of the 16 SLAs with ratios in the middle range, elevated ratios of significance were recorded in Circular Head (with an SAR of 106**), George Town [Part A] (106*) and Burnie [Part A] (104*). Residents of Devonport (101) had just one per cent more admissions than were expected from the State rates, and those from Launceston (93**) had seven per cent fewer admissions than expected.

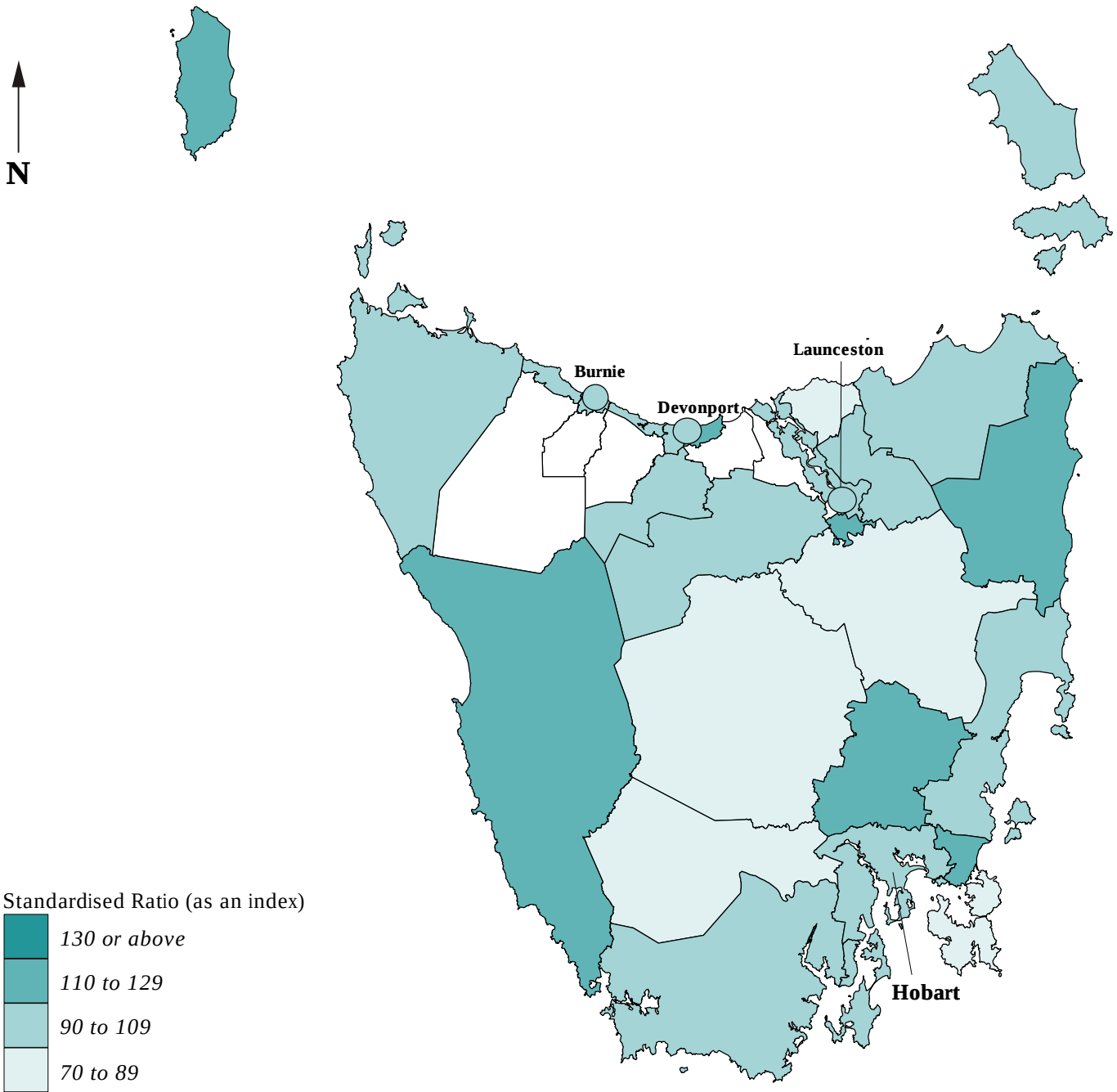
Residents of Latrobe [Part B] recorded the lowest ratio (an SAR of 15**) with 85 per cent fewer hospital admissions than expected from Tasmanian numbers. Other ratios below 50 were recorded in Central Coast [Part B] (37**), Meander Valley [Part A] (42**) and Burnie [Part B] (46).

The largest numbers of admissions were recorded for residents of Launceston (15,285 admissions), Devonport (6,824), Burnie [Part A] (4,778), Central Coast [Part A] (4,670) and West Tamar [Part A] (4,329).

There were correlations of meaningful significance with the variables for single parent families (0.54), dwellings with no motor vehicle (0.53) and low income families (0.50). These results, together with the inverse correlation with the IRSD (-0.41), suggest the existence of an association at the SLA level between high hospital admission rates and socioeconomic disadvantage.

Map 6.2
Admissions to public acute hospitals and private hospitals, Tasmania, 1995/96

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



Standardised Ratio (as an index)

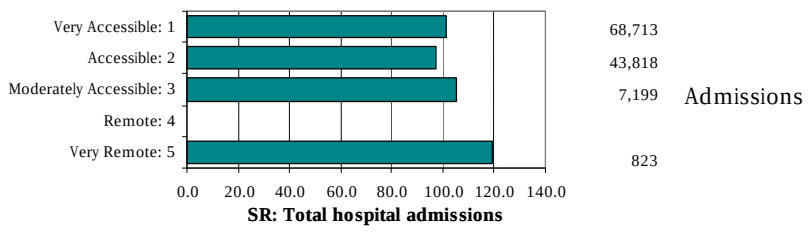
- *130 or above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for admissions to public acute and private hospitals generally increase across the ARIA categories. The lowest ratio is in the Accessible (with an SAR of 97) and Very Accessible (101) areas, with elevated ratios of 119 and 105 recorded for residents in the Very Remote and Moderately Accessible categories, respectively.

Source: Calculated on ARIA classification, DHAC

National Social Health Atlas Project, 1999

Admissions to public acute hospitals, 1995/96

Capital city comparison (Australia as the Standard)

The admissions in this analysis are acute admissions to public acute hospitals (see page 187 for a definition of this hospital type) in Australia, including admissions of same day patients (other than for renal dialysis), whether to a hospital or to a same day surgical unit.

Residents of the capital cities have lower rates of admission than do residents of the non-metropolitan areas of Australia. This is evident from the standardised admission ratios (SARs) in **Table 6.8**, which vary from a high of 99** in **Sydney** to a low of 79** in **Hobart** and 81** in **Canberra**.

Table 6.8: Admissions to public acute hospitals[1], capital cities, 1995/96
Age-sex standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
99**	86**	89**	93**	88**	79**	87**	81**	92**

[1]Includes same day admissions other than for renal dialysis
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Admissions to public acute hospitals (excluding public psychiatric hospitals) accounted for 55.8 per cent of the State's admissions in 1995/96. The remaining 44.2 per cent of admissions were to private (acute or psychiatric) hospitals. For metropolitan residents, the proportion was 52.3 per cent and for non-metropolitan residents, it was a higher 58.6 per cent, reflecting both the higher rates of admissions of country residents and the greater availability of public hospitals and the lack of private hospitals.

The age profile for female (54.4 per cent of inpatient admissions) and male admissions is graphed in **Figure 6.1**, page 182. The most notable features are the higher admission rates for males at the youngest ages and from the mid-fifties, and the high admission rates for females from ages 15 to 49 years.

Hobart (Tasmania as the Standard)

There were 27,706 admissions to public acute hospitals of residents of **Hobart**, one per cent fewer than expected from the State rates (an SAR of 99). Females accounted for over half (54.4 per cent) of these admissions.

Three SLAs had ratios elevated by at least 30 per cent above the level expected from the State rates (**Map 6.3**). Residents of Brighton had 55 per cent more admissions to public acute hospitals than were expected from the Tasmanian rates (an SAR of 155**). Brighton also recorded the lowest IRSD score in **Hobart**, indicating a significant degree of socioeconomic disadvantage. Residents of New Norfolk [Part A] and Sorell [Part A] recorded ratios of 141** and 132**, respectively. Glenorchy had an elevated SAR of 114**.

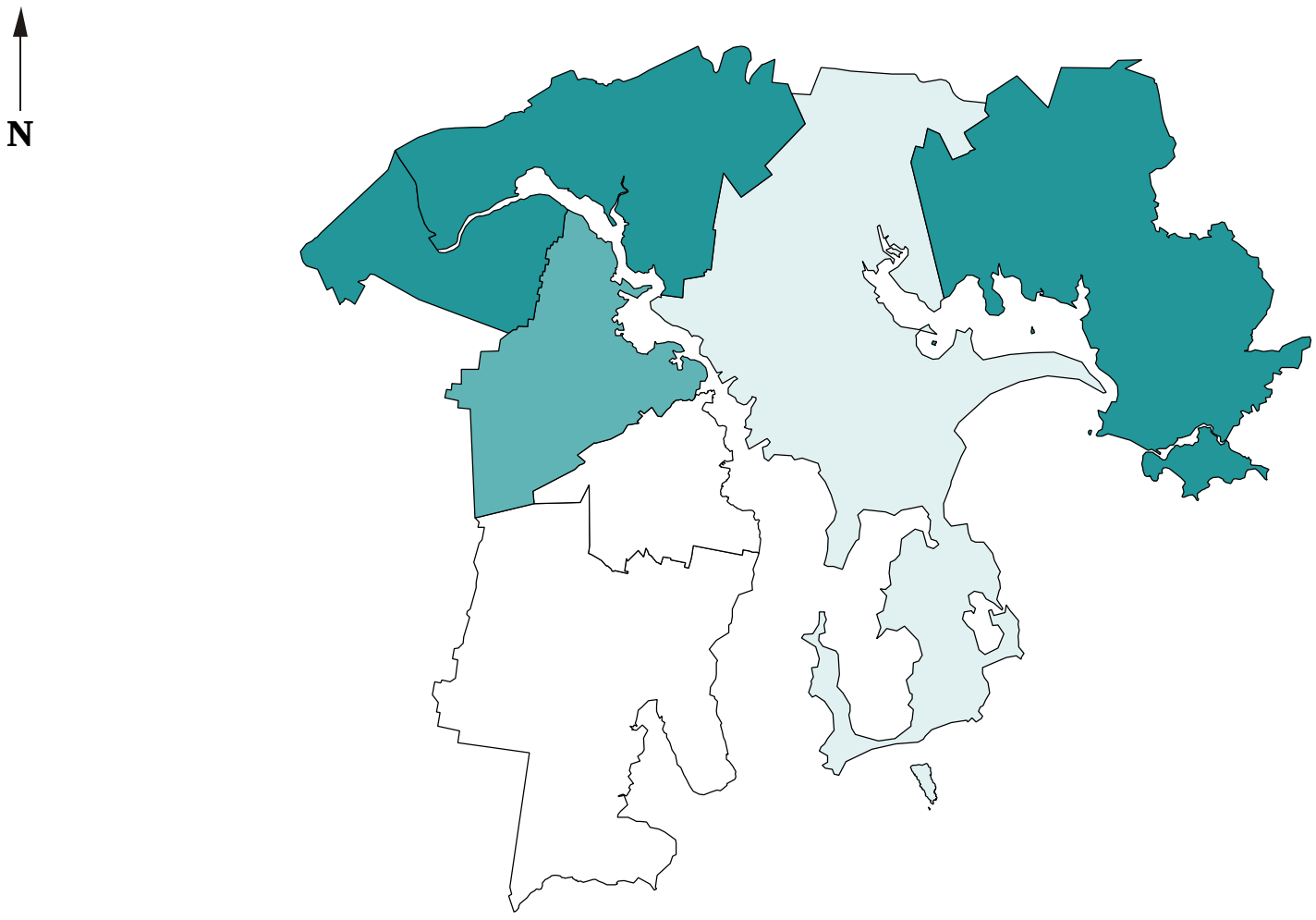
Of the three SLAs with fewer admissions than expected, Clarence (with an SAR of 92**) was the only one not mapped in the lowest range. Residents of the City of Hobart (with an SAR of 82**) and Kingborough (76**) had the lowest ratios, with 18 per cent and 24 per cent fewer admissions than were expected from the State rates.

Residents of Glenorchy (7,512), Clarence (6,484) and Hobart (5,899) recorded the highest numbers of public acute hospital admissions. The lowest number of admissions, 1,394, was recorded by residents of New Norfolk [Part A].

There were correlations of substantial significance with the variables for low income families (0.96), unskilled and semi-skilled workers (0.95), early school leavers (0.93) and unemployed people (0.86). There were also inverse correlations of substantial significance with the indicators of socioeconomic disadvantage. These results, together with the inverse correlation of substantial significance with the IRSD (-0.92), indicate the existence of an association at the SLA level between high rates of admissions to public hospitals and socioeconomic disadvantage.

Map 6.3
Admissions to public acute hospitals, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions to public acute hospitals, 1995/96

State/Territory comparison (Australia as the Standard)

The most highly elevated standardised admission ratios (SARs) for admissions to public acute hospitals of residents of the non-metropolitan areas of Australia were in the Northern Territory (159**), South Australia (149**) and Western Australia (139**): ratios were elevated by more than 20 per cent also in New South Wales and Victoria. Only in Tasmania were there fewer admissions of residents of the non-metropolitan areas than expected from the Australian rates (**Table 6.9**), although details of admissions to private hospitals (page 202 and **Table 6.11**) are also relevant.

At the *Whole of State/Territory* level the Northern Territory had the highest SAR for admissions to public acute hospitals in 1995/96 (an SAR of 126**), followed by South Australia (108**) and New South Wales (105**).

Table 6.9: Admissions to public acute hospitals[1], State/Territory, 1995/96
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	99**	86**	89**	93**	88**	79**	87**	81**	92**
Other major urban centres[2]	93**	89**	73**	..	..	..		..	86**
Rest of State/Territory	123**	122**	110**	149**	139**	80**	159**	–[3]	121**
Whole of State/Territory	105**	96**	96**	108**	102**	80**	126**	78**	100

[1]Includes same day admissions, other than for renal dialysis
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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)

The relative availability of public acute hospitals and the lack of private hospitals throughout the non-metropolitan areas of Tasmania is evident from the higher rate of use of public acute compared with private hospitals. Residents of the non-metropolitan areas had the expected level of admissions to public acute hospitals (an SAR of 100), but 10 per cent fewer private hospital admissions than were expected from the State rates (an SAR of 90**).

Residents of almost two thirds (65.0 per cent) of non-metropolitan SLAs had more admissions to public acute hospital than were expected from the State rates (**Map 6.4)**. The majority of SLAs with fewer admissions than expected are clustered around Devonport.

Nine SLAs had ratios elevated by 30 per cent or more above the level expected. Generally, these SLAs were in the more remote regions of Tasmania. The highest ratios were recorded in King Island (with an SAR of 174**) and Break O Day (171**). Circular Head (with an SAR of 153**), West Coast (152**), Flinders (145**), Northern Midlands [Part A] (143**), George Town [Part A] (143**), Dorset (138**) and Southern Midlands (130**) also recorded ratios in the top range.

Of the other eight SLAs with ratios elevated by at least ten per cent, highly significant ratios were recorded in Burnie [Part A] (with an SAR of 125**), Launceston [Part C] (121**), Meander Valley [Part B] (117**), Waratah/Wynyard [Part A] (113**) and Northern Midlands [Part B] (111**). Other SLAs with ratios in this range were Kingborough [Part B] (with an SAR of 113*), George Town [Part B] (111) and Sorell [Part B] (110).

Five SLAs had ratios in the middle range with highly significant ratios recorded in Launceston (104**) and West Tamar [Part A] (105**).

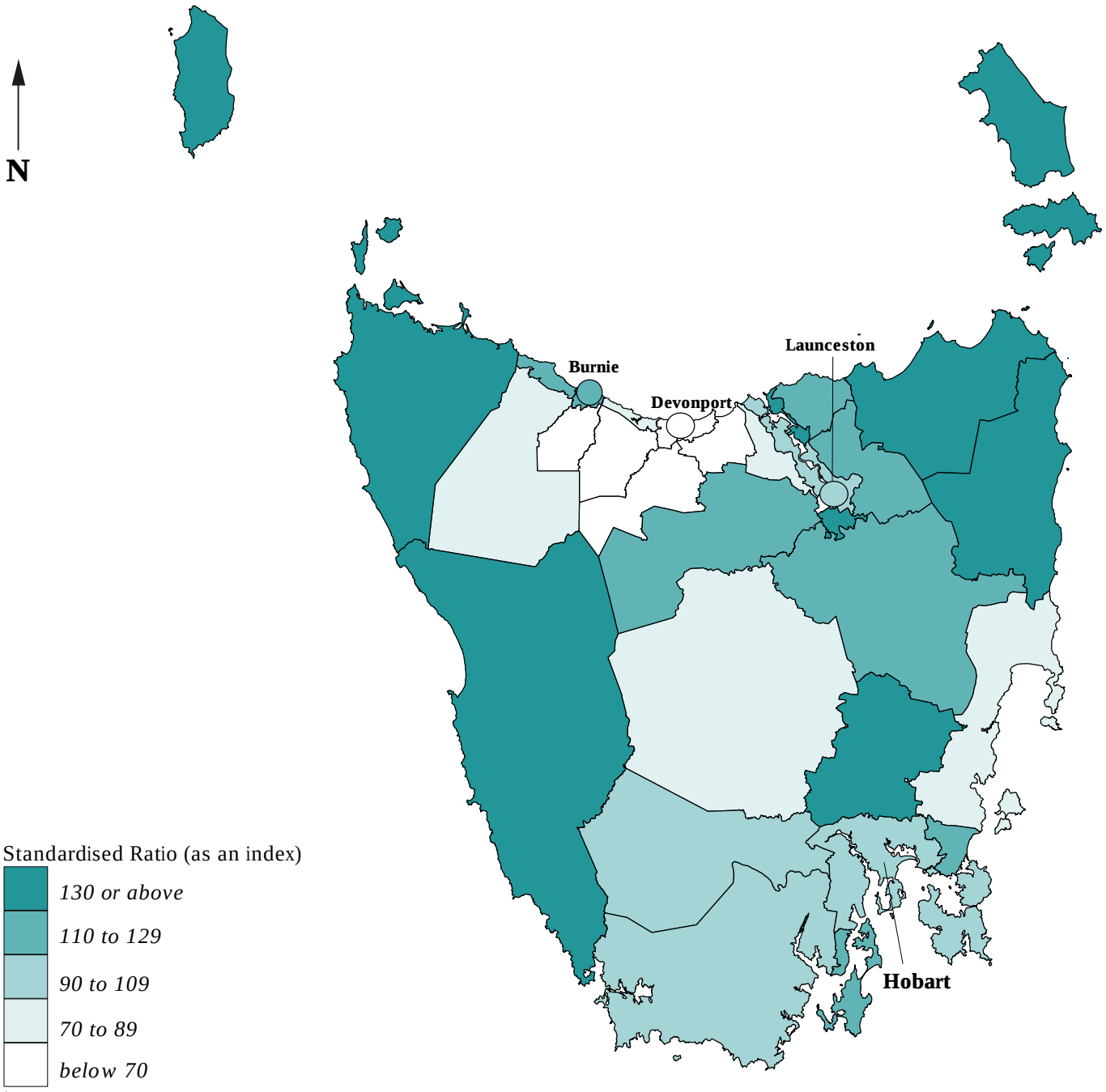
With the exception of Glamorgan/Spring Bay (with an SAR of 88**) and Central Highlands (77**), SLAs with fewer admissions than expected formed a group in the central north of Tasmania. The lowest ratios were recorded in Latrobe [Part B] (with an SAR of 8**), Devonport (37**), Central Coast [Part B] (39**), Kentish (40**), Latrobe [Part A] (43**), Meander Valley [Part A] (45**) and Burnie [Part B] (48**).

The largest numbers of admissions to public acute hospitals were recorded for residents of Launceston (9,631 admissions), Burnie [Part A] (3,221), West Tamar [Part A] (2,649) and Central Coast [Part A] (2140).

There were weak correlations with most of the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.31), suggest the existence of an association at the SLA level between high rates of public hospital admissions and socioeconomic disadvantage.

Map 6.4
Admissions to public acute hospitals, Tasmania, 1995/96

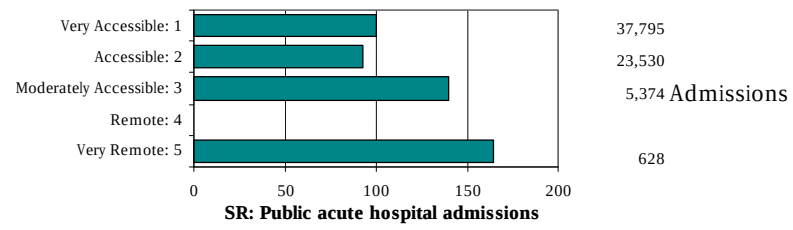
Standardised Ratio: number of admissions in each Statistical Local Area compared with the number expected*



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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios for admissions to public acute hospitals increase more markedly between the ARIA categories than do those for total admissions, cover a wider range and have a higher overall ratio for residents of areas in the Very Remote category, a highly elevated SAR of 164 (64 per cent more admissions than expected from the State rates). The ratio in the Moderately Accessible areas (an SAR of 140) is also elevated. The lowest ratio was recorded for people in the areas in the Accessible category (an SAR of 93).

Source: Calculated on ARIA classification, DHAC

Admissions to private hospitals, 1995/96

Capital city comparison (Australia as the Standard)

The admissions included in this analysis are acute admissions to private hospitals in Australia (both private acute and private psychiatric hospitals: see page 187 for a definition of these hospital types). Admissions of same day patients (other than for renal dialysis) are included, whether to a hospital or to a same day surgical unit.

As most private hospitals are located in the capital cities, residents of these cities generally have higher rates of admission to private hospitals than does the population living in the non-metropolitan areas of Australia. This is evident from the standardised admission ratios (SARs) in **Table 6.10**, which are generally higher in the capital cities than expected from the Australian rates. The low level of provision of private hospital facilities in **Perth** and **Canberra** is reflected in the low ratios for these two capital cities. Details of admissions to public acute hospitals (page 196, **Table 6.8**) and levels of provisions of private hospitals (Chapter 7) are also relevant.

Table 6.10: Admissions to private hospitals[1], capital cities, 1995/96
Age-sex standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
98**	121**	116**	116**	89**	150**	133**	46**	108**

[1]Includes acute and psychiatric hospitals and day surgery facilities, including same day admissions, other than for renal dialysis
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Admissions to the 12 private hospitals account for 44.2 per cent of all admissions (excluding those in public psychiatric hospitals, same day patients and long stay nursing home type patients) in 1995/96. The remaining 55.8 per cent were admissions to public acute hospitals. For metropolitan residents the proportion was higher, at 47.7 per cent, and for non-metropolitan residents, it was a lower 41.4 per cent.

Females make greater use of private hospitals than males, with admissions to private hospitals representing 45.2 per cent of all female admissions studied (compared with 42.9 per cent for males) and accounting for 56.9 per cent of private hospital admissions (54.6 per cent in public acute hospitals).

The age profile for admissions of females and males is graphed in **Figure 6.2**, page 183. The most notable features are the higher admission rates for females from age 15 years through the child-bearing years to the late fifties. Males had higher admission rates for all other age groups.

Hobart (Tasmania as the Standard)

Reflecting the largely metropolitan location of private hospitals, there were 15 per cent more admissions to private hospitals of residents of **Hobart** than expected from the State rates (an SAR of 115**).

While the use of public acute hospitals has a distribution strongly associated with the location of residents of lower socioeconomic status postcodes, private hospital admissions do not conform exactly to the converse pattern (**Map 6.5)**. However, the distribution of SARs covered a narrow range (from 89 to 120), with Clarence (with an SAR of 120**), an area of relatively high socioeconomic status, and Sorell [Part A] (120**), an area of average socioeconomic status, recording the highest ratios for admissions to a private hospital.

The SLAs of Hobart and Kingborough [Part A], areas of high socioeconomic status where residents are more likely to have private health insurance, recorded similarly elevated ratios, of 119** and 117** respectively.

Glenorchy, an area of relatively low socioeconomic status, also recorded an elevated ratio, 110**, with residents having 10 per cent more private hospital admissions than were expected from the State rates.

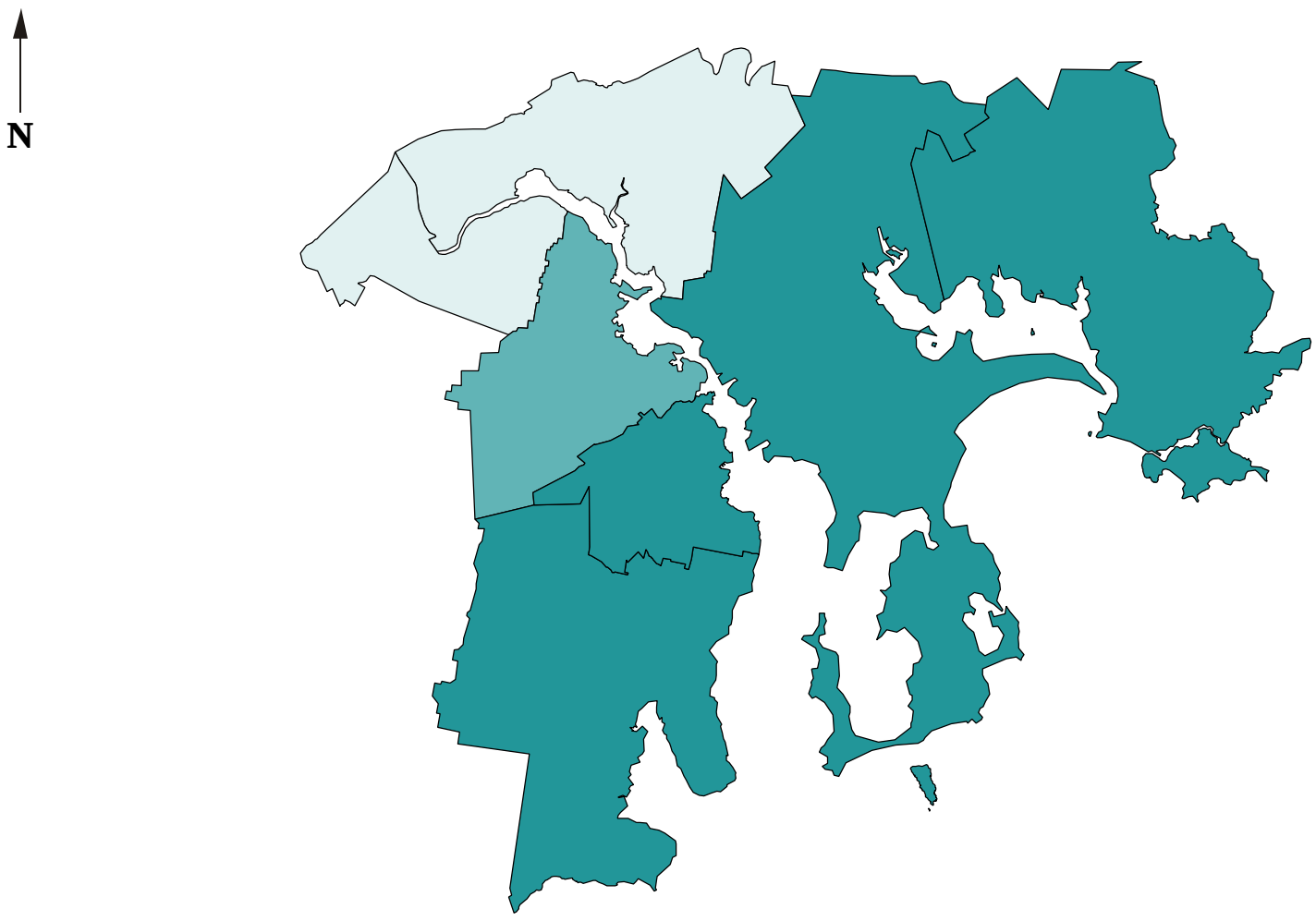
Brighton and New Norfolk [Part A], the most socioeconomically disadvantaged SLAs in **Hobart**, conformed to the expected pattern by having the lowest private hospital admission rates, with SARs of 89** and 91* respectively.

The largest numbers of private hospital admissions were recorded by residents of Clarence (6,775 admissions), the City of Hobart (6,729) and Glenorchy (5,741).

There was a correlation of substantial significance with the variable for female labour force participation (0.84), and of meaningful significance with managers and administrators, and professionals (0.65) and high income families (0.58). Inverse correlations of substantial significance were recorded with the variables for unskilled and semi-skilled workers (-0.87), low income families (-0.81), public rental housing (-0.78), the Indigenous population (-0.72) and unemployed people (-0.71). These results, together with the correlation of substantial significance with the IRSD (0.82), indicate the existence of an association at the SLA level between high rates of private hospital admissions and high socioeconomic status.

Map 6.5
Admissions to private hospitals, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Admissions to private hospitals, 1995/96

State/Territory comparison (Australia as the Standard)

The most highly elevated standardised admission ratios (SARs) for admissions to private hospitals of residents of the non-metropolitan areas of Australia were in Tasmania (118**) and Queensland (113**). Ratios in all of the other States and the Northern Territory were substantially lower than expected from the Australian rates (**Table 6.11**). The lowest were in the Northern Territory (39**), South Australia and Western Australia (both with SARs of 55**). Details of admissions to public acute hospitals (page 198, **Table 6.9**) and levels of provisions of private hospitals (Chapter 7) are also relevant.

At the *Whole of State/Territory* level, Tasmania had the highest SAR for admissions to private hospitals in 1995/96 (an SAR of 131**), followed by Queensland (119**) and Victoria (106**).

Table 6.11: Admissions to private[1] hospitals, State/Territory, 1995/96
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	98**	121**	116**	116**	89**	150**	133**	46**	108**
Other major urban centres[2]	96**	72**	147**	..	..	..	..	..	113**
Rest of State/Territory	73**	69**	113**	55**	55**	118**	39**	–[3]	81**
Whole of State/Territory	91**	106**	119**	100	80**	131**	84**	48**	100

[1]Includes acute and psychiatric hospitals and day surgery facilities, including same day admissions, other than for renal dialysis
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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)

The lack of private hospitals and the relative availability of public hospitals throughout non-metropolitan Tasmania is evident from the lower rate of use of private compared with public hospitals. Residents of these non-metropolitan SLAs had 10 per cent fewer admissions from private hospitals than expected from the State rates (an SAR of 90**), but recorded the expected level of public acute hospital admissions. In 1995/96, there were 27,997 admissions to private hospitals of residents from rural Tasmania.

Map 6.6 shows that residents of the majority of non-metropolitan SLAs had fewer admissions to private hospitals than expected from the State rates, and that over half the SLAs had ratios in the lowest range mapped.

Just five non-metropolitan SLAs had elevated ratios for admissions to private hospitals. With the exception of Sorell [Part B] in the south east of the State (with an SAR of 112), the SLAs with elevated ratios formed a cluster about the central north coastal region. The highest ratio (an SAR of 221**) was recorded in Latrobe [Part A], where residents had over twice the expected number of admissions to a private hospital. Devonport (with an SAR of 183**) and Kentish (168**) also had ratios in the top range mapped. Central Coast [Part A] (122**) had the next highest ratio.

SLAs with ratios in the middle range (with ratios within 10 per cent of the expected level) were located in the east of the State; Glamorgan/Spring Bay (97), Kingborough [Part B] (96), Southern Midlands (96) and Northern Midlands [Part A] (92*).

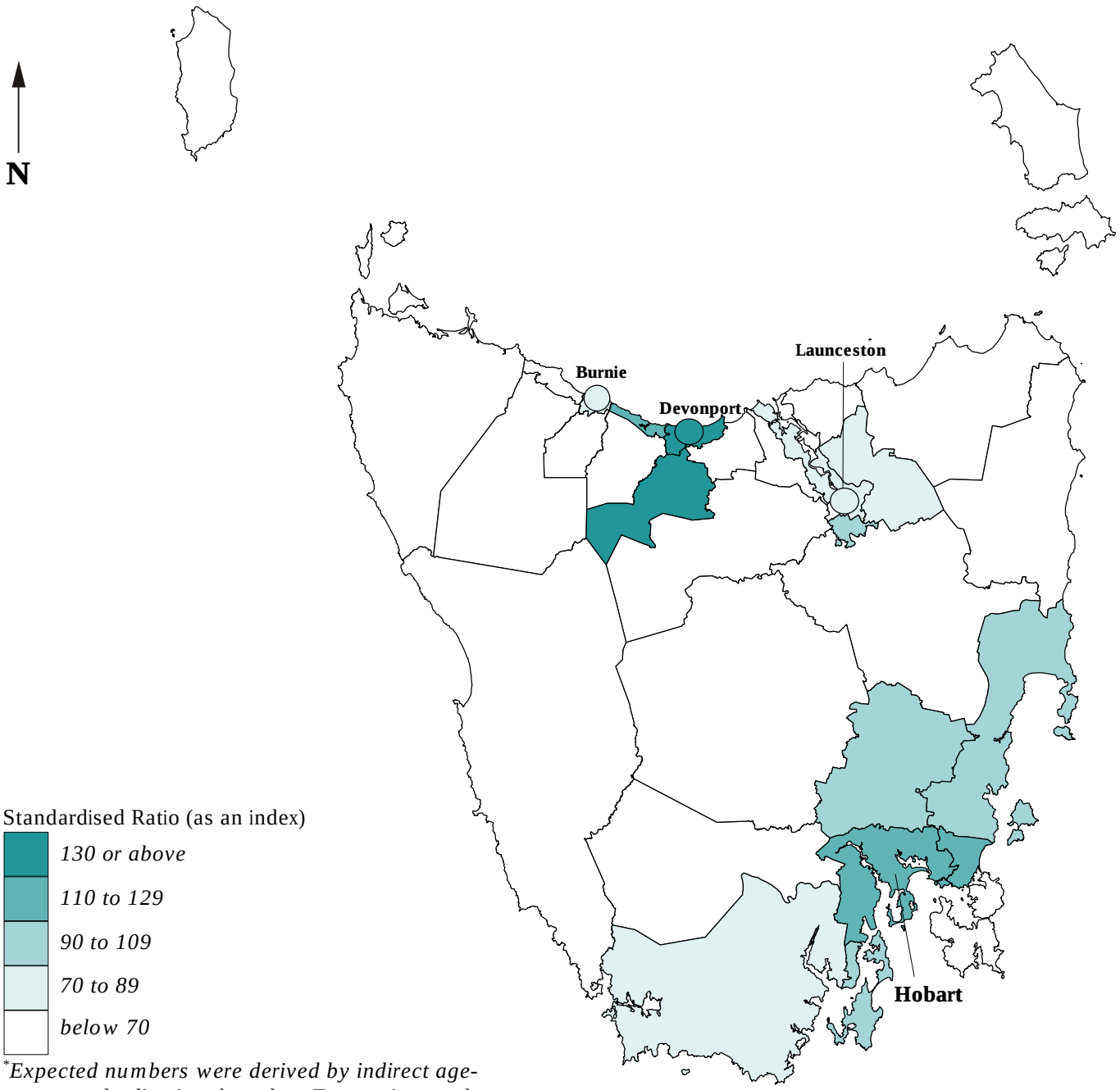
Twenty SLAs (59 per cent of all SLAs) had in excess of 30 per cent fewer admissions than expected. Residents of Latrobe [Part B] (with an SAR of 23**) recorded the lowest ratio, with 77 per cent fewer private hospital admissions than were expected from the State rates. Other low ratios were recorded in Central Coast [Part B] (an SAR of 35**), Tasman (37**), West Tamar [Part B] (38**), Meander Valley [Part A] (39**), Northern Midlands [Part B] (43**) and Burnie [Part B] (43**).

Residents of Launceston (5,655 admissions), Devonport (5,453), Central Coast [Part A] (2,530) and West Tamar [Part A] (1,681) recorded the largest numbers of admissions to private hospitals.

There were weak correlations with the indicators of socioeconomic disadvantage and weak inverse correlations with the indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.18), suggest the existence of an association at the SLA level between high rates of admission to private hospitals and socioeconomic disadvantage. This is the reverse of the situation in **Hobart**.

Map 6.6
Admissions to private hospitals, Tasmania, 1995/96

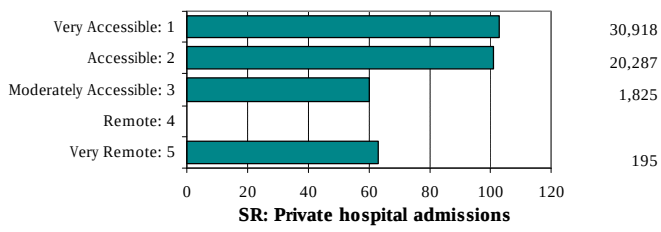
Standardised Ratio: number of admissions in each Statistical Local Area compared with the number expected*



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

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

Accessibility/Remoteness Index of Australia



	Admissions
Very Accessible: 1	30,918
Accessible: 2	20,287
Moderately Accessible: 3	1,825
Remote: 4	
Very Remote: 5	195

Residents of the Very Accessible and Accessible areas under the ARIA classification accounted for the majority of admissions to private hospitals (96.2 per cent) and had standardised admission ratios close to the level expected from the State rates (SARs of 103 and 101, respectively), reflecting the greater availability of these facilities. Ratios in the other categories were less than two thirds of the level expected, with SARs of 60 and 63 in the Moderately Accessible and Very Remote ARIA categories, respectively. Private hospital beds are confined to the Very Accessible and Accessible areas (see Chapter 7).

Source: Calculated on ARIA classification, DHAC

Admissions of males, 1995/96

Capital city comparison (Australia as the Standard)

The admissions in this chapter are of acute admissions to hospitals in Australia, including admissions of same day patients (other than for renal dialysis), whether to a hospital or to a same day surgical unit.

Males in **Hobart** had the highest standardised admission ratio (SAR) with two per cent more admissions than expected from the Australian rates, followed by **Sydney**, **Adelaide** and **Darwin** with one per cent more admissions than expected from the Australian rates. As for all admissions, the lowest ratios were recorded for residents of **Canberra** (68**) and **Perth** (89**).

The main difference evident in admission rates between the two periods shown in **Table 6.12** was the substantially lower differential (from the Australian rates) in the SAR recorded for **Sydney** in 1995/96. The higher SAR in this later period suggests an increase (relative to the Australian rates) in admission rates between the periods analysed. There was a small reduction (relative to the Australian rates) in admission rates for male residents of **Brisbane**, **Adelaide**, **Perth** and **Darwin**.

Table 6.12: Admissions of males, capital cities
Standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra [1]	All capitals
1995/96[2]	101**	96**	98**	101*	89**	102**	101	68**	97**
1989[3]	80**	..	101**	104**	91**	..	103*	..	89**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients, other than for renal dialysis
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Males account for 44.4 per cent of all admissions of Tasmanian residents (which includes admissions to public acute and private hospitals, private psychiatric hospitals and same day surgery facilities, but excludes admissions of same day patients for renal dialysis and long stay nursing home type patients). For metropolitan residents the proportion was similar, at 44.1 per cent of admissions.

Hobart (Tasmania as the Standard)

There were 23,392 admissions of males resident in **Hobart**, seven per cent more than expected from the State rates (an SAR of 107**). The distribution of standardised admission ratios for males (**Map 6.7**) produces a pattern at the SLA level consistent with that evident for many of the measures of low socioeconomic status (Chapter 3).

Three SLAs recorded ratios in the top range mapped; they were Sorell [Part A] (with an SAR of 124** and 24 per cent more admissions of males than expected from the Tasmanian rates), Brighton (121**) and New Norfolk [Part A] (117**).

Elevated ratios of significance were also recorded for residents of Glenorchy (an SAR of 114**) and Clarence (108**).

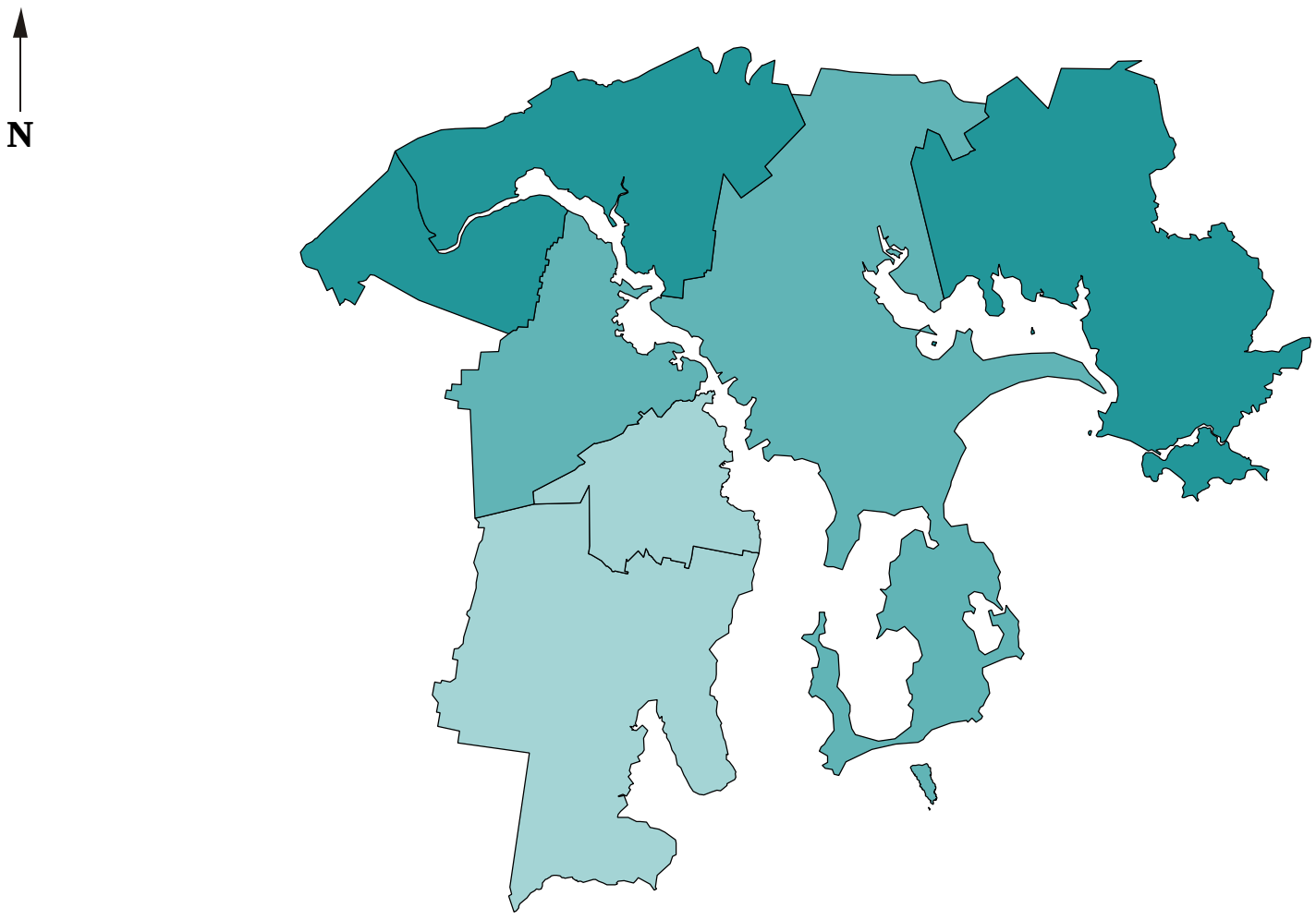
On the western side of the Derwent River, male residents of Kingborough [Part A] (with an SAR of 96*) recorded the lowest ratio for this variable, with 4 per cent fewer admissions than expected, and those in the City of Hobart recorded just one per cent fewer admissions than were expected from the State rates (an SAR of 99).

The largest number of admissions were recorded for males in Clarence (6,057 admissions), Glenorchy (5,881) and Hobart (5,363).

There were correlations of substantial significance with the variables for early school leavers (0.90), low income families (0.88), unskilled and semi-skilled workers (0.83) and unemployed people (0.74), as well as strong correlations with other indicators of socioeconomic disadvantage. Inverse correlations of substantial significance were recorded with the indicators of high socioeconomic status. These results, together with the inverse correlation of substantial significance with the IRSD (-0.82), indicate the existence of an association at the SLA level between high rates of admissions of males and socioeconomic disadvantage.

Map 6.7
Admissions of males, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions of males, 1995/96

State/Territory comparison (Australia as the Standard)

The admissions in this chapter are of all acute admissions to hospitals in Australia, including admissions of same day patients (other than for renal dialysis), whether to a hospital or to a same day surgical unit.

The most highly elevated standardised admission ratios (SARs) for male residents of the non-metropolitan areas were those in the Northern Territory (120**), South Australia (116**) and Queensland (113**). Only in Tasmania were there fewer admissions than expected from the Australian rates (**Table 6.13**). Overall, the Northern Territory had the highest SAR in 1995/96 for this dataset (an SAR of 111**), followed by South Australia (105**) and Queensland (104**).

In all of the States and Territories for which data are available for both periods, SARs were lower in the later period. The main differences are the substantially lower differential (from the Australian rates) in the SARs recorded for the Northern Territory, Western Australia and South Australia in 1995/96. The lower SARs in this later period suggest a reduction (relative to the Australian rates) in admission rates for males between the years analysed.

Table 6.13: Admissions of males, State/Territory
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	101**	96**	98**	101*	89**	102**	101	68**	97**
Other major urban centres[2]	93**	81**	99*	..	..	..	..	..	94**
Rest of State/Territory	106**	102**	113**	116**	108**	90**	120**	–[3]	107**
Whole of State/Territory	101**	98**	104**	105**	94**	95**	111**	67**	100
1989[4]									
Rest of State/Territory	116**	..	123**	134**	142**	..	176**	..	124**

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients, other than for renal dialysis
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 30,156 admissions to public acute and private hospitals of male residents in the non-metropolitan areas of Tasmania, five per cent fewer admissions than were expected from the State rates (an SAR of 95**).

Reflecting the distribution of SARs for total admissions (**Map 6.2**), there were no SLAs with ratios in the highest range mapped and just over half (52.9 per cent) had SARs in the middle range (**Map 6.8**).

The highest ratios were recorded in SLAs to the north of the State, in Latrobe [Part A] (with an SAR of 117**), Northern Midlands [Part A] (115**) and King Island (114*); and in West Coast (113**) and Sorell [Part B] (110) in the southern regions of Tasmania.

Of the 18 SLAs with ratios in the middle range mapped, elevated ratios of significance were recorded in Southern Midlands (with an SAR of 109*) and Burnie [Part A] (105*). Statistically significant ratios below the expected level were recorded for male residents of Launceston (with an SAR of 96**), Huon Valley (94*), Dorset (93*), West Tamar [Part A] (92**) and Waratah/Wynyard [Part A] (91**).

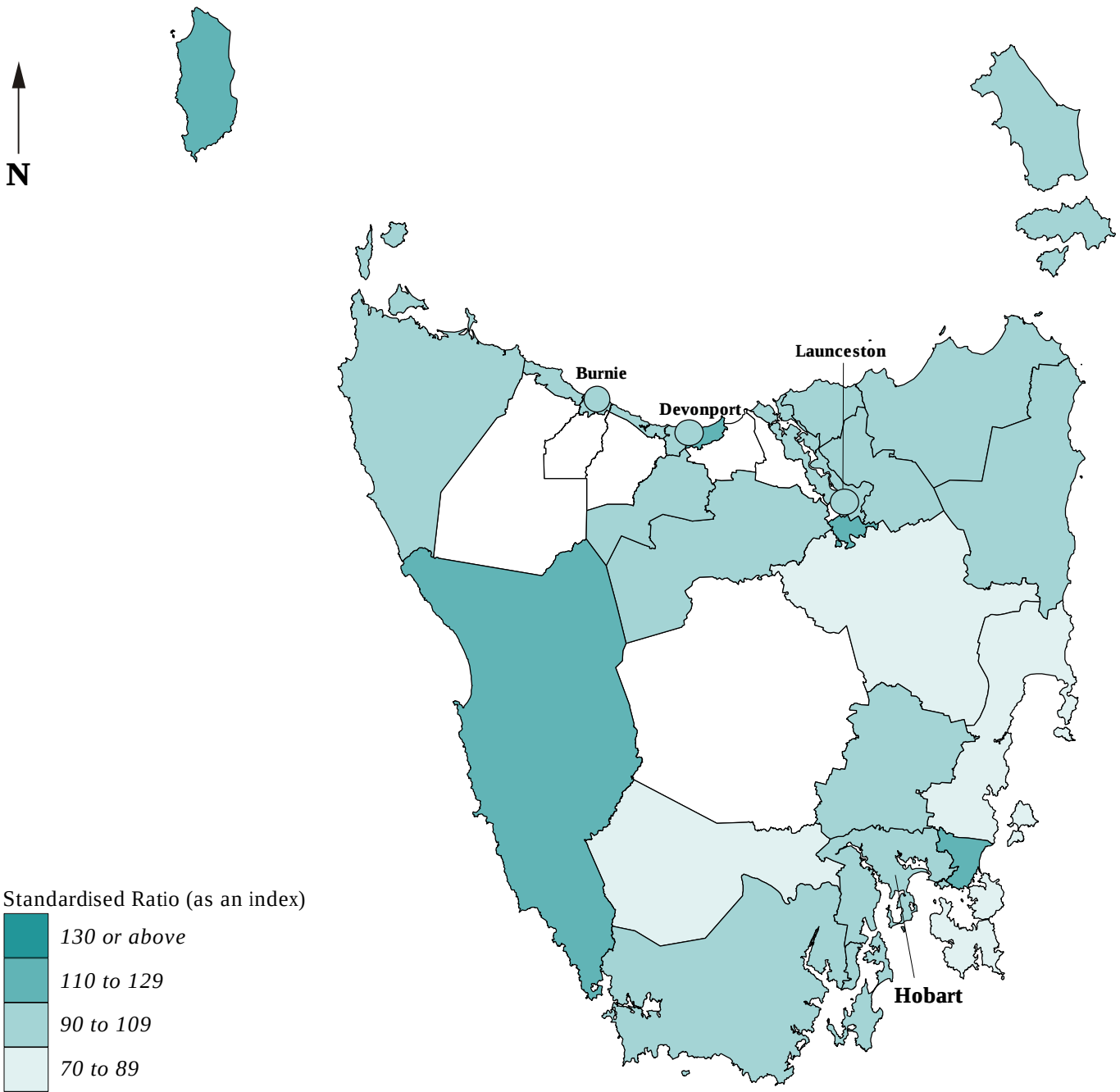
The lowest ratio (an SAR of 14**, but accounting for just 21 admissions) was recorded in Latrobe [Part B]. Other low ratios were recorded by males living in Central Coast [Part B] (34**), Burnie [Part B] (39**), Meander Valley [Part A] (42**), Central Highlands (60**), West Tamar [Part B] (62**) and Waratah/Wynyard [Part B] (68**). Ratios in the range between 70 and 89 were recorded in the eastern SLAs of Glamorgan/Spring Bay (with an SAR of 88**) and Northern Midlands [Part B] (82**) and Tasman (75**) and New Norfolk [Part B] (74**) in the south of the State.

Males living in Launceston (6,689 admissions), Devonport (2,941), Central Coast [Part A] (2,115), Burnie [Part A] (2,070) and West Tamar [Part A] (1,932) recorded the largest numbers of admissions.

There were correlations of meaningful significance with the variables for single parent families (0.59) and low income families (0.51), and weaker correlations with dwellings with no motor vehicle (0.49) and dwellings rented from the State housing authority (0.29). These results, together with the inverse correlation with the IRSD (-0.40), suggest the existence of an association at the SLA level between high rates of admissions of males and socioeconomic disadvantage.

Map 6.8
Admissions of males, Tasmania, 1995/96

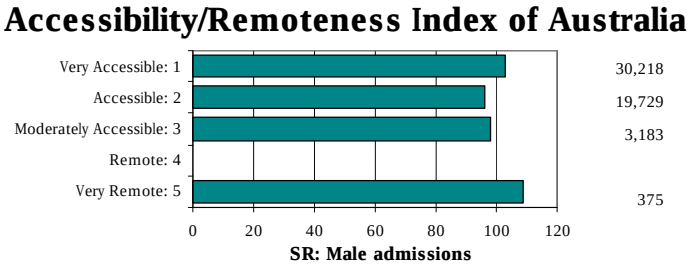
Standardised Ratio: number of admissions in each Statistical Local Area compared with the number expected*



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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for males are lower than expected in the Accessible and Moderately Accessible ARIA categories (with SARs of 96 and 98, respectively) and higher than expected in the Very Remote and Very Accessible categories (with SARs of 109 and 103, respectively).

Source: Calculated on ARIA classification, DHAC

Admissions of females, 1995/96

Capital city comparison (Australia as the Standard)

The admissions in this chapter are of acute admissions to hospitals in Australia, including admissions of same day patients (other than for renal dialysis), whether to a hospital or to a same day surgical unit.

With the exception of lower ratios in **Canberra** and, to a lesser extent, **Perth**, there was little variation across the capital cities in standardised admission ratios (SARs) for females (**Table 6.14**).

As was the case for males, the main difference evident in admission rates between the two periods shown in **Table 6.12** was the substantially lower differential (from the Australian rates) in the SAR recorded for **Sydney** in 1995/96. The higher SAR in this later period suggests an increase (relative to the Australian rates) in admission rates between the periods analysed. A similar, although substantially smaller, increase occurred in **Brisbane** and **Darwin**, while there was a small reduction (relative to the Australian rates) in admission rates for residents of **Adelaide** and **Perth**.

Table 6.14: Admissions of females, capital cities
Standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	98**	98**	98**	101**	88**	103**	102	71**	97**
1989[3]	80**	..	95**	102**	95**	..	97*	..	89**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients, other than for renal dialysis
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5per cent; ** significance at 1 per cent

Females accounted for 55.9 per cent of all admissions of residents of **Hobart** and for 55.4 per cent of admissions of non-metropolitan residents. Overall, females had higher admission rates than males; 28,098 admissions per 100,000 population for females, compared with 22,799 admissions per 100,000 population for males.

Hobart (Tasmania as the Standard)

In 1995/96, there were 29,597 admissions to hospital of females resident in **Hobart**, five per cent more than expected from the State rates (an SAR of 105**).

The distribution of SARs for admissions of females was similar to that for males, with three SLAs recording ratios in the top range mapped and no ratios mapped in the lowest range (**Map 6.9**).

Females living in the SLAs of Brighton (with an SAR of 130**), Sorell [Part A] (129**) and New Norfolk [Part A] (121**) recorded the highest ratios, with 30 per cent, 29 per cent and 21 per cent more admissions than were expected from the Tasmanian rates respectively. Brighton had the highest rates for most indicators of socioeconomic disadvantage, including single parent families, low income families and public rental housing.

An elevated ratio of statistical significance was also recorded in Glenorchy (111**) which also had above average rates for a number of indicators of socioeconomic disadvantage. Clarence had the lowest elevated ratio, with 2 per cent more admissions than were expected from the State rates (an SAR of 102).

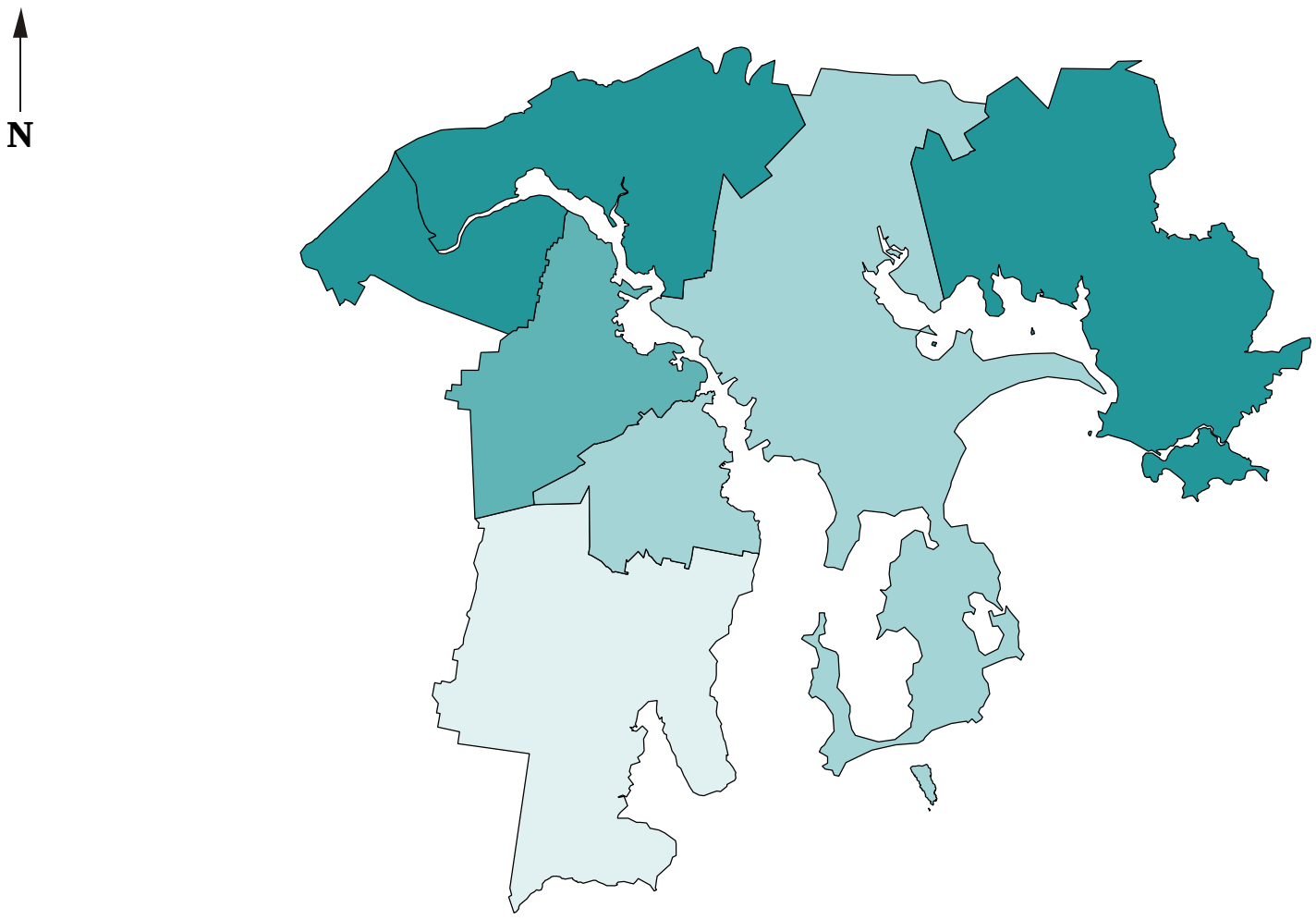
There were fewer admissions of female residents of the City of Hobart (97*) and Kingborough [Part A] (93**) than expected.

The largest numbers of admissions were recorded for female residents of Glenorchy (7,371 admissions), Hobart (7,265) and Clarence (7,201).

There were correlations with the indicators of socioeconomic status, the strongest (of substantial significance) being with the variables for early school leavers and low income families (both with 0.89), unskilled and semi-skilled workers (0.87) and unemployed people (0.82). There were also inverse correlations of substantial significance with the indicators of socioeconomic advantage. These results, together with the inverse correlation of substantial significance with the IRSD (-0.84), indicate the existence of an association at the SLA level between high rates of admission to hospital of females and socioeconomic disadvantage.

Map 6.9
Admissions of females, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions of females, 1995/96

State/Territory comparison (Australia as the Standard)

The admissions in this chapter are of all acute admissions to hospitals in Australia, including admissions of same day patients (other than for renal dialysis), whether to a hospital or to a same day surgical unit.

The most highly elevated standardised admission ratios (SARs) for female residents of the non-metropolitan areas were those in the Northern Territory (126**), South Australia (121**) and Western Australia (116**). Only in Tasmania were there fewer admissions than expected from the Australian rates (**Table 6.15**). At the *Whole of State/Territory* level, the Northern Territory had the highest SAR in 1995/96 for this dataset (an SAR of 114**), followed by South Australia (106**) and Queensland (102**).

In all of the States and Territories for which data are available for both periods, SARs were lower in the later period. The main differences are the substantially lower differential (from the Australian rates) in the SARs recorded for the Northern Territory, Western Australia, South Australia and Queensland in 1995/96. The lower SARs in this later period suggest a reduction (relative to the Australian rates) in admission rates for females between the years analysed.

Table 6.15: Admissions of females, State/Territory
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	98**	98**	98**	101**	88**	103**	102	71**	97**
Other major urban centres[2]	95**	85**	96**	..	..	..	..	..	94**
Rest of State/Territory	108**	107**	109**	121**	116**	94**	126**	–[3]	109**
Whole of State/Territory	100	100	102**	106**	95**	98**	114**	70**	100
1989[4]									
Rest of State/Territory	120**	..	124**	138**	159**	..	169**	..	128**

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients, other than for renal dialysis
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 37,490 admissions of females resident in the non-metropolitan areas of Tasmania, four per cent fewer than expected from the State rates (an SAR of 96**).

The distribution of SARs for admissions of females varies from that for males, in that there were more SLAs with ratios recorded in the top two ranges (**Map 6.10**).

Female residents of King Island had the highest ratio (and the only one in the top range), with 37 per cent more admissions than were expected from the Tasmanian rates (an SAR of 137**). Elevated ratios of statistical significance were recorded in Break O Day (with an SAR of 128**), Northern Midlands [Part A] (126**), Latrobe [Part A] (126**), Southern Midlands (120**), West Coast (118**), George Town [Part A] (115**) and Circular Head (114**). Sorell [Part B] and Flinders recorded ratios of 113 and 110 respectively.

The 13 SLAs with ratios in the middle range mapped included the towns of Burnie [Part A] (with an SAR of 103), Devonport (103) and Launceston (90**). Other ratios of significance in this range were in Meander Valley [Part B] (with an SAR of 92**), Waratah/ Wynyard [Part A] (91**), Huon Valley (90**) and Kentish (90*).

The lowest ratios were recorded for females in Latrobe [Part B] (with an SAR of 16**), Central Coast [Part B] (41**), Meander Valley [Part A] (42**), Burnie [Part B] (53**), West Tamar [Part B] (61**) and Waratah/Wynyard [Part B] (65**).

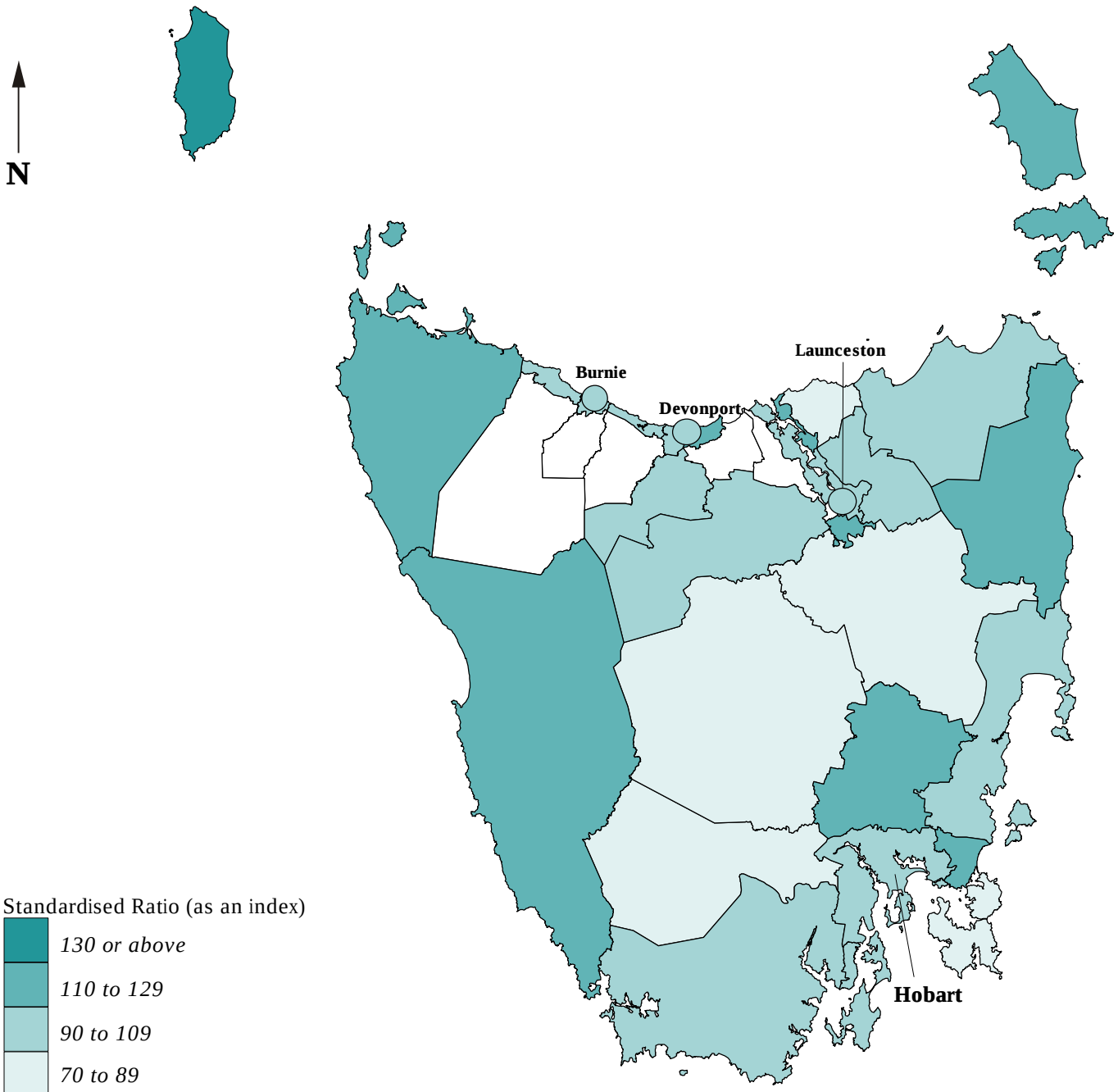
Female residents of George Town [Part B] (with an SAR of 71**), Tasman (77**), Northern Midlands [Part B] (79**), New Norfolk [Part B] (80**) and Central Highlands (83**) recorded SARs between 70 and 89.

The largest numbers of admissions were recorded for female residents of Launceston (8,597 admissions), Devonport (3,883), Burnie [Part A] (2,708), Central Coast [Part A] (2,555) and West Tamar [Part A] (2,397).

There was a correlation of meaningful significance with the variable for dwellings with no motor vehicle (0.54), and weaker correlations with single parent families (0.48) and low income families (0.47). These results, together with the inverse correlation with the IRSD (-0.41), suggest the existence of an association at the SLA level between high rates of admissions of females and socioeconomic disadvantage.

Map 6.10
Admissions of females, Tasmania, 1995/96

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



Standardised Ratio (as an index)

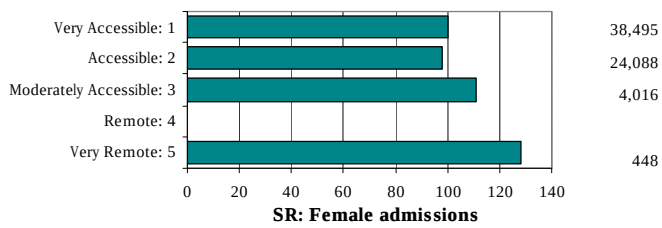
- *130 or above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios for females cover a wider range than do those for males, from close to or at the level expected from the State rates in the Accessible and Very Accessible ARIA categories (with SARs of 98 and 100, respectively), to elevated ratios of 128 and 111 in the Very Remote and Moderately Accessible ARIA categories, respectively.

Source: Calculated on ARIA classification, DHAC

Same day admissions, 1995/96

Capital city comparison (Australia as the Standard)

The same day admissions in this analysis include admissions of same day patients (other than for renal dialysis), whether to a public acute hospital, a private (acute or psychiatric) hospital or to a same day surgical unit. Patients admitted on a same day basis for renal dialysis have been excluded, due to their frequent repeat visits for treatment which distorts the patterns of hospitalisation (see page 187).

There is a wide variation in standardised admission ratios (SARs) between the capital cities, from elevated ratios of 115** in **Melbourne**, 109** in **Sydney** and 108** in **Brisbane**, to a low of 62** in **Canberra** and 65** in **Darwin** (**Table 6.16**). This information was not collected for the first edition of the atlas (see page 189).

Table 6.16: Same day admissions [1], capital cities, 1995/96
Age-sex standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
109**	115**	108**	97**	91**	96**	65**	62**	106**

[1]Includes same day admissions to public acute hospitals, private hospitals and day surgery facilities: excludes admissions for renal dialysis
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Same day admissions accounted for 33.4 per cent of all admissions in 1995/96 of Tasmanian residents, with similar percentages recorded for males (34.2 per cent) and females (32.7 per cent). Same day admissions represented a higher proportion of all admissions in **Hobart** (35.6 per cent) than in the rest of the State (31.6 per cent).

Hobart (Tasmania as the Standard)

In 1995/96, there were 18,880 same day admissions of residents of **Hobart**, 13 per cent more than were expected from the State rates (an SAR of 113**). Females comprised over half (53.3 per cent) of these admissions.

All but one of the SLAs in **Hobart** had an elevated ratio for same day admissions (**Map 6.11**). The highest ratios were recorded in SLAs with the most socioeconomically disadvantaged populations. Sorell [Part A] (with an SAR of 144**) had the most highly elevated ratio, with residents recording 44 per cent more same day admissions than were expected from the State rates. New Norfolk [Part A] (with an SAR of 140**), Brighton (120**) and Glenorchy (118**) also recorded ratios in the top range.

The relatively socioeconomically advantaged area of Clarence and the high status City of Hobart recorded highly significant elevated ratios, of 111** and 110** respectively.

The only SLA with fewer same day admissions than expected was the high socioeconomically status area of Kingborough [Part A] (with an SAR of 95*), where residents had five per cent fewer admissions than were expected from the State rates.

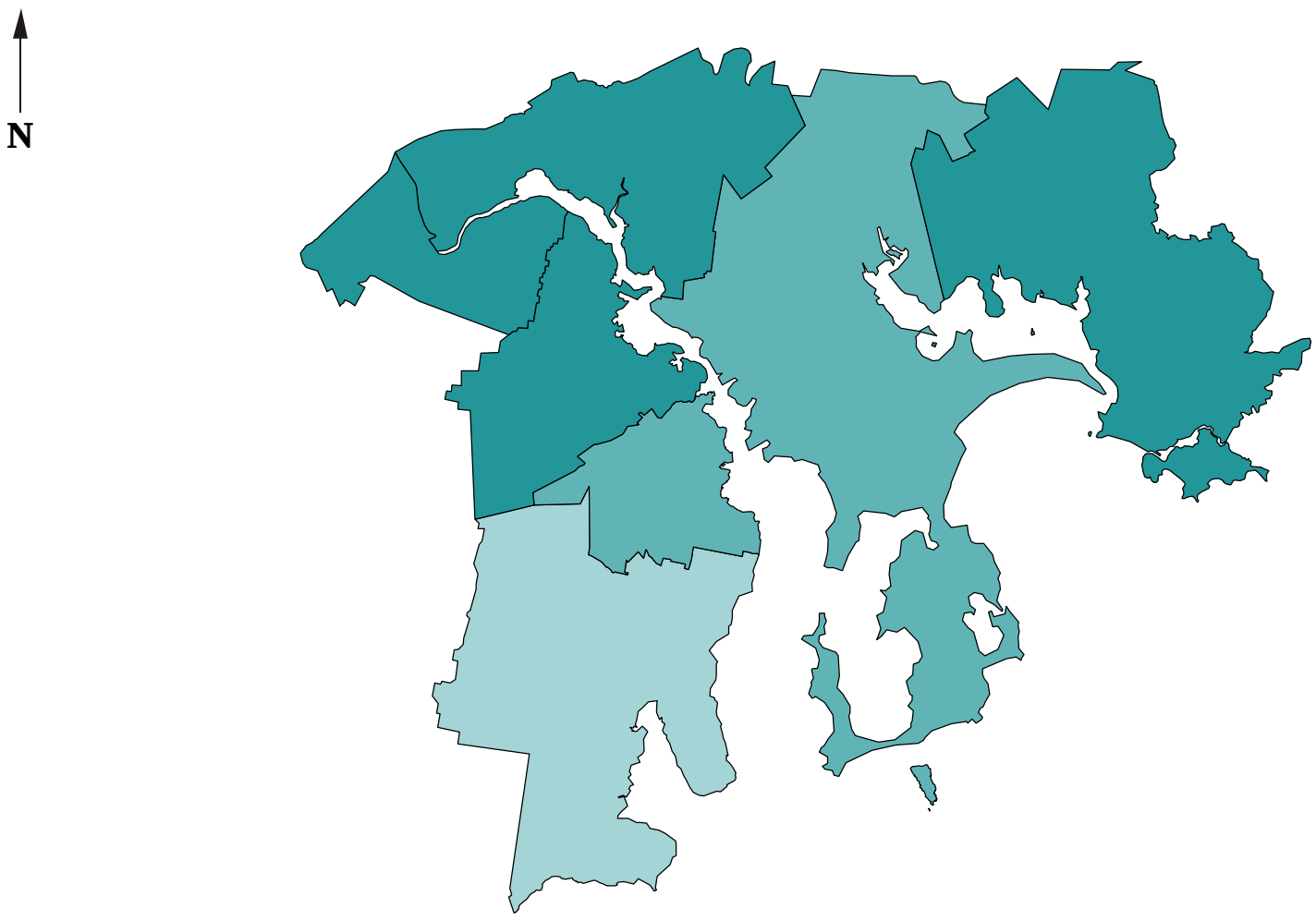
The largest numbers of same day admissions were recorded for residents of Clarence (4,745 admissions), Glenorchy (4,628) and Hobart (4,601).

There were correlations of meaningful significance with the variables for unskilled and semi-skilled workers and early school leavers (both with 0.64) and low income families (0.62). Inverse correlations of meaningful significance were recorded with the variables for high income families (-0.70) and managers and administrators, and professionals (-0.63) and a weaker correlation with female labour force participation (-0.49).

These results, together with the inverse correlation of substantial significance with the IRSD (-0.50), indicate the existence of an association at the SLA level between high rates of same day admissions and socioeconomic disadvantage.

Map 6.11
Same day admissions, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Same day admissions, 1995/96

State/Territory comparison (Australia as the Standard)

The same day admissions in this analysis include admissions of same day patients (other than for renal dialysis), whether to a public acute hospital, a private (acute or psychiatric) hospital or to a same day surgical unit. See the comments on the previous text page and on page 187 for reasons for the exclusion of same day admissions for renal dialysis.

In all cases, there are relatively more admissions of same day patients who were residents of the capital cities than of the non-metropolitan areas (**Table 6.17**). This pattern is a reflection of the location of these facilities which is predominantly in the capital cities, making them less available to residents of the non-metropolitan areas of Australia. There is less variation evident across the non-metropolitan areas than was evident for the capital cities, with standardised admission ratios (SARs) varying from a high of 97** in Queensland to a low of 58** in the Northern Territory. All of these SARs are lower than expected from the Australian rates.

Table 6.17: Same day admissions [1], State/Territory, 1995/96
Age-sex standardised admissions ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	109**	115**	108**	97**	91**	96**	65**	62**	106**
Other major urban centres[2]	97**	71**	103**	..	..	..	..	..	97**
Rest of State/Territory	84**	94**	97**	89**	79**	77**	58**	–[3]	89**
Whole of State/Territory	101**	108**	102**	95**	88**	85**	62**	61**	100

[1]Includes same day admissions to public acute hospitals, private hospitals and day surgery facilities: excludes admissions for renal dialysis
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5per cent; ** significance at 1 per cent

Rest of State (Tasmania as the Standard)

There were nine per cent fewer same day admissions in the non-metropolitan areas of Tasmania than were expected from the State rates, a ratio of 91**. Females accounted for 55.7 per cent of the total 21,396 admissions, while males accounted for 44.3 per cent.

Residents of the non-metropolitan SLAs generally had fewer admissions than expected, with just seven SLAs (21 per cent of all SLAs) recording elevated ratios. The large majority of SLAs (91 per cent) had ratios in the lowest three ranges (**Map 6.12**).

Northern Midlands [Part A] and Latrobe [Part A] (both with an SAR of 131**) and Sorell [Part B] (121) were the only SLAs with ratios elevated by more than twenty per cent.

Of the ten SLAs with ratios within ten per cent of the level expected from the State rates, elevated ratios were recorded in Kingborough [Part B] (with an SAR of 109), Southern Midlands (107), Central Coast [Part A] (106*) and Burnie [Part A] (105*). Other areas with ratios in this range included Devonport (with an SAR of 98), Launceston (95**) and West Tamar [Part A] (94*).

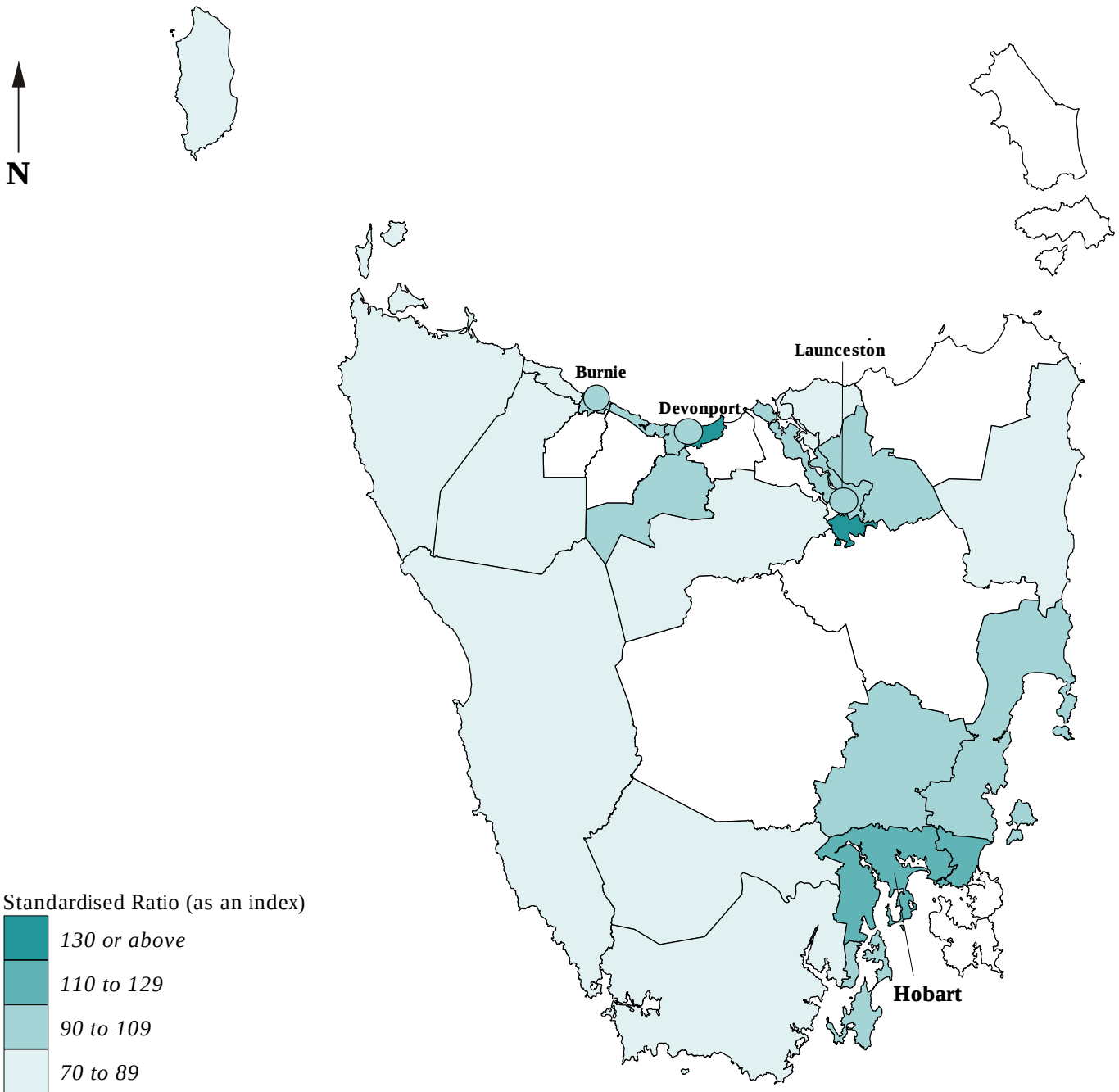
Residents of Latrobe [Part B] had by far the lowest ratio for same day admissions (an SAR of 15**) with 85 per cent fewer admissions than were expected from the State rates. However, this represented just 17 admissions. Very low SARs were also recorded in Central Coast [Part B] (with an SAR of 40**), Meander Valley [Part A] (41**), Flinders (47**), Burnie [Part B] (49**), Northern Midlands [Part B] (56**), West Tamar [Part B] (60**), Tasman (62**), Central Highlands (62**) and Dorset (63**).

The largest numbers of same day admissions were recorded for residents of Launceston (5,133 admissions), Devonport (2,191), Central Coast [Part A] (1,651), Burnie [Part A] (1,621) and West Tamar [Part A] (1,434).

There were weak correlations with the variables for single parent families (0.48) and low income families (0.45), and an inverse correlation with managers and administrators, and professionals (-0.46). These results, together with the weak inverse correlation with the IRSD (-0.29), suggest the existence of an association at the SLA level between high rates of same day admissions and socioeconomic disadvantage.

Map 6.12
Same day admissions, Tasmania, 1995/96

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



Standardised Ratio (as an index)

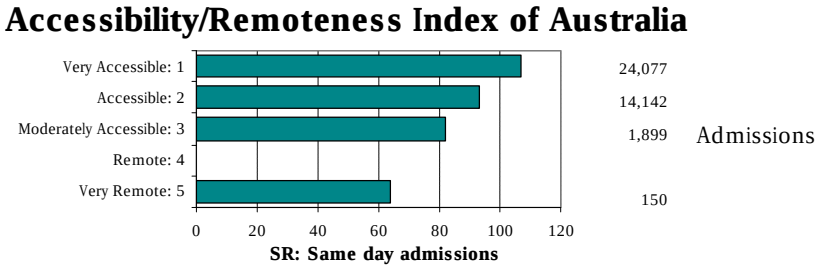
- *130 or above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for same day admissions are above the level expected from the State rates only in the Very Accessible areas under ARIA (an SAR of 107), with ratios dropping off markedly to the lowest ratio of 64 in the Very Remote areas. This is likely to reflect the greater availability of, and ease of access to, these facilities in the larger cities.

Source: Calculated on ARIA classification, DHAC

Admissions for infectious and parasitic diseases, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for infectious and parasitic diseases (described below) varied widely between the capital cities, from a high of 116** in **Sydney**, to a low of 66** in **Canberra**. **Adelaide** (108**) and **Darwin** (106) were the only other capital cities with elevated ratios (**Table 6.18**). Both **Sydney** and **Darwin** had substantially higher ratios in the later period shown in **Table 6.18**, suggesting an increase (relative to the Australian rates) in admissions for these diseases. The increase for **Sydney** was substantial.

Table 6.18: Admissions with a principal diagnosis of infectious and parasitic diseases, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	116**	71**	84**	108**	78**	75**	106	66**	92**
1989[3]	69**	..	85**	90**	77**	..	84*	..	76**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients,
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

In the early part of the century, infectious and parasitic diseases were a major cause of disease and death. Reductions in deaths from these causes were a "significant factor in reducing death rates between 1921 and the early 1960s ... particularly among infants and young children." (AIH 1990). They are still an important cause of hospital admission, in particular for viral diseases and intestinal infections. Children aged 0 to 4 years had the highest rate for these admissions (14.8 admissions per thousand population for both males and females), with the next highest rates being in the 75 years and over age group. In 1996/97, the category 'infectious and parasitic diseases' accounted for about twice as many admissions for Indigenous people as expected based on all-Australian rates (ABS/AIHW 1999).

High rates of admission for infectious and parasitic diseases also occur among those who are socioeconomically disadvantaged. Esterman et al. (1990) found that admissions of people from lower socioeconomic status postcodes in **Adelaide** (socioeconomic status based on household income) were 6 per cent higher in the middle and 47 per cent higher in the lower income areas, for all infectious and parasitic diseases in aggregate, than in the more affluent areas. This is consistent with the higher notification rates found in the poorer areas for a wide range of communicable diseases.

Hospital admissions for infectious and parasitic diseases accounted for 1.5 per cent of all admissions of Tasmanian residents.

Hobart (Tasmania as the Standard)

There were 665 admissions of residents in **Hobart** for infectious and parasitic diseases, eight per cent fewer than were expected from the State rates (an SAR of 92*). Over half (59.3 per cent) of these admissions were females.

Generally, there were fewer admissions for infectious and parasitic diseases than expected from the State rates across **Hobart** (**Map 6.13**). The highest ratio, an SAR of 110, was recorded in New Norfolk [Part A], but represented just 30 admissions (when 27 were expected from the State rates for an SLA of this size and age/sex composition). The SLAs of Hobart (with an SAR of 102) and Sorell [Part A] (101) also recorded slightly elevated ratios.

Residents of Clarence (with an SAR of 91) and Kingborough [Part A] (86) had nine per cent and 14 per cent fewer admissions from these diseases than were expected from the Tasmanian rates, respectively.

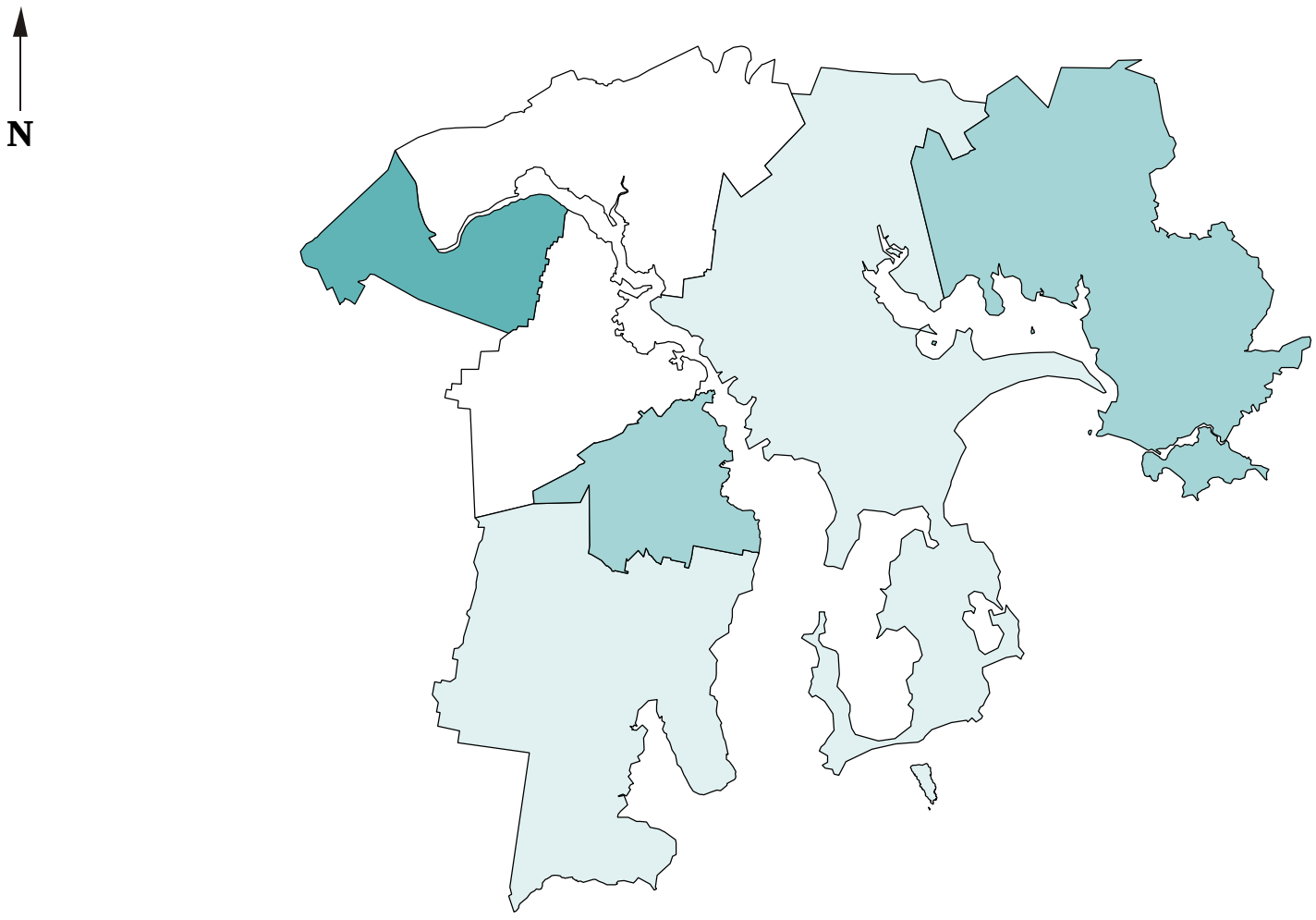
The lowest ratios were recorded in Brighton (with an SAR of 78) and Glenorchy (84*).

The numbers of admissions for infectious and parasitic diseases were low in all SLAs. Residents of the City of Hobart, Clarence and Glenorchy had the highest numbers, with 176, 166 and 140 admissions respectively.

There were inverse correlations of meaningful significance with the variables for the Indigenous population (-0.68), and single parent families and public rental housing (both -0.55). Weak correlations were recorded with the indicators of high socioeconomic status. These results, together with the weak correlation with the IRSD (0.32), suggest the existence of an association at the SLA level between high rates of admission for infectious and parasitic diseases and socioeconomic advantage. This is the reverse of the situation both in the non-metropolitan SLAs and in the other capital cities.

Map 6.13
Admissions for infectious and parasitic diseases, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for infectious and parasitic diseases, 1995/96

State/Territory comparison (Australia as the Standard)

With the exception of Tasmania and Victoria, standardised admission ratios (SARs) for admissions for infectious and parasitic diseases (described on the previous text page) of residents of the non-metropolitan areas were all highly elevated (**Table 6.19**). The most highly elevated ratios were in the non-metropolitan areas of the Northern Territory (305**), Western Australia (153**), South Australia (134**) and Queensland (126**).

The ratios for the non-metropolitan areas for each of the States named above declined (and some declined substantially) between the periods shown in **Table 6.19** with the largest change being that for the Northern Territory. These lower ratios suggest a decline (relative to the Australian rates) in admissions for these diseases.

Table 6.19: Admissions with a principal diagnosis of infectious and parasitic diseases, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	116**	71**	84**	108**	78**	75**	106	66**	92**
Other major urban centres[2]	73**	83**	93**	..	..	..	..	..	81**
Rest of State/Territory	118**	93**	126**	134**	153**	85**	305**	–[3]	121**
Whole of State/Territory	111**	77**	103**	115**	99	81**	219**	66**	100
1989[4]									
Rest of State/Territory	147**	..	162**	136**	170**	..	547**	..	164**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 1,114 admissions for infectious and parasitic diseases of residents of the non-metropolitan areas of Tasmania, six per cent more than were expected from the State rates (an SAR of 106). Females accounted for over half (54.3 per cent) of these admissions.

Ratios for admissions for infectious and parasitic diseases in the non-metropolitan areas covered a much wider range than the ratios recorded for **Hobart,** with residents from six areas recording over 30 per cent more admissions than were expected from the State rates (**Map 6.14**). Residents of Latrobe [Part A] had by far the most highly elevated SAR, with over two and a quarter times the expected number of admissions (an SAR of 238**). Devonport (with an SAR of 153**), Burnie [Part A] (145**), Break O Day (144*), Circular Head (134*) and Southern Midlands (134) all had highly elevated ratios.

Residents of King Island (with an SAR of 120), West Coast (111) and Northern Midlands [Part A] (110) also recorded more admissions from these diseases than expected from the State rates.

Huon Valley, with an SAR of 75 representing 37 admissions, was the only SLA with a ratio in the lowest two ranges with more than 20 admissions for infectious and parasitic diseases.

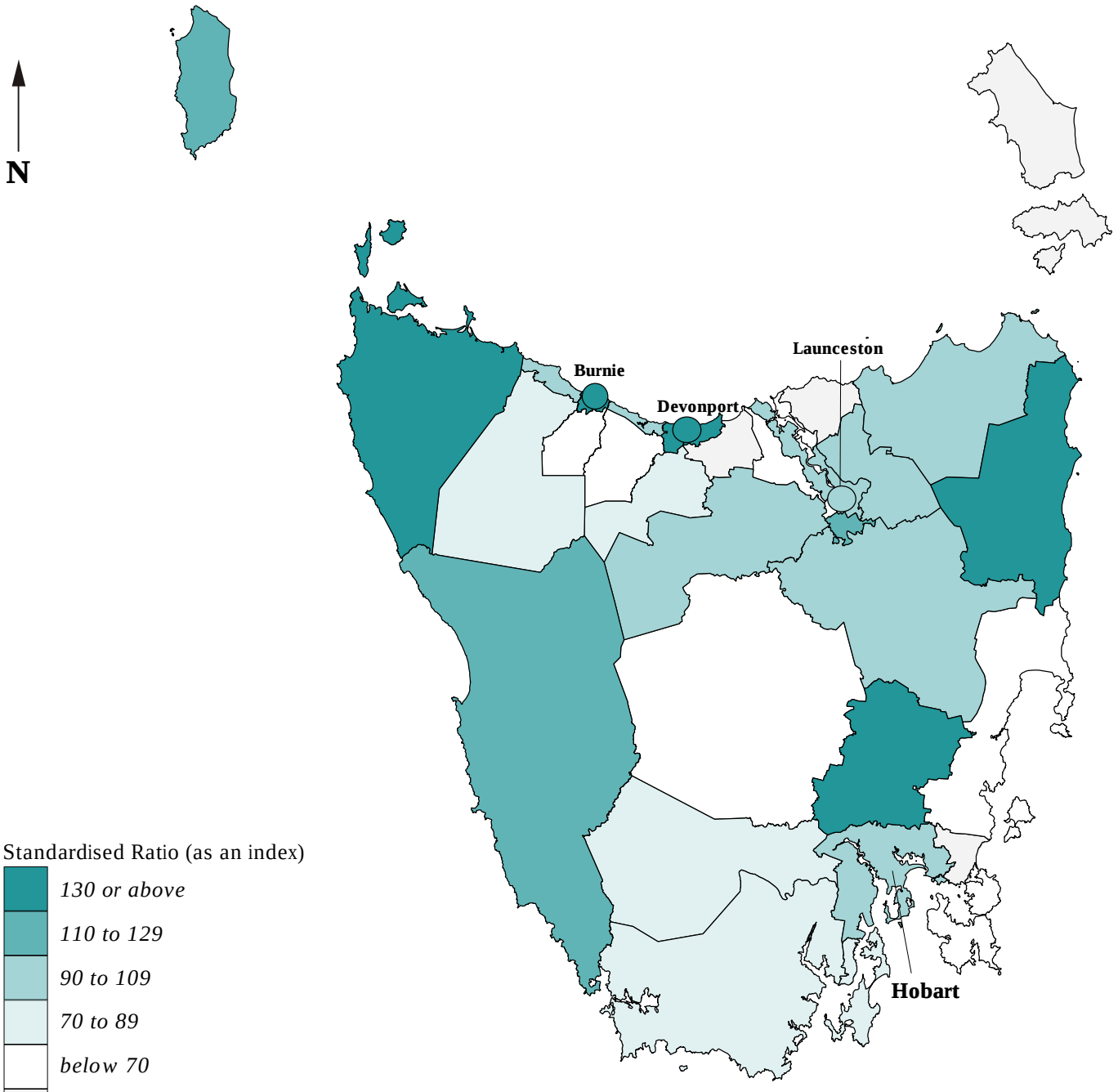
Residents of Burnie [Part B] had no admissions from these diseases, when eight were expected. Other low ratios were recorded in Meander Valley [Part A] (with an SAR of 25**, and five admissions), West Tamar [Part B] (30, two admissions), Central Coast [Part B] (34*, four admissions) and Central Highlands (48, five admissions).

The largest numbers of admissions for infectious and parasitic diseases were recorded for residents of Launceston (238 admissions), Devonport (146), Burnie [Part A] (106) and Central Coast [Part A] (71).

There were weak correlations with the indicators of socioeconomic disadvantage, the strongest of these being with the variable for dwellings with no motor vehicle (0.44). These results, together with the weak inverse correlation with the IRSD (-0.28), suggest the existence of an association at the SLA level between high rates of admission for infectious and parasitic diseases and socioeconomic disadvantage.

Map 6.14
Admissions for infectious and parasitic diseases, Tasmania, 1995/96

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



Standardised Ratio (as an index)

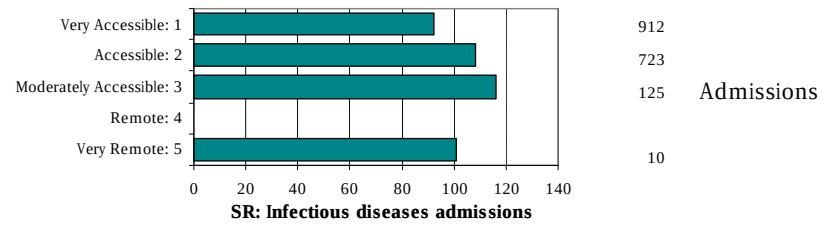
- *130 or above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *fewer than five expected admissions*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for infectious and parasitic diseases increase across the three 'accessible' ARIA categories, from the lowest SAR of 92, to an SAR of 108 in the Accessible areas and to the highest SAR of 116 in the Moderately Accessible areas. There were close to the expected number of admissions from infectious and parasitic diseases in the Very Remote areas (an SAR of 101).

Source: Calculated on ARIA classification, DHAC

Admissions for cancer, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admissions ratios (SARs) for admissions for cancer (described below) varied between the capital cities, from a high of 121** in **Brisbane**, to a low of 78** in **Canberra**. **Hobart** (87**), **Perth** (89**) and **Sydney** (95**) also had fewer than expected admissions for these diseases (**Table 6.20**).

There was relatively little change in the ratios between the periods shown in **Table 6.20**. with the largest change being an increase in the admission ratio for **Darwin**, suggesting an increase (relative to the Australian rates) in admissions for these diseases.

Table 6.20: Admissions with a principal diagnosis of cancer, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	95**	103**	121**	105**	89**	87**	106	78**	101*
1989[3]	90**	..	121**	104**	99	..	98	..	99**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Admissions to hospital for cancer (malignant neoplasms) accounted for 4.7 per cent of all the admissions analysed for Tasmanian residents: 4.4 per cent of residents of **Hobart** and 5.0 per cent in the non-metropolitan areas.

Esterman et al. (1990), reporting on hospital admissions for cancers, noted a 21 per cent higher hospital admission rate for males compared with females in South Australia in 1988. They commented on differences in admission rates and incidence of various cancers related to differences in socioeconomic status. They found that admission rates for malignant neoplasms were 14 per cent higher for the middle and 20 per cent higher for the lower than those for the upper income category (based on household incomes in postcodes). They also reported that South Australian Cancer Registry data showed that the poorer areas have a higher incidence of cancers of the following anatomical sites: lung, pancreas, larynx, liver, pleura, cervix, and stomach. It is likely that these cancers would have contributed to the higher admission rates.

Just as people from middle and lower socioeconomic status postcodes have higher rates of incidence of some cancers, so too do people from higher socioeconomic status postcodes. Those cancers are reported by Esterman et al. (1988) as being of the female breast, uterus (body), prostate, testis, skin (melanoma), and colon. Overall, however, residents of middle and lower socioeconomic status postcodes had more admissions for cancers than did those from higher socioeconomic status postcodes.

Hobart (Tasmania as the Standard)

There were 2,307 admissions of residents of **Hobart** for cancer, two per cent fewer than expected from the Tasmanian rates, an SAR of 98. Males accounted for over half (53.9 per cent) of the admissions.

All of the SLAs in **Hobart** recorded ratios within 21 per cent of the expected level (**Map 6.15**). The highest ratio, an SAR of 121*, was recorded in Sorell [Part A] and represented 117 admissions when 96 were expected from the State rates.

Brighton was the only other SLA with a ratio elevated by ten per cent or more (an SAR of 110).

Of the three SLAs that had ratios in the middle range, elevated ratios were recorded in Hobart (102) and Glenorchy (102). Residents of Clarence (96) had four per cent fewer admissions for cancer than were expected from the State rates.

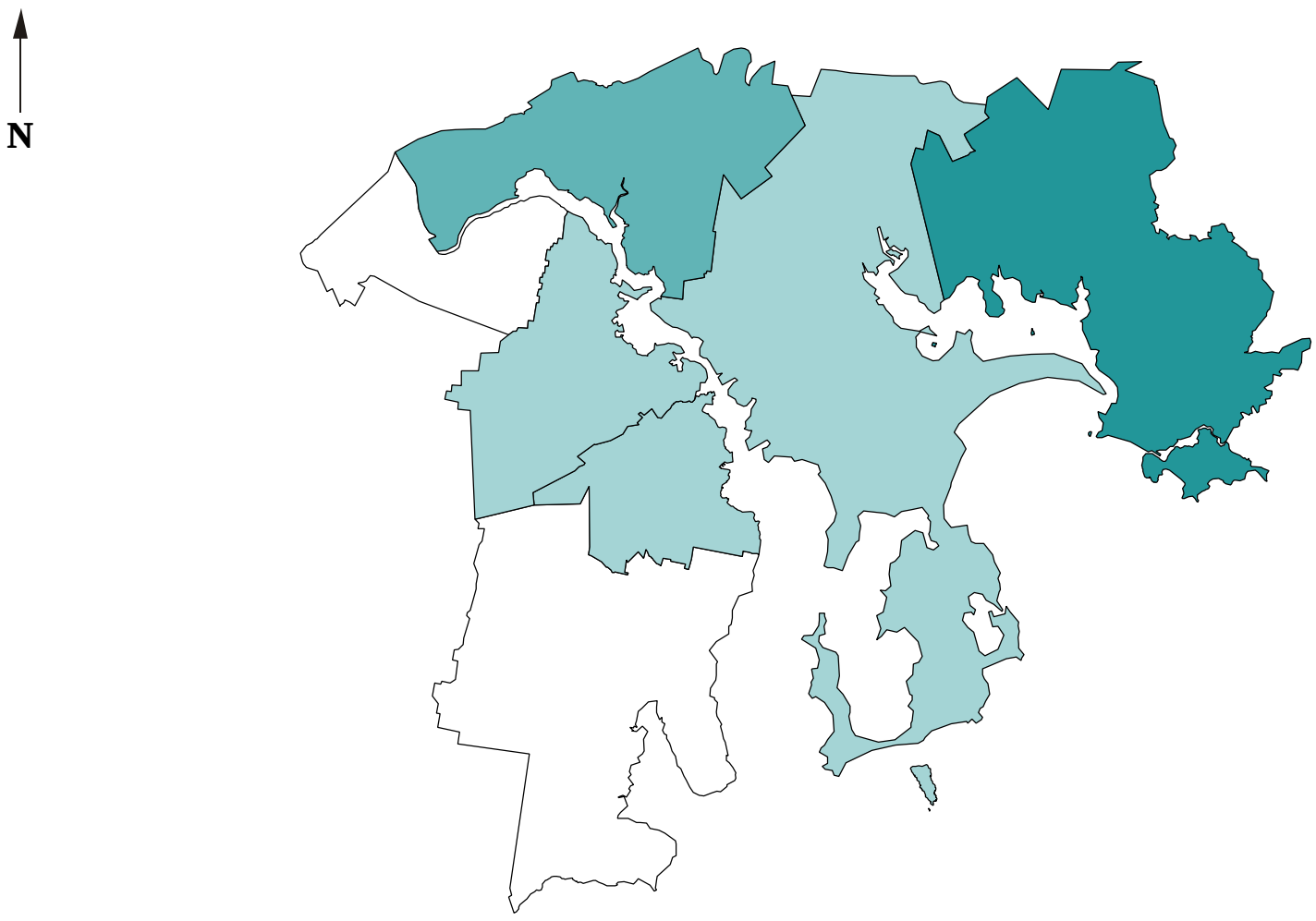
The lowest ratio (an SAR of 79**) was recorded in Kingborough, with residents having 21 per cent fewer admissions for cancer than were expected from the State rates. New Norfolk [Part A] (with an SAR of 84) also had a ratio in the lowest range.

The largest numbers of admissions were recorded for residents of the City of Hobart (623 admissions), Glenorchy (597) and Clarence (594).

The was a correlation of meaningful significance with the variable for unemployed people (0.57) and a weaker correlation with low income families (0.38). Weak inverse correlations were recorded with the variables for high income families (-0.46) and female labour force participation (-0.34). These results, together with the weak inverse correlation with the IRSD (-0.36), suggest the existence of an association at the SLA level between high rates of admission for cancer and socioeconomic disadvantage.

Map 6.15
Admissions for cancer, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for cancer, 1995/96

State/Territory comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for cancer (described on the previous text page) of residents of the non-metropolitan areas were relatively uniform across the States and Territories (**Table 6.21**). The most highly elevated ratio was in Queensland (109**), and the lowest in the Northern Territory (79**) and Western Australia (84**).

There was relatively little change in the ratios for the non-metropolitan areas between the periods shown in **Table 6.21**. with the largest changes being for New South Wales, Western Australia and the Northern Territory. These lower ratios suggest a decline (relative to the Australian rates) in admissions for these diseases.

Table 6.21: Admissions with a principal diagnosis of cancer, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	95**	103**	121**	105**	89**	87**	106	78**	101*
Other major urban centres[2]	90**	87**	106**	..	..	..	..	..	95**
Rest of State/Territory	99	99	109**	104**	84**	90**	79**	–[3]	100
Whole of State/Territory	96**	102**	114**	104**	88**	89**	92**	77**	100
1989[4]									
Rest of State/Territory	107**	..	107**	105**	91**	..	73**	..	..

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 1995/96, there were 3,388 admissions of residents of the non-metropolitan areas of Tasmania for cancer (an SAR of 101). Males comprised the larger proportion, 58.6 per cent, with 1,986 admissions.

Most non-metropolitan SLAs recorded ratios that were in excess of 10 per cent above or below the level expected from the State rates for admissions for cancer (**Map 6.16**).

The highest ratio, an SAR of 190**, was recorded in Flinders, with residents recording 90 per cent more admissions for cancer than were expected from the State rates. However, the high ratio represented a relatively low number of 23 admissions (when 12 were expected from the State rates for an SLA of this size and age/sex composition). Elevated ratios of statistical significance were also recorded in Kingborough [Part B] (an SAR of 169**) and Southern Midlands (133**).

Ratios elevated by 10 per cent or more were recorded in West Coast (114) and the northern areas of Launceston [Part C] (125), King Island (119), Break O Day (118), Meander Valley [Part B] (118*), West Tamar [Part A] (116*), Latrobe [Part A] (115) and Launceston (110**).

Of the eleven SLAs with ratios in the middle range mapped, elevated ratios were recorded in Northern Midlands [Part A] (109), Central Highlands (109), Huon Valley (109) and Glamorgan/Spring Bay (101) as well as Circular Head in the north west (101). George Town [Part A] (96) and Devonport (95) also had ratios in this middle range.

Ratios of statistical significance between 10 and 30 per cent lower than expected were recorded in Central Coast [Part A] (with an SAR of 84*), Burnie [Part A] (81**), Dorset (78*) and Meander Valley [Part A] (70*).

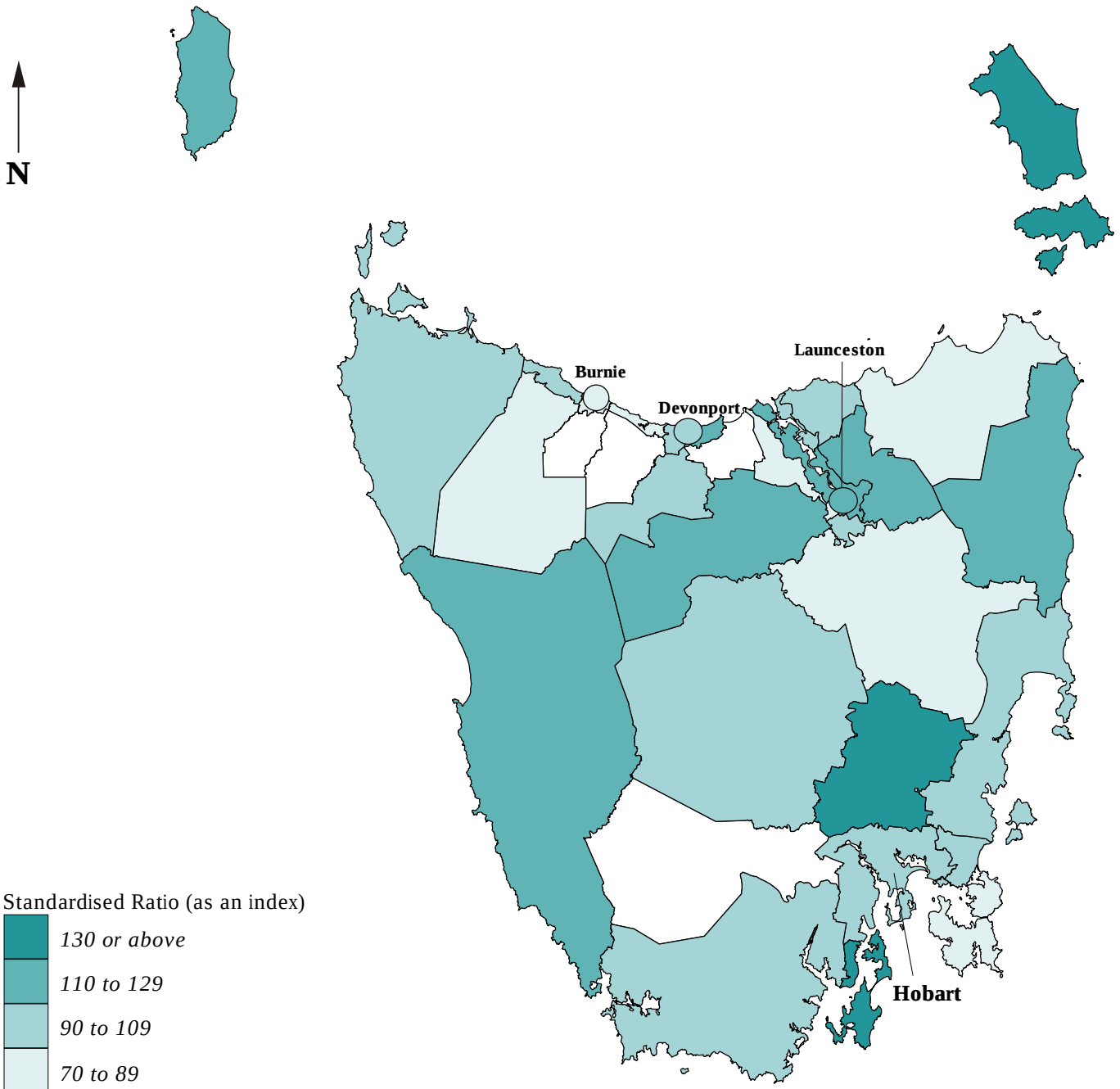
SLAs with the lowest four ratios each had fewer than 20 admissions for cancer. Latrobe [Part B] had the lowest ratio (an SAR of 15**) with two admissions. Low ratios were also recorded in Central Coast [Part B] (26**, nine admissions), Burnie [Part B] (46*, 10 admissions) and New Norfolk [Part B] (69, 17 admissions).

The largest numbers of admissions for cancer were recorded for residents of Launceston (851 admissions), Devonport (321), West Tamar [Part A] (267), Central Coast [Part A] (199) and Burnie [Part A] (167).

There was no consistent evidence in the correlation analysis of an association at the SLA level between high rates of admissions for cancer and socioeconomic status.

Map 6.16
Admissions for cancer, Tasmania, 1995/96

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



Standardised Ratio (as an index)

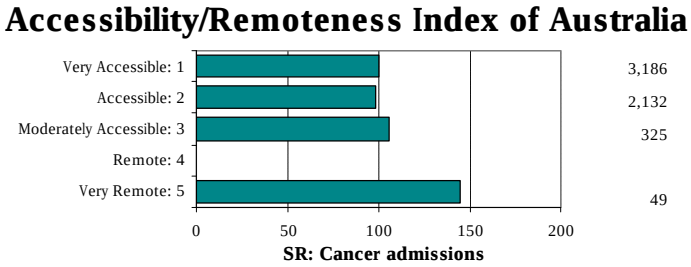
- *130 or above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



	Admissions
Very Accessible: 1	3,186
Accessible: 2	2,132
Moderately Accessible: 3	325
Remote: 4	
Very Remote: 5	49

Standardised admission ratios (SARs) for cancer vary only marginally across the three 'accessible' ARIA categories, from an SAR of 98 in the Accessible areas to an SAR of 106 in the Moderately Accessible areas, with 45 per cent more admissions than expected from the State rates in the Very Remote areas under ARIA, an SAR of 145 (and 49 admissions).

Source: Calculated on ARIA classification, DHAC

Admissions for lung cancer, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for lung cancer (described below) varied between the capital cities, from a high of 121** in **Brisbane** and **Adelaide**, to a very low 54** in **Canberra**. **Sydney** (88**) also had a relatively low standardised admission ratio (**Table 6.22**).

Between the two periods shown in **Table 6.22,** the ratios for **Brisbane** and **Darwin** fell, suggesting a decline (relative to the Australian rates) in admissions for these diseases. The increases evident for the ratios in **Perth** and **Sydney** suggest an increase (relative to the Australian rates) in admissions for lung cancer, although both ratios remain below the level expected from the Australian rates.

Table 6.22: Admissions with a principal diagnosis of lung cancer, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	88**	99	121**	121**	89**	95	100	54**	98
1989[3]	82**	..	154**	119**	77**	..	162**	..	100

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Hospital admissions for lung cancer, which includes cancers of the trachea, bronchus and lung, accounted for 7.9 per cent of all admissions for cancer in 1995/96. However, lung cancer accounted for only 0.4 per cent of all admissions analysed for Tasmanian residents.

As noted in the commentary to the map for all cancers (page 220), incidence rates for some cancers are higher among people from poorer areas. Esterman et al. (1990) estimated the differential for lung cancer in the poorest areas compared with the most affluent areas to be approximately fifty per cent, that is the highest of all the cancers studied. In both SA and the NT, a higher than expected incidence of lung cancer has been observed among Indigenous people (ABS/AIHW 1999).

Hobart (Tasmania as the Standard)

There were 165 admissions of residents of **Hobart** for lung cancer, 10 per cent fewer admissions than were expected from the State rates (an SAR of 90). Males accounted for over half (57.9 per cent) of these admissions.

The SARs for this variable tend to be in the highest and lowest ranges, with no ratios recorded in the ranges from 95 to 104 and from 105 to 114 (**Map 6.17**).

Residents of both SLAs that recorded standardised admission ratios in the highest range had fewer than 20 admissions for lung cancer. Those in Brighton (with an SAR of 218**) had over twice the expected number of admissions for lung cancer, with 12 admissions when 5.5 were expected. An SAR of 129 recorded in Sorell [Part A] represented just 10 admissions (when eight were expected).

Glenorchy (with an SAR of 93) was the only SLA to record a ratio in the range between 85 and 94.

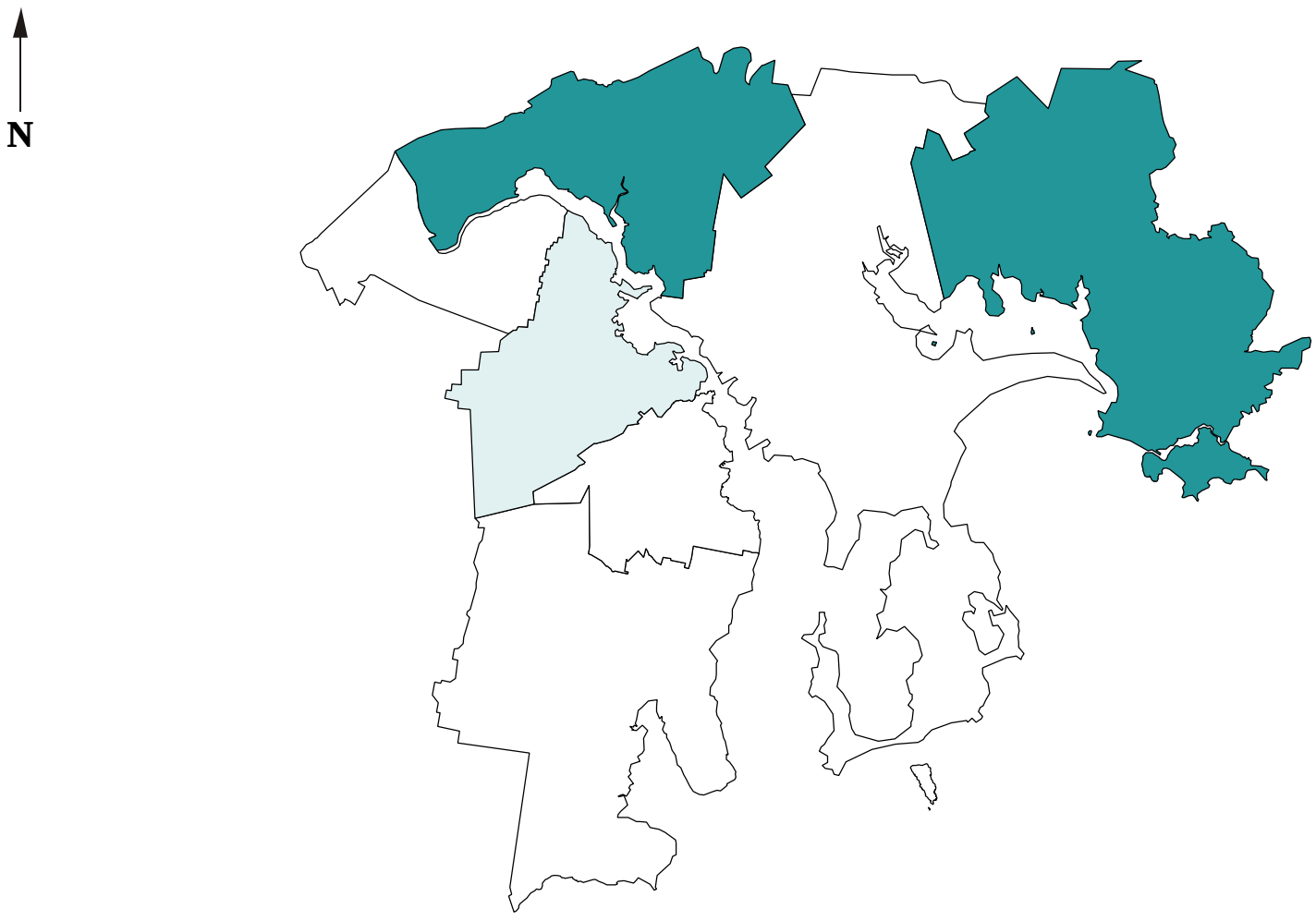
Ratios in the lowest range and with at least 20 admissions were recorded in Clarence (with an SAR of 83) and the City of Hobart (80). The lowest ratios were recorded in Kingborough [Part A] (74, 16 admissions) and New Norfolk [Part A] (77, five admissions).

The largest numbers of admissions for lung cancer were recorded for residents of Glenorchy (44 admissions), Clarence (41 admissions) and Hobart (37 admissions).

There were correlations of substantial significance with the variables for unemployed people (0.94), single parent families (0.91), the Indigenous population (0.87) and public rental housing (0.84). Inverse correlations were recorded with indicators of high socioeconomic status, the strongest being a correlation of substantial significance with the variable for female labour force participation (-0.85). These results, together with the inverse correlation of substantial significance with the IRSD (-0.77), indicate the existence of an association at the SLA level between high admission rates for lung cancer and socioeconomic disadvantage.

Map 6.17
Admissions for lung cancer, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for lung cancer, 1995/96

State/Territory comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for lung cancer (described on the previous text page) of residents of the non-metropolitan areas were relatively uniform across the States and Territories, with the exception of higher ratios in South Australia, Queensland, Tasmania and the Northern Territory (**Table 6.23**).

There was relatively little change in the ratios for the non-metropolitan areas between the periods shown in **Table 6.23**.

Table 6.23: Admissions with a principal diagnosis of lung cancer, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	88**	99	121**	121**	89**	95	100	54**	98
Other major urban centres[2]	72**	116	92	..	..	..	..	..	83**
Rest of State/Territory	99	105	117**	135**	91	114*	116	–[3]	108**
Whole of State/Territory	89**	102	114**	125**	90**	106	108	42**	100
1989[4]									
Rest of State/Territory	94**	..	121**	126**	87*	..	119	..	106**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 284 admissions for lung cancer of residents of the non-metropolitan areas of Tasmania, seven per cent more than were expected from the State rates (an SAR of 107). Males comprised almost three quarters (72.0 per cent) of the admissions.

Just over half (53 per cent) of the SLAs in the non-metropolitan areas of the State have not been mapped for this variable, as there were considered to be too few expected cases to produce reliable results (**Map 6.18**). As the numbers of admissions for this variable are particularly low, care should be taken to refer to the absolute numbers as well as to the relative values.

Of the SLAs where at least five admissions for lung cancer were expected from the State rates, most had elevated ratios and fewer than 20 admissions. Six areas were mapped in the top range, with highly elevated ratios of statistical significance recorded in George Town [Part A] (282**, but with just 14 admissions when five were expected) and Break O Day (240**, 17 admissions when seven were expected). Other SLAs with elevated ratios in this range were Meander Valley [Part B] (with an SAR of 167*), Waratah/Wynyard [Part A] (149), Northern Midlands [Part B] (140) and Dorset (134).

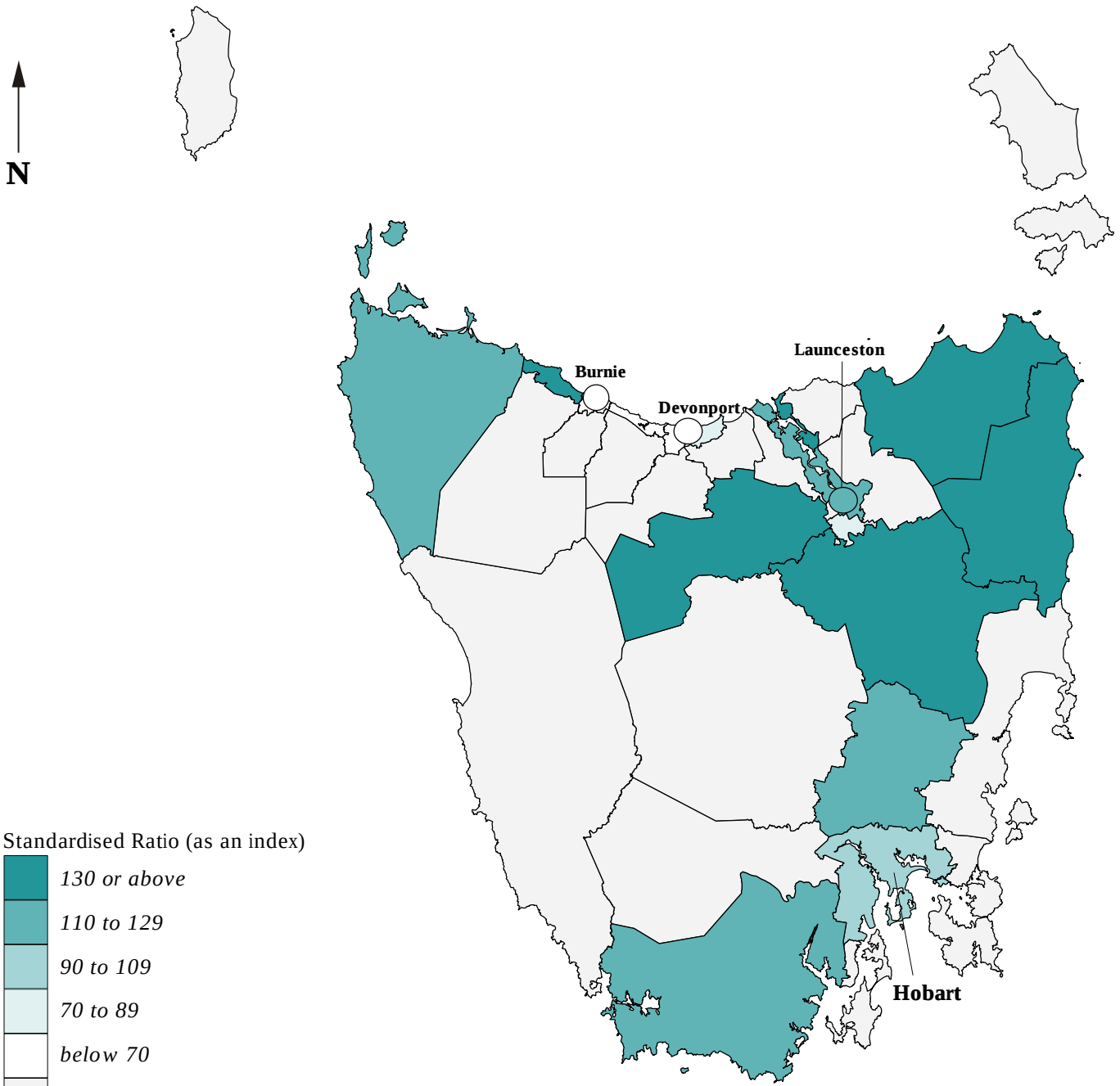
Residents of a further five SLAs had at least ten per cent more admissions for lung cancer than expected from the State rates. West Tamar [Part A] (with an SAR of 117, and 22 admissions) and Launceston (111, 66 admissions) were the only SLAs in the non-metropolitan areas of Tasmania to record more than 20 admissions for lung cancer.

There were no SLAs with SARs in the middle range and only five had ratios in the lowest two ranges. Statistically significant SARs were recorded in Devonport (41**, 11 admissions) and Central Coast [Part A] (42*, eight admissions). Low ratios were also recorded in Burnie [Part A] (69, 11 admissions), Latrobe [Part A] (76, five admissions) and Northern Midlands [Part A] (84, five admissions).

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

Map 6.18
Admissions for lung cancer, Tasmania, 1995/96

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



Standardised Ratio (as an index)

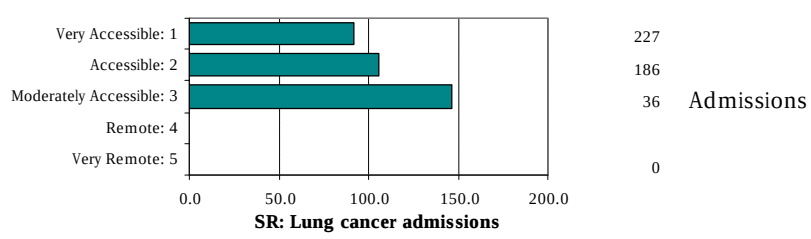
- *130 or above*
- *110 to 129*
- *90 to 109*
- *70 to 89*
- *below 70*
- *fewer than five expected admissions*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for lung cancer increase sharply across the three 'accessible' ARIA categories, from an SAR of 92 in the Very Accessible areas to an SAR of 106 in the Accessible and 146 in the Moderately Accessible areas (46 per cent more admissions than expected from the State rates, and 36 admissions). As there were fewer than five expected admissions for lung cancer in the Very Remote areas, the ratio has not been calculated.

Source: Calculated on ARIA classification, DHAC

Admissions of females aged 40 years and over for breast cancer, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions of females aged 40 years and over from breast cancer were relatively uniform across the capital cities, with the exception of higher ratios in **Darwin** and **Melbourne** and lower ratios in **Hobart** and **Perth** (**Table 6.24**).

The SARs in **Sydney** have remained consistent for both periods shown in **Table 6.24** and have declined in **Brisbane**, **Adelaide**, **Perth** and **Darwin** (where, despite a substantial decline, the ratio remains well above the level expected). The lower ratios in the later period suggest a decline (relative to the Australian rates) in admissions for these diseases.

Table 6.24: Admissions of females aged 40 years and over[1] with a principal diagnosis of breast cancer, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
1995/96[3]	97	125**	93*	94*	81**	71**	129	90	102
1989[4]	96	..	108*	102	87**	..	182**	..	98

[1]Data for 1989 'is of females of all ages
[2]Includes Queanbeyan (C)
[3]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[4]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Breast cancer is the most common cancer notified for females in Tasmania. Incidence rates for some cancers are higher among people from the most affluent areas (Esterman et al. 1990).

In 1995/96, hospital admissions for breast cancer accounted for 0.3 per cent of all admissions analysed and 5.6 per cent of admissions for cancer of Tasmanian residents.

The data mapped are for females aged 40 years and older, as very few females at younger ages are admitted to hospital for this disease.

Hobart[5] (Tasmania as the Standard)

A total of 119 admissions for cancer of the female breast were recorded for female residents (aged 40 years and over) of **Hobart** in 1995/96, 12 per cent fewer admissions than expected from the State rates (an SAR of 88).

The highest ratio, an SAR of 181, was recorded in Sorell [Part A], and represented nine admissions for breast cancer when five admissions were expected for a population of this size and age composition. Clarence also recorded a ratio in the top range, an SAR of 116 (**Map 6.19**).

The five admissions of female residents of Brighton (with an SAR of 101) was as expected for a population of this size and age composition, while there were four per cent fewer admissions of females in the City of Hobart (96) than expected.

Glenorchy (with an SAR of 73) was the only SLA mapped in the lowest range to record more than 20 admissions for breast cancer. The lowest ratio, an SAR of 30**, was recorded in Kingborough [Part A] and represented just five admissions (when 17 were expected); a ratio of 34, recorded in New Norfolk [Part A], represented just two admissions (when five were expected).

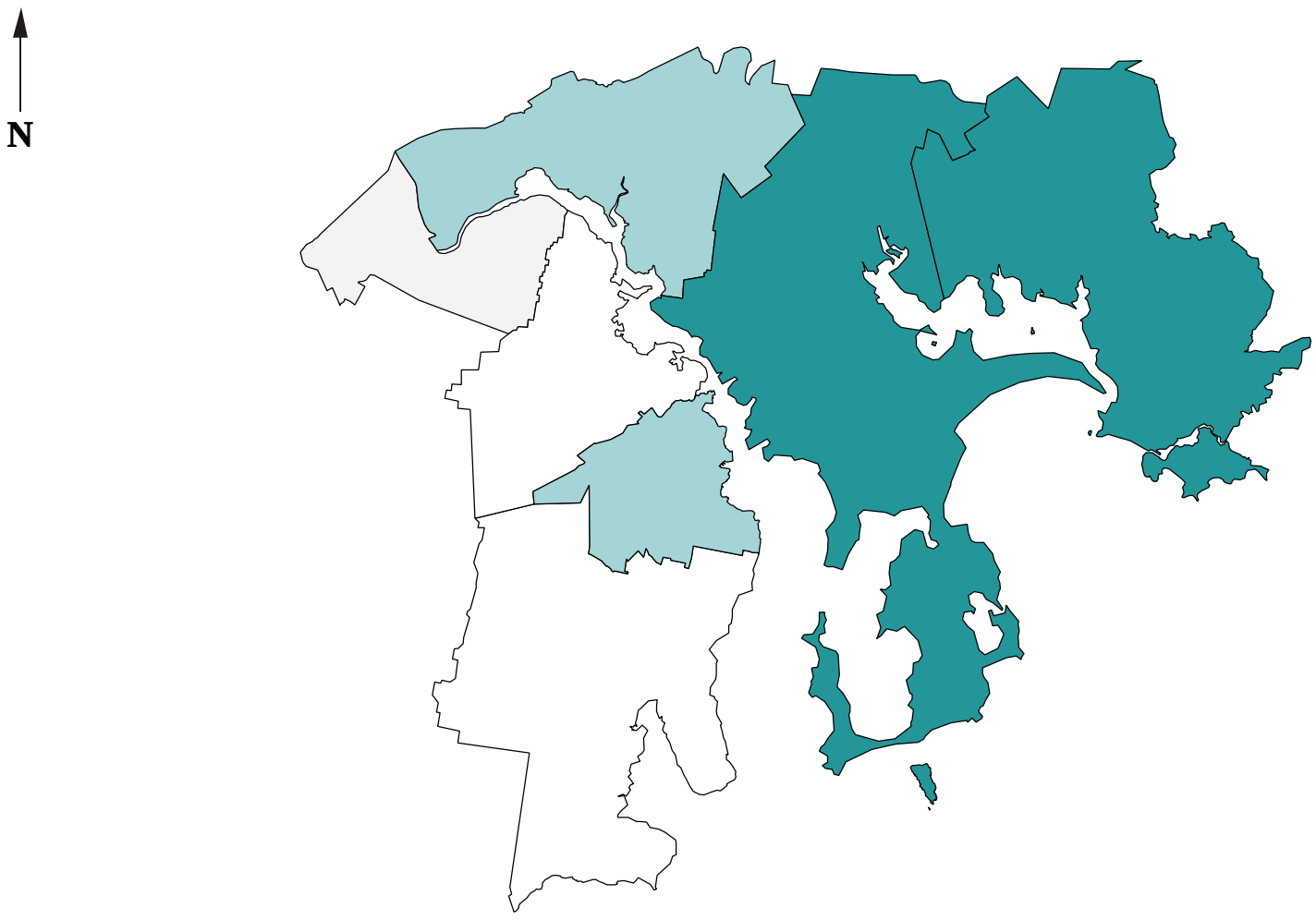
The numbers of admissions for breast cancer were low at the SLA level in **Hobart**, with the largest numbers recorded for females of Clarence (42 admissions), the City of Hobart (32 admissions) and Glenorchy (24 admissions).

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

[5]As there were relatively few areas with sufficient cases to analyse for this variable in the non-metropolitan areas of Tasmania, the data have not been mapped. A summary of the main features is on page 303.

Map 6.19
Admissions of females aged 40 years and over for breast cancer, Hobart, 1995/96

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



Standardised Ratio (as an index)

- *115 and above*
- *105 to 114*
- *95 to 104*
- *85 to 94*
- *below 85*
- *fewer than five expected admissions*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for psychosis, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for psychosis (described below) varied widely between the capital cities (**Table 6.25**). **Brisbane** and **Adelaide** (each with an SAR of 139**) had highly elevated SARs, with a ratio of less than half of this level in **Canberra** (64**). The SARs in **Melbourne** and **Darwin** (both 83**) were also much lower than the *All capitals* rate of 110**.

Table 6.25: Admissions[1] with a principal diagnosis of psychosis, capital cities, 1995/96
Age-sex standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
114**	83**	139**	139**	119**	112**	83**	64**	110**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Mental illness is a major cause of disability, particularly among the high risk groups of people who are unemployed, alcoholic, homeless, and others suffering a major life loss such as divorce, or death of a close friend or family member.

Mental disorder is classified as being psychosis, neurotic, personality or other mental disorder, or mental retardation. The variable mapped opposite is of people diagnosed with psychosis. Psychosis is a major mental disorder in which a person's ability to think, respond emotionally, remember, communicate, interpret reality and behave appropriately is impaired and insight is usually absent. It includes people exhibiting a range of behaviours, from violent behaviour, to hallucination, to those who are withdrawn and immobile, schizophrenia is included in this category.

In this, and the following map, admissions analysed include inpatients with the appropriate disease code as a principal diagnosis in public acute hospitals and private acute and psychiatric hospitals, regardless of whether they were in a specialist psychiatric unit within these hospitals.

Hospital admissions for psychosis accounted for 1.7 per cent of all admissions analysed for Tasmanian residents, with similar proportions recorded for males (2.0 per cent and a rate of 444.9 per 100,000 population) and females (1.4 per cent and a rate of 404.2 per 100,000 population).

Hobart (Tasmania as the Standard)

In 1995/96, there were 1,083 admissions of residents of **Hobart** for psychosis, 29 per cent more than were expected from the State rates (an SAR of 129**). Admissions for psychosis were evenly divided between females (50.1 per cent) and males (49.9 per cent).

It is likely that the spatial distribution of patient addresses is affected by the concentration, in certain SLAs, of hostels, boarding houses and shelters known to accommodate people with chronic psychiatric disabilities. These premises cater for people who may have several admissions in a year for mental disorders, in particular admissions to a public acute hospital. It is perhaps timely to reiterate that the data presented here are of the number of admissions, not the number of individuals. These admissions are also likely to include numbers of other homeless people, including those who live largely 'on the street'.

The high overall standardised admission ratio for psychosis for **Hobart** is reflected in the SARs at the SLA level, with four areas recording ratios in the top range (**Map 6.20**). By far the most highly elevated ratio, an SAR of 284**, was recorded in New Norfolk [Part A], indicating that residents had over two and three quarters the expected number of admissions for psychosis. Other highly significant elevated ratios were recorded in the City of Hobart (with an SAR of 173**), Brighton (167**) and Glenorchy (134**).

Kingborough [Part A] (with an SAR of 104) was the only SLA that was not mapped in either the highest or lowest ranges.

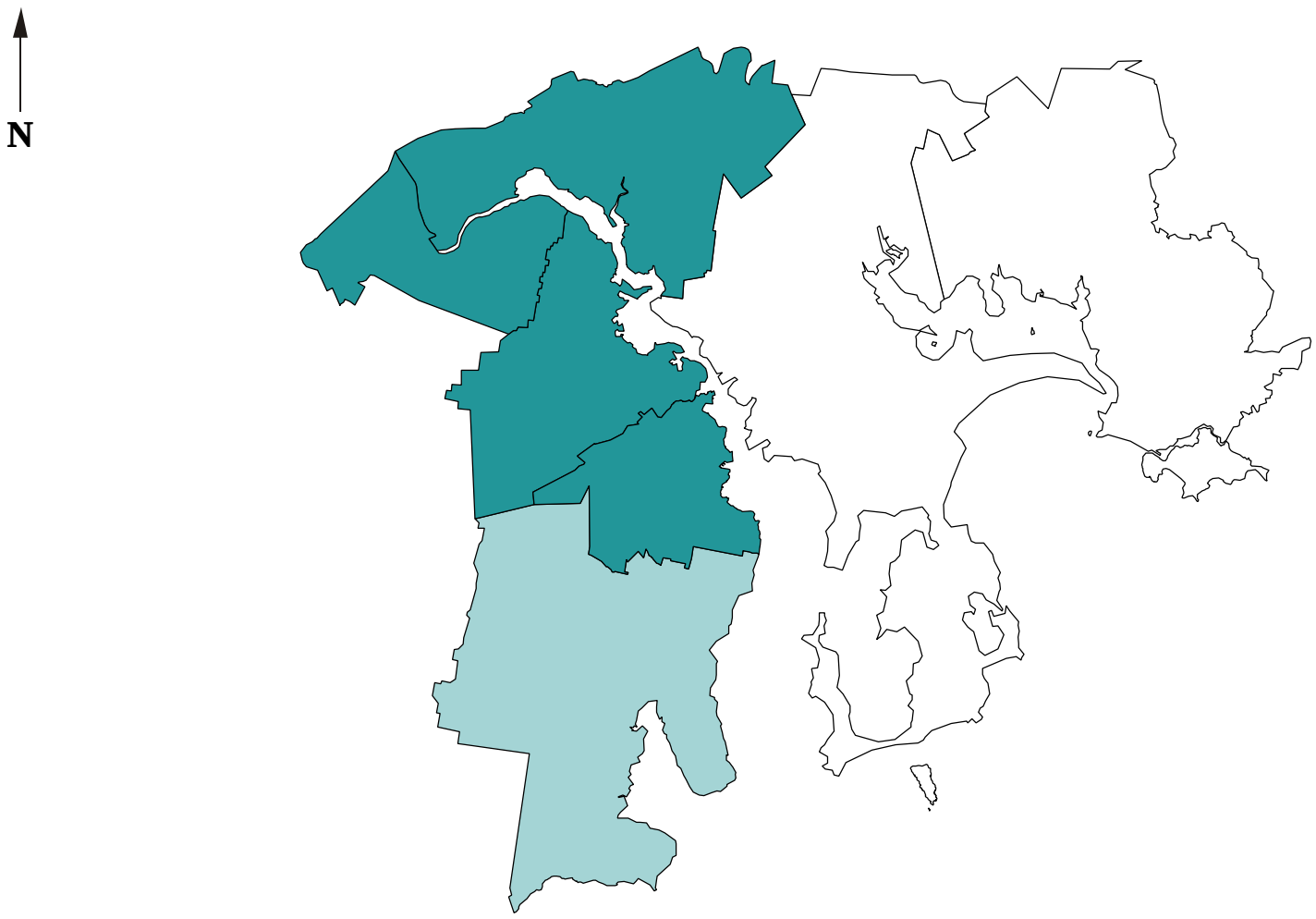
The lowest ratio, an SAR of 34**, was recorded in Sorell [Part A] but represented just 12 admissions (when 35 were expected from the State rates). Residents of Clarence (with an SAR of 75**) had 25 per cent fewer admissions for psychosis than were expected from the State rates.

The largest numbers of admissions were recorded for residents of the City of Hobart (392 admissions), Glenorchy (260) and Clarence (159).

There was a correlation of meaningful significance with the variable for dwellings with no motor vehicle (0.52) and weaker correlations with unskilled and semi-skilled workers (0.43) and low income families (0.33). Weak inverse correlations were recorded with the indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.30), suggest the existence of an association at the SLA level between high rates of admission for psychosis and socioeconomic disadvantage.

Map 6.20
Admissions for psychosis, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for psychosis, 1995/96

State/Territory comparison (Australia as the Standard)

In all cases, there were relatively more admissions for psychosis of people who were residents of the capital cities than of the non-metropolitan areas, with the widest variations being in Tasmania, Queensland and Western Australia (**Table 6.26**). The SAR of 118** in the non-metropolitan areas of South Australia was 40 per cent higher than the next highest SAR (in New South Wales).

Table 6.26: Admissions [1] with a principal diagnosis of psychosis, State/Territory, 1995/96
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	114**	83**	139**	139**	119**	112**	83**	64**	110**
Other major urban centres[2]	89**	103	82**	..	..	..	..	..	88**
Rest of State/Territory	83**	70**	81**	118**	80**	69**	74**	–[3]	81**
Whole of State/Territory	103**	80**	108**	133**	109**	87**	79**	64**	100

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1995/96, there were 927 admissions for psychosis of residents of the non-metropolitan areas of Tasmania, 21 per cent fewer admissions than were expected from the State rates (an SAR of 79**). Males comprised more than half (54.4 per cent) of the admissions.

Three non-metropolitan SLAs have not been mapped for this variable as they were considered to have too few expected admissions to produce reliable results. Almost two thirds (61.3 per cent) of the SLAs that were mapped had ratios in the lowest range, with residents of all but four areas recording fewer than 20 admissions, and most of the remaining SLAs recording ratios in the range between 90 and 109 (**Map 6.21**).

New Norfolk [Part B] (with an SAR of 172**) was the only SLA with a ratio in the highest range mapped, although this represented just 20 admissions (when 11.5 were expected from the State rates). Other ratios elevated by more than 10 per cent were recorded in Kentish (with an SAR of 126) and Latrobe [Part A] (118).

Seven SLAs were mapped in the middle range and included Launceston (with an SAR of 106), Burnie [Part A] (96) and George Town [Part A] (92).

Of the SLAs with ratios in the lowest range mapped, four had at least 20 admissions; they were Central Coast [Part A] (with an SAR of 68**), Dorset (66), Huon Valley (54**) and West Tamar [Part A] (39**).

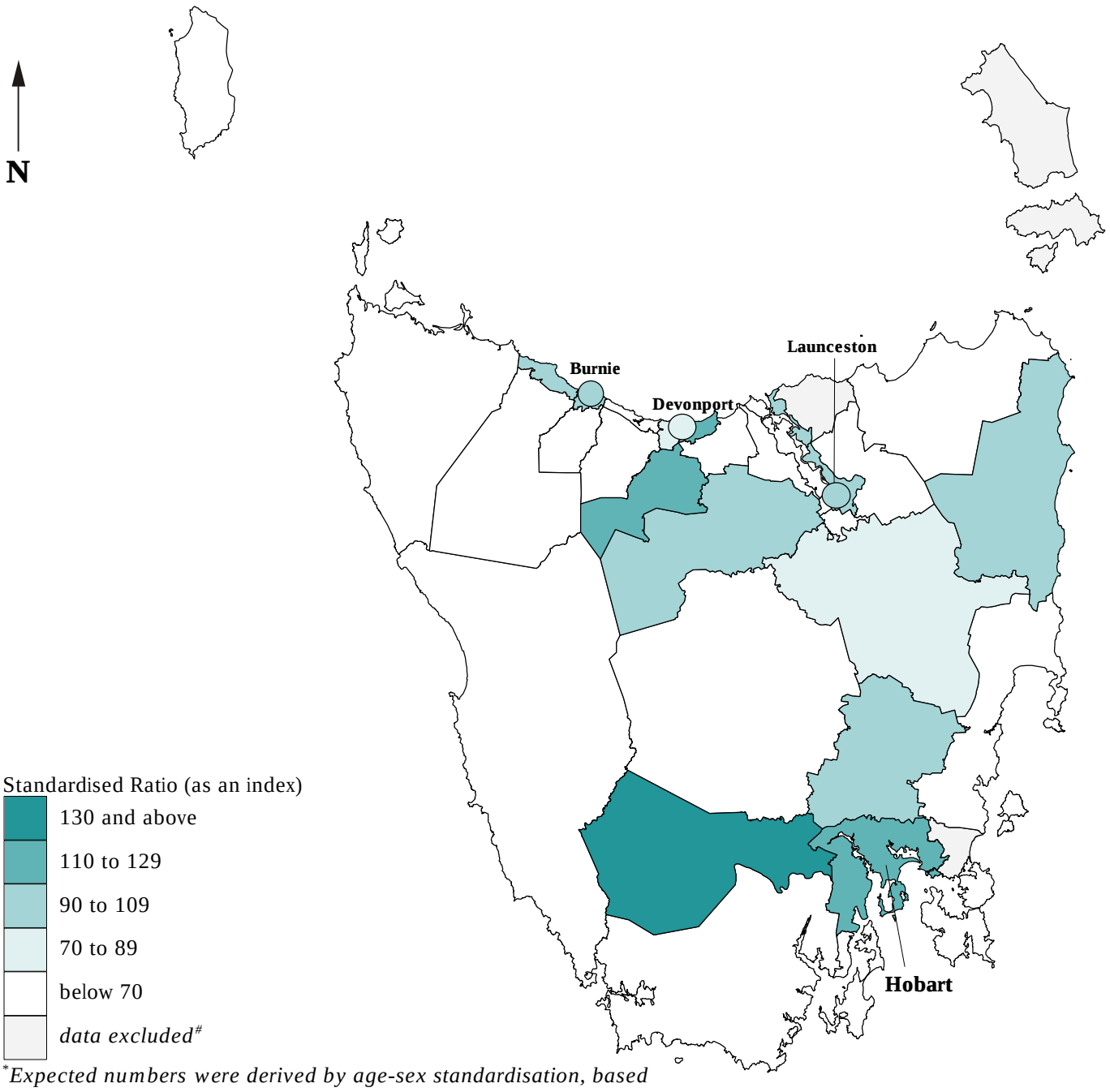
The three lowest ratios were calculated for SLAs with no admissions for psychosis; these were recorded in Tasman (0**, and 8.1 admissions expected), Burnie [Part B] (0**, 8.6 admissions expected) and Central Coast [Part B] (0**, 12.9 admissions expected). Other low ratios of high statistical significance were recorded in Northern Midlands [Part A] (with an SAR of 22**, and six admissions), West Coast (37**, 10 admissions), Meander Valley [Part A] (38**, eight admissions) and Circular Head (50**, 17 admissions).

The largest numbers of admissions for psychosis were of residents of Launceston (294 admissions), Devonport (86 admissions), Burnie [Part A] (72 admissions) and Central Coast [Part A] (52 admissions).

There were correlations with the variables for unemployed people (0.48), single parent families (0.41) and low income families (0.39). The inverse correlation with the IRSD (-0.49) also suggests an association at the SLA level between high admission rates for psychosis and socioeconomic disadvantage.

Map 6.21
Admissions for psychosis, Tasmania, 1995/1996

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

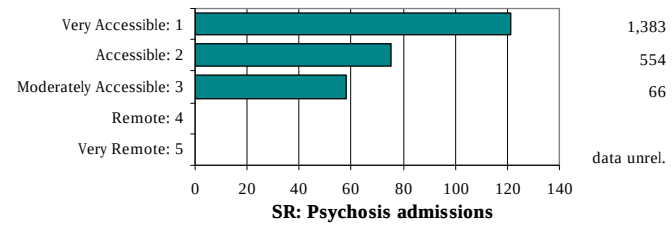


Expected numbers were derived by age-sex standardisation, based on Tasmanian totals

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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for cancer of the female breast vary over a narrow range, from an SAR of 97 in the Very Accessible and Moderately Accessible areas to an SAR of 103 in the Accessible areas. As there were fewer than five expected admissions for cancer of the female breast in the Very Remote areas, the ratio has not been calculated.

Source: Calculated on ARIA classification, DHAC

Admissions for neurotic, personality or other mental disorders, 1995/96

Capital city comparison (Australia as the Standard)

As was the case for admissions for psychosis, standardised admission ratios (SARs) for admissions for neurotic, personality or other mental disorders (described below) varied widely between the capital cities (**Table 6.27**). The pattern of variation was, however, somewhat different, in particular the ratios in **Adelaide** and **Canberra** were substantially lower, whereas SARs in the other capital cities were substantially higher. **Sydney** (with an SAR of 140**), **Hobart** (135**), **Brisbane** (122**) and **Perth** (103*) all had elevated SARs, with a ratio of around one third this level in **Canberra** (44**).

Table 6.27: Admissions [1] with a principal diagnosis of neurotic, personality or other mental disorders, capital cities, 1995/96
Age-sex standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
140**	61**	122**	86**	103*	135**	59**	44**	103**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

The introduction to the previous variable (psychosis) refers to the coverage of the data and other background information of relevance.

The variable under discussion here includes admissions of people diagnosed as having a neurotic, personality or other mental disorder. They are distinguished from those with psychosis (see page 230) by the fact that a neurosis arises as a result of stressors and anxieties in the person's environment. The most common are anxiety states, reactive depression and obsessive-compulsive disorders.

Females had a higher overall rate of admissions for neurotic personality or other mental disorders than did males (556.6 admissions per 100,000 population compared with 387.4) and higher rates at almost all ages, in particular from 25 through to 29 years of age. Admissions to hospital for neurotic, personality or other mental disorders accounted for 1.9 per cent of all the admissions analysed for Tasmanian residents.

Hobart (Tasmania as the Standard)

In 1995/96, there were 1,230 admissions for neurotic, personality or other mental disorders of residents of **Hobart**, 2.3 per cent of all admissions analysed. This was 32 per cent more admissions than expected from the State rates (an SAR of 132**), and contrasted considerably with the rate of admissions of residents of the non-metropolitan areas (an SAR of 77**). Females accounted for almost two thirds (62.4 per cent) of the admissions.

All but one of the SLAs in **Hobart** had elevated ratios, with five areas mapped in the highest range (**Map 6.22**). Residents of New Norfolk [Part A] had 71 per cent more admissions for these disorders than were expected from the State rates (an SAR of 171**), with 57 admissions, when 33 were expected. Other elevated ratios were recorded in Glenorchy (with an SAR of 167**), the City of Hobart (137**), Sorell [Part A] (122) and Clarence (115*). Brighton was the only other SLA with a ratio elevated by more than five per cent (with an SAR of 112).

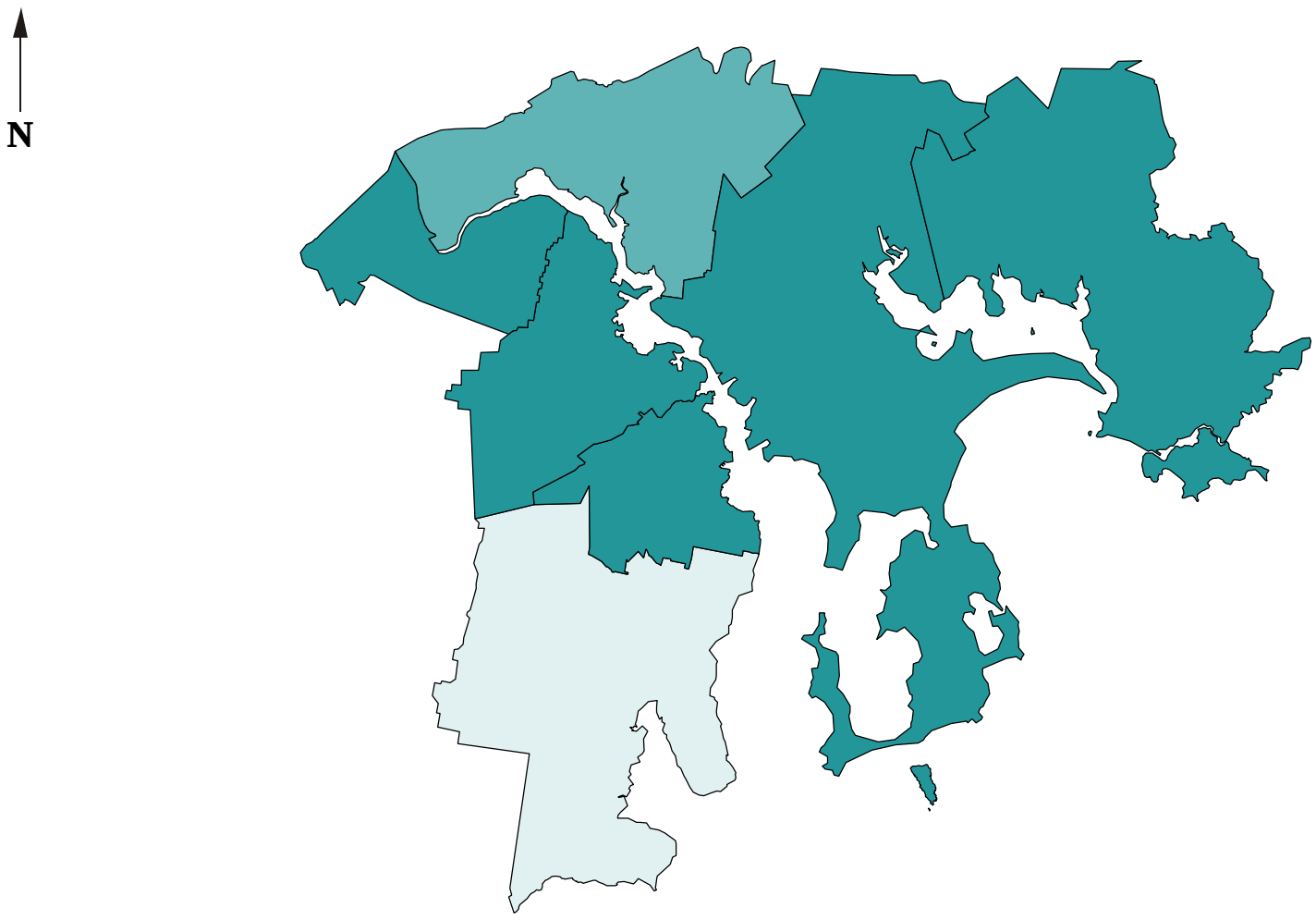
Residents of Kingborough [Part A] (with an SAR of 91 and 107 admissions) were the only group to record fewer admissions from these disorders than were expected from the State rates.

In 1995/96, the largest numbers of admissions for neurotic, personality or other mental disorders were recorded for residents of Glenorchy (354 admissions), Hobart (331 admissions) and Clarence (271 admissions).

There was a correlation of meaningful significance with the variable for dwellings with no motor vehicle (0.61) and weaker correlations with unskilled and semi-skilled workers (0.38) and low income families (0.36). Weak inverse correlations were recorded with the variables for high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.26), suggest the existence of an association at the SLA level between high rates of admission for neurotic, personality or other mental disorders and socioeconomic disadvantage.

Map 6.22
Admissions for neurotic, personality or other mental disorders, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for neurotic, personality or other mental disorders, 1995/96

State/Territory comparison (Australia as the Standard)

There was no consistent pattern for admissions for neurotic, personality or other mental disorders (described below) in the standardised admission ratios (SARs) between residents of the capital cities and of the non-metropolitan areas (**Table 6.28**). In New South Wales, Queensland and Tasmania capital city ratios were higher, with the reverse applying in South Australia, Western Australia, Victoria and the Northern Territory.

Table 6.28: Admissions[1] with a principal diagnosis of neurotic, personality or other mental disorders, State/Territory, 1995/96
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	140**	61**	122**	86**	103*	135**	59**	44**	103**
Other major urban centres[2]	81**	60**	84**	..	..	..	..	..	80**
Rest of State/Territory	104**	70**	107**	130**	112**	79**	67**	–[3]	98**
Whole of State/Territory	124**	63**	111**	98	105**	102	64**	42**	100

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1,009 admissions for neurotic, personality or other mental disorders of residents of the non-metropolitan areas of Tasmania, 33 per cent fewer than expected from the State rates (an SAR of 77**). This represents a substantial difference in the rate of hospitalisation between residents of non-metropolitan areas and those of **Hobart**. Females comprised over half (55.7 per cent) of the admissions.

Three non-metropolitan SLAs have not been mapped for this variable as they were considered to have too few expected cases to produce reliable results. More than three quarters (77.4 per cent) of the mapped SLAs recorded fewer admissions than expected and the majority of these were mapped in the lowest range (**Map 6.23**).

The only SLA with a ratio in the highest range was Dorset, with an SAR of 135* (47 admissions).

Other ratios elevated by more than 10 per cent were recorded in Break O Day (with an SAR of 126), West Coast (124), George Town [Part A] (119) and Southern Midlands (112).

Just four of the SLAs mapped in the lowest range (of 30 per cent or more below the level expected) recorded at least 20 admissions. These were the northern SLAs of West Tamar [Part A] (with an SAR of 69**), Meander Valley [Part B] (65*), Waratah/Wynyard [Part A] (64**) and Central Coast [Part A] (57**).

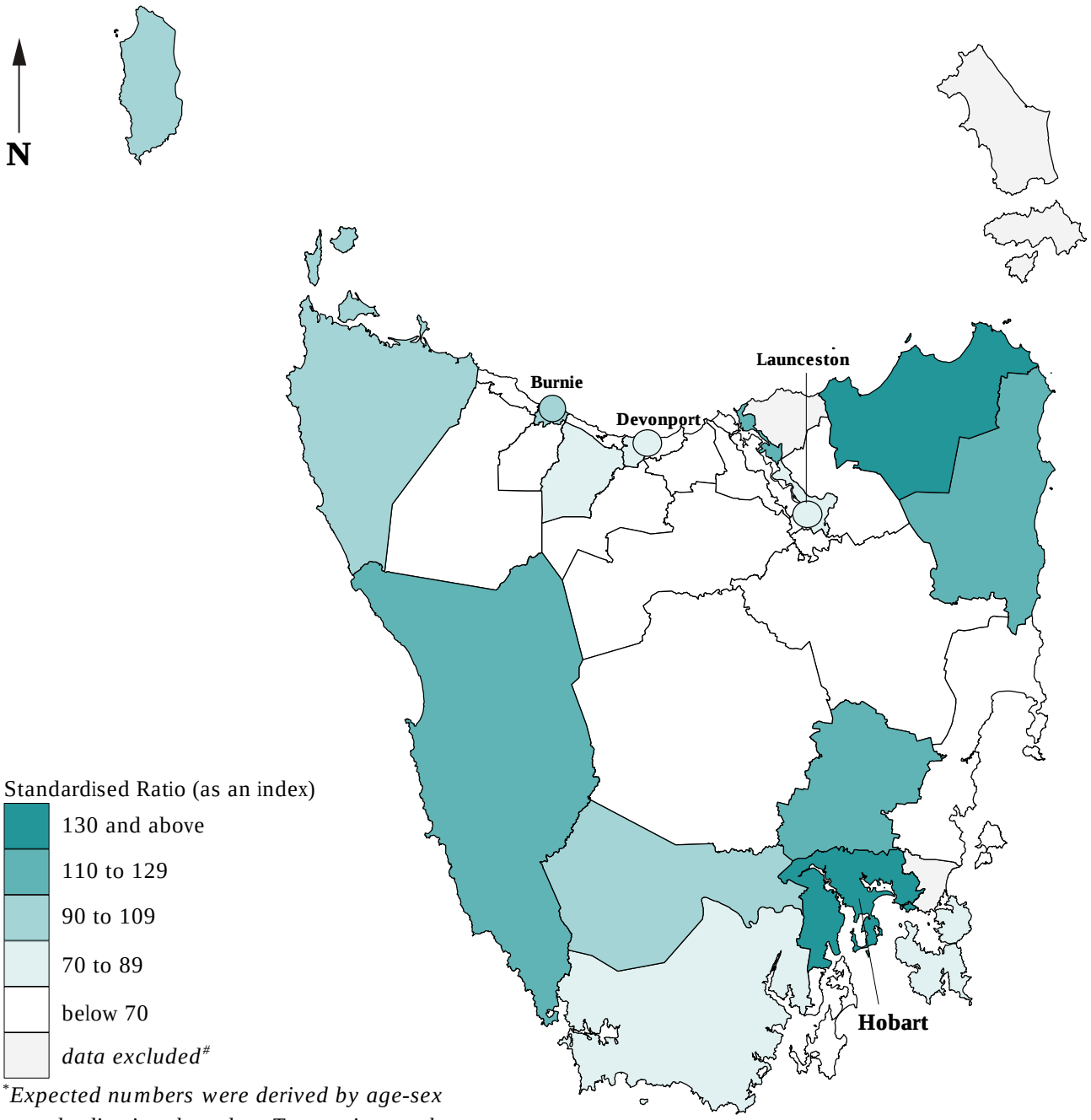
The lowest ratio (an SAR of 3*) was recorded in Latrobe [Part B], with residents recording no admissions (when six were expected for a population of this size and age/sex composition). Low ratios of high statistical significance were recorded in Kingborough [Part B] (with an SAR of 18**, and two admissions), Meander Valley [Part A] (25**, six admissions), Kentish (32**, eight admissions) and Northern Midlands [Part A] (47**, 14 admissions).

The largest numbers of admissions for neurotic, personality or other mental disorders in 1995/96 were of residents of Launceston (238 admissions), Devonport (99 admissions), Burnie [Part A] (93 admissions) and West Tamar [Part A] (57 admissions).

The correlation analysis showed there to be a generally weak association at the SLA level with indicators of socioeconomic disadvantage. The strongest of these were with the variables for dwellings with no motor vehicle (0.53), low income families (0.41), private dwellings without a motor vehicle (0.37) and single parent families (0.35). The inverse correlation with the IRSD (-0.58) also suggests the existence of an association at the SLA level between high rates of admission for neurotic, personality or other mental disorders and socioeconomic disadvantage.

Map 6.23
Admissions for neurotic, personality or other mental disorders, Tasmania, 1995/1996

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



Standardised Ratio (as an index)

- 130 and above
- 110 to 129
- 90 to 109
- 70 to 89
- below 70
- *data excluded*#

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

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

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

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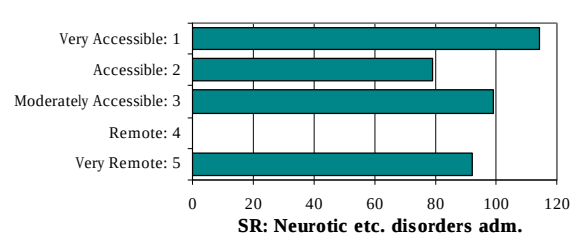


	Admissions
1,444	
652	
131	
12	

Standardised admission ratios for neurotic, personality or other mental disorders drop off sharply across the ARIA categories, from an elevated SAR of 114 (14 per cent more admissions than expected from the State rates) in the Very Accessible areas to SARs of 99 in the Moderately Accessible areas and 92 in the Remote areas. The lowest ratio is in the Accessible areas, where there were 21 per cent fewer admissions than expected from the State rates (an SAR of 79).

Source: Calculated on ARIA classification, DHAC

Admissions for circulatory system diseases, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for diseases of the circulatory system (described below) varied little between the capital cities, with the exception of relatively low ratios in **Canberra** (80**) and **Perth** (84**) (**Table 6.29**).

Both **Brisbane** and **Perth** had lower ratios in the later period shown in **Table 6.29**, suggesting a decline (relative to the Australian rates) in admissions for these diseases. The SARs in **Sydney** and **Darwin** increased, suggesting an increase (relative to the Australian rates) in admissions over this period.

Table 6.29: Admissions with a principal diagnosis of circulatory system diseases, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	99**	94**	92**	102**	84**	97*	94	80**	95**
1989[3]	88**	..	104**	102**	91**	..	60**	..	93**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Admissions for circulatory system diseases in Tasmania accounted for 8.8 per cent of admissions in this analysis. They include admissions for ischaemic heart disease, other forms of heart disease and cerebrovascular disease.

Admission rates from these causes are affected by age and sex, socioeconomic status, race and country of birth. Esterman et al. (1990) report that in **Adelaide**, there was a pronounced upward gradient in admission rates for all circulatory system diseases with lowering income status. Residents of the poorest areas had a rate 34 per cent higher than for the wealthiest areas. The corresponding elevation was 47 per cent for ischaemic heart disease, 15 per cent for stroke and 143 per cent for hypertension.

For 1996/97, age-standardised admission ratios for Indigenous men for diseases of the circulatory system were 1.7 times higher, and for Indigenous women, twice the admission ratios for non-Indigenous people (ABS/AIHW 1999).

Hobart (Tasmania as the Standard)

In 1995/96, there were 4,446 admissions of residents of **Hobart** for circulatory system diseases**,** one per cent more than were expected from the State rates (an SAR of 101). Males accounted for over half (57.3 per cent) of the admissions.

All but one of the SLAs in **Hobart** had ratios within 15 per cent of the level expected (**Map 6.24**). The only ratio in the highest range, an SAR of 150**, was recorded by residents of Brighton, with 50 per cent more admissions for circulatory system diseases than were expected from the State rates.

Other elevated ratios were recorded in Glenorchy (an SAR of 113**), Sorell [Part A] (108) and Clarence (103).

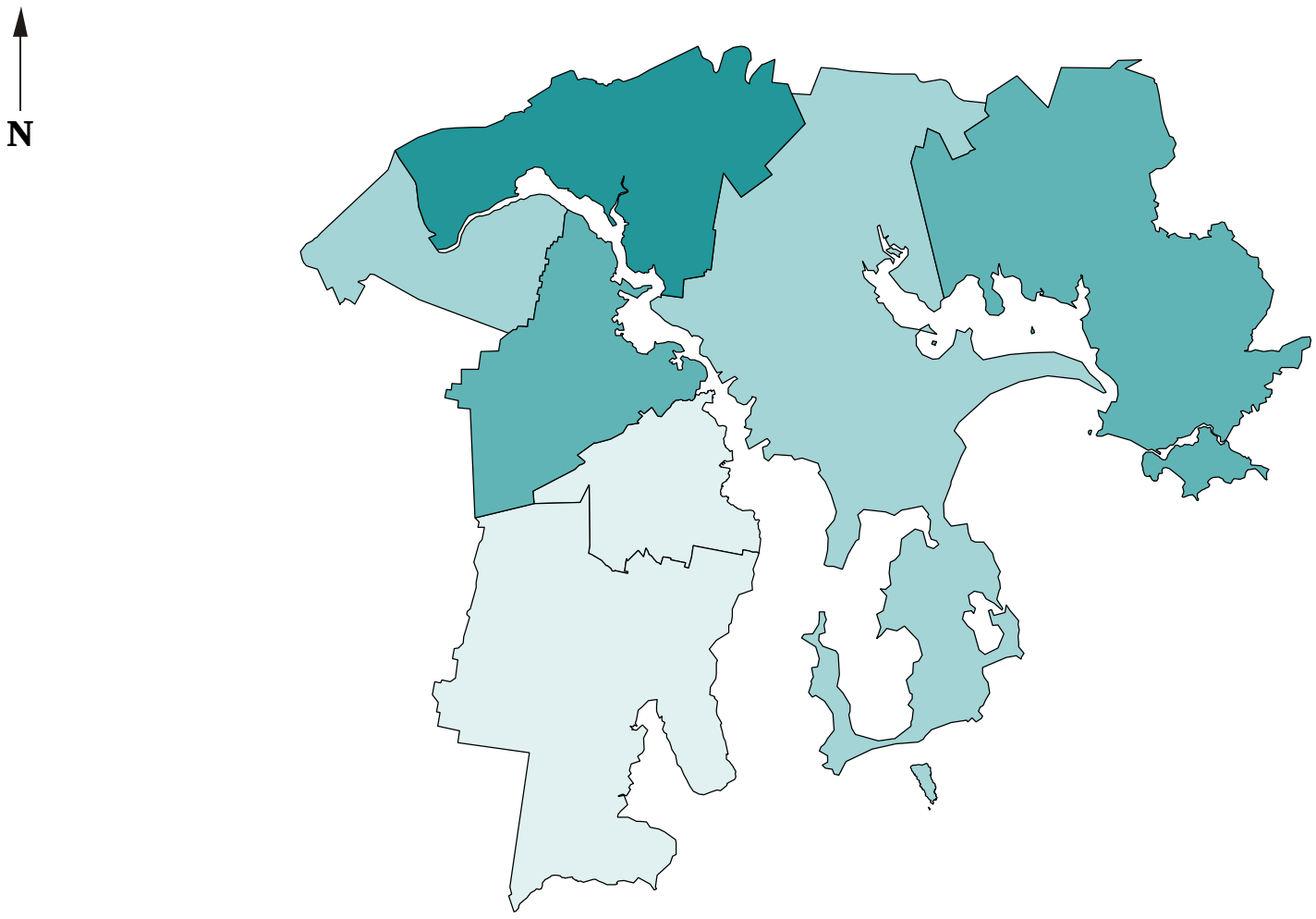
SLAs with fewer admissions for circulatory system diseases than expected were located on the western side of the Derwent River. The lowest ratios were recorded in the SLAs of Hobart (with an SAR of 87**, 13 per cent fewer admissions than were expected from the Tasmanian rates), Kingborough [Part A] (92) and New Norfolk [Part A] (with an SAR of 98).

The largest numbers of admissions were recorded for residents of Glenorchy (1,234 admissions), Clarence (1,169 admissions) and Hobart (1,014 admissions).

There were correlations of substantial significance with the variables for the Indigenous population (0.96), unemployed people (0.94), single parent families (0.93) and public rental housing (0.90). There were inverse correlations of substantial significance with the variables for female labour force participation (-0.89), high income families (-0.73) and managers and administrators, and professionals (-0.70). These results, together with the inverse correlation of substantial significance with the IRSD (-0.89), indicate the existence of an association at the SLA level between high rates of admission for circulatory system diseases and socioeconomic disadvantage.

Map 6.24
Admissions for circulatory system diseases, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for circulatory system diseases, 1995/96

State/Territory comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for diseases of the circulatory system (described on the previous text page) of residents of the non-metropolitan areas were, with the exception of Tasmania (with an SAR of 95**), relatively uniform across the States and Territories (**Table 6.30**). The most highly elevated ratios were in New South Wales (116**), South Australia (115**) and Victoria (113**).

There was relatively little change in the ratios for the non-metropolitan areas between the periods shown in **Table 6.30** with the greatest change being the decrease shown for Western Australia.

Table 6.30: Admissions with a principal diagnosis of circulatory system diseases, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	99**	94**	92**	102**	84**	97*	94	80**	95**
Other major urban centres[2]	97**	91**	99	..	..	..	..	..	97**
Rest of State/Territory	116**	113**	106**	115**	103**	95**	108**	–[3]	111**
Whole of State/Territory	104**	100	98**	105**	89**	96**	101	78**	100
1989[4]									
Rest of State/Territory	118**	..	110**	117**	113**	..	102	..	115**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 1995/96, there were 6,145 admissions of residents of the non-metropolitan areas of Tasmania for circulatory system diseases, one per cent fewer than expected from the State rates (an SAR of 99). Males accounted for over half (56.5 per cent) of these admissions.

The highest SARs for admissions for circulatory system diseases were generally located in coastal areas (**Map 6.25**).

Ratios that were elevated by more than 30 per cent were recorded in Break O Day (an SAR of 155**), Launceston [Part C] (151**), Latrobe [Part A] (131**) and West Coast (131**).

Residents of a further eight SLAs had ratios elevated by 10 per cent or more: those of statistical significance were recorded in Circular Head (with an SAR of 129**), Burnie [Part A] (115**), Devonport (113**) and Central Coast [Part A] (111*). Other ratios in this range were recorded in King Island (125), George Town [Part A] (114), Northern Midlands [Part A] (111) and Kentish (110).

Of the nine SLAs with ratios in the range between 70 and 89, ratios of statistical significance were recorded in Huon Valley (with an SAR of 87*), Southern Midlands (82*), Meander Valley [Part B] (81**) and West Tamar [Part A] (79**).

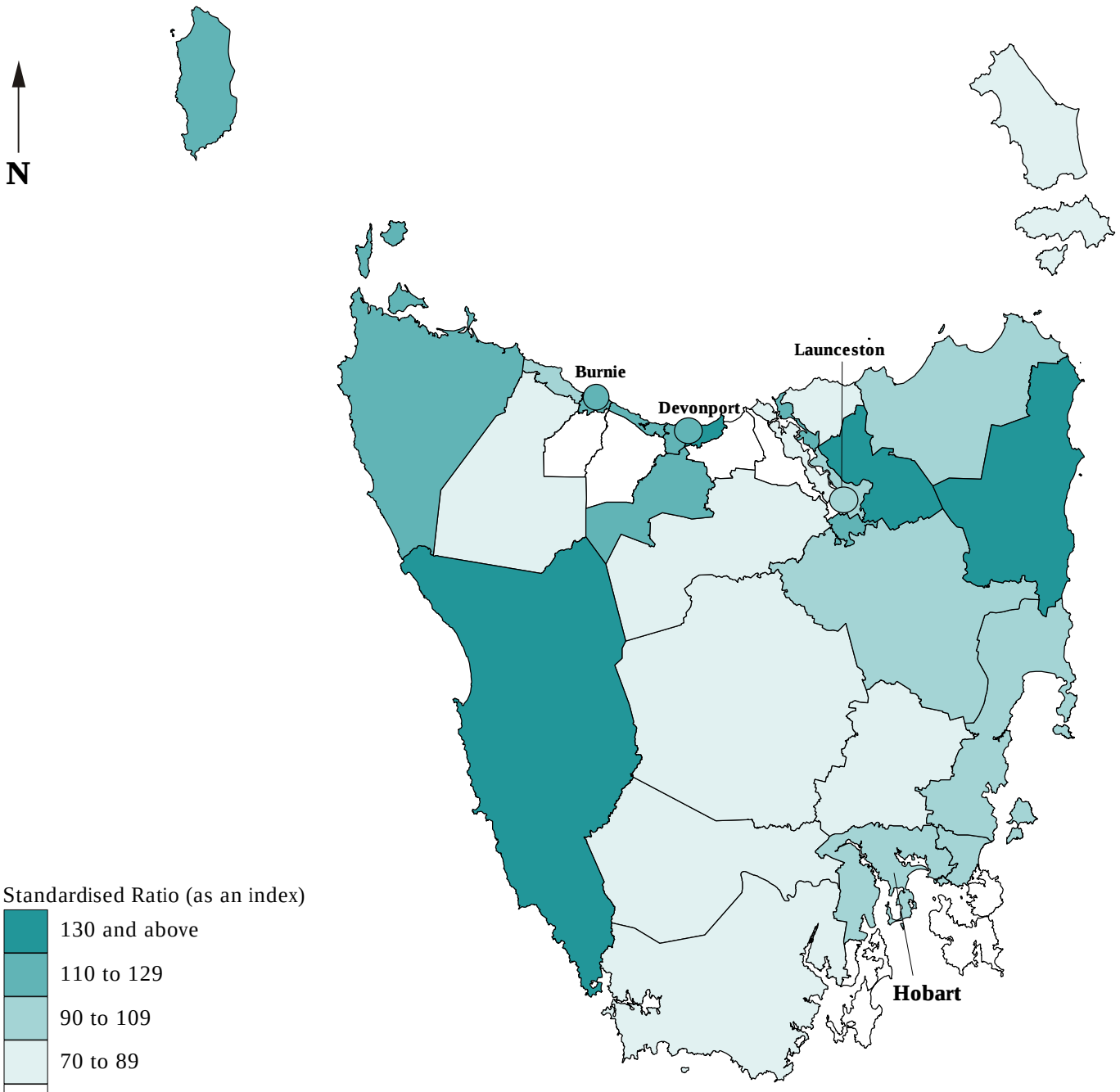
The lowest ratios (with at least twenty admissions) were recorded in Meander Valley [Part A] (33**), Kingborough [Part B] (56**), West Tamar [Part B] (63*) and Tasman (69*). Significantly low ratios were also recorded in Central Coast [Part B] (30**, but with just 19 admissions), Latrobe [Part B] (31**, eight admissions) and Burnie [Part B] (35**, 14 admissions).

The largest numbers of admissions for circulatory system diseases in the non-metropolitan areas of Tasmania were recorded for residents of Launceston (1,315 admissions), Devonport (706 admissions), Central Coast [Part A] (488 admissions) and Burnie [Part A] (441 admissions).

There was a correlation of meaningful significance with the variable for low income families (0.50), and weaker correlations with dwellings with no motor vehicle (0.48) and single parent families (0.43); there was also an inverse correlation with the variable for managers and administrators, and professionals (-0.45). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.51), suggest the existence of an association at the SLA level between high rates admission for circulatory system diseases and socioeconomic disadvantage.

Map 6.25
Admissions for circulatory system diseases, Tasmania, 1995/1996

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



Standardised Ratio (as an index)

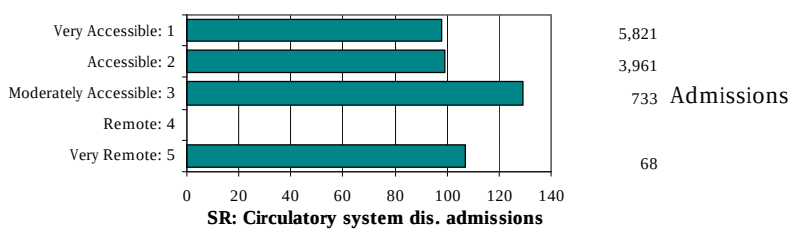
- 130 and above
- 110 to 129
- 90 to 109
- 70 to 89
- below 70

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios for circulatory system diseases are just below the level expected from the State rates in the Very Accessible ARIA category (with an SAR of 98) and Accessible areas (99) and seven per cent above in the Very Remote areas (an SAR of 107). There is a more highly elevated ratio in the Moderately Accessible areas, with 29 per cent more admissions than expected from the State rates (an SAR of 128).

Source: Calculated on ARIA classification, DHAC

Admissions for ischaemic heart disease, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for ischaemic heart disease (described below) varied over a relatively narrow range, from the highest ratio in **Hobart** (105*) to the lowest in **Perth** (86**) (**Table 6.31**).

Brisbane, **Adelaide** and **Perth** each had lower ratios in the later period shown in **Table 6.31**, suggesting a decline (relative to the Australian rates) in admissions for this disease. The SARs in **Sydney** and **Darwin** increased, suggesting an increase (relative to the Australian rates) in admissions for ischaemic heart disease over this period.

Table 6.31: Admissions with a principal diagnosis of ischaemic heart diseases, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	103**	93**	93**	98*	86**	105*	87*	91**	96**
1989[3]	95**	..	105**	106**	90**	..	44**	..	98**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Ischaemic heart disease results from poor blood supply to the heart and leads to heart attacks and angina. Hospital admissions for ischaemic heart disease accounted for 3.4 per cent of all admissions of Tasmanian residents and 38.4 per cent of admissions for all circulatory system diseases.

As for all circulatory system diseases, higher admissions rates occur among the socially disadvantaged.

These results, together with the inverse correlation of substantial significance with the IRSD (-0.81), indicate the existence of an association at the SLA level between high rates of admission for ischaemic heart disease and socioeconomic disadvantage.

Hobart (Tasmania as the Standard)

In 1995/96, there were six per cent more admissions for ischaemic heart disease of residents of **Hobart** than expected from the State rates (an SAR of 106*). Of the 1,771 admissions, two thirds (67.0 per cent) were males.

Map 6.26 shows that SLAs on the eastern side of the Derwent River had elevated ratios for this variable, as did Glenorchy on the western side.

Residents of Brighton, with the highest SAR of 165**, had 65 per cent more admissions for ischaemic heart disease than were expected from the State rates. Ratios in the top range were also recorded in Glenorchy (with an SAR of 124**) and Sorell [Part A] (123). The other elevated ratio was recorded for residents of Clarence (an SAR of 112*).

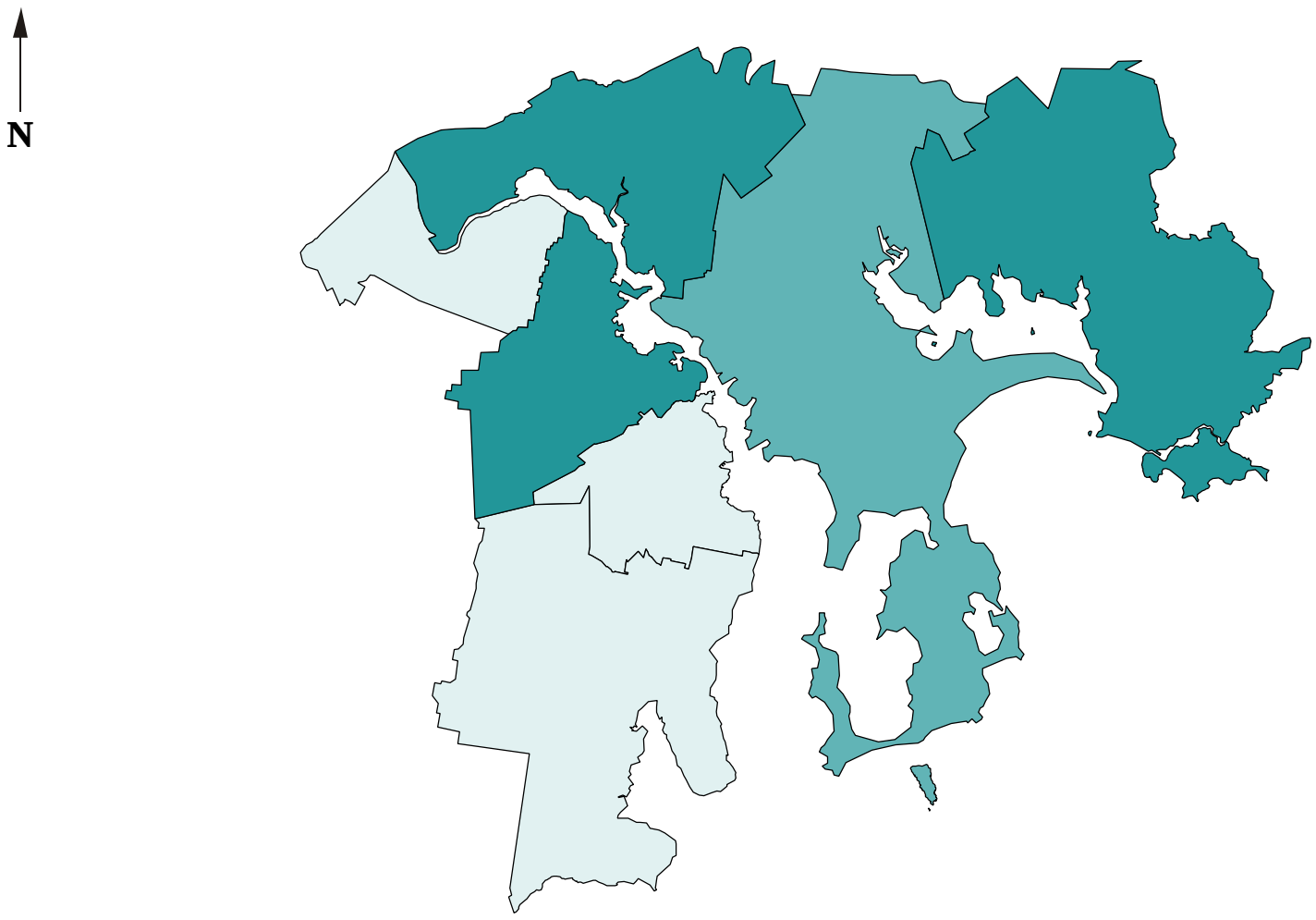
Residents of the remaining three SLAs had between five and 15 per cent fewer admissions than were expected. The City of Hobart had the lowest ratio (an SAR of 85**) followed by Kingborough [Part A] (86*) and New Norfolk [Part A] (87).

The largest numbers of admissions for this disease were recorded for residents of Glenorchy (518 admissions), Clarence (492) and the City of Hobart (369).

There were correlations of substantial significance with the variables for unemployed people (0.88), the Indigenous population (0.87), single parent families (0.85), public rental housing (0.78), low income families (0.74) and early school leavers (0.72). Inverse correlations of substantial significance were recorded with the variables for female labour force participation (-0.79) and high income families (-0.71).

Map 6.26
Admissions for ischaemic heart disease, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for ischaemic heart disease, 1995/96

State/Territory comparison (Australia as the Standard)

As was the case for circulatory system diseases, standardised admission ratios (SARs) for admissions for ischaemic heart disease (described on the previous text page) were, with the exception of Tasmania (with an SAR of 95*) and Northern Territory (87*), higher for residents of the non-metropolitan areas than in the capital cities (**Table 6.32**). The most highly elevated ratios were in New South Wales (112**) and Victoria (111**).

There was relatively little change in the ratios for the non-metropolitan areas between the periods shown in **Table 6.32** with the exception of the Northern Territory. The higher ratios in the later period shown suggests an increase (relative to the Australian rates) in admissions over this period. It should be noted, however, that the Western Australian and Northern Territory ratios remained below the Australian rate.

Table 6.32: Admissions with a principal diagnosis of ischaemic heart disease, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	103**	93**	93**	98*	86**	105*	87*	91**	96**
Other major urban centres[2]	114**	95	101	..	..	..	..	..	108**
Rest of State/Territory	112**	111**	99	108**	90**	95*	87*	–[3]	106**
Whole of State/Territory	107**	98**	96**	101	87**	99	87**	89**	100
1989[4]									
Rest of State/Territory	111**	..	95**	100	86**	..	53**	..	101*

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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)

Admissions for ischaemic heart disease accounted for more than one third (37.3 per cent) of all admissions for circulatory system diseases for non-metropolitan residents, a total of 2,295 admissions. This was four per cent fewer admissions than expected from the State rates, an SAR of 96*. Just over two thirds (67.1 per cent) of the admissions were males.

The pattern of distribution is similar to that for all circulatory system diseases, but ratios extend over a slightly wider range, and more SLAs are mapped in the middle range (**Map 6.27**).

Of the four SLAs mapped in the highest range, only Launceston [Part C] (with a highly elevated SAR of 187*) and Latrobe [Part A] (133*) recorded more than 20 admissions. High ratios but low numbers of admissions were recorded for residents of Sorell [Part B] (an SAR of 153, 11 admissions when seven were expected from the State rates) and George Town [Part B] (134, 11 admissions when eight were expected from the State rates).

Ratios elevated by 10 per cent or more were recorded in Break O Day (with an SAR of 127*), George Town [Part A] (126), King Island (116), Waratah/Wynyard [Part B] (115), Dorset (113) and Central Coast [Part A] (112).

All of the SLAs mapped in the lowest range had fewer than 20 admissions for ischaemic heart disease. Flinders and Latrobe [Part B] both had no admissions (when nine and ten admissions, respectively, were expected from the State rates). Low ratios were also recorded in Central Coast [Part B] (20**, five admissions), Burnie [Part B] (40*, six admissions), Meander Valley [Part A] (42**, 14 admissions) and Kingborough [Part B] (55*, 13 admissions).

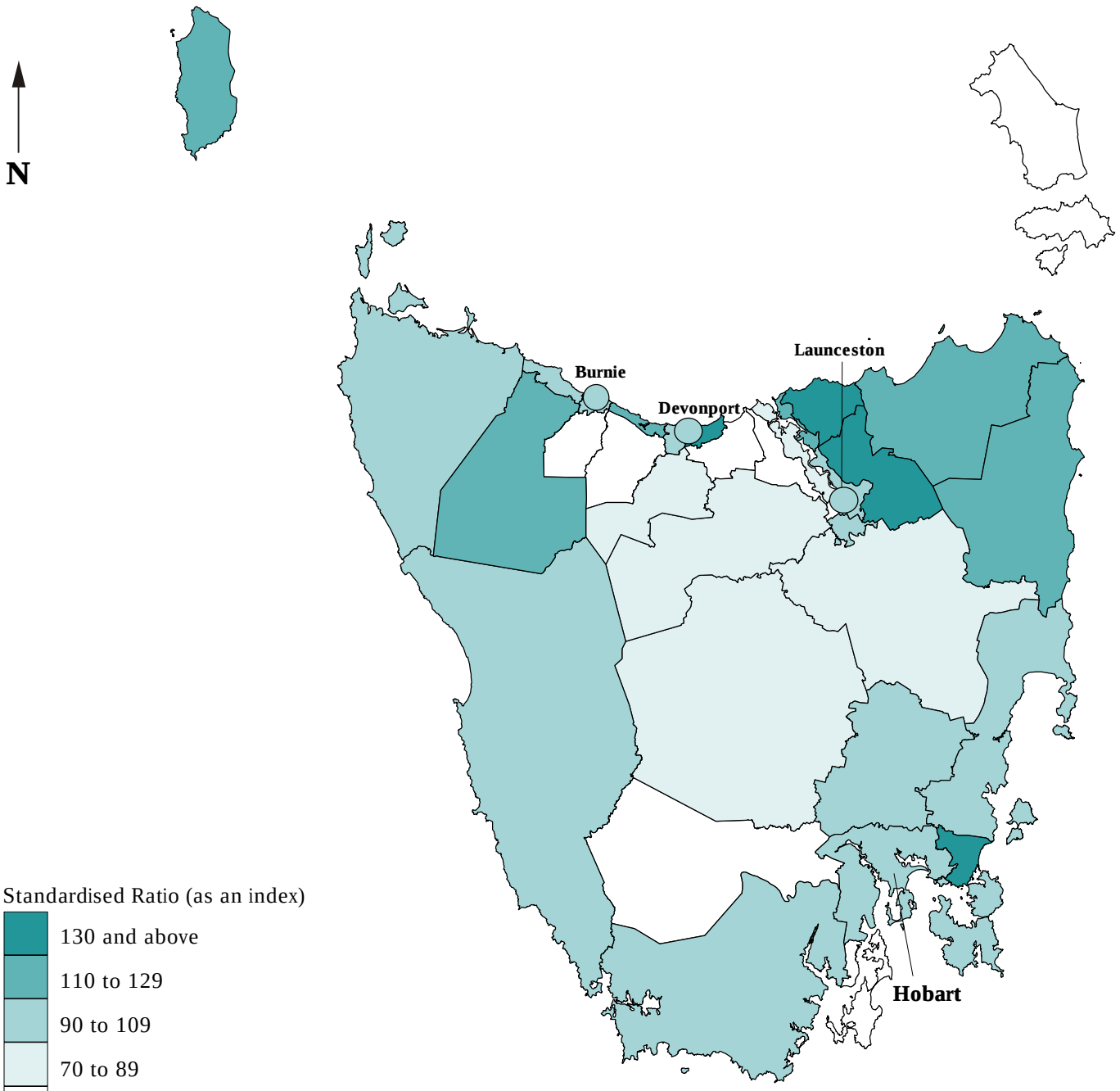
Meander Valley [Part B] (with an SAR of 75*) and West Tamar [Part A] (71**) were the other SLAs with fewer admissions than expected and ratios of statistical significance.

The largest numbers of admissions were recorded for residents of Launceston (534 admissions), Devonport (229 admissions), Central Coast [Part A] (190 admissions) and Burnie [Part A] (146 admissions).

There was a correlation of meaningful significance with the variable for low income families (0.53), and weaker correlations with single parent families and unemployment (both 0.35). Inverse correlations were recorded with the indicators of high socioeconomic status, the strongest being with the variable for managers and administrators, and professionals (-0.46). These results, together with the weak inverse correlation with the IRSD (-0.46), suggest the existence of an association at the SLA level between high rates of admission for ischaemic heart disease and socioeconomic disadvantage.

Map 6.27
Admissions for ischaemic heart disease, Tasmania, 1995/1996

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



Standardised Ratio (as an index)

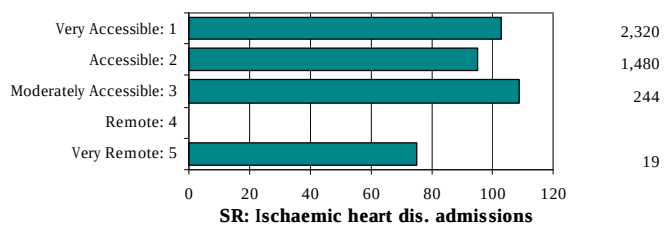
- 130 and above
- 110 to 129
- 90 to 109
- 70 to 89
- below 70

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



The highest standardised admission ratio for ischaemic heart disease is in the Moderately Accessible areas under ARIA (an SAR of 109), with ratios in the other ARIA categories dropping off from an SAR of 103 in the Accessible areas to lower than expected ratios of 95 and 75 in the Accessible and Very Remote areas, respectively.

Source: Calculated on ARIA classification, DHAC

Admissions for respiratory system diseases, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for respiratory system diseases (described below) varied widely between the capital cities (**Table 6.33**). The only elevated ratios were in **Adelaide** (an SAR of 114**) and **Darwin** (102) and the lowest ratio was in **Canberra** (67**).

The SAR for **Darwin** almost doubled, increasing from 53** in 1987 to 102 in 1995/96, suggesting an increase (relative to the Australian rates) in admissions over this period.

Table 6.33: Admissions with a principal diagnosis of respiratory system diseases, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	91**	87**	92**	114**	83**	77**	102	67**	91**
1989[3]	69**	..	93**	108**	82**	..	53**	..	81**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Respiratory system diseases include the diseases of pneumonia, influenza, bronchitis, emphysema and asthma. This category includes people with chronic obstructive pulmonary disease – a persistent obstruction of bronchial air flow, manifesting as asthma, chronic bronchitis, and chronic emphysema – as well as acute respiratory infections. Admissions from these diseases represented 5.3 per cent of all admissions analysed for Tasmanian residents: 4.8 per cent of residents of **Hobart** and 5.7 per cent in the non-metropolitan areas.

For 1996/97, age-standardised admission ratios for Indigenous women for diseases of the respiratory system were 2.3 times higher, and for Indigenous men, twice the admission ratios for non-Indigenous people (ABS/AIHW 1999).

Hobart (Tasmania as the Standard)

In 1995/96, there were 2,546 admissions for respiratory system diseases recorded for residents of **Hobart**, two per cent fewer admissions than expected from the State rates (an SAR of 98). Males comprised over half (52.9 per cent) of the admissions.

The highest ratio for admissions for respiratory system diseases was recorded in the socioeconomically disadvantaged SLA of Brighton, with residents having 44 per cent more admissions than were expected from the State rates (an SAR of 144**). Sorell [Part A] (with an SAR of 118) and Glenorchy (111**) had the only other elevated ratios (**Map 6.28**).

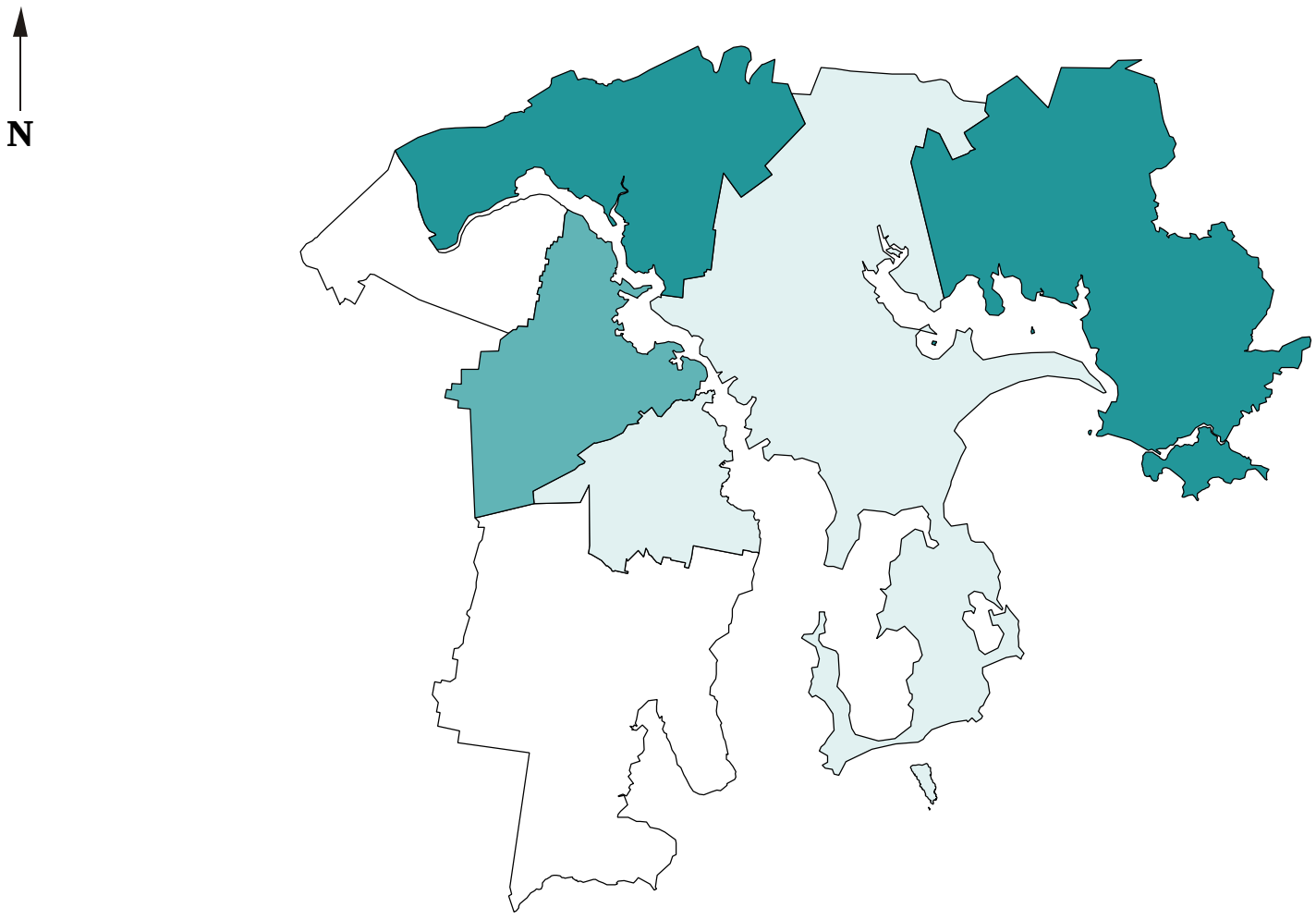
The lowest ratios were recorded in Kingborough [Part A] (an SAR of 77**) and New Norfolk [Part A] (76*), with fewer than expected admissions also recorded in the SLAs of Hobart (90**) and Clarence (91*).

The largest numbers of admissions for respiratory system diseases were recorded for residents of Glenorchy (686 admissions), Clarence (607) and Hobart (568).

There were correlations of substantial significance with the variables for unemployed people (0.87), single parent families (0.83), the Indigenous population (0.76) and children aged from 0 to 4 years (0.75). An inverse correlation of substantial significance was recorded with the variable for female labour force participation (-0.71), and of meaningful significance with high income families (-0.65) and managers and administrators, and professionals (-0.54). These results, together with the inverse correlation of substantial significance with the IRSD (-0.71), indicate the existence of an association at the SLA level between high rates of admissions for respiratory system diseases and socioeconomic disadvantage.

Map 6.28
Admissions for respiratory system diseases, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for respiratory system diseases, 1995/96

State/Territory comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for respiratory system diseases (described on the previous text page) were higher, and often substantially higher, for residents of the non-metropolitan areas than of the capital cities (**Table 6.34**). The most highly elevated ratios were in the Northern Territory (an SAR of 180**), South Australia (156**) and Western Australia (147**). Only in Tasmania was the ratio below the Australian rate.

The SARs for the non-metropolitan areas in each of the four States, for which data were analysed for both periods, declined between the two periods (**Table 6.34**). The lower ratios in the later period suggest a decline (relative to the Australian rates) in admissions of non-metropolitan residents over this period. However, the ratios recorded for the Northern Territory increased (relative to the Australian rates) between the two periods, rising from 164** in 1987 to 180** in 1995/96.

Table 6.34: Admissions with a principal diagnosis of respiratory system diseases, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	91**	87**	92**	114**	83**	77**	102	67**	91**
Other major urban centres[2]	82**	85**	86**	..	..	..	..	..	84**
Rest of State/Territory	123**	116**	115**	156**	147**	80**	180**	–[3]	123**
Whole of State/Territory	99**	95**	101	125**	101	79**	146**	66**	100
1989[4]									
Rest of State/Territory	135**	..	130**	169**	176**	..	164**	..	143**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 1995/96, there were 3,855 admissions of residents of the non-metropolitan areas of Tasmania for respiratory system diseases. This was two cent more than expected from the State rates (an SAR of 102) and comprised 5.7 per cent of all admissions of non-metropolitan residents analysed. Males accounted for over half (54.7 per cent) of the admissions.

Five areas had SARs for respiratory system diseases that were elevated by more than 30 per cent (**Map 6.29**). The highest ratio, a highly elevated SAR of 163** recorded in King Island, represented a relatively low number of 40 admissions when 24.5 were expected from the State rates. Other SLAs mapped in the top range were West Coast (with an SAR of 156**), Break O Day (146**), George Town [Part A] (143**) and Circular Head (142**).

Other SLAs with ratios elevated by 10 per cent or more formed two groups. Dorset (with an SAR of 128**), Northern Midlands [Part A] (126*) and Southern Midlands (119) were located to the east of the State; and Waratah Wynyard [Part A] (119*), Burnie [Part A] (115*) and Waratah/Wynyard [Part B] (113) were in the north-west.

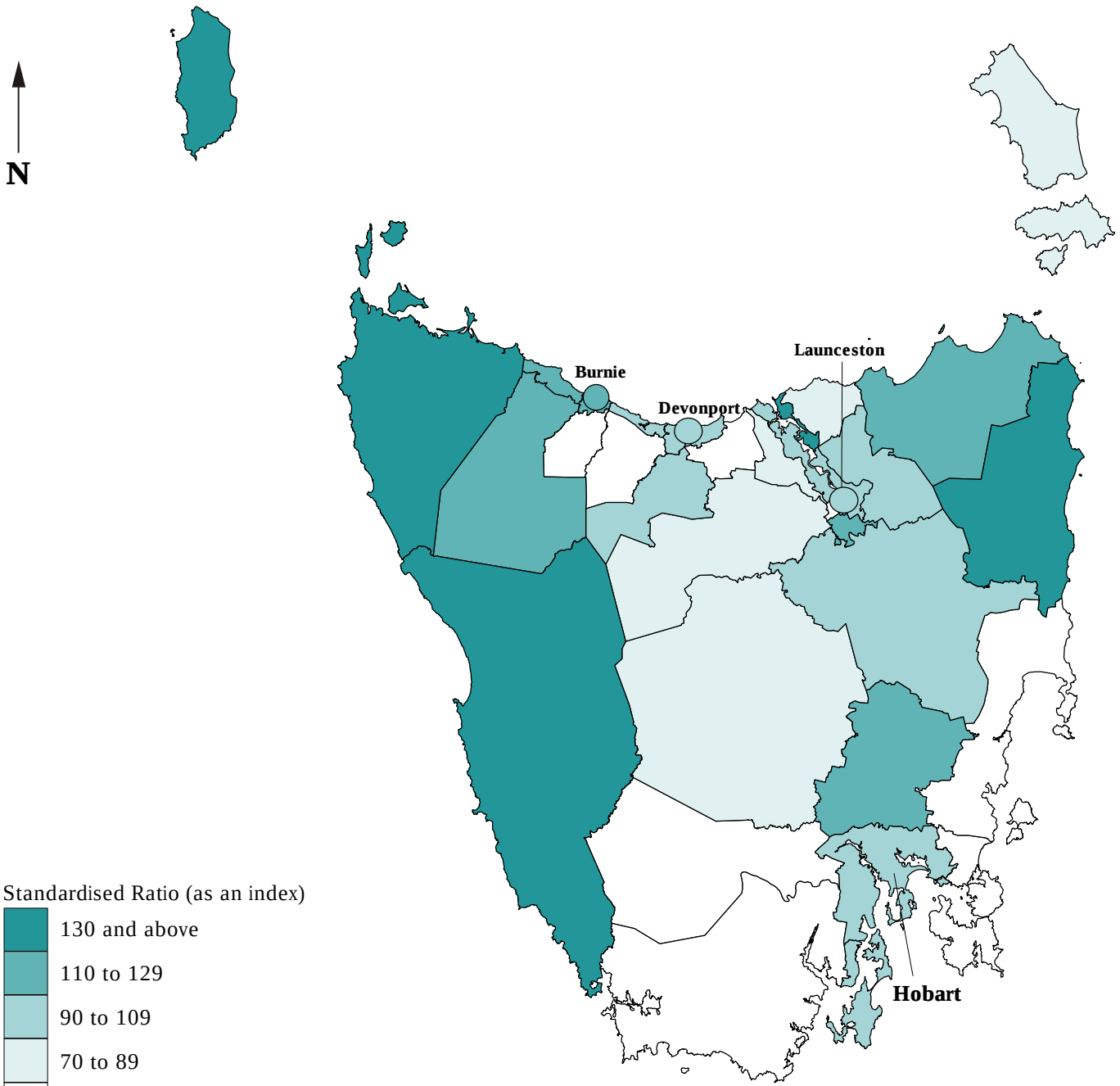
Of the nine SLAs with ratios in the lowest range, residents of only Huon Valley (69**) and Glamorgan/Spring Bay (60**) had at least 20 admissions for respiratory system diseases. The lowest ratios were recorded in Latrobe [Part B] (13**, two admissions), Meander Valley [Part A] (24**, 15 admissions), Tasman (28**, eight admissions) and Central Coast [Part B] (30**, 13 admissions).

The largest numbers of admissions were recorded for residents of Launceston (861 admissions), Devonport (370), Burnie [Part A] (291) and Central Coast [Part A] (270).

There was a correlation of meaningful significance with the variable for dwellings with no motor vehicle (0.54), and weaker correlations with dwellings rented from the State housing authority (0.42) and single parent families (0.31). These results, together with the weak inverse correlation with the IRSD (-0.31), suggest the existence of an association at the SLA level between high rates of admission for respiratory system diseases and socioeconomic disadvantage.

Map 6.29
Admissions for respiratory system diseases, Tasmania, 1995/1996

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



Standardised Ratio (as an index)

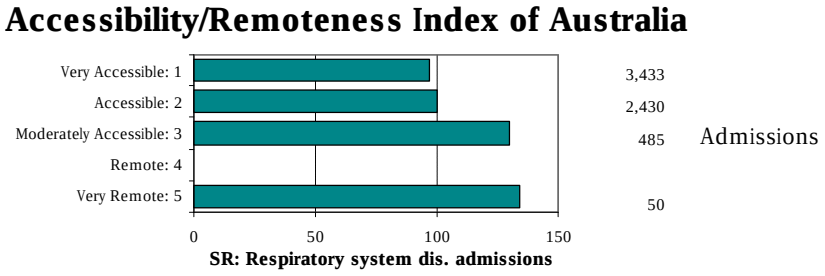
- 130 and above
- 110 to 129
- 90 to 109
- 70 to 89
- below 70

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Residents of the Very Accessible and Accessible areas under the ARIA classification had standardised admission ratios for respiratory system diseases close to the level expected from the State rates (with SARs of 97 and 100, respectively). Ratios in the other categories were elevated by around 30 per cent, with SARs of 130 and 134 in the Moderately Accessible and Very Remote ARIA categories, respectively.

Source: Calculated on ARIA classification, DHAC

Admissions of children aged 0 to 4 years for respiratory system diseases, 1995/96

Capital city comparison (Australia as the Standard)

As was the case for people of all ages, standardised admission ratios (SARs) for admissions of children aged from 0 to 4 years from respiratory system diseases (described below) varied widely between the capital cities (**Table 6.35**). The most highly elevated ratio was in **Adelaide** (118**) and the lowest in **Melbourne** (68**).

The increase in the SAR for **Darwin,** from 38** in 1987 to 88* in 1995/96, suggests an increase (relative to the Australian rates) in admissions over this period; however, the ratio remains below the *All capitals* rate. Similar, albeit smaller, increases were recorded for children in **Sydney**, **Perth** and **Brisbane**, whereas the ratio for **Adelaide** declined, from a high 123** to 118**.

Table 6.35: Admissions of 0 to 4 year olds with a principal diagnosis of respiratory system diseases, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	95**	68**	99	118**	91**	71**	88*	80**	89**
1989[3]	67**	..	90**	123**	79**	..	38**	..	80**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Data is for 0 to 14 year olds and excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Diseases of the respiratory system are a major cause of admission to hospital for children. As children also comprise a relatively large proportion (19.9 per cent) of admissions of all ages with respiratory system diseases, they were mapped separately. The major causes included in this group of diseases are chronic obstructive lung disease (which includes cystic fibrosis, chronic bronchitis, emphysema and asthma), acute respiratory infections and chronic diseases of tonsils and adenoids.

Hobart (Tasmania as the Standard)

In 1995/96, there were 507 admissions for respiratory system diseases of residents of **Hobart** aged from 0 to 4 years, three per cent more admissions than expected from the State rates (an SAR of 103). Males comprised almost two thirds (63.1 per cent) of these admissions.

The distribution of standardised admission ratios for this variable was restricted to the highest and the lowest two ranges mapped (**Map 6.30**).

The most highly elevated ratio was recorded in the socioeconomically disadvantaged SLA of Brighton (an SAR of 177**), with 77 per cent more admissions for respiratory illnesses than were expected from the State rates for an SLA with this number of 0 to 4 year old children. Glenorchy (with an SAR of 116) also recorded a ratio in the top range.

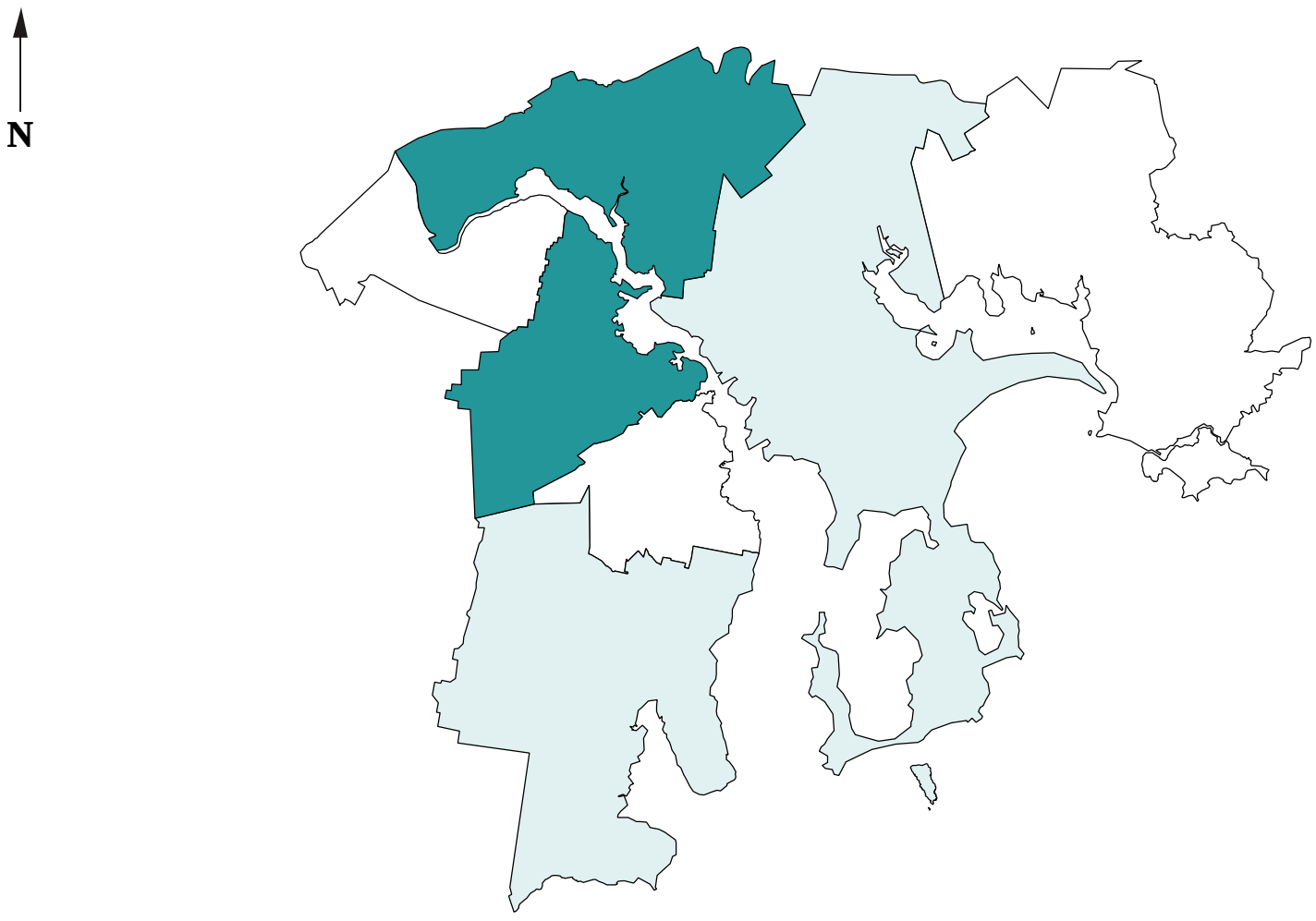
The lowest ratio, an SAR of 60 recorded in New Norfolk [Part A], represented just 12 admissions when 19 were expected from the State rates. Other low ratios were recorded in Sorell [Part A] (75) and the City of Hobart (83). Young residents of Clarence (with an SAR of 91) and Kingborough [Part A] (87) also had fewer admissions than were expected from the State rates.

The largest numbers of admissions for respiratory system diseases of children aged from 0 to 4 years were of children from Glenorchy (132 admissions), Clarence (111 admissions) and Brighton (104 admissions).

There were positive correlations recorded with indicators of socioeconomic disadvantage. The strongest of these were with the variables for single parent families (0.92), the Indigenous population (0.90), public rental housing (0.87) and unemployed people (0.78). Inverse correlations were recorded with the indicators of high socioeconomic status, the strongest being with the variable for female labour force participation (-0.66). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.66), indicate the existence of an association at the SLA level between high admissions rates for respiratory system diseases of 0 to 4 year old children and socioeconomic disadvantage.

Map 6.30
Admissions of children aged 0 to 4 years for respiratory system diseases, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions of children aged 0 to 4 years for respiratory system diseases, 1995/96

State/Territory comparison (Australia as the Standard)

With the exception of Tasmania, standardised admission ratios (SARs) for admissions for respiratory system diseases (described on the previous text page) were higher, in most cases substantially so, for residents of the non-metropolitan areas than in the capital cities (**Table 6.36**). The most highly elevated ratios were in the Northern Territory (212**), Western Australia (165**), South Australia (146**) and New South Wales (132**).

The SARs for the non-metropolitan areas in each of the four States for which data were analysed for both periods, declined between the two periods, with the largest declines in South Australia and Western Australia (**Table 6.36**). The lower ratios in the later period suggest a decline (relative to the Australian rates) in admissions of non-metropolitan residents over this period. SARs in the Northern Territory, however, increased over this period, from 163** in 1987 to 212** in 1995/96.

Table 6.36: Admissions of 0 to 4 year olds with a principal diagnosis of respiratory system diseases, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	95**	68**	99	118**	91**	71*	88*	80**	89**
Other major urban centres[2]	81**	92	85**	..	..	..	..	..	83**
Rest of State/Territory	132**	103*	116**	146**	165**	68**	212**	–[3]	125**
Whole of State/Territory	104**	78**	105**	126**	114**	69**	162**	81**	100
1989[4]									
Rest of State/Territory	138**	..	121**	180**	177**	..	163**	..	142**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Data is for 0 to 14 year olds and excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 1995/96, children aged from 0 to 4 years accounted for almost one fifth (19.8 per cent) of all admissions from respiratory system diseases of residents of the non-metropolitan areas of Tasmania. The total of 764 admissions was two per cent fewer than expected from the State rates (an SAR of 98). Males comprised almost two thirds (61.6 per cent) of these admissions.

A number of non-metropolitan SLAs were not mapped for this variable as they were considered to have too few expected cases to produce reliable results (**Map 6.31**).

The highest ratio for admissions of 0 to 4 year olds for respiratory system diseases (an SAR of 173**), was recorded in George Town [Part A]. This represented a relatively low number of 32 admissions, when 18.5 were expected from the State rates. Ratios in the top range were also recorded in Latrobe [Part A] (with an SAR of 143), Break O Day (143), Southern Midlands (142), Waratah/Wynyard [Part A] (140*), Circular Head (140*) and Northern Midlands [Part B] (134).

Other SLAs with ratios elevated by 10 per cent or more were Devonport (with an SAR of 129*), Northern Midlands [Part A] (118) and Burnie [Part A] (115).

Young residents of all but two of the 13 SLAs mapped in the lowest two ranges had fewer than 20 admissions for this variable. Residents of Central Coast [Part A] (with an SAR of 71*) and West Tamar [Part A] (71) had 36 and 30 admissions respectively.

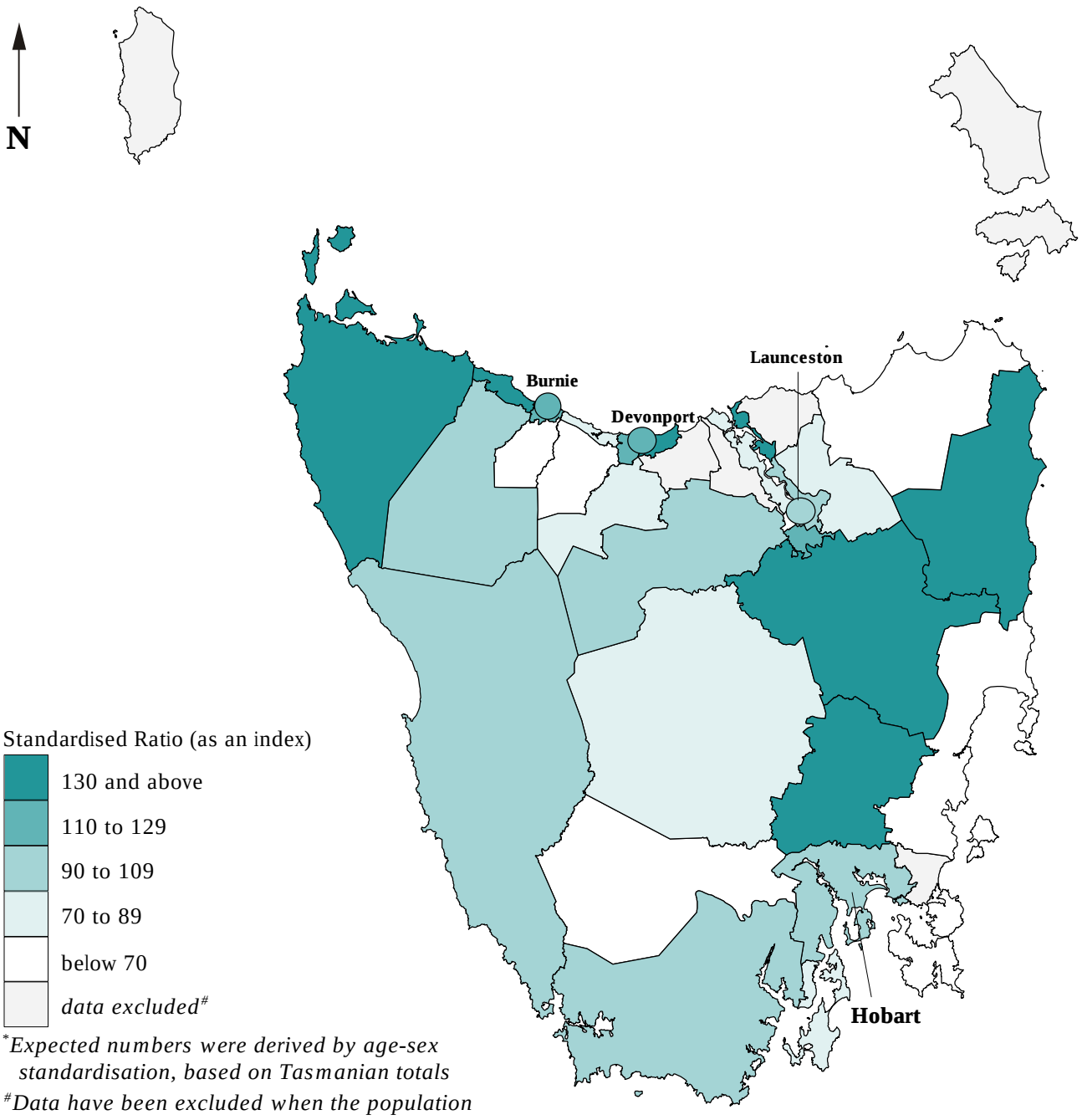
The lowest ratios were recorded in Meander Valley [Part A] (with an SAR of 13**, and two admissions), Tasman (15*, one admission), Burnie [Part B] (29, two admissions) and Central Coast [Part B] (34, three admissions). Significantly low ratios were recorded in Dorset (54*, 12 admissions) and Glamorgan/Spring Bay (38*, four admissions).

The largest numbers of admissions for respiratory system diseases among this age group were recorded for residents of Launceston (161 admissions), Devonport (83 admissions), Burnie [Part A] (70 admissions) and Huon Valley (41 admissions).

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

Map 6.31
Admissions of children aged 0 to 4 years for respiratory system diseases, Tasmania, 1995/1996

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



Standardised Ratio (as an index)

- 130 and above
- 110 to 129
- 90 to 109
- 70 to 89
- below 70
- *data excluded#*

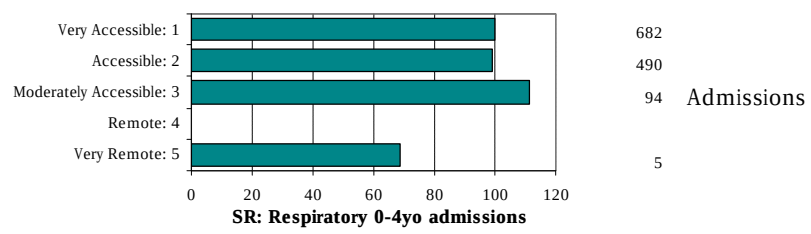
**Expected numbers were derived by age-sex standardisation, based on Tasmanian totals*

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios for respiratory system diseases among young children (aged from 0 to 4 years) are at or close to the level expected from the State rates in the Very Accessible and Accessible areas (with SARs of 100 and 99, respectively). There are 11 per cent more admissions than expected in the Moderately Accessible areas (an SAR of 111) and 31 per cent fewer than expected in the Very Remote areas (an SAR of 69 and five admissions).

Source: Calculated on ARIA classification, DHAC

Admissions for bronchitis, emphysema or asthma, 1995/96

Capital city comparison (Australia as the Standard)

As was the case for admissions for all respiratory system diseases, standardised admission ratios (SARs) for admissions for bronchitis, emphysema or asthma (described below) varied widely between the capital cities (**Table 6.37**). Only **Adelaide** (123**) and **Brisbane** (105**) had elevated ratios. The lowest SARs were recorded for residents of **Canberra** (60**), **Hobart** and **Melbourne** (both 70**).

The SAR for **Darwin** increased from 44** in 1987 to 80** in 1995/96 and for **Sydney** from 67* to 99, suggesting an increase (relative to the Australian rates) in admissions over this period. A similar, albeit smaller, increase was recorded for **Perth**.

Table 6.37: Admissions with a principal diagnosis of bronchitis, emphysema and asthma, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	99	70**	105**	123**	90**	70**	80**	60**	91**
1989[3]	67**	..	103*	103*	81**	..	44**	..	81**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Bronchitis, emphysema and asthma are grouped together as chronic obstructive pulmonary diseases in the International Classification of Diseases (ICD-9), which is used to code causes of admissions. However, although they are of a similar nature, they are distinct conditions, affecting different age groups in the population. Admissions for asthma and bronchitis occur at all ages, more frequently among children and older people, whereas those from emphysema (contributing the smallest numbers to this group) are almost exclusively of older people, more frequently males. For example, over one fifth (21.8 per cent) of admissions for cystic fibrosis, bronchitis, emphysema or asthma in 1995/96 were of children aged from 0 to 4 years. Males had substantially higher admission rates in the age groups under 10 years, and from 65 years, while females had slightly higher rates in the 10 to 64 year age groups.

Other reasons for grouping these conditions are because the allocation of diagnoses between asthma and bronchitis (particularly in children) is not always consistent and also to ensure that there were sufficient cases for analysis.

Admissions for bronchitis, emphysema or asthma comprised 20.5 per cent of admissions for all respiratory system diseases of Tasmanian residents; 22.4 per cent in **Hobart** and 19.3 per cent in the non-metropolitan areas.

Hobart (Tasmania as the Standard)

In 1995/96, there were 571 admissions of residents of **Hobart** for bronchitis, emphysema and asthma, seven per cent more than were expected from the State rates (an SAR of 107). Females comprised just over half (52.4 per cent) of the admissions.

There was no pattern evident in the distribution of SARs for this variable (**Map 6.32**).

The highest ratio, an SAR of 184**, was recorded in Brighton which also had the highest proportions for a majority of the indicators of low socioeconomic status in Chapter 3. The City of Hobart, with an SAR of 120*, was also mapped in the highest range. Glenorchy (with an SAR of 105) also had more admissions for these diseases than were expected from the State rates.

On the eastern side of the Derwent River, residents of Clarence (with an SAR of 98) and Sorell [Part A] (89) had fewer admissions for bronchitis, emphysema and asthma than expected from the State rates.

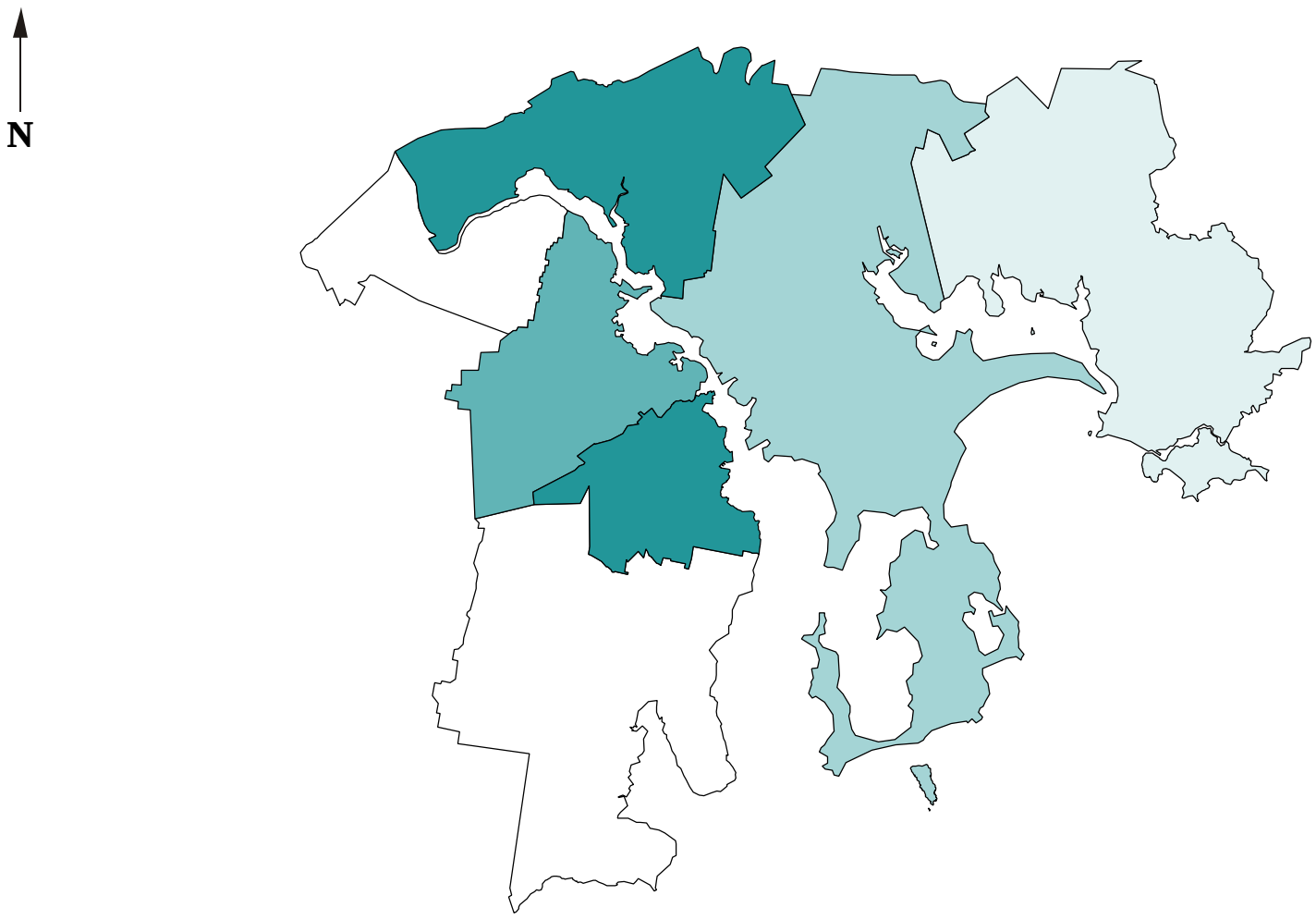
The lowest ratios were recorded in New Norfolk [Part A] (with an SAR of 64 and 13 admissions) and Kingborough [Part A] (83).

The largest numbers of admissions for bronchitis, emphysema and asthma were recorded for residents of the City of Hobart (151 admissions), Clarence (135 admissions) and Glenorchy (133 admissions).

There were correlations of substantial significance with the variables for single parent families (0.90), public rental housing (0.80), unemployed people (0.77) and the Indigenous population (0.74). Inverse correlations were recorded with the indicators of high socioeconomic status, the strongest being with the variable for female labour force participation (-0.56). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.52), indicate the existence of an association at the SLA level between high admission rates for bronchitis, emphysema and asthma and socioeconomic disadvantage.

Map 6.32
Admissions for bronchitis, emphysema or asthma, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for bronchitis, emphysema or asthma, 1995/96

State/Territory comparison (Australia as the Standard)

With the exception of Tasmania, standardised admission ratios (SARs) for admissions for bronchitis, emphysema or asthma (described on the previous text page) were higher (and often substantially so) for residents of the non-metropolitan areas than in the capital cities (**Table 6.38**). The most highly elevated ratios were in South Australia (182**) and Western Australia (167**).

The SARs for the non-metropolitan areas of Queensland and New South Wales declined between the two periods shown in **Table 6.38**. The lower ratios in the later period suggest a decline (relative to the Australian rates) in admissions of non-metropolitan residents over this period. The higher ratios in the later period shown for Western Australia and the Northern Territory suggest an increase (relative to the Australian rates) in admissions over this period.

Table 6.38: Admissions with a principal diagnosis of bronchitis, emphysema and asthma, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	99	70**	105**	123**	90**	70**	80**	60**	91**
Other major urban centres[2]	76**	74**	77**	..	..	..	..	..	76**
Rest of State/Territory	121**	117**	111**	182**	167**	62**	98	–[3]	123**
Whole of State/Territory	102**	83**	104**	139**	112**	65**	90	60**	100
1989[4]									
Rest of State/Territory	130**	..	145**	181**	157**	..	83**	..	142**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 1995/96, there were 743 admissions for bronchitis, emphysema and asthma of residents of the non-metropolitan areas of Tasmania, five per cent fewer than expected from the State rates. Admissions for these diseases comprised 19.3 per cent of all admissions for respiratory system diseases, with males and females having similar proportions of 50.1 and 49.9 per cent, respectively.

A number of SLAs throughout the State have not been mapped for this variable as there were considered to be too few expected cases to produce reliable results. Of the SLAs that were mapped, almost three quarters (72.4 per cent) had fewer admissions for these diseases than expected from the State rates (**Map 6.33**).

Five SLAs were mapped in the top range. The most highly elevated ratio was recorded in Break O Day, with more than twice the number of admissions expected from the State rates (an SAR of 223**) and 38 admissions when 17 were expected from the State rates. Other highly elevated ratios were recorded in Circular Head (with an SAR of 165**), West Coast (160*), George Town [Part A] (159*) and Devonport (131**). Other SLAs with ratios elevated by 10 per cent or more were West Tamar [Part A] (with an SAR of 128) and King Island (118).

The lowest ratios (all in SLAs with fewer than 20 admissions) were recorded in Central Coast [Part B] (with an SAR of 11**, and one admission), Meander Valley [Part A] (16**, two admissions), Burnie [Part B] (17*, one admission) and Central Highlands (29*, two admissions). Huon Valley was the only other SLA to record a ratio of statistical significance, an SAR of 53**, and 19 admissions.

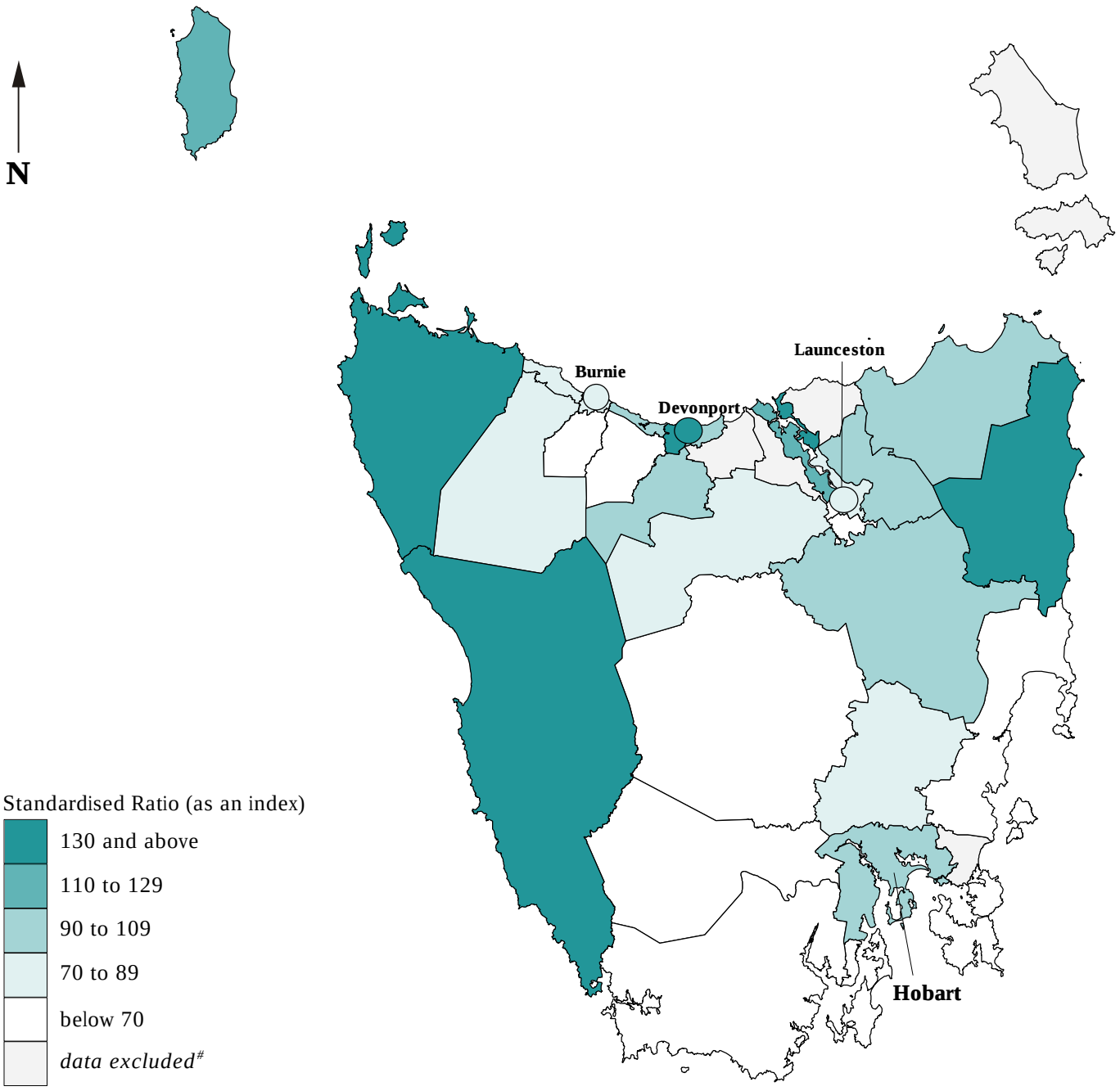
Launceston (with an SAR of 88), Burnie [Part A] (84) and Waratah/Wynyard [Part A] (81) were among the SLAs with ratios in the range from 70 to 89.

The largest numbers of admissions for bronchitis, emphysema and asthma were recorded for residents of Launceston (156 admissions), Devonport (96 admissions), West Tamar [Part A] (63 admissions) and Central Coast [Part A] (47 admissions).

There were weak correlations with the indicators of socioeconomic disadvantage; the strongest being with the variables for dwellings with no motor vehicle (0.48), housing authority rented dwellings (0.37) and single parent families (0.31). The weak inverse correlation with the IRSD (-0.38) also indicates a positive association between high rates of admission for bronchitis, emphysema and asthma and socioeconomic disadvantage.

Map 6.33
Admissions for bronchitis, emphysema or asthma, Tasmania, 1995/1996

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

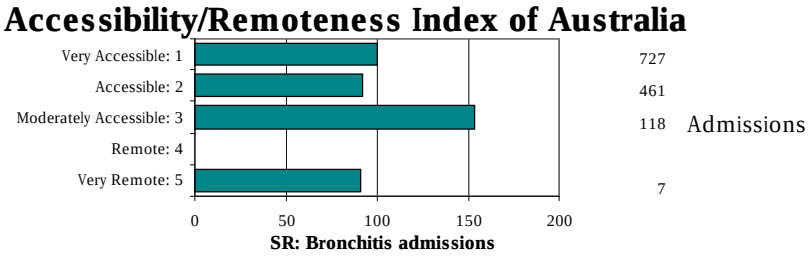


Expected numbers were derived by age-sex standardisation, based on Tasmanian totals

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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for bronchitis, emphysema or asthma are at or close to the level expected from the State rates in the Very Accessible, Accessible and Very Remote areas (with SARs of 100, 92 and 91, respectively), with a highly elevated ratio in the Moderately Accessible areas (an SAR of 154).

Source: Calculated on ARIA classification, DHAC

Admissions from accidents, poisonings and violence, 1995/96

Capital city comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions from the external causes of accidents, poisonings and violence (described below) varied between the capital cities, from a high of 112** in **Hobart** to a low of 60** in **Canberra** (**Table 6.39**).

Both **Adelaide** and **Perth** had substantially lower ratios in the later period shown in **Table 6.39**, suggesting a decline (relative to the Australian rates) in admissions from these combined causes. The SARs in **Sydney**, **Brisbane** and **Darwin** increased, suggesting an increase (relative to the Australian rates) in admissions over this period.

Table 6.39: Admissions with an external cause of accidents, poisonings and violence, capital cities
Age-sex standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1995/96[2]	92**	84**	95**	94**	86**	112**	111**	60**	90**
1989[3]	78**	..	85**	114**	101	..	101	..	88**

[1]Includes Queanbeyan (C)
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Excludes same day admissions: for Sydney the period is 1989/90 and for Darwin it is 1987
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Accidents, poisonings and violence are a major cause of hospitalisation, accounting for 8.2 per cent of all admissions analysed for Tasmanian residents; 10.8 per cent of male admissions and 6.1 per cent of female admissions. Admissions arising from accidents, poisonings and violence are classified according to the external cause, that is, according to the circumstances of the accident or violence that produced the injury, as well as by the nature of the injury.

Accidents accounted for 92.5 per cent of admissions from these external causes, and were largely accidental falls (19.5 per cent of all admissions from these external causes) and motor vehicle traffic accidents (6.5 per cent). Admission rates for males were substantially higher for motor vehicle traffic accidents and injury purposely inflicted by another person; and for females, admission rates were higher for accidental falls and attempted suicide or self-inflicted injury.

Esterman et al. (1990) found that admission rates from these external causes are affected by socioeconomic status. They reported that, for postcode areas in Adelaide, "compared with the highest income areas, admission rates were 10% higher in the middle category and 26% higher in the poorest areas."

In 1996/97, intentional injury (ie. injury inflicted purposely by others) accounted for more hospital admissions for Indigenous people than transport accidents and accidental falls combined. There were almost seven times more hospital admissions for intentional injury than expected among Indigenous men and about twenty times more than expected for Indigenous women (based on all-Australian rates). Almost half (46%) of all admissions for females for intentional injury in Australia in 1996/97 were of women identified as Indigenous (ABS/AIHW 1999).

Hobart (Tasmania as the Standard)

In 1995/96, there were 4,729 admissions of residents of **Hobart** from the combined causes of accidents, poisonings and violence, 15 per cent more than expected from the State rates (an SAR of 115**). Males accounted for over half (57.2 per cent) of the admissions.

Standardised admission ratios from these external causes were elevated in all but one of the SLAs in **Hobart** (**Map 6.34**). Four SLAs were mapped in the top range, with the highest ratio, an SAR of 141**, recorded for residents of Brighton, with 41 per cent more admissions than were expected from the State rates. Elevated ratios of high significance were also recorded in Glenorchy (with an SAR of 128**), Sorell [Part A] (126**) and the City of Hobart (117**). Other elevated ratios were recorded in Clarence (106) and New Norfolk [Part A] (105).

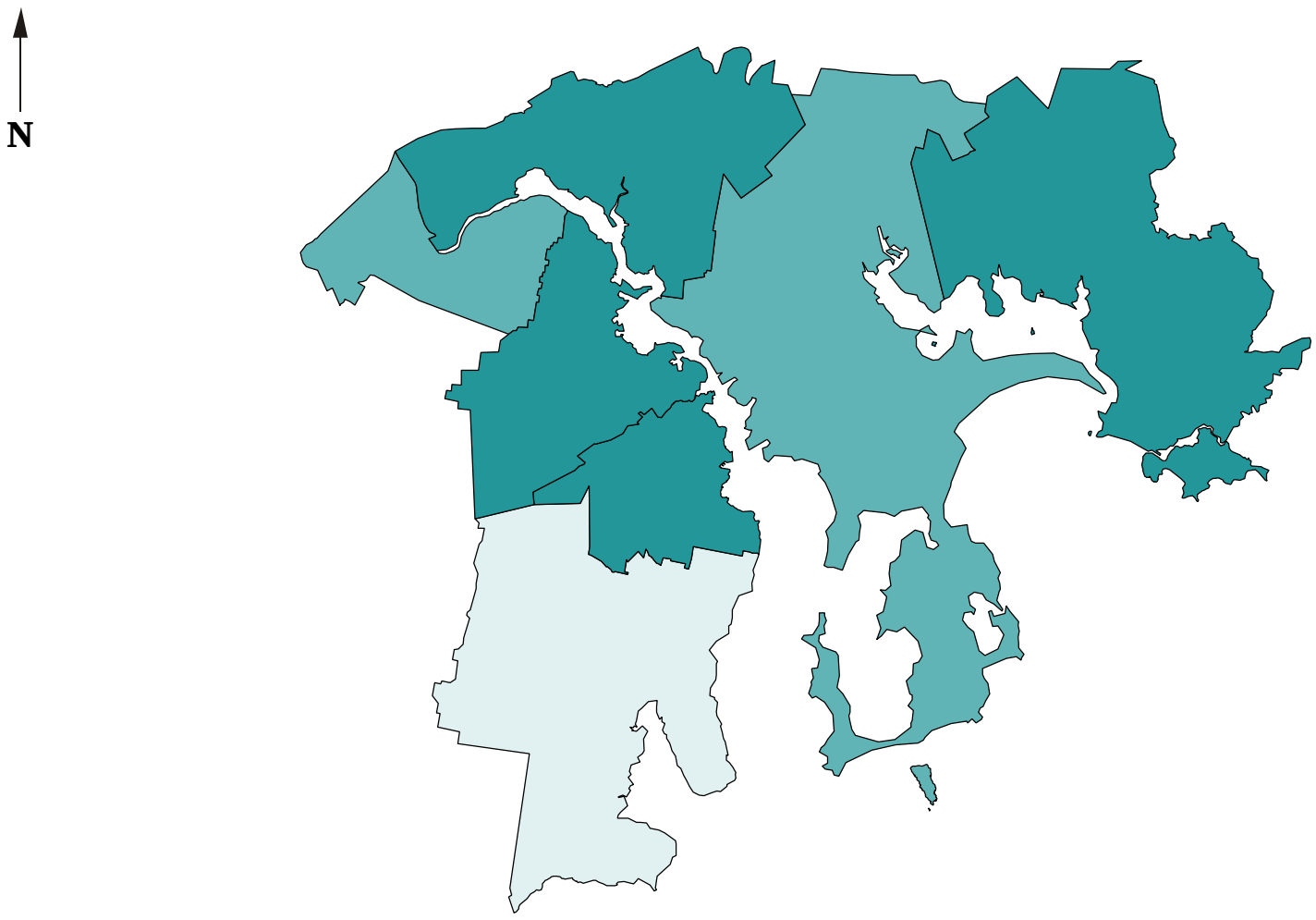
Kingborough [Part A] recorded the lowest ratio, an SAR of 94, with six per cent fewer admissions of residents from this SLA than expected from the State rates.

The largest numbers of admissions from accidents, poisonings and violence were recorded for residents of Hobart (1,239 admissions), Glenorchy (1,209) and Clarence (1,094).

There were correlations of substantial significance with the variables for unemployed people (0.85), single parent families (0.80); and of meaningful significance with low income families (0.68), the Indigenous population (0.64), dwellings rented from the State housing authority, early school leavers (0.56) and unskilled and semi-skilled workers (0.51). Inverse correlations of meaningful significance were recorded with the variables for female labour force participation (-0.65), high income families (-0.62) and managers and administrators, and professionals (-0.51). These results, together with the inverse correlation of meaningful significance with the IRSD (-0.70), indicate the existence of an association at the SLA level between high admission rates from accidents, poisonings and violence and socioeconomic disadvantage.

Map 6.34
Admissions from accidents, poisonings and violence, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions from accidents, poisonings and violence, 1995/96

State/Territory comparison (Australia as the Standard)

With the exception of Tasmania, standardised admission ratios (SARs) for admissions from the external causes of accidents, poisonings and violence (described on the previous text page) were higher, and often substantially higher, for residents of the non-metropolitan areas than of the capital cities (**Table 6.40**). The most highly elevated ratios were in the Northern Territory (166**), Queensland (147**), Western Australia (146**) and South Australia (138**).

The SARs for the non-metropolitan areas of the Northern Territory and Western Australia declined between the two periods shown in **Table 6.40**, with the largest decline in the Northern Territory. The lower ratios in the later period suggest a decline (relative to the Australian rates) in admissions of non-metropolitan residents over this period. The higher ratio in the later period shown for Queensland suggests an increase (relative to the Australian rates) in admissions over this period.

Table 6.40: Admissions with an external cause of accidents, poisonings and violence, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[1]									
Capital city	92**	84**	95**	94**	86**	112**	111**	60**	90**
Other major urban centres[2]	89**	87**	96**	..	..	..	..	..	91**
Rest of State/Territory	114**	106**	147**	138**	146**	86**	166**	–[3]	124**
Whole of State/Territory	98**	90**	117**	106**	102**	97**	141**	60**	100
1989[4]									
Rest of State/Territory	112**	..	128**	139**	171**	..	204**	..	129**

[1]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: included with ACT total
[4]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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 1995/96, there were 5,188 admissions of residents of the non-metropolitan areas of Tasmania from the combined causes of accidents, poisonings and violence, 11 cent fewer than expected from the State rates (an SAR of 89**). Males accounted for over half (59.6 per cent) of the admissions.

Only seven SLAs have been mapped in the top two ranges and, with the exception of King and Flinders Islands off the north coast, all these were in the east of the State (**Map 6.35**). Just over one third (35.3 per cent) of non-metropolitan SLAs were mapped in the middle range.

The highest ratio, an SAR of 144** recorded on King Island, represented 55 admissions from accidents, poisonings and violence when 38 were expected. Southern Midlands (with an SAR of 135**) and Sorell [Part B] (130) were also mapped in the top range. Flinders (with an SAR of 129), Break O Day (119*), Tasman (119) and Northern Midlands [Part A] (115) also had SARs elevated by more than ten per cent.

Of the twelve SLAs mapped in the middle range, those with elevated ratios included Dorset (with an SAR of 109), West Coast (108) and Circular Head (107). Fewer admissions than expected were recorded for residents of Devonport (93), Burnie [Part A] (93) and Kingborough [Part B] (95).

All ratios in the lowest two ranges (below 90) were recorded in northern SLAs, with the exception of Central Highlands (with an SAR of 68*) and New Norfolk [Part B] (65**).

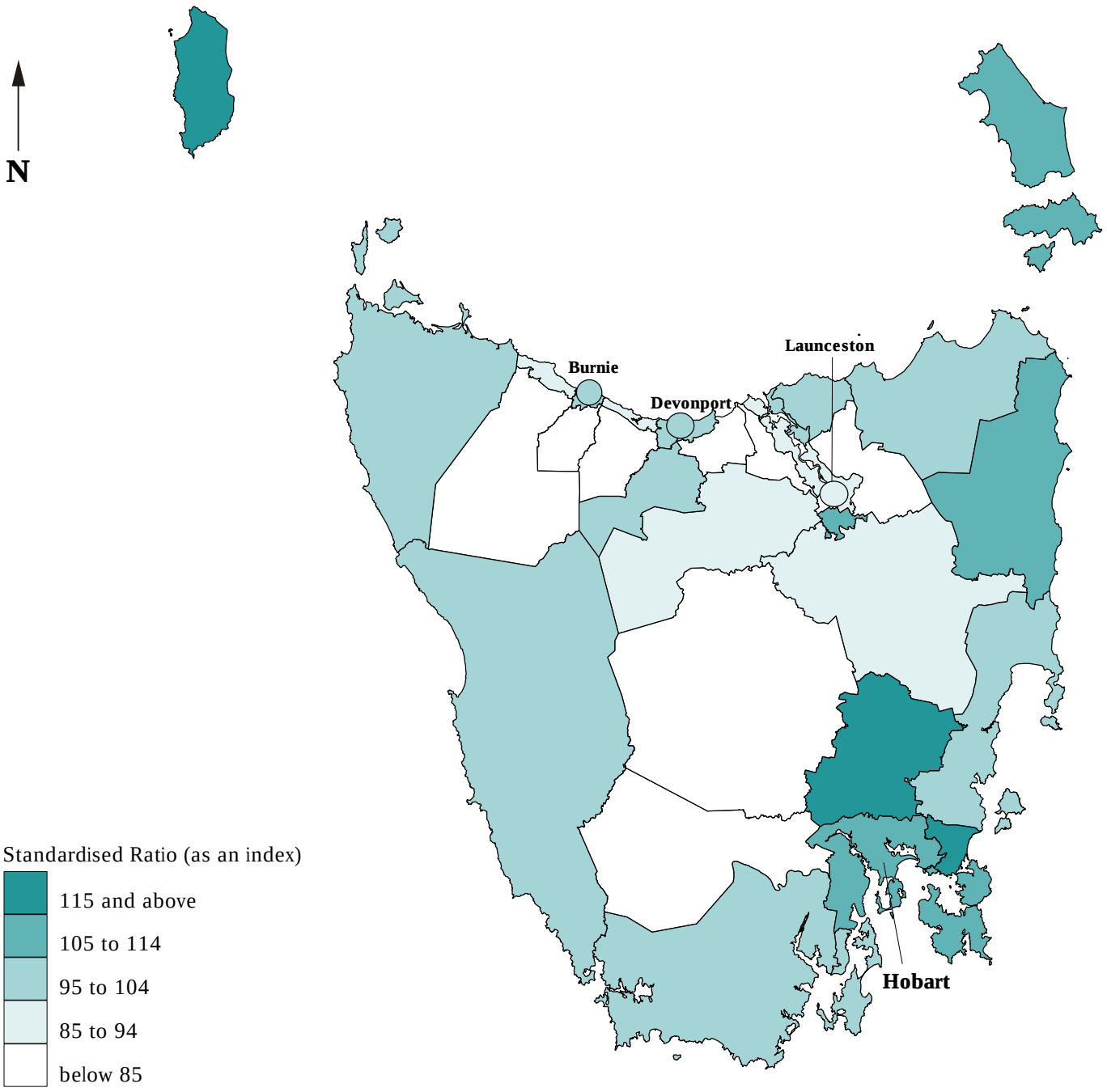
The lowest ratio, an SAR of 14** recorded in Latrobe [Part B], represented just four admissions from these external causes when 27 were expected. Other SLAs mapped in the lowest range included Meander Valley [Part A] (with an SAR of 38**), Burnie [Part B] (40**, 17 admissions), West Tamar [Part B] (42**, 16 admissions), Central Coast [Part B] (42**) and Waratah/Wynyard [Part B] (60**). Other low ratios of significance were recorded in Central Coast [Part A] (with an SAR of 88*), West Tamar [Part A] (88*) and Launceston (81**).

The largest numbers of admissions from accidents, poisonings and violence were recorded for residents of Launceston (1,118 admissions), Devonport (500 admissions), Burnie [Part A] (353 admissions) and Central Coast [Part A] (332 admissions).

There was a correlation of meaningful significance with the variable for low income families (0.54), and weaker correlations with the variables for people aged 65 years and over (0.45) and single parent families (0.42). A weak inverse correlation was recorded with the variable for high income families (-0.35). These results, together with the inverse correlation with the IRSD (-0.44), suggest the existence of an association at the SLA level between high rates of admission from accidents, poisonings and violence and socioeconomic disadvantage.

Map 6.35
Admissions from accidents, poisonings and violence, Tasmania, 1995/1996

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



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

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

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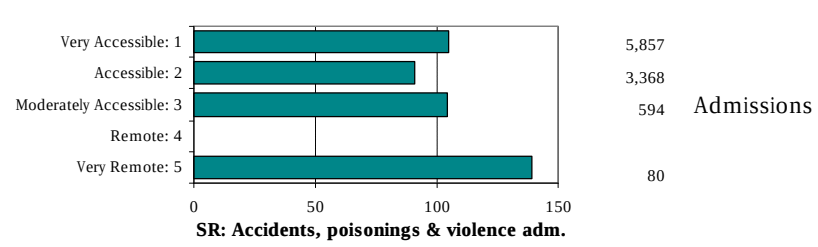

Standardised admission ratios for admissions from the external causes of accidents, poisonings and violence are within 10 per cent of the level expected from the State rates in the three 'accessible' ARIA categories, with ratios of 105 and 104 in the Very Accessible and Moderately Accessible areas and 91 in the Accessible areas. There are 39 per cent more admissions than expected from the State rates in the Very Remote areas (an SAR of 139 and 80 admissions).

Source: Calculated on ARIA classification, DHAC

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Principal procedures for admitted patients

Introduction

There are variations in the rate at which particular procedures[6] are undertaken, both between the States and Territories and at a regional level within the States and Territories. Variations at a small area level can point to differences in health status, in access to and availability of services, and in clinical opinion and practice. They may also, in some instances, raise concerns as to possible over servicing.

Data mapped

Details are presented in the following pages of a number of procedures. Some of these are periodically reported on at the State and Territory level as 'sentinel' procedures. Sentinel procedures are common, mostly elective, and considered to be discretionary: that is, there are often conservative or non-surgical alternatives (AIHW 1997). **Table 6.41** lists a number of sentinel procedures for which data have been published over some years.

All but three of these procedures (coronary artery bypass graft, angioplasty and cholecystectomy) are mapped in the following pages. The variable for myringotomy is not one of the nationally published sentinel procedures but has been included in this analysis because rates vary widely at the spatial level.

Descriptions of the procedures for which details are mapped are included in the text accompanying the maps.

In the majority of cases, the procedure is the principal procedure, that is the most significant procedure for treatment of the principal diagnosis. The exception is the variable for lens insertion, for which all recorded procedures were examined, as the extraction of the old lens is often the principal procedure.

Tasmania has a standardised admission rate higher than the average of the other States for about half of these procedures, with the most highly elevated being for hip replacement, hysterectomy and angioplasty (**Table 6.41**). Rates for tonsillectomy, lens insertion and myringotomy were well below the *Other States'* rate.

[6]A procedure is an intervention that is surgical in nature, carries a procedural risk, carries an anaesthetic risk, requires specialised training, or requires special facilities or equipment only available in an acute setting (National Health Data Committee 1997)

Table 6.41
Admission rates for selected sentinel procedures, public and private hospitals, 1996/1997

Sentinel procedure	Standardised admission rates[1]		
	Tasmania	Other States	Difference
Appendicectomy	1.55	1.42	9.1*
Coronary artery bypass graft	0.78	0.91	-13.6**
Angioplasty	0.81	0.72	12.8*
Caesarean	3.03	2.78	8.7**
Cholecystectomy	2.09	2.19	-4.5
Endoscopy	22.17	24.04	-7.8**
Hip replacement	1.36	0.99	37.4**
Hysterectomy	2.31	1.83	26.1**
Lens insertion	3.79	5.09	-25.6**
Myringotomy	1.89	2.31	-18.0**
Tonsillectomy	1.32	1.87	-29.4**

[1]Admission rates have been produced by direct standardisation
Indicates difference is significant at the 5 per cent (*) and 1 per cent (**) levels
Source: Australian Hospital Statistics, AIHW, June 1998

Context

Australia

There were 2,485,792 admissions to public acute and private hospitals (including day surgery facilities) in Australia at which at least one surgical procedure was performed. These 2.5 million admissions represented 52.1 per cent of all admissions studied in this project (which includes all acute admissions, other than for renal dialysis). Nearly two thirds (62.6 per cent) of the admissions involving a procedure were of residents of the capital cities (which comprise 62.8 per cent of Australia's population),

A further 6.6 per cent were of residents of the other major urban centres and 30.6 per cent were of residents of the non-metropolitan areas. Females accounted for 57.5 per cent of admissions, varying from 58.5 per cent of admissions of residents of the capital cities to 55.9 of non-metropolitan residents. Less than half (45.3 per cent) of these principal procedures were performed on a same day basis, with males having slightly more procedures on a same day basis (46.3 per cent of all male principal procedures, compared with 44.6 per cent for females).

Tasmania

In 1995/96, there were 67,741 admissions of residents of Tasmania to public acute and private hospitals (including day surgery facilities), 2.6 per cent of all admissions in Australia, at which at least one surgical procedure was performed. These admissions involving a procedure represented 56.2 per cent of all admissions of residents of Tasmania in this analysis (which includes all acute admissions, other than for renal dialysis). More than half (55.5 per cent) of the admissions were residents of the non-metropolitan areas of Tasmania (which comprises 58.7 per cent of the State's population) and 44.5 per cent were of residents of **Hobart**. Females accounted for 57.4 per cent of admissions, varying from 58.4 per cent of admissions for residents of **Hobart** to 56.5 of non-metropolitan residents. Just over one third (38.8 per cent) of the procedures were performed on a same day basis, with males having slightly more of their principal procedures on a same day basis (40.2 per cent of all male principal procedures compared with 37.8 per cent for females).

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Admissions for surgical procedures, 1995/96

Capital city comparison (Australia as the Standard)

There were 1,636,292 admissions of residents of the capital cities (and an additional 186,672 admissions of residents of other major urban centres) to public acute and private hospitals (including day surgery facilities) at which at least one surgical procedure was performed. Although the *All capitals* average was at the level expected from the Australian rates, standardised admission ratios (SARs) for the individual capitals varied from eight per cent more admissions (than expected from the Australian rates) for a surgical procedure in **Darwin**, to 30 per cent fewer admissions in **Canberra**.

Table 6.42: Admissions [1] for surgical procedures, capital cities, 1995/96
Standardised separation ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
99**	101**	101**	107**	95**	107**	108**	70**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Just over a half (56.2 per cent) of the admissions to acute hospitals of residents of Tasmania in 1995/96 involved a surgical procedure. Females accounted for 57.9 per cent of such admissions, and males for 53.9 per cent. For females, admission rates were highest in the 25 to 34 year age groups and again from age 70, while for males, they were most common among those aged from their late fifties (**Figure 6.9**, page 186).

Hobart (Tasmania as the Standard)

In 1995/96, there were 30,130 admissions of residents of **Hobart** for a surgical procedure, seven per cent more admissions than were expected from the State rates (an SAR of 107**). Females accounted for over half (58.4 per cent) of these admissions.

All but one of the SLAs in **Hobart** had elevated standardised admission ratios for surgical procedures (**Map 6.36**). The highest ratio, an SAR of 132**, was recorded in Sorell [Part A], with residents having 32 per cent more admissions for a surgical procedure than were expected from the State rates. Other elevated ratios were recorded in Brighton (129**), New Norfolk [Part A] (115**), Glenorchy (111**), Clarence (109**) and Kingborough [Part A] (102).

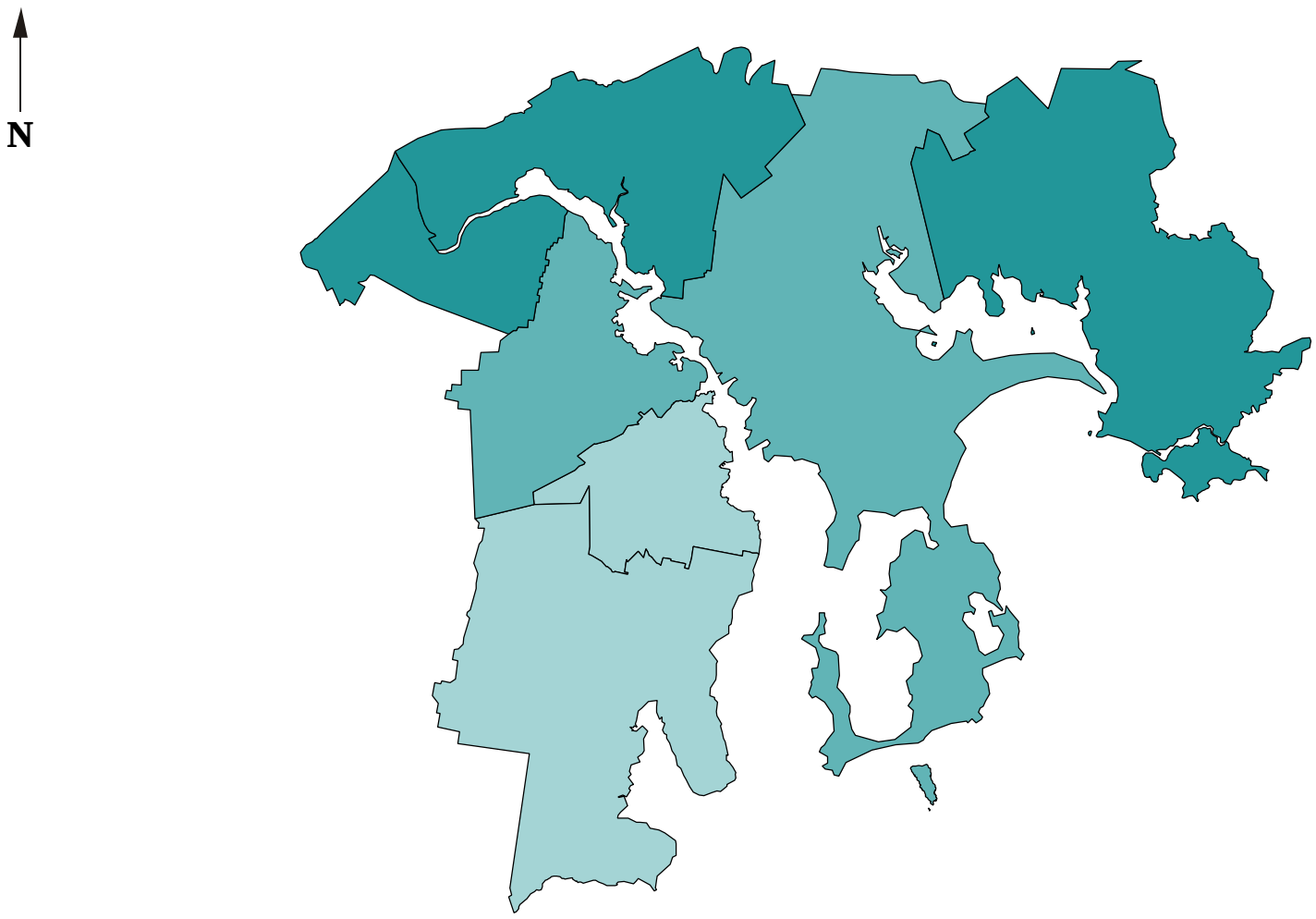
The lowest ratio was recorded in the City of Hobart (with an SAR of 95**) the only SLA with fewer admissions involving a surgical procedure than were expected from the State rates.

The largest numbers of admissions involving a surgical procedure were recorded for residents of Clarence (7,836 admissions), Glenorchy (7,361) and Hobart (6,822). Residents of New Norfolk [Part A] had the lowest number of 1,149 admissions.

Correlations of substantial significance were recorded with the variables for early school leavers (0.86), children aged from 0 to 4 years (0.86), low income families (0.79), unskilled and semi-skilled workers (0.76) and unemployed people (0.74). There were inverse correlations of substantial significance with the variables for high income families (-0.90), managers and administrators, and professionals (-0.81) and female labour force participation (-0.80) as well as immigrants who arrived before 1991 (-0.81). These results, together with the inverse correlation of substantial significance with the IRSD (-0.76), indicate the existence of an association at the SLA level between high rates of admissions involving a surgical procedure and socioeconomic disadvantage.

Map 6.36
Admissions for surgical procedures, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for surgical procedures, 1995/96

State/Territory comparison (Australia as the Standard)

There were 770,971 admissions of residents of the non-metropolitan areas to public acute and private hospitals (including day surgery facilities) at which at least one surgical procedure was performed. With the exception of Victoria and Western Australia, the standardised admission ratios (SARs) in the *Rest of State/Territory* areas are lower than those recorded for the capital cities. The Northern Territory, Tasmania and South Australia had largest differentials in ratios between the *Capital City* and *Rest of State/Territory* areas.

Table 6.43: Admissions [1] for surgical procedures, State/Territory, 1995/96
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	99**	101**	101**	107**	95**	107**	108**	70**	100
Other major urban centres[2]	103**	90**	102**	..	..	..	..	..	102**
Rest of State/Territory	99**	104**	98**	104**	96**	95**	95**	–[3]	100*
Whole of State/Territory	100	102**	100	106**	96**	100	101	70**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1995/96, there were 37,611 admissions of residents of the non-metropolitan areas of Tasmania for surgical procedures, three per cent fewer admissions than were expected from the State rates (an SAR of 97**). Females accounted for over half (56.5 per cent) of these admissions.

As can be seen from the map (**Map 6.37**), the majority of SLAs have been mapped in the three middle ranges, with only one SLA mapped in the highest range and six mapped in the lowest range.

Residents of Sorell [Part B] had the most highly elevated ratio, with 37 per cent more admissions for a surgical procedure than were expected from the State rates (an SAR of 137**). The next highest SARs were recorded in Northern Midlands [Part A] (with an SAR of 128**), Kingborough [Part B] (111*), Latrobe [Part A] (110**).

Fifteen SLAs were mapped in the middle range, but only four of these recorded ratios of statistical significance; Huon Valley (with an SAR of 107**), Burnie [Part A] (104*), Launceston (97**) and Waratah/Wynyard [Part A] (93**). Other SLAs with ratios in the middle range included Central Coast [Part A] (103), Devonport (with an SAR of 100), West Tamar [Part A] (100) and George Town [Part A] (93).

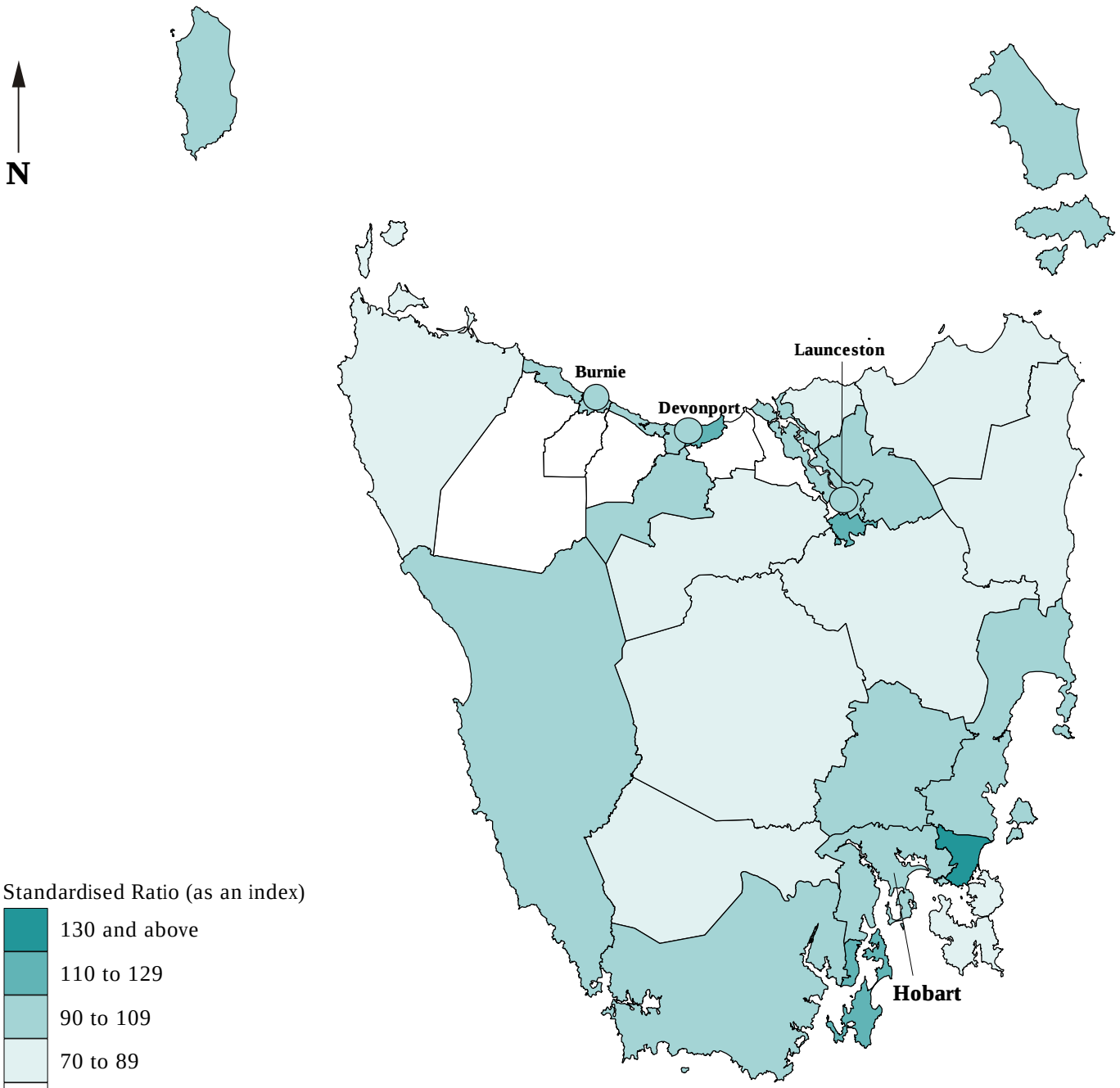
The lowest ratios were all recorded in SLAs in the central northern region of the State. The lowest ratio by far, an SAR of 17**, was recorded in Latrobe [Part B], with 83 per cent fewer admissions than expected from the State rates (31 admissions for a surgical procedure when 183 were expected for a population of this size and age/sex composition). Other SLAs with ratios in the lowest range were Central Coast [Part B] (with an SAR of 35**), Meander Valley [Part A] (46**), West Tamar [Part B] (53**), Burnie [Part B] (56**) and Waratah/Wynyard [Part B] (64**). Higher ratios of between 70 and 89 were recorded in nine SLAs, including Meander Valley [Part B] (88**), Circular Head (86**) and Dorset (75**).

The largest numbers of admissions for a surgical procedure were recorded for residents of Launceston (8,948 admissions), Devonport (3,756 admissions), Central Coast [Part A] (2,690 admissions), Burnie [Part A] (2,683 admissions) and West Tamar [Part A] (2,542 admissions).

There were correlations of meaningful significance with the variables for single parent families (0.56) and low income families (0.52). The weak inverse correlation with the IRSD (-0.36) also suggests the existence of an association at the SLA level between high rates of admissions involving a surgical procedure and socioeconomic disadvantage.

Map 6.37
Admissions for surgical procedures, Tasmania, 1995/1996

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



Standardised Ratio (as an index)

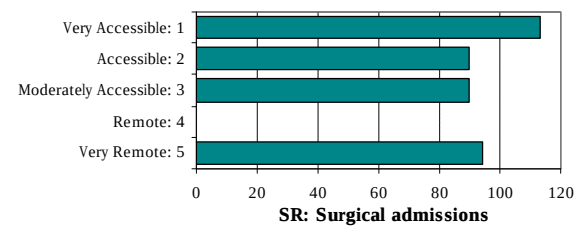
- 130 and above
- 110 to 129
- 90 to 109
- 70 to 89
- below 70

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



	Admissions
Very Accessible: 1	32,763
Accessible: 2	31,093
Moderately Accessible: 3	3,491
Remote: 4	
Very Remote: 5	367

Standardised admission ratios for admissions involving a surgical procedure are highest in the Very Accessible areas under ARIA (an SAR of 113, the only elevated ratio), with similar, low ratios across the other three categories (an SAR of 90 in both the Accessible and Moderately Accessible areas and of 94 in the Very Remote areas).

Source: Calculated on ARIA classification, DHAC

Same day admissions for surgical procedures, 1995/96

Capital city comparison (Australia as the Standard)

There were 776,311 same day admissions of residents of the capital cities and 90,521 admissions of residents of the other major urban centres to public acute and private hospitals (including day surgery facilities) at which at least one surgical procedure was performed. These admissions represent 47.5 per cent of all admissions involving a surgical procedure.

The standardised admission ratios (SARs) ranged from 64** in **Canberra** and 72** in **Darwin** to 111** in **Melbourne** and 104** in **Sydney**. When compared with ratios for all admissions for surgical procedures (**Table 6.44**), standardised admission ratios (SARs) for same day admissions involving a surgical procedure (**Table 6.46**) are higher in **Sydney** and lower in **Hobart**, relative to the Australian rates. The lower rate in **Hobart** is likely to reflect the historically slower rate of take-up of same day procedures in Tasmania, a trend that is being rapidly reversed.

Table 6.44: Same day admissions [1] for surgical procedures, capital cities, 1995/96
Standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
104**	111**	102**	101**	93**	87**	72**	64**	102**

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Over a third (38.8 per cent) of all admissions of residents of Tasmania in 1995/96 involving a surgical procedure were same day admissions. Females accounted for over 50 per cent (55.8 per cent) of same day admissions. Admission rates were higher for females than for males in the age groups from 15 to 19 years through to 55 to 59 years (**Figure 6.10**, page 186). For males, the largest differentials over the rates for females were in the 0 to 14 year age groups and from age 60 years.

Hobart (Tasmania as the Standard)

In 1995/96, there were 11,343 same day admissions of residents of **Hobart** for surgical procedures, four per cent more than were expected from the State rates (an SAR of 104**). Females accounted for over half of these same day admissions (55.8 per cent).

The distribution of the highest SARs for same day surgical procedures was similar to that for all surgical procedures, in that all SLAs were mapped in the top three ranges (**Map 6.38**).

The only SLA with an SAR in the top range was Sorell [Part A], with residents recording 30 per cent more admissions for same day admissions for a surgical procedure than were expected from the State rates (an SAR of 130**). The next highest ratios were recorded in Brighton (with an SAR of 113**), followed by Clarence and Glenorchy (both 107**) and New Norfolk [Part A] (107).

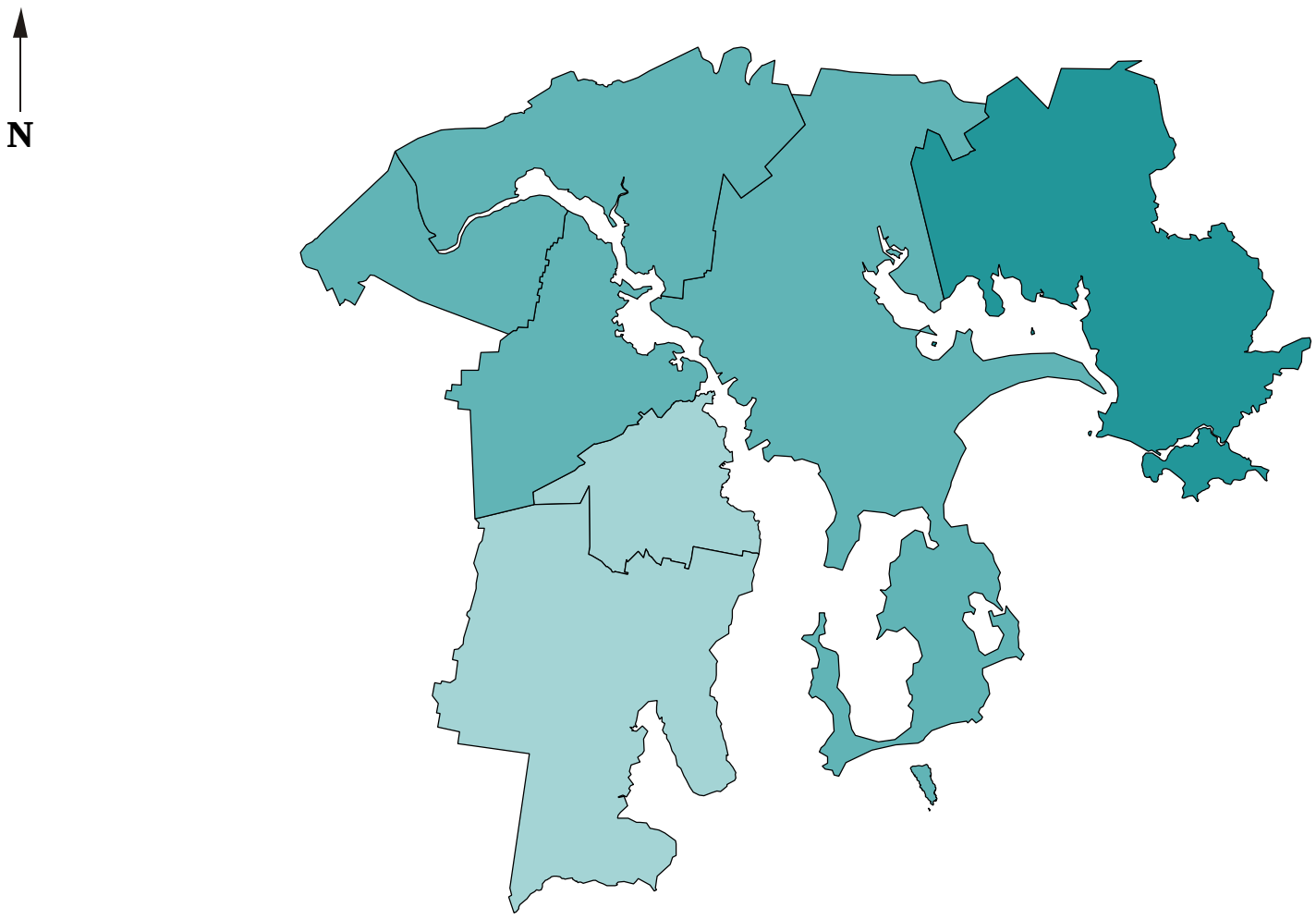
On the western side of the Derwent River, Kingborough [Part A] (99) and the City of Hobart (95*) recorded the lowest ratios for this variable.

The largest numbers of same day admissions for a surgical procedure were recorded for residents of Clarence (2,979 admissions), Glenorchy (2,743 admissions) and Hobart (2,613 admissions). Residents of New Norfolk [Part A] had the lowest number of 415 same day admissions for a surgical procedure.

There were correlations of meaningful significance with the variables for early school leavers (0.66), children aged from 0 to 4 years (0.63), low income families (0.55) and unskilled and semi-skilled workers (0.51). An inverse correlation of substantial significance was recorded with the variable for high income families (-0.77); and of meaningful significance with managers and administrators, and professionals (-0.65) and female labour force participation (-0.50). These results, together with the inverse correlation with the IRSD (-0.48), indicate the existence of an association at the SLA level between high rates of same day admissions involving a surgical procedure and socioeconomic disadvantage.

Map 6.38
Same day admissions for surgical procedures, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Same day admissions for surgical procedures, 1995/96

State/Territory comparison (Australia as the Standard)

There were 334,448 same day admissions of residents of the non-metropolitan areas to public acute and private hospitals (including day surgery facilities) at which at least one surgical procedure was performed. These admissions represent 43.4 per cent of all admissions involving a surgical procedure.

Standardised admission ratios (SARs) in the *Rest of State/Territory* category in **Table 6.45** are lower than those in the capital cities for all States and the Northern Territory. The SAR for the non-metropolitan areas was highest in Victoria (105**), and that in the Northern Territory (62**) was the lowest.

Table 6.45: Same day admissions [1] for surgical procedures, State/Territory, 1995/96
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	104**	111**	102**	101**	93**	87**	72**	64**	102**
Other major urban centres[2]	110**	79**	109**	..	..	..	..	..	107**
Rest of State/Territory	96**	105**	88**	90**	84**	81**	62**	–[3]	93**
Whole of State/Territory	102**	108**	97**	98**	90**	84**	67**	63**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1995/96, there were 14,937 same day admissions of non-metropolitan residents for a surgical procedure, three per cent fewer than were expected from the State rates (an SAR of 97**). Females made up more than half (55.8 per cent) of these same day admissions.

Only six SLAs were mapped in the top two ranges and over half (59 per cent) had ratios in the lowest two ranges (**Map 6.39**).

Both of the SLAs with ratios in the top range were located near major urban centres. Residents of Northern Midlands [Part A] (with an SAR of 151**), near Launceston, had 51 per cent more same day admissions for a surgical procedure than were expected from the State rates and residents of Sorell [Part B] (133*), near **Hobart**, had 33 per cent more.

The SLAs with ratios in the range from 110 to 129 formed a contiguous band along the central north coast, extending from Burnie [Part A] (113**) through Central Coast [Part A] (114**) and Devonport (113**) to Latrobe [Part A] (124**).

Of the eight SLAs with ratios mapped in the middle range, Launceston (with an SAR of 105**) was the only area with a highly significant ratio. Waratah/Wynyard [Part A] had a low ratio of statistical significance (91*), with residents recording 9 per cent fewer same day admissions than were expected from the State rates.

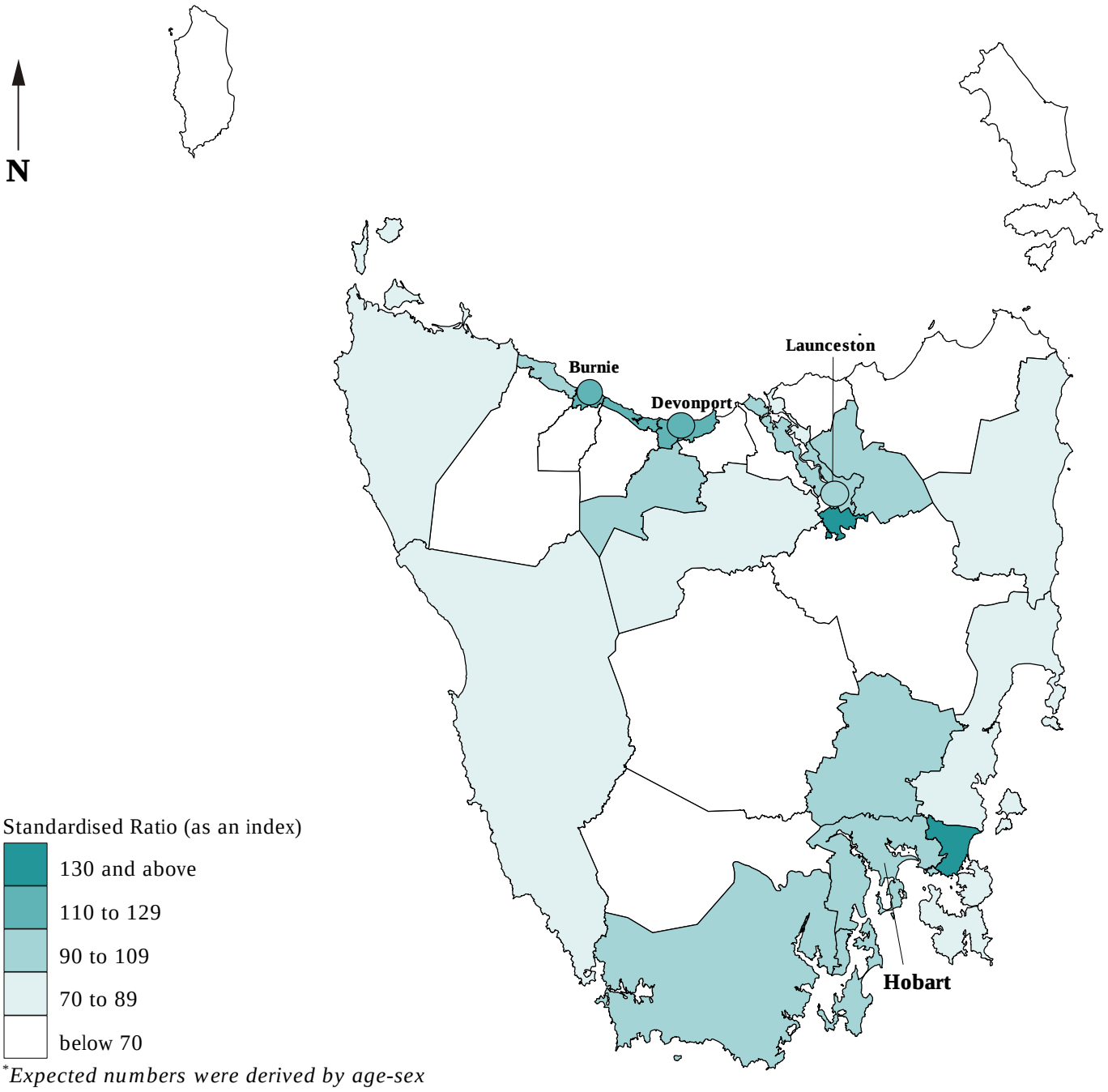
Over a third (38.2 per cent) of the SLAs were mapped in the lowest range. The lowest two ratios each represented fewer than 20 same day admissions for a surgical procedure. Residents of Latrobe [Part B], with an SAR of 19**, had 14 admissions (when 72 were expected) and residents of Flinders, with an SAR of 32**, had 17 admissions (52 were expected). Other SLAs with very low ratios included Central Coast [Part B] (with an SAR of 42**), King Island (47**), Meander Valley [Part A] (47**), West Tamar [Part B] (55**), George Town [Part B] (57**), Waratah/Wynyard [Part B] (63**), Burnie [Part B] (63**) and Central Highlands (64**).

The largest numbers of same day admissions for a surgical procedure in the non-metropolitan areas of Tasmania were recorded for residents of Launceston (3,725 admissions), Devonport (1,643 admissions), Central Coast [Part A] (1,156 admissions), Burnie [Part A] (1,133 admissions) and West Tamar [Part A] (1,020 admissions).

There was an inverse correlation of meaningful significance with the variable for managers and administrators, and professionals (-0.51) and weaker correlations with single parent families (0.49), people reporting poor proficiency in English (0.46), people aged 65 years and over (0.41) and low income families (0.40). These results, together with the weak inverse correlation with the IRSD (-0.26), suggest the existence of an association at the SLA level between high rates of same day admissions for a surgical procedure and socioeconomic disadvantage.

Map 6.39
Same day admissions for surgical procedures, Tasmania, 1995/1996

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

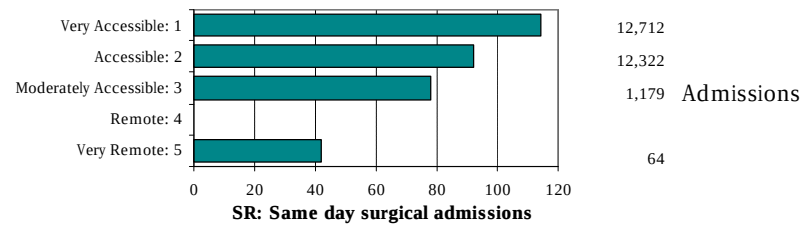


Expected numbers were derived by age-sex standardisation, based on Tasmanian totals

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios for same day admissions involving a surgical procedure are highest in the Very Accessible areas under ARIA (an SAR of 114, the only elevated ratio), but then differ from the pattern evident for all surgical admissions, with lower ratios associated with increasing remoteness reflecting the lack of these services outside of the most accessible areas. Ratios decline from an SAR of 92 in the Accessible areas, to an SAR of 78 in the Moderately Accessible areas and a very low SAR of 42 in the Very Remote areas (58 per cent fewer admissions than expected from the State rates).

Source: Calculated on ARIA classification, DHAC

Admissions for a tonsillectomy and/or adenoidectomy, 1995/96

Capital city comparison (Australia as the Standard)

There were 19,896 procedures for tonsillectomy and/or adenoidectomy (described below) performed as a principal procedure on residents of the capital cities (and an additional 2,305 on residents of other major urban centres). Standardised admission ratios (SARs) for these procedures varied widely between the capital cities (**Table 6.46**), from a low of 65** in **Canberra** to a high of 136** (more than double the ratio in **Canberra**) in **Adelaide**.

Table 6.46: Admissions[1] with a principal procedure of tonsillectomy and/or adenoidectomy, capital cities, 1995/96
Standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
89**	109**	101	136**	95*	71**	71**	65**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Tonsillectomies involve the removal of a person's tonsils where, for example, there has been repeated infection of the tonsils over an extended period.

A majority of admissions for these procedures of residents of Tasmania were aged under 30 years. The largest number and rate of admissions was for the 5 to 9 year age group, with 541.6 admissions per one hundred thousand females and 467.2 admissions per one hundred thousand males. Up until the age of 29 years, females had the highest admission rates for all except for the 0 to 4 year age group (with 223.9 admissions per 100,000 females compared with 388.4 admissions per 100,000 males). Overall, 56.2 per cent of admissions were females.

Data for Australia published by the AIHW (1998) showed the tonsillectomy and /or adenoidectomy rate in Tasmania to be 29.4 per cent below that in the other States (**Table 6.41**, page 263).

Hobart (Tasmania as the Standard)

In 1995/96, there were 242 admissions for tonsillectomies and/or adenoidectomies of residents of **Hobart,** three per cent more admissions than were expected from the State rates (an SAR of 103). Over half (58.0 per cent) of the admissions were females.

The distribution of standardised admission ratios across the SLAs in **Hobart** encompassed a relatively narrow range (**Map 6.40**), with the exception of an elevated SAR of 134* recorded in Glenorchy (34 per cent more admissions than were expected from the State rates).

The number of admissions for tonsillectomies and/or adenoidectomies of residents of Sorell [Part A] (with an SAR of 102), Clarence (101) and Kingborough [Part A] (98) did not differ greatly from the numbers expected from the State rates. Ratios of between 85 and 94 were recorded in the City of Hobart (89) and New Norfolk [Part A] (85).

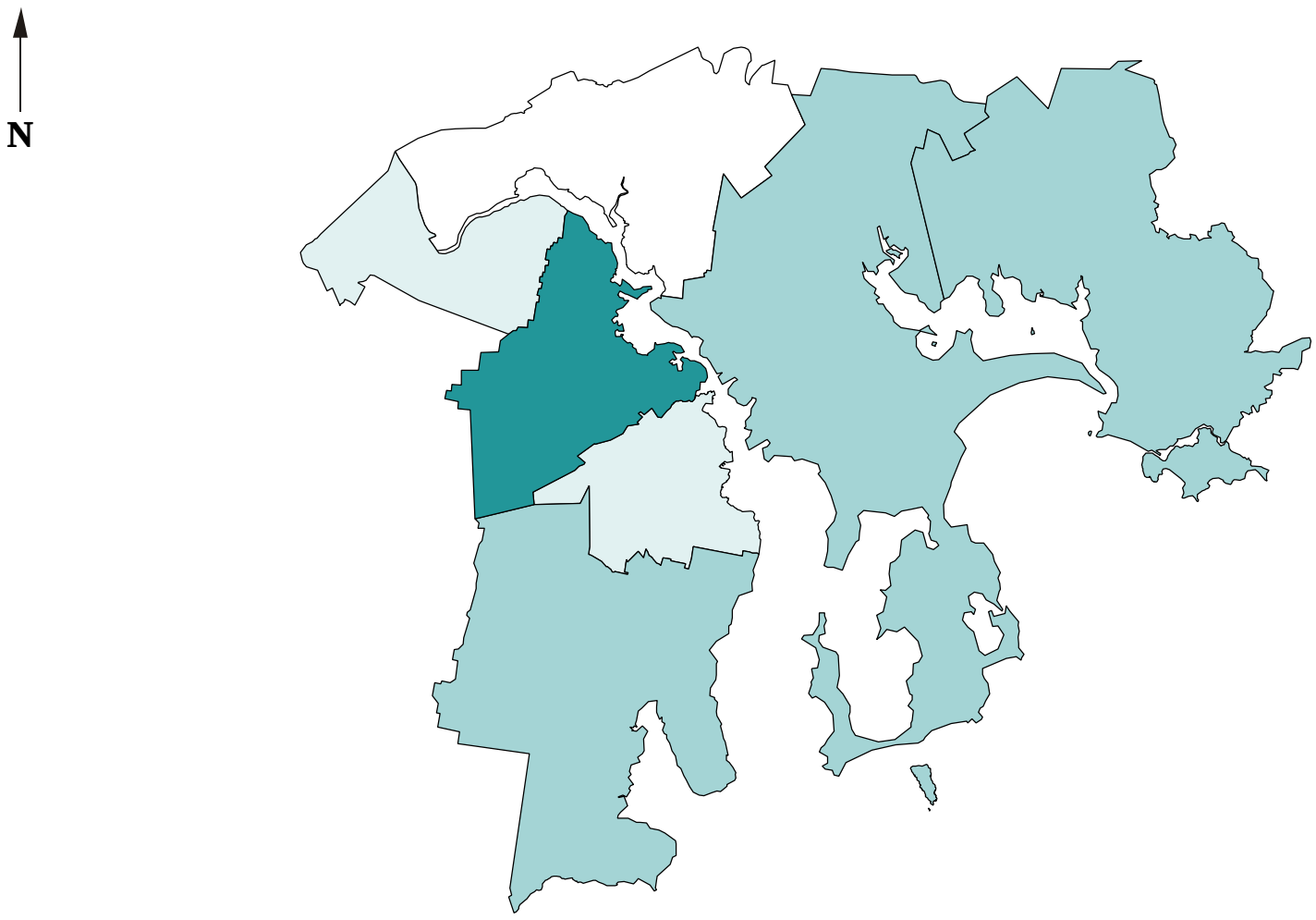
Residents of Brighton, with the lowest ratio of 84, had 16 per cent fewer admissions for tonsillectomies and/or adenoidectomies than were expected from the State rates.

The largest numbers of admissions for this variable were recorded for residents of Glenorchy (68 admissions) and Clarence (61 admissions).

There was no consistent evidence in the correlation analysis of an association at the SLA level in **Hobart** between high rates of admissions for tonsillectomies and/or adenoidectomies and socioeconomic status.

Map 6.40
Admissions for a tonsillectomy and/or adenoidectomy, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for a tonsillectomy and/or adenoidectomy, 1995/96

State/Territory comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for the procedures of tonsillectomy and/or adenoidectomy (described on the previous text page) varied widely between the States and Territories, including across the non-metropolitan areas of Australia (**Table 6.47**). The range was from a low of 35** for the non-metropolitan areas of Northern Territory to a high of 141** in the non-metropolitan areas of South Australia. There were 10,042 of these procedures performed as a principal procedure on residents of the non-metropolitan areas.

Table 6.47: Admissions[1] with a principal procedure of tonsillectomy and/or adenoidectomy, State/Territory, 1995/96
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	89**	109**	101	136**	95*	71**	71**	65**	100
Other major urban centres[2]	100	147**	106	..	..	..	..	..	106**
Rest of State/Territory	101	115**	84**	141**	92*	67**	35**	–[3]	99
Whole of State/Territory	94**	112**	94**	137**	94**	68**	50**	66**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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)

With only 340 admissions (187 females and 153 males) for a tonsillectomy and/or adenoidectomy in 1995/96, the numbers for many non-metropolitan SLAs are quite small (as noted previously, the absolute numbers should be used in conjunction with the ratios). The SAR of 98 recorded for non-metropolitan Tasmania indicated that there were just two per cent fewer admissions for these procedures than were expected from the State rates.

A number of SLAs have not been mapped for this variable as there were considered to be too few cases (fewer than five expected admissions) to produce reliable results. As can be seen from **Map 6.41,** most SLAs mapped in the top two ranges were located in the northern end of Tasmania.

Although several SLAs had highly elevated ratios, they had few admissions. The highest ratio, an SAR of 221** in Northern Midlands [Part B], represented 12 admissions when five were expected. Residents of George Town [Part A] (171*), Northern Midlands [Part A] (168) and Central Coast [Part A] (165**) had 14, 13 and 35 admissions respectively.

Ratios elevated by 20 per cent or more were also recorded in Waratah/Wynyard [Part A] (with an SAR of 124 and 17 admissions) and West Tamar [Part A] (120, 25 admissions).

The five SLAs mapped in the middle range included Launceston with residents recording 4 per cent more admissions than expected (an SAR of 104).

There were fewer than 20 admissions for tonsillectomies and/or adenoidectomies in all of the SLAs mapped in the lowest range. The lowest ratio, an SAR of 14* recorded in Meander Valley [Part A], represented just one admission when 7 were expected. Low ratios were also recorded in Break O Day (44, three admissions), Dorset (62, six admissions), Huon Valley (62, 11 admissions), Meander Valley [Part B] (63, eight admissions) and Circular Head (68, eight admissions).

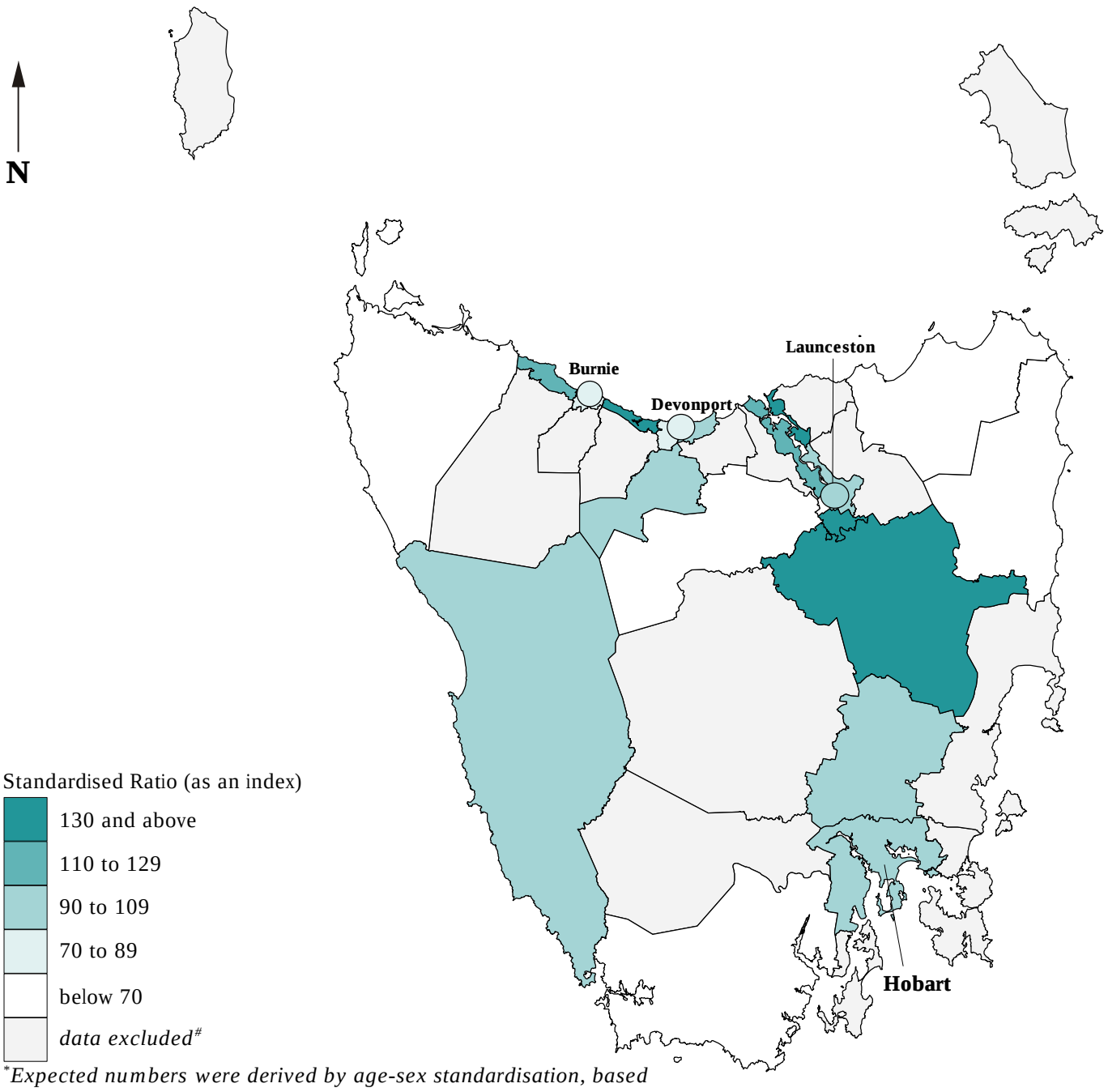
Residents of Burnie [Part A] (82) and Devonport (76) also had fewer admissions than expected from the State rates.

The largest numbers of admissions were recorded for residents of Launceston (80 admissions), Central Coast [Part A] (35 admissions) and West Tamar (25 admissions).

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

Map 6.41
Admissions for tonsillectomy and/or adenoidectomy, Tasmania, 1995/1996

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

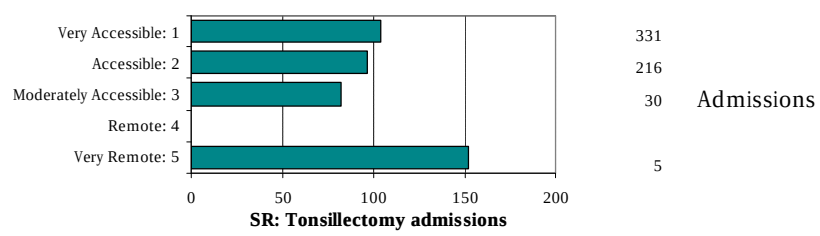


Expected numbers were derived by age-sex standardisation, based on Tasmanian totals

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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios for admissions involving a tonsillectomy and/or adenoidectomy are close to the level expected from the State rates in the areas in the Very Accessible ARIA category, an SAR of 104, before dropping to an SAR of 82 in the Moderately Accessible areas. The highest ratio is in the Very Remote areas, with 52 per cent more admissions than expected from the State rates, an SAR of 152, but just five admissions.

Source: Calculated on ARIA classification, DHAC

Admissions of children aged 0 to 9 years for a myringotomy, 1995/96

Capital city comparison (Australia as the Standard)

There were 17,457 admissions for a myringotomy procedure (described below) performed as a principal procedure on children aged from 0 to 9 years and resident in the capital cities (and an additional 1,443 on young residents of the other major urban centres). Over half (60.9 per cent) of these admissions for residents of capital cities were boys. Standardised admission ratios (SARs) for this procedure varied markedly between the capital cities (**Table 6.48**), from a low of 59** in **Canberra** to a highly elevated 205** in **Adelaide** (more than 50 per cent above the next highest ratio).

Table 6.48: Admissions[1] of children aged 0 to 9 years with a principal procedure of myringotomy, capital cities, 1995/96
Standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
78**	125**	103	205**	130**	119**	84	59**	112**

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

A myringotomy (incision into the eardrum, or tympanic membrane) is usually performed to relieve pressure and allow for drainage of fluid in the middle ear. Ventilation is maintained by putting a small tube (or grommet) into the incision.

As the majority (80.2 per cent) of admissions of Tasmanian residents for this procedure were of children under 10 years of age, the SLA data have been standardised to the total population for those ages.

Children aged from 0 to 4 years accounted for just over half (52.5 per cent) of the admissions for this procedure, with most of the remainder (27.8 per cent) in the 5 to 9 year age group. Males accounted for over half (57.5 per cent) of all admissions for myringotomies and slightly more (60.3 per cent) in the 0 to 4 year age group.

Data for Australia published by the AIHW (1998) showed the myringotomy rate in Tasmania to be 18.0 per cent below that in the other States (**Table 6.41**, page 263).

Hobart (Tasmania as the Standard)

In 1995/96, there were 317 admissions of children aged from 0 to 9 years from **Hobart** for a myringotomy, 35 per cent more admissions than were expected from the State rates (an SAR of 135**). Males accounted for well over half (59.2 per cent) of the admissions. The large majority (90.5 per cent) of admissions for a myringotomy were performed on a same day basis.

All but one SLA in **Hobart** had an elevated ratio for admissions for a myringotomy (**Map 6.42**).

Residents of Sorell [Part A] aged from 0 to 9 years had the highest ratio (an SAR of 180**) with 80 per cent more admissions for a myringotomy than were expected from the State rates. This ratio represented a relatively low number of 22 admissions compared to an expected 12 admissions. Highly significant ratios were also recorded in Kingborough [Part A] (with an SAR of 161**) and Clarence (155**). Glenorchy (124) and the City of Hobart (122) also had ratios in the highest range.

Children in Brighton (with an SAR of 110) had 10 per cent more admissions for a myringotomy than were expected from the Tasmanian rates.

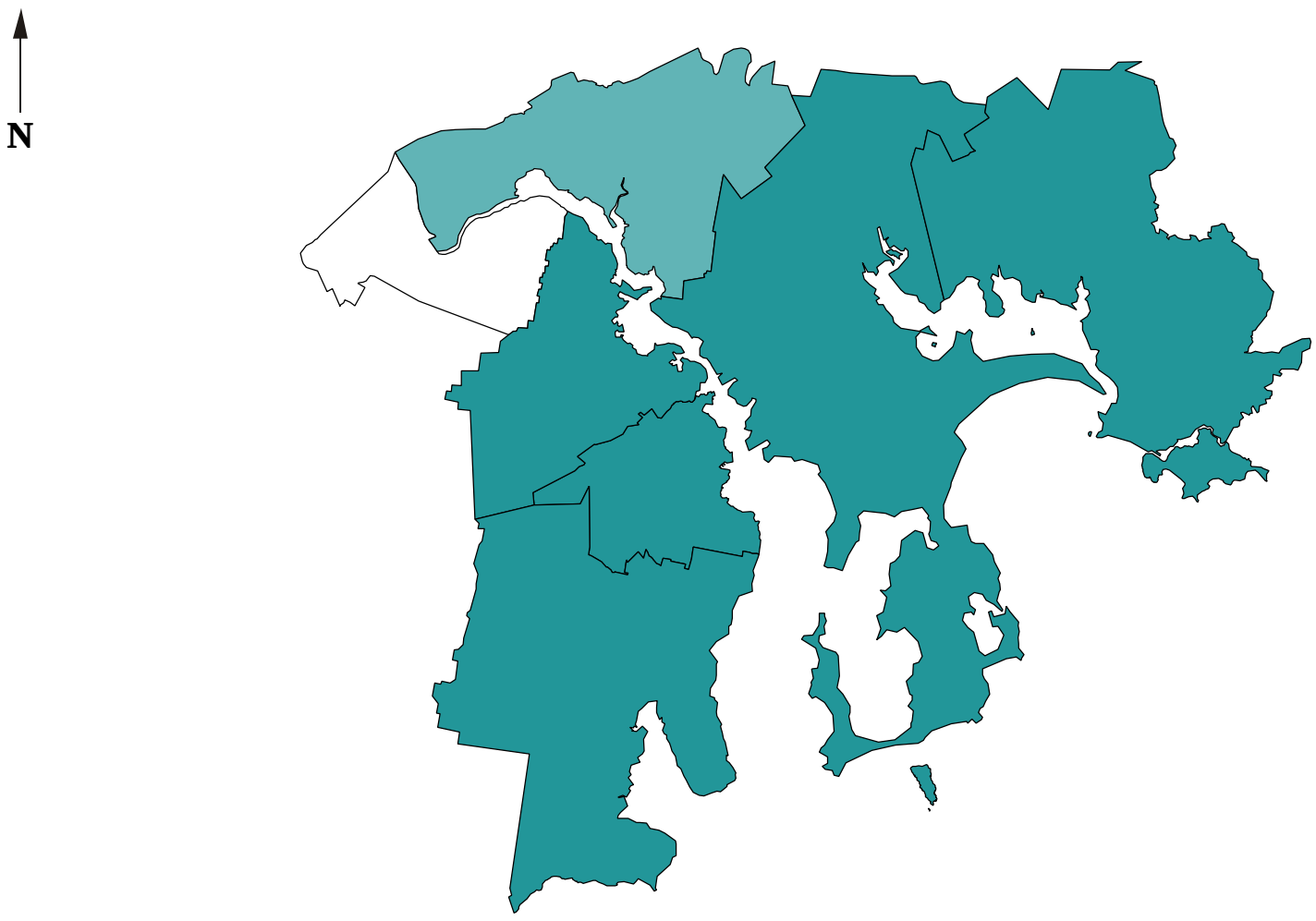
The lowest ratio, an SAR of 65, was recorded in New Norfolk [Part A] with just six admissions when 9.9 were expected for an SLA with this number of 0 to 9 year old children.

The largest numbers of admissions for a myringotomy were recorded for residents of Clarence (93 admissions), Glenorchy (65 admissions) and Hobart and Kingborough [Part A] (both with 51 admissions).

There was a correlation with the variable for female labour force participation (0.42), and weaker correlations with the other indicators of high socioeconomic status. The correlation of substantial significance with the variable for private hospital admissions (0.81) is also notable. Inverse correlations of meaningful significance were recorded with the variables for dwellings with no motor vehicle (-0.59) and unskilled and semi-skilled workers (-0.55). These results, together with the correlation with the IRSD (0.46), suggest the existence of an association at the SLA level between high admission rates of 0 to 9 year old children for a myringotomy and high socioeconomic status.

Map 6.42
Admissions of children aged 0 to 9 years for a myringotomy, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions of children aged 0 to 9 years for a myringotomy, 1995/96

State/Territory comparison (Australia as the Standard)

There were 6,989 procedures for myringotomy (described on the previous text page) performed as a principal procedure on children aged from 0 to 9 years and resident in the non-metropolitan areas of Australia. As was the case for the capital cities, standardised admission ratios (SARs) for these procedures varied markedly across the non-metropolitan areas (**Table 6.49**), from lows of 44** in the Northern Territory and 59** in Queensland, to a highly elevated 163** in South Australia.

Table 6.49: Admissions[1] of children aged 0 to 9 years with a principal procedure of myringotomy, State/Territory, 1995/96
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	78**	125**	103	205**	130**	119**	84	59**	112**
Other major urban centres[2]	70**	133**	91*	..	..	..	..	..	85**
Rest of State/Territory	64**	116**	59**	163**	82**	68**	44**	–[3]	82**
Whole of State/Territory	73**	123**	82**	192**	114**	88**	60**	61**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1995/96, there were 284 admissions of children aged 0 to 9 years for a myringotomy in non-metropolitan Tasmania, 23 per cent fewer than expected from the State rates (an SAR of 77**). More than half of these admissions (59.7 per cent) were males. There were fewer admissions for myringotomies on a same day basis in non-metropolitan areas (83.8 per cent) than in **Hobart** (90.5 per cent).

A number of SLAs have not been mapped for this variable as they were considered to have too few cases (fewer than five expected admissions) to produce reliable results. Residents of all but two SLAs had fewer than 20 admissions for this variable. Of those SLAs that were mapped for this variable, just over half had ratios in the lowest range mapped and just five areas had elevated ratios (**Map 6.43**).

The highest ratio, a highly elevated SAR of 172**, was recorded in West Tamar [Part A], with 72 per cent more admissions for a myringotomy of 0 to 9 year old children than expected from the State rates. The total of 36 admissions was the second largest number recorded in these non-metropolitan SLAs. Southern Midlands was the only other SLA with a ratio in the highest range (an SAR of 134), although there were just 10 admissions, compared with an expected 7.5.

Elevated ratios were also recorded in Northern Midlands [Part A] (121), Waratah/Wynyard [Part A] (120) and Meander Valley [Part A] (103). Children from Launceston had 77 admissions for a myringotomy, the largest number recorded in rural Tasmania, and equalling the expected level (an SAR of 100).

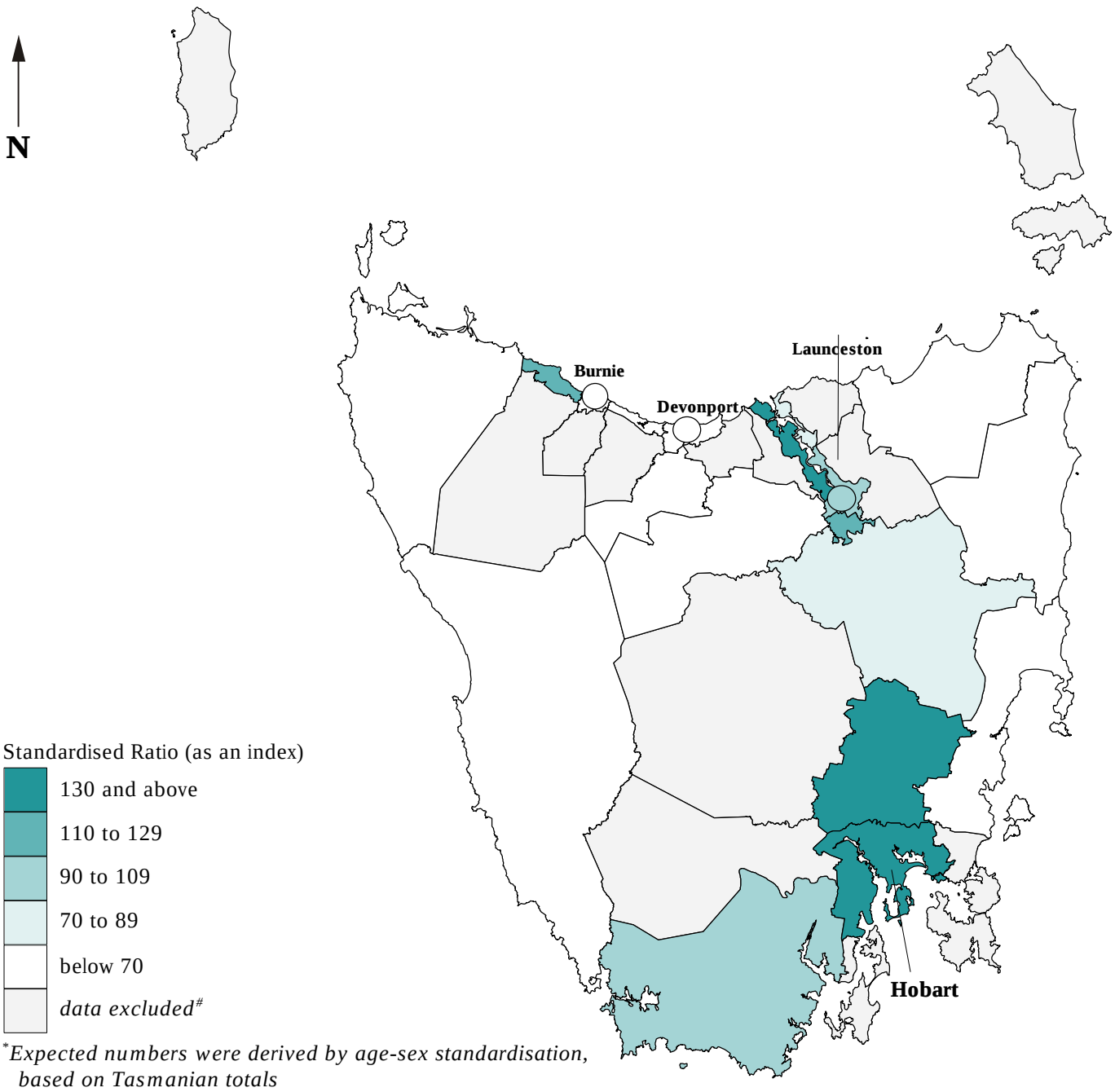
Residents of all areas with lower than expected ratios had fewer than 20 admissions, and most had fewer than 10 admissions. Statistically significant ratios were recorded in Circular Head (with an SAR of 24**, and three admissions, when 12.5 admissions were expected from the State rates), Dorset (37*, four admissions), Burnie [Part A] (44**, 12 admissions) and Devonport (46**, 14 admissions).

Low ratios were also recorded in Break O Day (with an SAR of 28, and two admissions) and Glamorgan/Spring Bay (38, two admissions).

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

Map 6.43
Admissions of children aged 0 to 9 years for a myringotomy, Tasmania, 1995/1996

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

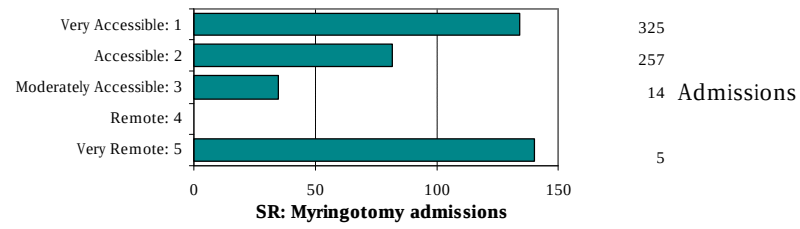


*Expected numbers were derived by age-sex standardisation, based on Tasmanian totals

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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for admissions involving a myringotomy are elevated for residents of both the Very Remote (with an SAR of 140, although with only five admissions) and Very Accessible (an SAR of 134) areas. The Accessible and Moderately Accessible areas had the lowest SARs of 82 and 35 respectively, with the very low ratio in the Moderately Accessible areas indicating that there were 65 per cent fewer admissions than expected from the State rates.

Source: Calculated on ARIA classification, DHAC

Admissions of females aged 15 to 44 years for a Caesarean section, 1995/96

Capital city comparison (Australia as the Standard)

There were 29,965 Caesarean sections (described below) performed as a principal procedure on 15 to 44 year old female residents of the capital cities and an additional 3,070 on females resident in the other major urban centres. Most capital cities had near average standardised admission ratios (SARs) for this variable, with **Brisbane** (with the highest SAR of 118**), **Darwin** (115*) and **Adelaide** (107**) recording more procedures than were expected from the Australian rates.

Table 6.50: Admissions[1] of females aged 15 to 44 years with a principal procedure of Caesarean section, capital cities, 1995/96

Standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
92**	92**	118**	107**	92**	100	115*	90**	97**

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients

[2]Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

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

Caesarean sections are performed to intervene in the birth process where the medical practitioner attending the birth perceives that the life of the mother or child is at risk without such an intervention. As Caesarean sections are generally performed on women aged from 15 to 44 years, this age range has been used in standardising the data.

Data for Australia published by the AIHW (1998) showed the Caesarean section rate in Tasmania to be 8.7 per cent above that in the other States (**Table 6.41**, page 263).

Hobart (Tasmania as the Standard)

In 1995/96, there were 487 admissions for Caesarean sections of female residents of **Hobart** aged from 15 to 44 years. This was two per cent fewer admissions than were expected from the State rates, an SAR of 98.

Elevated ratios for admissions for Caesarean sections were recorded in four of the seven SLAs in **Hobart**, and no SLAs were mapped in the lowest range (**Map 6.44**).

The highest ratio (and the only ratio of statistical significance) was recorded for females in Sorell [Part A] (an SAR of 142* and 33 admissions). Ratios in the top range were also recorded in Brighton (with an SAR of 129) and New Norfolk [Part A] (118).

Females in Kingborough [Part A] (an SAR of 111) had 11 per cent more admissions for a Caesarean section than were expected from the State rates.

Glenorchy (an SAR of 96) was the only SLA that had an SAR in the middle range, with females aged from 15 to 44 years recording 4 per cent fewer admissions than expected from the State rates.

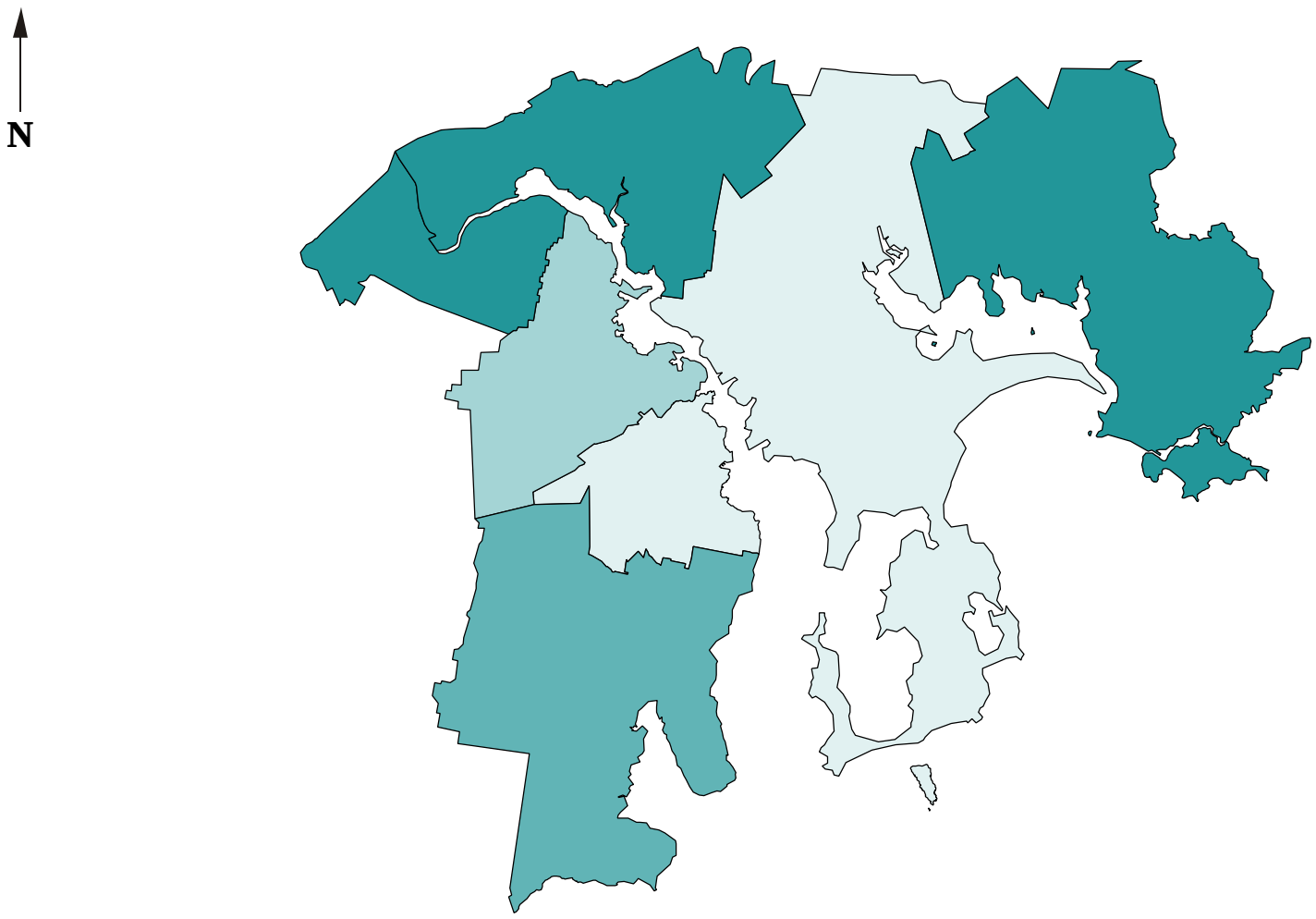
The lowest ratios for admissions for a Caesarean section were recorded in the City of Hobart (an SAR of 85) and Clarence (87).

The largest numbers of admissions for Caesarean sections were recorded by 15 to 44 year old female residents of Hobart (115 admissions), Glenorchy (107 admissions) and Clarence (102 admissions).

There were correlations of meaningful significance with the variables for early school leavers (0.65), semi-skilled and unskilled workers (62), low income families (0.57) and unemployed people (0.53). Inverse correlations of meaningful significance were recorded with a number of the indicators of socioeconomic advantage, the strongest being with the variable for high income families (-0.70). 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 admission rates for a Caesarean section and socioeconomic disadvantage.

Map 6.44
Admissions of females aged 15 to 44 years for a Caesarean section, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Admissions of females aged 15 to 44 years for a Caesarean section, 1995/96

State/Territory comparison (Australia as the Standard)

There were 13,966 Caesarean sections (described on the previous text page) performed as a principal procedure on female residents of the non-metropolitan areas of Australia. There were elevated standardised admission ratios (SARs) for this variable in most of the non-metropolitan areas other than in Western Australia (with an SAR of 99), with the most highly elevated ratios in the Northern Territory (142**) and South Australia (123**).

Table 6.51: Admissions[1] of females aged 15 to 44 years with a principal procedure of Caesarean section, State/Territory, 1995/96
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	92**	92**	118**	107**	92**	100	115*	90**	97**
Other major urban centres[2]	95*	78**	106	..	..	..	..	..	97
Rest of State/Territory	105**	107**	109**	123**	99	104	142**	–[3]	108**
Whole of State/Territory	96**	95**	112**	111**	94**	102	130**	87**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1995/96, there were 693 admissions for Caesarean sections of female residents of the non-metropolitan areas of Tasmania aged from 15 to 44 years, two per cent more than expected from the State rates (an SAR of 102).

A number of SLAs have not been mapped for this variable as they were considered to have too few cases (fewer than five expected admissions) to produce reliable results.

Although more than half (60 per cent) of SLAs were mapped in the middle range, distribution of ratios does not reveal any distinct pattern spatially (**Map 6.45**). Five SLAs had standardised admission ratios elevated by more than 30 per cent. The most highly elevated ratio was recorded in Northern Midlands [Part A], where there were almost twice the number of admissions for Caesarean sections than were expected from the State rates (an SAR of 197** and 31 admissions). Elevated ratios in the top two ranges were also recorded in Huon Valley (with an SAR of 179**, and 55 admissions), Glamorgan/Spring Bay (174*, 14 admissions), Latrobe [Part A] (137, 18 admissions) and Meander Valley [Part B] (136, 32 admissions).

Fifteen areas had ratios in the middle range mapped, with elevated ratios recorded in Dorset (with an SAR of 129), Southern Midlands (128), Devonport (107), George Town [Part A] (105), Waratah/Wynyard [Part A] (104) and Break O Day (103). SLAs with SARs for Caesarean sections that were below the level expected from the State rates included West Tamar [Part A] (97), Burnie [Part A] (94), Circular Head (92) and Launceston (91).

All SLAs mapped in the lowest two ranges had 10 or fewer admissions for Caesarean sections of females aged from 15 to 44 years.

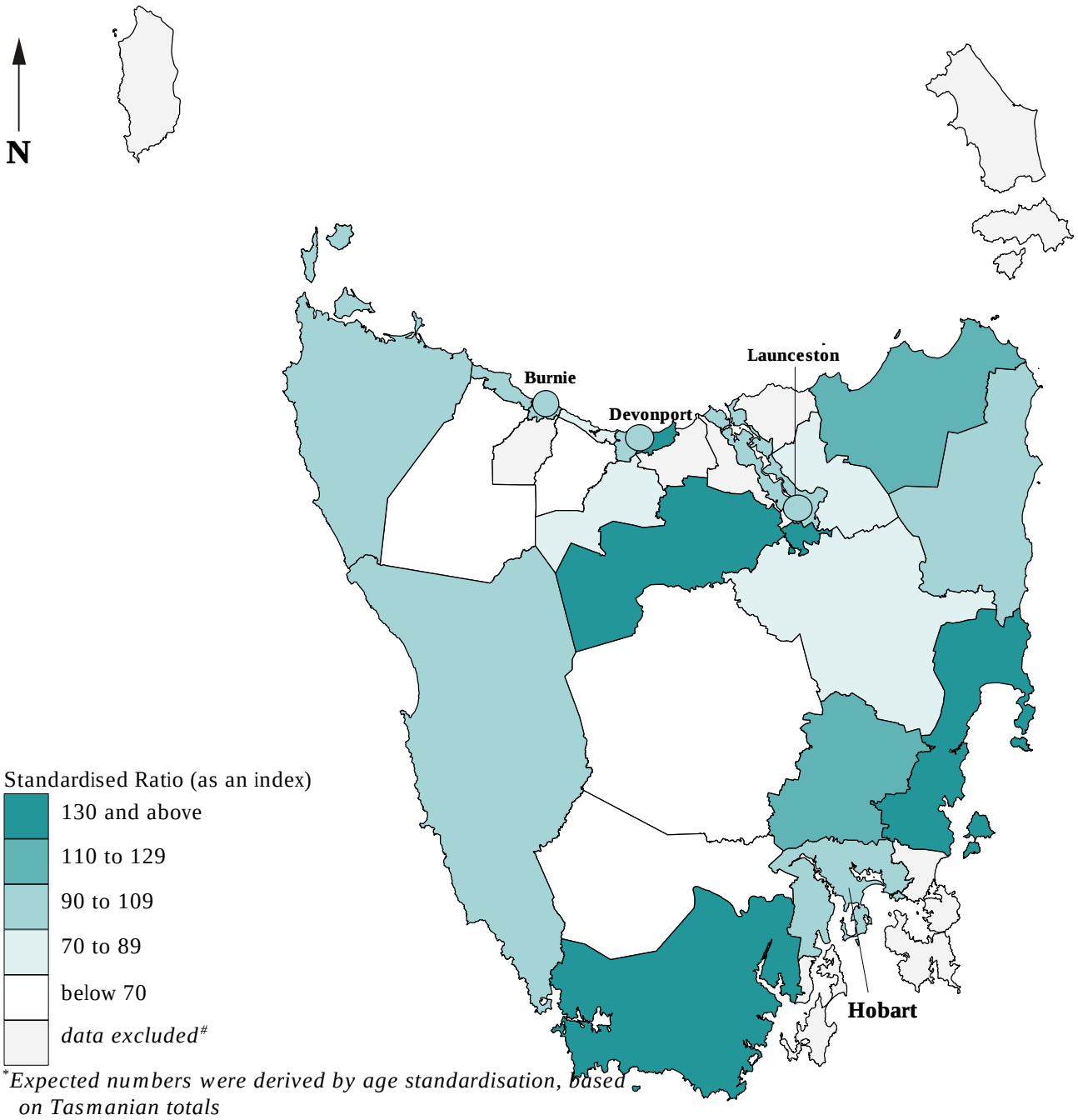
By far the lowest ratio (an SAR of 0**) was recorded in Central Coast [Part B] with no females from this area admitted for a Caesarean section, when eight admissions were expected from the State rates for a population of this size and age distribution. Low ratios were also recorded in Waratah/Wynyard [Part B] (an SAR of 26*), Central Highlands (47), Meander Valley [Part A] (60) and New Norfolk [Part B] (61).

Female residents aged from 15 to 44 years in Launceston (152 admissions) were the only ones in the non-metropolitan areas of Tasmania to record over 100 admissions for a Caesarean section. Both Devonport and Huon Valley had over 50 admissions for this variable, with 65 and 55 admissions respectively.

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

Map 6.45
Admissions of females aged 15 to 44 years for a Caesarean section, Tasmania, 1995/1996

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

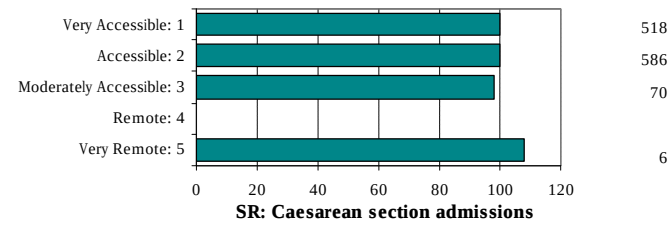


*Expected numbers were derived by age standardisation, based on Tasmanian totals

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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios for admissions of females aged from 15 to 44 years involving a Caesarean section were within two per cent of the level expected from the State rates in the three 'accessible' categories and eight per cent higher than expected in the Very Remote category (an SAR of 108, and six admissions).

Source: Calculated on ARIA classification, DHAC

Admissions of females aged 30 years and over for an hysterectomy, 1995/96

Capital city comparison (Australia as the Standard)

There were 19,868 hysterectomies (described below) performed as a principal procedure on female residents aged 30 years and over of the capital cities and an additional 2,610 on females resident in the other major urban centres. Most capital cities had either low or near average standardised admission ratios (SARs) for this variable, with the most highly elevated ratio being recorded for females in **Darwin** (with an SAR of 135**): other elevated ratios were in **Hobart** (with an SAR of 115**) and **Brisbane** (106**).

Table 6.52: Admissions[1] of females aged 30 years and over with a principal procedure of hysterectomy, capital cities, 1995/96

Standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
86**	91**	106**	102	100	115**	135**	87**	94**

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients

[2]Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

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

Hysterectomies are performed for a number of reasons including the presence of fibroids, uterine cancer and excessive bleeding.

The number of women undergoing hysterectomy increases with age, with the largest number and rate in the 40 to 44 and 45 to 49 year age groups (40 to 44 years: 219 admissions and a rate of 1,276.9 per one hundred thousand females; 45 to 49 years: 208 admissions and a rate of 1,327.6 per one hundred thousand females). As relatively few hysterectomies are performed on women younger than 30 years, the age range used in standardising this data is for women aged from 30 years.

Data for Australia published by the AIHW (1998) showed the hysterectomy rate in Tasmania to be 26.1 per cent above that in the other States (**Table 6.41**, page 263).

Hobart (Tasmania as the Standard)

There were 421 admissions for an hysterectomy of female residents of **Hobart** aged 30 years or over, two per cent fewer admissions than were expected from the State rates (an SAR of 98).

There were almost fifty per cent more admissions for an hysterectomy recorded for female residents of Brighton than were expected from the State rates (an SAR of 149*) (**Map 6.46**). However, this represented a relatively small number of 34 admissions. Despite having ratios elevated by 23 per cent, female residents of New Norfolk [Part A] (123) and Sorell [Part A] (123) had the lowest numbers of admissions for this procedure, with 19 and 22 admissions respectively.

Three SLAs had ratios in the middle range mapped, with Clarence recording the only elevated ratio (an SAR of 104). Kingborough [Part A] and Glenorchy recorded ratios of 99 and 96 respectively.

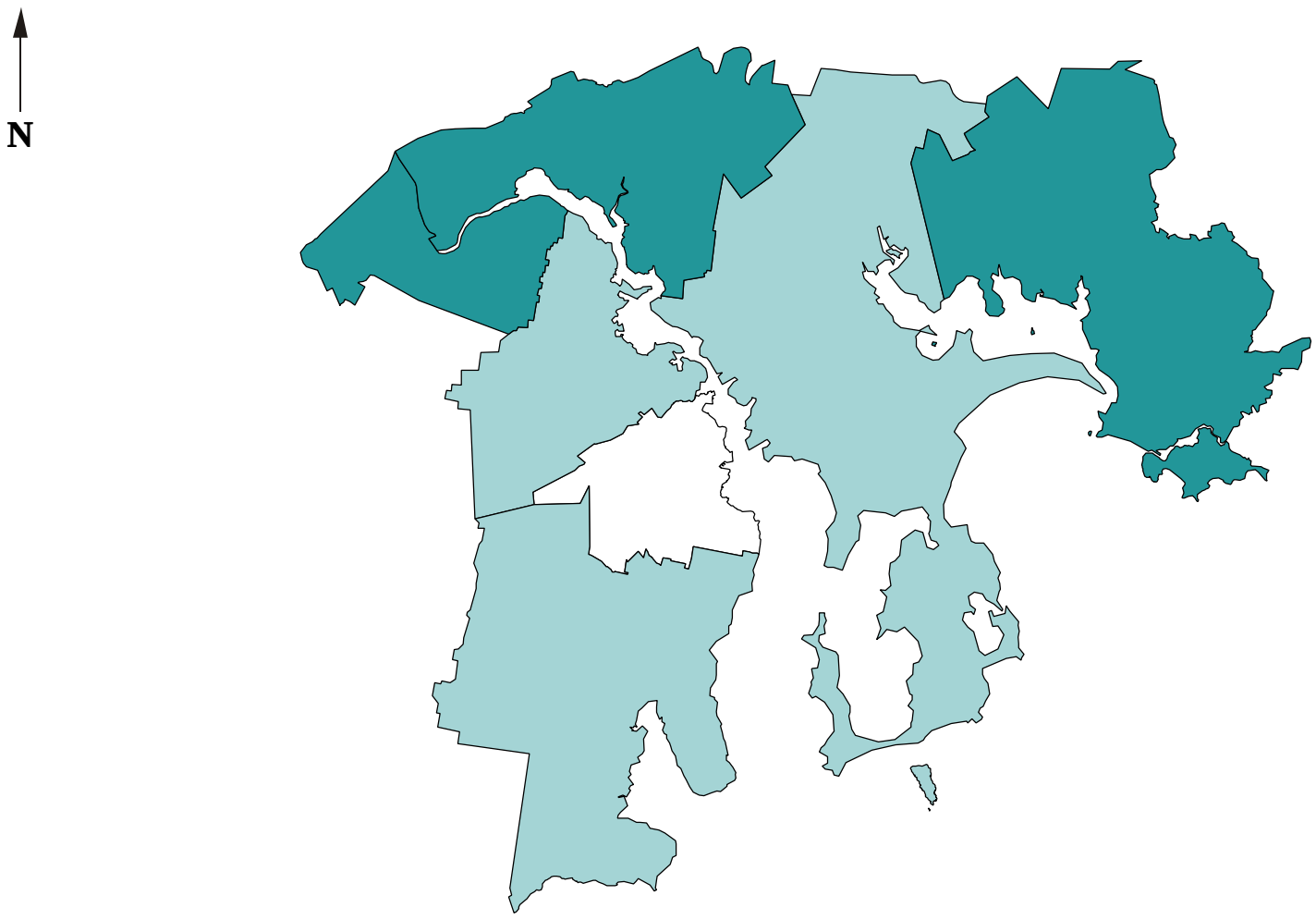
Female residents of the City of Hobart aged 30 years or over had the lowest ratio with 29 per cent fewer hysterectomies than were expected from the State rates (an SAR of 71**).

In 1995/96, the largest numbers of female admissions for an hysterectomy were recorded in Clarence (119 admissions), Glenorchy (93 admissions) and Hobart (75 admissions).

There were correlations of substantial significance with the variables for early school leavers (0.90), semi-skilled and unskilled workers (0.86), low income families (0.84), the Indigenous population (0.79), unemployed people (0.78) and housing authority rented dwellings (0.71). Inverse correlations of substantial significance were recorded with the indicators of socioeconomic advantage, including the variables for female labour force participation (-0.92), high income families (-0.82) and managers and administrators, and professionals (-0.81). These results, together with the inverse correlation of substantial significance with the IRSD (-0.85), indicate the existence of an association at the SLA level between high admission rates for an hysterectomy and socioeconomic disadvantage.

Map 6.46
Admissions of females aged 30 years and over for an hysterectomy, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions of females aged 30 years and over for an hysterectomy, 1995/96

State/Territory comparison (Australia as the Standard)

There were 10,657 hysterectomies (described on the previous text page) performed as a principal procedure on female residents of the non-metropolitan areas of Australia aged 30 years and over. Elevated standardised admission ratios (SARs) were recorded in the non-metropolitan areas of all States, with the most highly elevated ratios in South Australia (135**) and Tasmania (120**).

Table 6.53: Admissions[1] of females aged 30 years and over with a principal procedure of hysterectomy, State/Territory, 1995/96
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	86**	91**	106**	102	100	115**	135**	87**	94**
Other major urban centres[2]	125**	103	98	..	..	..	..	..	114**
Rest of State/Territory	113**	108**	102	135**	106	120**	92	–[3]	110**
Whole of State/Territory	98*	95**	104**	110**	101	118**	113*	83**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1995/96, there were 605 admissions for hysterectomies of women aged 30 years and over and living in non-metropolitan Tasmania. This was 2 per cent more admissions than expected from the State rates, an SAR of 102.

A number of SLAs have not been mapped for this variable as they were considered to have too few cases (fewer than five expected admissions) to produce reliable results. Of the SLAs that were mapped, the standardised admission ratios for hysterectomies were distributed fairly evenly across the map ranges (**Map 6.47**).

All six SLAs with ratios in the highest range were located in the west of Tasmania. The highest ratio (an SAR of 193**) was recorded in Circular Head, with female residents recording almost twice the expected number of admissions for an hysterectomy. Other high ratios were recorded in Latrobe [Part A] (with an SAR of 172**), Waratah/Wynyard [Part A] (158**), Devonport (155**), West Coast (146) and Kentish (130). There were fewer than 20 admissions for this procedure from the latter two SLAs.

Ratios elevated by 10 per cent or more were recorded in Burnie [Part A] (120) and Central Coast [Part A] (116), as well as in George Town [Part A] (126) and Southern Midlands (119), although the latter two SLAs had fewer than 20 admissions.

Female residents from just three of the remaining SLAs recorded more than 20 admissions for an hysterectomy. In the middle range mapped, Huon Valley (with an SAR of 90) had 25 admissions. The only elevated ratio in this range, an SAR of 107 recorded in Waratah/Wynyard [Part B], represented just six admissions.

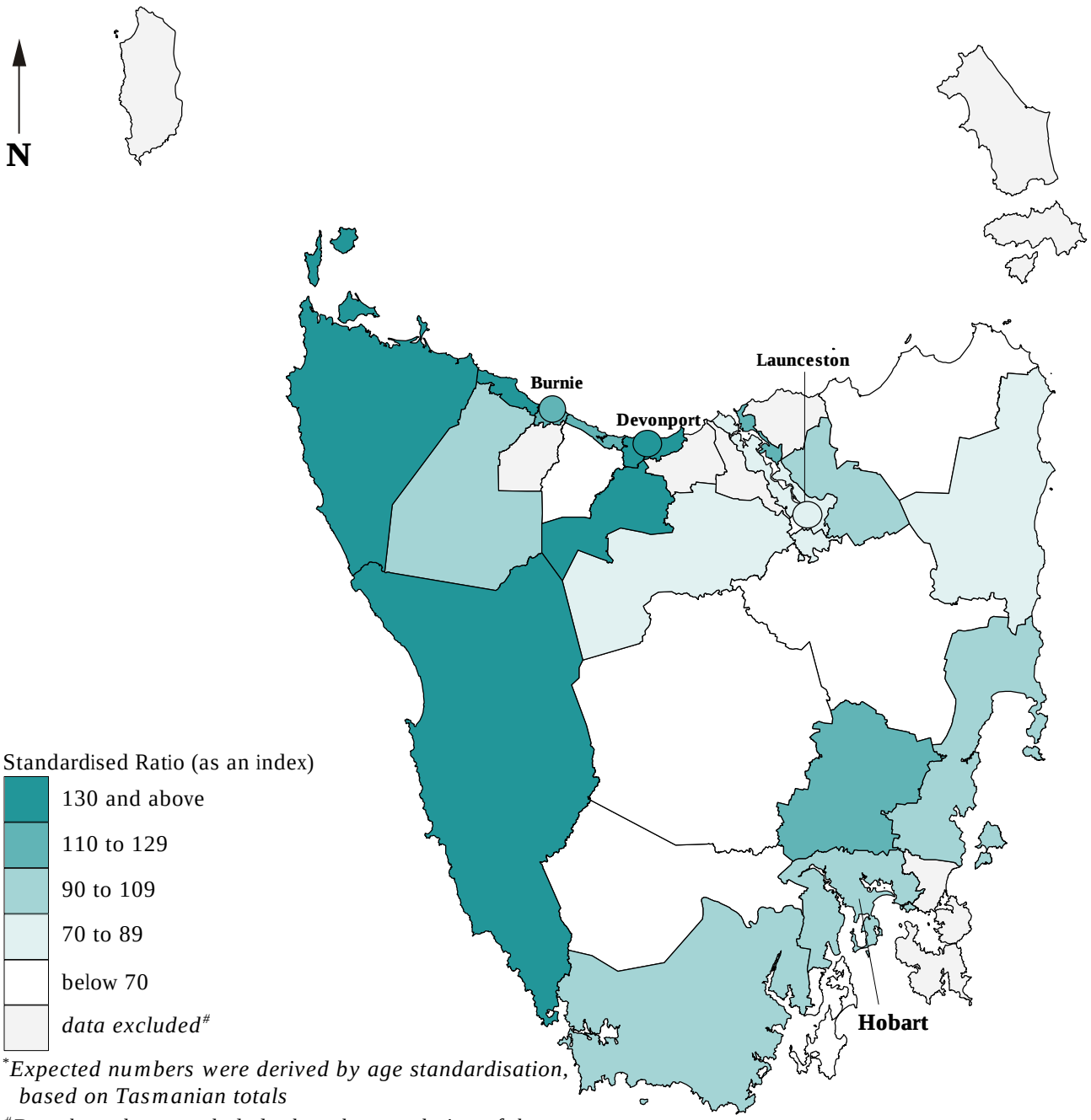
All seven SLAs with ratios in the lowest range mapped had 10 or fewer admissions for an hysterectomy. The lowest ratios were recorded in Kingborough [Part B] (35, two admissions when six were expected), Northern Midlands [Part B] (39, four admissions when 10 were expected) and Central Coast [Part B] (56, four admissions when seven were expected).

The largest numbers of admissions were recorded for females from Launceston (94 admissions), Devonport (89 admissions) and Burnie [Part A] (46 admissions).

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

Map 6.47
Admissions of females aged 30 years and over for an hysterectomy, Tasmania, 1995/1996

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

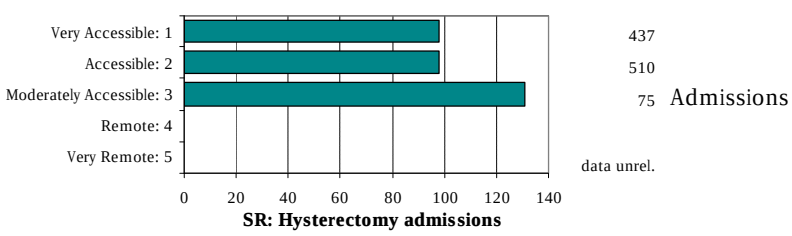


*Expected numbers were derived by age standardisation, based on Tasmanian totals

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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios for admissions of females aged 30 years and over involving an hysterectomy were two per cent lower than the level expected from the State rates in the Very Accessible and Accessible ARIA categories, and 31 per cent higher than expected in the Moderately Accessible areas (an elevated SAR of 131). As there were fewer than five expected admissions involving an hysterectomy in the Very Remote areas, the ratio has not been calculated.

Source: Calculated on ARIA classification, DHAC

Admissions for a hip replacement, 1995/96

Capital city comparison (Australia as the Standard)

There were 8,246 hip replacements (described below) performed as a principal procedure on residents of the capital cities and an additional 1,004 on residents of the other major urban centres. Females accounted for 57.4 per cent of these admissions for residents of the capital cities, reflecting their longer life expectancy. Most capital cities had either low or near average standardised admission ratios (SARs) for this variable, with the highest ratio in **Hobart** (an SAR of 135**) and a very low SAR of 51** in **Darwin**.

Table 6.54: Admissions[1] with a principal procedure of hip replacement, capital cities, 1995/96
Standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
91**	103	75**	99	90**	135**	51**	112	94**

[1]Includes admissions to public acute hospitals and private hospitals
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Hip replacements are mainly performed on people at older ages, and mainly on females. The operation is undertaken to replace the hip joint where there has been deterioration, usually caused by arthritis. The higher rates for females are likely to reflect the higher incidence of loss of bone density (resulting in a higher rate of accidental falls) among females, as well as their longer life expectancy.

Females accounted for more than half (53.8 per cent) the admissions for a hip replacements performed in Tasmania in 1995/96. This was reflected in the overall rate of hip replacement per one hundred thousand population which was higher for females (110.2) than for males (96.2). In particular, females aged between 45 and 59 years had considerably higher rates than males. Both males and females experienced notable increases in rates of hip replacements from the age of 60 onwards although the rates for males tended to be higher than for females. Males aged 60 years and over accounted for 77.4 per cent of all male hip replacements and females accounted for 73.8 per cent of all female hip replacements.

Data for Australia published by the AIHW (1998) showed the hip replacement rate in Tasmania to be 37.4 per cent above that in the other States (**Table 6.41**, page 263).

Hobart (Tasmania as the Standard)

In 1995/96, there were 217 admissions of residents of **Hobart** for hip replacements, seven per cent more than were expected from the State rates (an SAR of 107). Over half (57.7 per cent) of the admissions were females.

There was no distinct pattern to the distribution of standardised ratios for admissions for hip replacements across **Hobart** (**Map 6.48**). Three SLAs were mapped in the highest range, with Sorell [Part A] recording the highest ratio (an SAR of 150). However, this represented just 12 admissions (when eight were expected from the State rates): three quarters of these were males. An SAR of 137 recorded in New Norfolk [Part A] represented just 10 admissions when seven were expected. Residents of Kingborough [Part A] (with an SAR of 118) had 18 per cent more admissions than were expected from the State rates. The lowest elevated ratio was recorded in Clarence (an SAR of 113).

Residents of the City of Hobart (with an SAR of 98) and Glenorchy (97) recorded 2 per cent and 3 per cent fewer admissions for a hip replacement than were expected from the State rates.

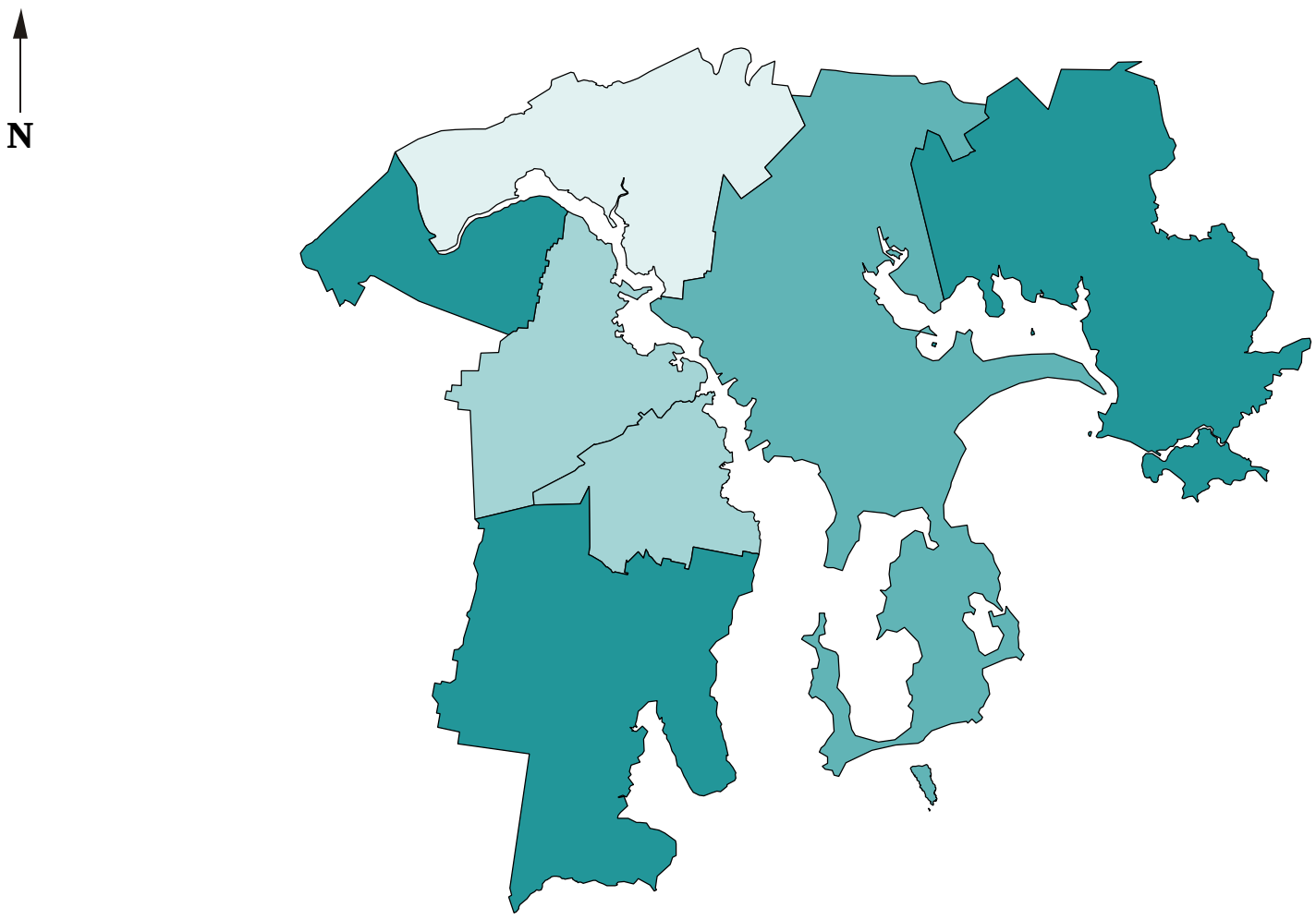
The lowest ratio, an SAR of 86 recorded for residents of Brighton, represented just five admissions, when six were expected.

With only 217 admissions for hip replacements in **Hobart,** there were relatively few admissions in any one SLA. The largest numbers of admissions were recorded for residents of Clarence (60 admissions), Hobart (52 admissions) and Glenorchy (50 admissions).

There were inverse correlations of meaningful significance with the variables for dwellings with no motor vehicle (-0.66), single parent families (-0.61), public rental housing (-0.57) and people reporting poor proficiency in English (-0.52). These results, together with the weak positive correlation with the IRSD (0.20), suggest the existence of an association at the SLA level between high admission rates for a hip replacement and high socioeconomic status.

Map 6.48
Admissions for a hip replacement, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for a hip replacement, 1995/96

State/Territory Comparison (Australia as the Standard)

There were 4,955 hip replacements (described on the previous text page) performed as a principal procedure on residents of the non-metropolitan areas of Australia. Females accounted for 48.6 per cent of these admissions, lower than the 57.4 per cent in the capital cities. The higher proportion for males may in part reflect the occupations held by men in rural Australia and the need for such a procedure. Standardised admission ratios (SARs) varied across the non-metropolitan areas of Australia, with elevated ratios in all but Queensland and the Northern Territory. The highest ratio was in Victoria (an SAR of 129**) and the lowest ratio (82**) was in Queensland.

Table 6.55: Admissions[1] with a principal procedure of hip replacement, 1995/96, State/Territory
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	91**	103	75**	99	90**	135**	51**	112	94**
Other major urban centres[2]	96	118	86**	..	..	..	..	..	95
Rest of State/Territory	122**	129**	82**	125**	107	120**	91	–[3]	113**
Whole of State/Territory	100	111**	80**	106*	94*	127**	71*	103	100

[1]Includes admissions to public acute hospitals, private (acute and psychiatric) hospitals
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 272 admissions for hip replacements recorded for residents of the non-metropolitan areas of Tasmania; five per cent fewer than were expected from the State rates (an SAR of 95). Males and females accounted for similar proportions of admissions, with 49.3 and 50.7 per cent respectively.

Although several SLAs were considered to have too few cases (fewer than five expected admissions) to produce reliable results, the map has been included: however, readers should note the absolute numbers as well as the relative values. Of the 17 areas that were mapped, there were fewer than 20 admissions for a hip replacement in all but four (**Map 6.49**).

The highest ratio, an SAR of 133 recorded in Northern Midlands [Part B], represented just seven admissions when five were expected from the State rates.

Other ratios elevated by more than 10 per cent were recorded in West Tamar [Part A] (with an SAR of 117) and Central Coast [Part A] (111) (both with at least 20 admissions); and in Dorset (129), Meander Valley [Part B] (127), Circular Head (127), Northern Midlands [Part A] (124) and Huon Valley (118) (all with fewer than 20 admissions).

Ratios in the middle range mapped were recorded in Southern Midlands (an SAR of 107, six admissions when 5.6 were expected from the State rates), Waratah/Wynyard [Part A] (101, 13 admissions), Devonport (98) and Launceston (91).

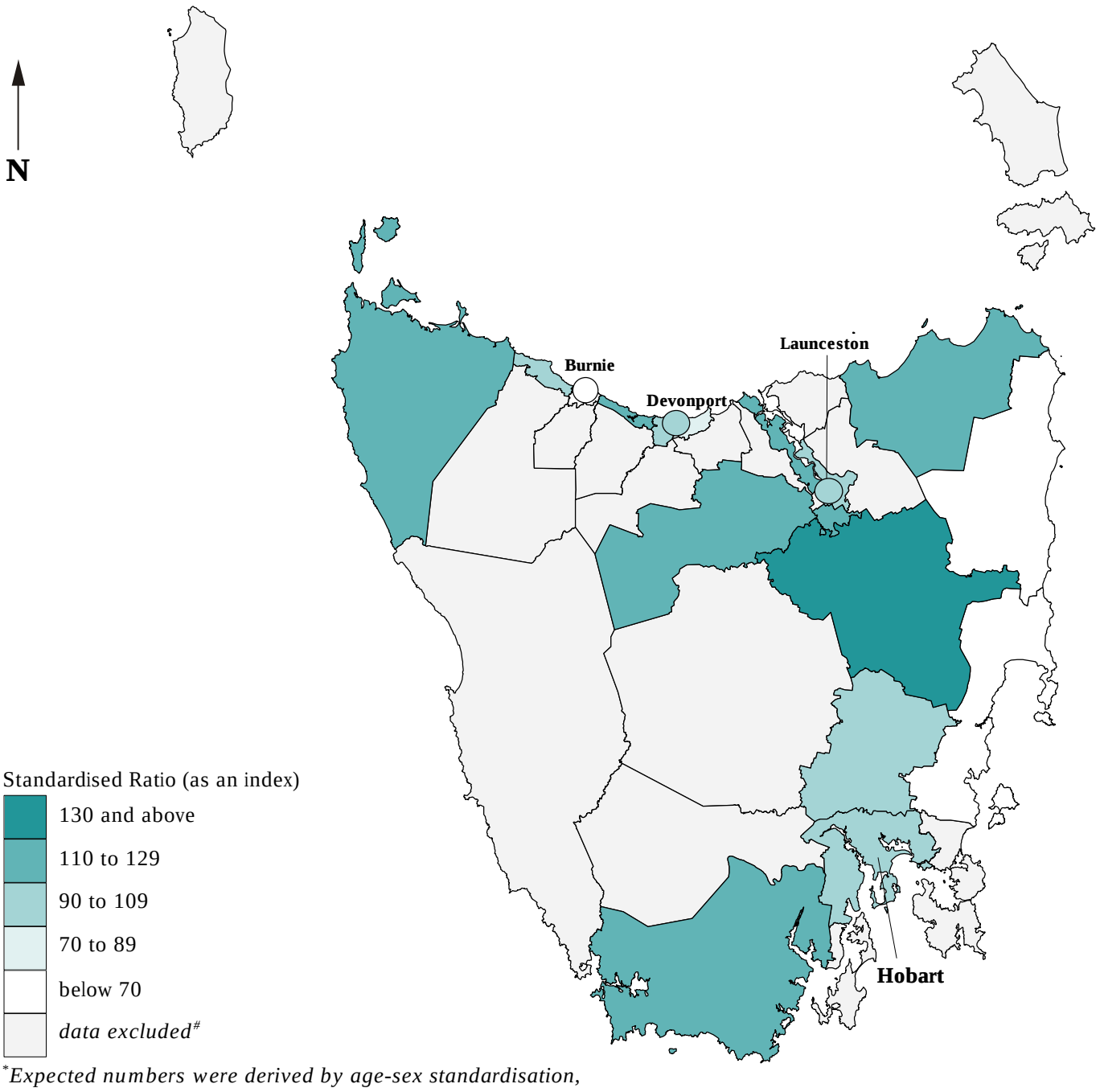
The lowest ratios were recorded in Glamorgan/Spring Bay (with an SAR of 39, two admissions when five were expected), Burnie [Part A] (57, 10 admissions when 18 were expected), George Town [Part A] (59, three admissions when five were expected) and Break O'Day (69, five admissions when seven were expected).

The largest numbers of admissions for a hip replacement were recorded for residents of Launceston (62 admissions), Devonport (29) and West Tamar [Part A] and Central Coast [Part A] (both with 23 admissions).

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

Map 6.49
Admissions for a hip replacement, Tasmania, 1995/1996

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

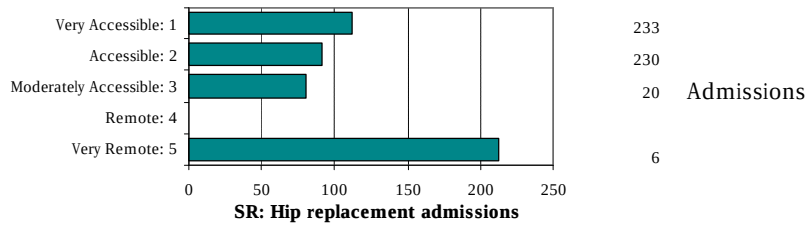


Expected numbers were derived by age-sex standardisation, based on Tasmanian totals

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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios for admissions for a hip replacement show two quite different patterns when examined by ARIA categories. The first group comprises the three 'accessible' categories, which decrease from an SAR of 112 in the Very Accessible areas to an SAR of 80 in the Moderately Accessible areas. The Very Remote areas have more than twice the number of admissions expected from the State rates, an SAR of 212 and six admissions.

Source: Calculated on ARIA classification, DHAC

Admissions for a lens insertion, 1995/96

Capital city comparison (Australia as the Standard)

There were 55,446 admissions at which a lens insertion (described below) was undertaken on residents of the capital cities and an additional 8,263 on residents of the other major urban centres. Females accounted for 61.5 per cent of these admissions for residents of capital cities, reflecting their longer life expectancy. Most capital cities had either low or near average standardised admission ratios (SARs) for this variable, other than **Darwin** (with the highest ratio, an SAR of 130**). The lowest SARs were in **Canberra**, with a very low SAR of 36**, and **Perth** (84**).

Table 6.56: Admissions [1] for a lens insertion, capital cities, 1995/96
Standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
102**	97**	105**	93**	84**	99	130**	36**	97**

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Cataracts are a common cause of impaired vision in people of any age. They may be congenital, or result from trauma, diseases like diabetes or changes associated with ageing. Cataract surgery is one of the most frequently performed surgical procedures in Australia since the introduction of intraocular lens implants. The implants are inserted at the time of surgery after the affected lens has been removed. Increasingly, cataract surgery is being performed as a same day procedure using local anaesthetic techniques, and the lens implant means that most patients enjoy significantly improved vision after surgery.

Data for Australia published by the AIHW (1998) showed the lens insertion rate in Tasmania to be 25.6 per cent below that in the other States (**Table 6.41**, page 263).

Hobart (Tasmania as the Standard)

In 1995/96, there were 1,049 admissions of residents of **Hobart** involving a lens insertion, 11 per cent more than expected from the State rates (an SAR of 111**). Females comprised almost two thirds (63.7 per cent) of these admissions.

The highest SAR (124**) was recorded in Clarence, where residents had 24 per cent more admissions for a lens insertion than were expected from the State rates. An SAR of 120 was recorded in Sorell [Part A].

Ratios elevated by between five and fifteen per cent were recorded in the City of Hobart (with an SAR of 111) and Glenorchy (109). Kingborough [Part A] (103) was the only SLA to record a ratio in the middle range mapped (**Map 6.50**).

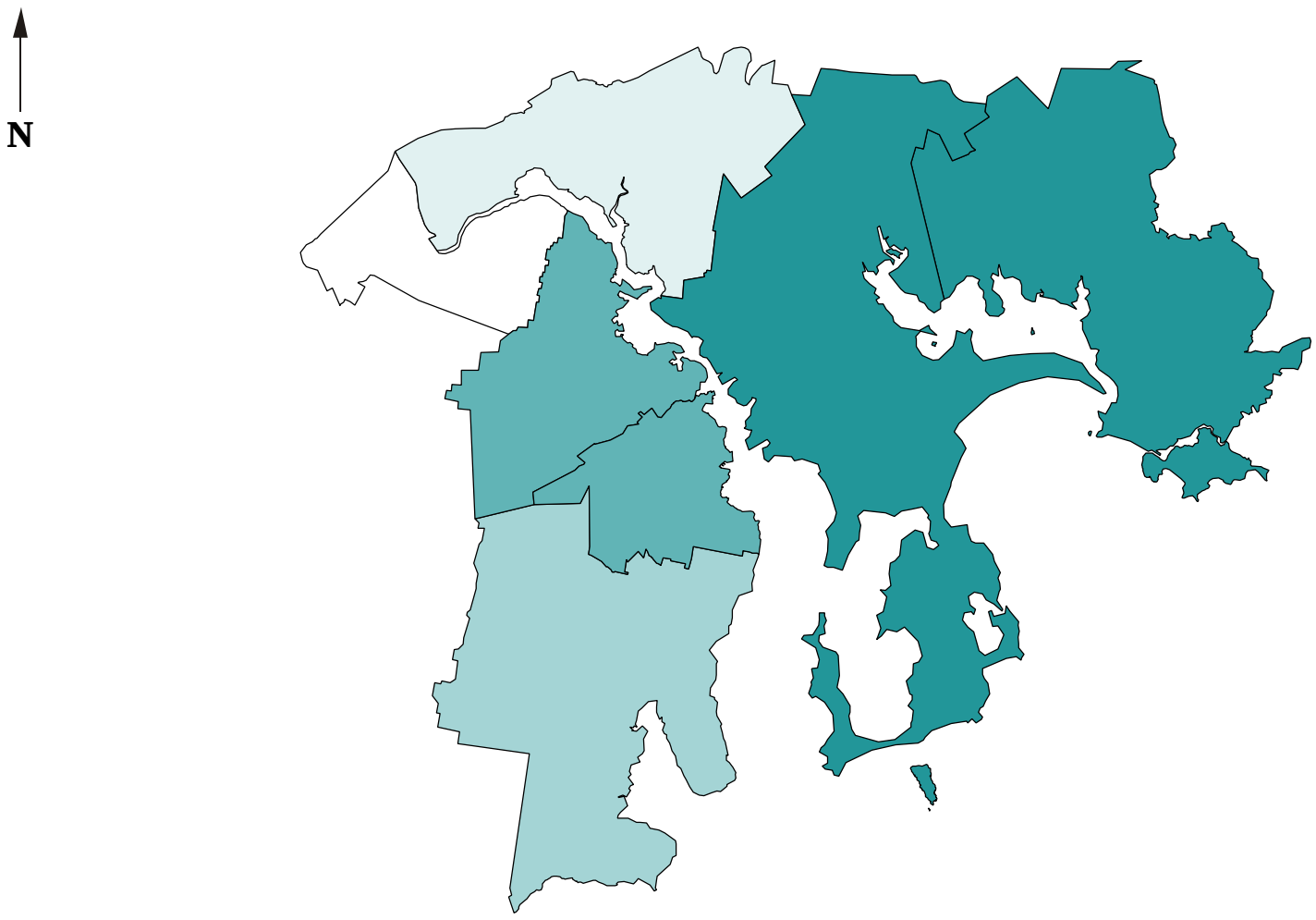
The lowest ratio, indicating almost half the expected number of admissions for a population of this size and age/sex composition (an SAR of 51**), was recorded in New Norfolk [Part A]. Brighton had an SAR of 88, and 16 admissions.

The largest numbers of admissions involving a lens insertion in **Hobart** were recorded for residents of Hobart (312 admissions), Clarence (292 admissions) and Glenorchy (265 admissions).

There were inverse correlations of meaningful significance with the variables for unskilled and semi-skilled workers (-0.65) and low income families (-0.50); and weaker correlations with female labour force participation (0.49), managers and administrators, and professionals (0.40) and high income families (0.30). These results, together with the positive correlation with the IRSD (0.45), suggest the existence of an association at the SLA level between high admission rates for lens insertions and high socioeconomic status. There was also a correlation of substantial significance with the variable for admissions to a private hospital (0.85).

Map 6.50
Admissions for a lens insertion, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for a lens insertion, 1995/96

State/Territory comparison (Australia as the Standard)

There were 28,332 admissions for which a lens insertion (described on the previous text page) was undertaken on residents of the non-metropolitan areas of Australia. Females accounted for 58.1 per cent of these admissions, reflecting their longer life expectancy. Standardised admission ratios (SARs) varied across the non-metropolitan areas of Australia, with the highest ratios in Queensland and New South Wales (SARs of 119** and 112** respectively) and low ratios in Victoria and Tasmania (78** and 82** respectively).

Table 6.57: Admissions [1] for lens insertion, State/Territory, 1995/96
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	102**	97**	105**	93**	84**	99	130**	36**	97**
Other major urban centres[2]	103	73**	163**	..	..	..	..	..	120**
Rest of State/Territory	112**	78**	119**	93**	89**	82**	104	–[3]	101*
Whole of State/Territory	105**	91**	119**	93**	85**	89**	117**	35**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1995/96, there were 1,198 admissions of residents of the non-metropolitan areas of Tasmania involving a lens insertion, eight per cent fewer than were expected from the State rates (an SAR of 92**). Almost two thirds (63.8 per cent) were females.

Four SLAs were not mapped for this variable as they were considered to have too few cases (fewer than five expected admissions) to produce reliable results. The map shows that all but two SLAs had ratios in the lowest three ranges, indicating that residents of most of the areas mapped had fewer admissions than expected from the State rates (**Map 6.51**).

The only SLA mapped in the highest range was Northern Midlands [Part A] (with an SAR of 155**) with residents recording 55 per cent more admissions for a lens insertion than were expected from the State rates. The SLA of West Coast had a ratio in the second highest range, an SAR of 127, but this represented just 19 admissions when 15 were expected.

The ten SLAs with ratios in the middle range, with ratios within 10 per cent of the expected level, included Burnie [Part A] (with an SAR of 109), Launceston (104), Central Coast [Part A] (103), Huon Valley (98) and Circular Head (93).

Devonport (77**) and Waratah/Wynyard [Part A] (72*) were the only SLAs with ratios between 70 and 89 with ratios of statistical significance. Other SLAs mapped in this range included Meander Valley [Part B] (87), Latrobe [Part A] (84) and West Tamar [Part A] (81).

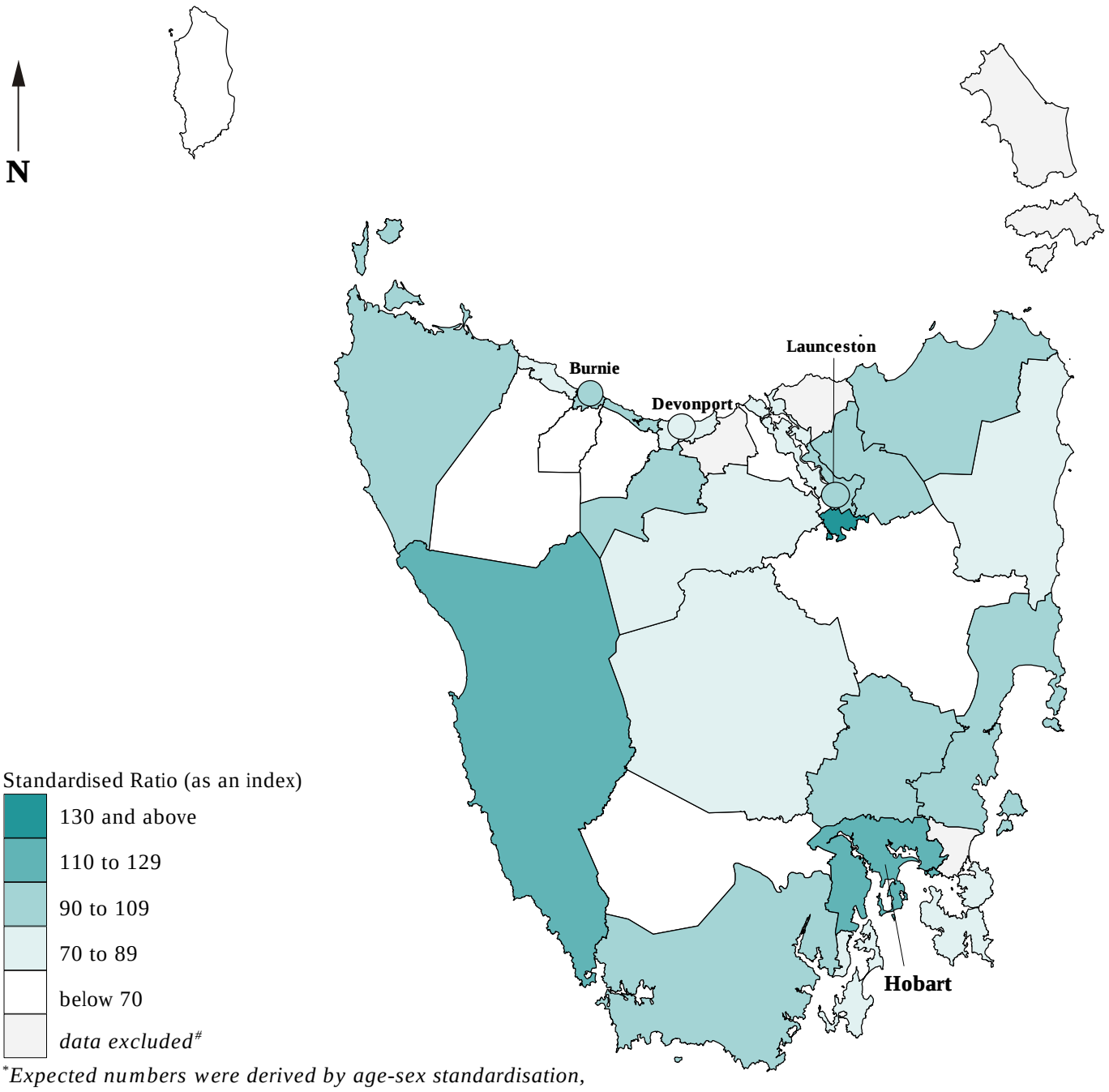
Residents of all SLAs with ratios in the lowest range had ten or fewer admissions for a lens insertion. Highly statistically significant ratios were recorded in Central Coast [Part B] (with the lowest SAR of 19**, two admissions when 11 were expected from the State rates) and Northern Midlands [Part B] (41**, 10 admissions compared to an expected 24). Other low ratios were recorded in Burnie [Part B] (32, two admissions), West Tamar [Part B] (41, two admissions) and King Island (52, four admissions).

In 1995/96, the largest number of admissions for lens insertion was recorded for residents of Launceston (357 admissions), Devonport (107 admissions), Central Coast [Part A] (100 admissions) and Burnie [Part A] (88 admissions).

There was a correlation of meaningful significance with the variable for dwellings with no motor vehicle (0.51), and weaker correlations with single parent families (0.45) and low income families (0.26). An inverse correlation of meaningful significance was recorded with managers and administrators, and professionals (-0.53). These results, together with the weak inverse correlation with the IRSD (-0.37), suggest the existence of an association at the SLA level between high rates of admission for a lens insertion and socioeconomic disadvantage.

Map 6.51
Admissions for a lens insertion, Tasmania, 1995/1996

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



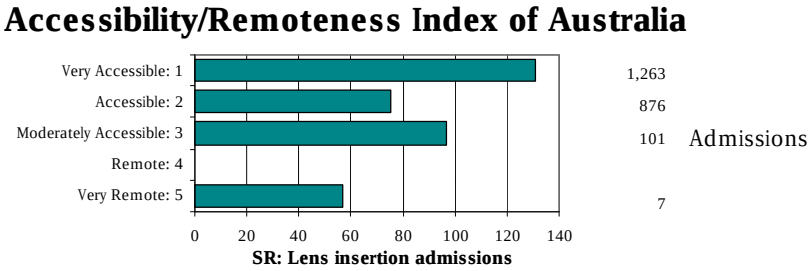
*Expected numbers were derived by age-sex standardisation, based on Tasmanian totals

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised admission ratios for admissions for a lens insertion generally drop of with increasing remoteness. The highest ratio is in the Very Accessible areas, with 31 per cent more admissions than expected from the State rates (an SAR of 131). Ratios then drop to SARs of 75 and 57 in the Accessible and Very Remote (43 per cent fewer admissions than expected) areas, respectively with the exception of an SAR of 97 in the Moderately Accessible areas.

Source: Calculated on ARIA classification, DHAC

Admissions for an endoscopy, 1995/96

Capital city comparison (Australia as the Standard)

There were 249,411 endoscopies (described below) performed as a principal procedure on residents of the capital cities and an additional 26,647 on residents of the other major urban centres. Females accounted for 61.5 per cent of these admissions, reflecting their longer life expectancy. Standardised admission ratios (SARs) for this variable varied over a wide range, from a low of 58** in **Canberra**, to highs of 115** in **Brisbane**, 111** in **Melbourne** and 111** in **Hobart**. These large differences suggest markedly different clinical practice between the various States and Territories.

Table 6.58: Admissions[1] with a principal procedure of endoscopy, capital cities, 1995/96
Standardised admission ratios

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[2]	All capitals
110**	111**	115**	81**	82**	111**	92**	58**	104**

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Queanbeyan (C)
Source: See *Data sources*, Appendix 1.3
Statistical significance: * significance at 5 per cent; ** significance at 1 per cent

Endoscopy procedures involve looking inside hollow organs or cavities in the body such as the intestinal tract, stomach, bladder, abdominal cavity and airways, using a rigid or flexible instrument, the endoscope. Endoscopies allow visual examination, photography, biopsy and some diagnostic and treatment procedures to be undertaken while a person is relaxed and conscious. These procedures are often now performed in accredited day endoscopy facilities, relieving pressure on hospital inpatient beds.

Data for Australia published by the AIHW (1998) showed the endoscopy rate in Tasmania to be 7.8 per cent below that in the other States (**Table 6.41**, page 263).

Hobart (Tasmania as the Standard)

In 1995/96, there were 4,637 admissions of residents of **Hobart** for an endoscopy, 21 per cent more admissions than were expected from the State rates (an SAR of 121**). Of the total admissions, 2,619 were females (56.5 per cent) and 2,018 were males (43.5 per cent). The majority (87.3 per cent) of endoscopies were performed as same day admissions.

All of the SLAs in **Hobart** had ratios in the top two ranges mapped (**Map 6.52**). The highest ratio (an SAR of 166**) was recorded in Sorell [Part A] with residents recording 66 per cent more admissions for endoscopies than were expected from the State rates. Other SLAs with ratios in the top range were New Norfolk [Part A] (with an SAR of 136**), Brighton (134**), Clarence (124**) and Glenorchy (122**).

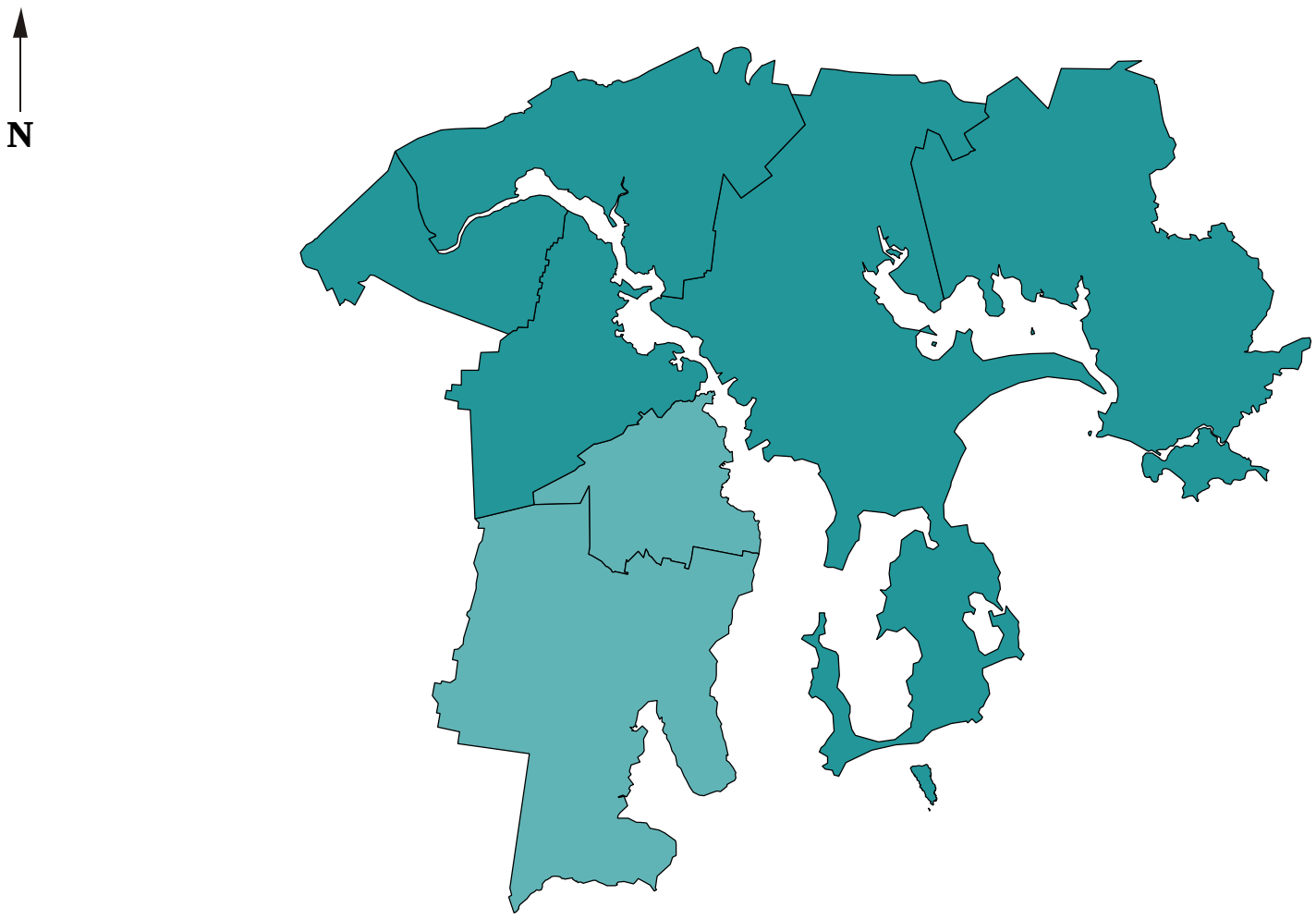
Ratios elevated by more than five per cent were also recorded in Kingborough [Part A] (with an SAR of 112**) and the City of Hobart (111**).

In 1995/96, the largest numbers of admissions for endoscopies were recorded for residents of Clarence (1,242 admissions), Glenorchy (1,124 admissions) and Hobart (1,081 admissions). Residents of New Norfolk [Part A] had the lowest number of 184 admissions.

There were correlations of meaningful significance with the variables for early school leavers (0.63), low income families (0.53) and unskilled and semi-skilled workers (0.53). Inverse correlations were recorded with the variable for high income families (of substantial significance, -0.73) and managers and administrators, and professionals (of meaningful significance, -0.61). These results, together with the inverse correlation with the IRSD (-0.45), suggest the existence of an association between high rates of admissions for endoscopies and socioeconomic disadvantage.

Map 6.52
Admissions for an endoscopy, Hobart, 1995/1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Admissions for an endoscopy, 1995/96

State/Territory comparison (Australia as the Standard)

There were 106,877 endoscopies (described on the previous text page) performed as a principal procedure on residents of the non-metropolitan areas. Just over half (52.5 per cent) of these admissions were females, compared with 61.5 per cent in the capital cities.

With the exception of Tasmania and the Northern Territory, the standardised admission ratios (SARs) at the *Whole of State/Territory* and *Rest of State/Territory* levels largely followed the direction of the ratios for the capital cities, although they are somewhat closer to the Australian rates. In both Tasmania (an SAR of 77**) and the Northern Territory (66**), ratios were substantially below the level expected from the Australian rates. The only elevated SARs were in Victoria (104**) and Queensland (101*).

Table 6.59: Admissions[1] with a principal procedure of endoscopy, State/Territory, 1995/96
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	110**	111**	115**	81**	82**	111**	92**	58**	104**
Other major urban centres[2]	97**	70**	104**	..	..	..	..	..	97**
Rest of State/Territory	92**	104**	101*	62**	80**	77**	66**	–[3]	93**
Whole of State/Territory	104**	108**	108**	76**	82**	108**	78**	58**	100

[1]Includes admissions to public acute hospitals, private hospitals and day surgery facilities, including admissions of same day patients
[2]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[3]Data unreliable: 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 1995/96, there were 4,588 admissions of residents of the non-metropolitan areas of Tasmania for endoscopies, 15 per cent fewer than expected from the State rates (an SAR of 85**). Females accounted for just over half (54.8 per cent) of these admissions. The majority (81.2 per cent) of these procedures were performed as same day admissions.

In contrast to the situation in **Hobart**, residents of a majority (70.6 per cent) of non-metropolitan SLAs had fewer admissions for endoscopies than were expected from the State rates. Some 23 SLAs were mapped in the lowest two ranges (**Map 6.53**).

The most highly elevated ratios were recorded in Sorell [Part B] (with an SAR of 187**) and Northern Midlands [Part A] (131**), with 87 and 31 per cent more admissions for endoscopies than were expected from the State rates respectively.

Ratios elevated by more than ten per cent were also recorded in Launceston [Part C] (124), Kingborough [Part B] (120), Huon Valley (114*) and Glamorgan/Spring Bay (113).

Of the nine SLAs with ratios between 70 and 89, ratios of statistical significance were recorded in West Tamar [Part A] (with an SAR of 84**), Central Coast [Part A] (83**), Break O Day (78*), West Coast (73**) and Meander Valley [Part B] (72**).

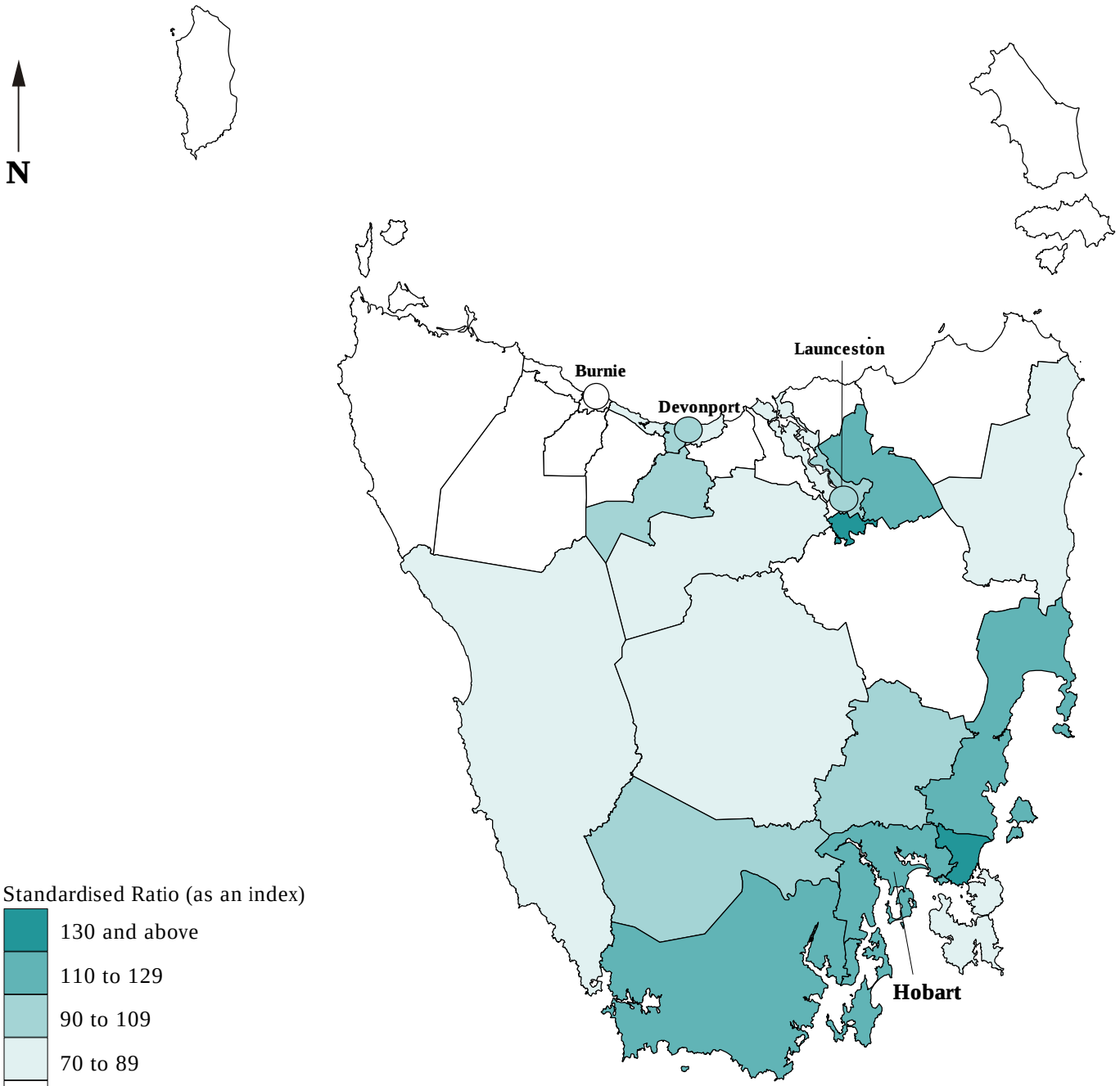
The lowest ratio (an SAR of 4**) was recorded in Latrobe [Part B] and represented just one admission for an endoscopy when 25 admissions were expected from the State rates. Residents of Central Coast [Part B] had the next lowest ratio, an SAR of 15**, with nine admissions and residents of Burnie [Part B] had an SAR of 22** and eight admissions. The lowest ratios (in SLAs with at least twenty admissions) were recorded in Meander Valley [Part A] (with an SAR of 33**), Dorset (33**), Circular Head (54**), Waratah/Wynyard [Part A] (54**), Northern Midlands [Part B] (61**) and Burnie [Part A] (69**).

The largest numbers of admissions for endoscopies in non-metropolitan Tasmania were recorded for residents of Launceston (1,233 admissions), Devonport (533 admissions), Central Coast [Part A] (305 admissions) and West Tamar [Part A] (303 admissions).

There was a correlation of meaningful significance with the variable for low income families (0.54), and weaker correlations with single parent families (0.43) and unemployed people (0.37). Weak inverse correlations were recorded with the indicators of high socioeconomic status. These results, together with the weak inverse correlation with the IRSD (-0.36), suggest the existence of an association at the SLA level between high rates of admissions for endoscopies and socioeconomic disadvantage.

Map 6.53
Admissions for an endoscopy, Tasmania, 1995/1996

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



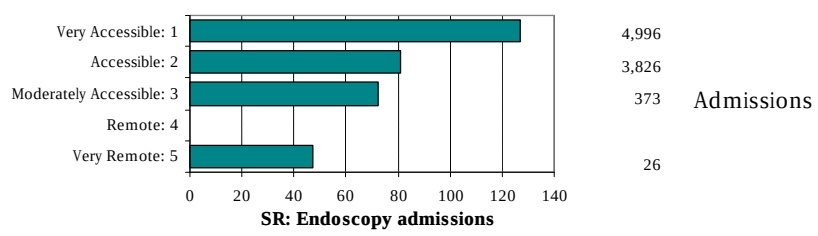
Standardised Ratio (as an index)

- 130 and above
- 110 to 129
- 90 to 109
- 70 to 89
- below 70

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

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

Accessibility/Remoteness Index of Australia



Standardised admission ratios for admissions involving an endoscopy decrease steadily across the ARIA categories from an SAR of 127 in the Very Accessible areas (27 per cent more admissions than expected) to SARs of 81 and 72 in the Accessible and Moderately Accessible areas, respectively, before dropping to a very low SAR of 47 in the Very Remote areas (53 per cent fewer admissions than expected).

Source: Calculated on ARIA classification, DHAC

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

Admissions of females aged 40 years and over for breast cancer, 1995/96

State/Territory comparison (Australia as the Standard)

Standardised admission ratios (SARs) for admissions for breast cancer of female residents of the non-metropolitan areas, who were aged 40 years and over, were most notably higher than expected in South Australia (122**) and lower than expected in a number of jurisdictions, including Western Australia (72**) and the Northern Territory (81). SARs in the other States were near average. In general, the differentials in the ratios between the two periods shown suggest lower rates of admission in the later period.

Table 6.60: Admissions of females aged 40 years and over[1] with a principal diagnosis of breast cancer, State/Territory
Age-sex standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96[2]									
Capital city	97	125**	93*	94	81**	71**	129	90	102*
Other major urban centres[3]	89**	118	95	..	..	..	..	..	93*
Rest of State/Territory	101	101	94	122**	72**	87	81	–[4]	97
Whole of State/Territory	97*	118**	94**	101	79**	81**	106	89	100
1989[5]									
Rest of State/Territory	115**	..	114**	100	80**	..	65	..	109**

[1]Data for 1989 'is of females of all ages
[2]Includes admissions to public acute hospitals and private hospitals, including admissions of same day patients
[3]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[4]Data unreliable: included with ACT total
[5]Excludes same day admissions: for New South Wales the period is 1989/90 and for Northern Territory it is 1987
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)

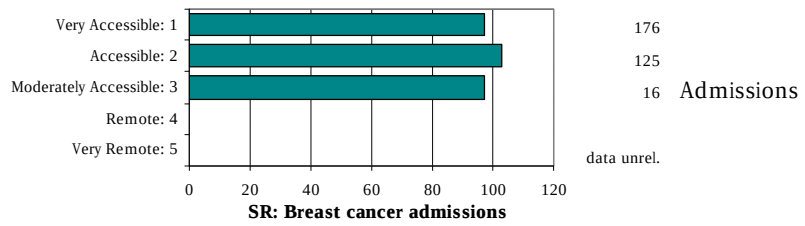
There were 202 admissions for breast cancer of females aged 40 years and over and resident in the non-metropolitan areas of Tasmania, eight per cent more admissions than were expected from the State rates (an SAR of 108).

Females from all but two SLAs had fewer than 20 admissions for breast cancer, and most had fewer than 10. Elevated ratios were recorded in West Tamar [Part A] (with an SAR of 178**, 23 admissions), Huon Valley (158, 13 admissions) and Launceston (125, representing the highest number of 54 admissions).

Admissions of females from Burnie [Part A] (100), Central Coast [Part A] (99) and Dorset (95) were all close to the expected level.

The lowest ratio, an SAR of 43 recorded in Meander Valley [Part B], represented just three admissions when seven were expected. Low ratios were also recorded in Devonport (73, 14 admissions) and Waratah/Wynyard [Part A] (74, and six admissions).

Accessibility/Remoteness Index of Australia



Standardised admission ratios (SARs) for cancer of the female breast vary over a narrow range, from an SAR of 97 in the Very Accessible and Moderately Accessible areas to an SAR of 103 in the Accessible areas. As there were fewer than five expected admissions for cancer of the female breast in the Very Remote areas, the ratio has not been calculated.

Source: Calculated on ARIA classification, DHAC

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General medical practitioner services

Introduction

General medical practitioners (GPs) comprise the largest group of health professionals providing primary health care services. They are frequently the first point of contact with the health care system, for the 80 per cent of the population who visit them each year. As such, they are an essential part of the health care system.

Background

In 1996/97, the Health Insurance Commission (which operates the national health insurance plan, Medicare) processed accounts for 2.4 million unreferred attendances (called services in this atlas)[7] by GPs in Tasmania, an average of 5.0 services for each person enrolled with Medicare. Total Medicare payments to GPs for these services were $55 million (Health Insurance Commission 1997).

Consultations with GPs cover a wide range of injuries and illness conditions, in addition to consultations for preventive measures. The most frequently reported reasons for consulting a doctor, as reported in the 1995 National Health Survey, were diseases of the respiratory, musculoskeletal and circulatory systems.

Data limitations

Coverage

The following analysis uses Medicare statistics for the year 1996. Details of the number of GP services in each postcode were provided by the Medicare Statistics Section, Department of Health and Aged Care, based on Medicare data from the Health Insurance Commission. This dataset includes services provided at a surgery/clinic, at the patient's home or in an institution (hostel, nursing home, etc). It excludes GP type services not covered by Medicare, which are mainly:

- inpatient services to 'hospital' patients in public acute hospitals (ie. patients receiving treatment under Medicare);
- attendances at accident and emergency/ casualty departments of public acute hospitals for GP type services;
.
- GP services at some community health services which do not bill their clients;
- services operated by the Aboriginal Medical Service and some State funded Aboriginal health services; and
- medical services provided by private companies (eg. mining companies), the defence forces and the Royal Flying Doctor Service (**Table 6.61** includes details of the operations of this service, some of which are GP type services).

National data are not available for the number of attendances at accident and emergency departments of public hospitals that are for primary health care services: that is, services that could have been provided by a GP. A study in South Australia in 1993/94 found that up to one third of such attendances were of this kind. This represents the equivalent of approximately 1.3 per cent of GP attendances recorded in the Medicare statistics collection for that year. These attendances are again likely to be predominantly of people of lower socioeconomic status.

Similarly, the exclusion of data for attendances at some community health centres is also unlikely to change the spatial patterns of distribution evident in the maps. Not only do these centres account for a relatively small number of attendances, their clients are also predominantly of lower socioeconomic status.

The impact on the data of services provided by Aboriginal Medical Services is of particular relevance in rural and remote areas. Details of the number of services provided through Aboriginal Medical Services by GPs, Aboriginal workers, etc. are not currently available. The Office of Aboriginal and Torres Strait Islander Health is currently undertaking a collection of this information which may, in time, fill an important gap in the available data.

Missing data

In the dataset provided for the atlas, there were 103,695 records (0.1 per cent of all records for Australia) for which the postcode was not able to be allocated to an SLA using the postcode to SLA converter from the ABS (see Chapter 2 for details of this conversion process). The postcode associated with these records was either not valid (four fifths) or was not on the postcode to SLA conversion list (one fifth). This latter group includes postcodes for businesses and post office boxes, as well as valid residential postcodes that do not appear in the ABS conversion table (eg. where there are two postcodes in a Collection District (CD), the whole CD is allocated to just one postcode and this is shown in the conversion table; the other postcode does not appear).

Other gaps and deficiencies

The data presented here are only of services provided by general practitioners and not by specialist medical practitioners. The spatial patterns of distribution of services of specialist medical practitioners would be of value in informing strategic policy and planning activities. They cannot, however, be mapped as details of the large number of such services provided through public hospitals outpatient departments (and the lesser number through public hospital accident and emergency departments) are not available by SLA. Details of such services provided outside of public hospitals by specialist medical practitioners (and billed through Medicare) are available, but to map just this set of the whole would provide a biased view of the distribution at the small area level.

[7]At each consultation, a GP may provide one or more service. One of these services will be the consultation itself: additional services, such as a minor surgical procedure or immunisation, may also be provided, and are recorded separately in Medicare statistics. It is estimated that there are, on average, 1.1 services per consultation.

Table 6.61: Location of Royal Flying Doctor Service bases and number of services, 1997

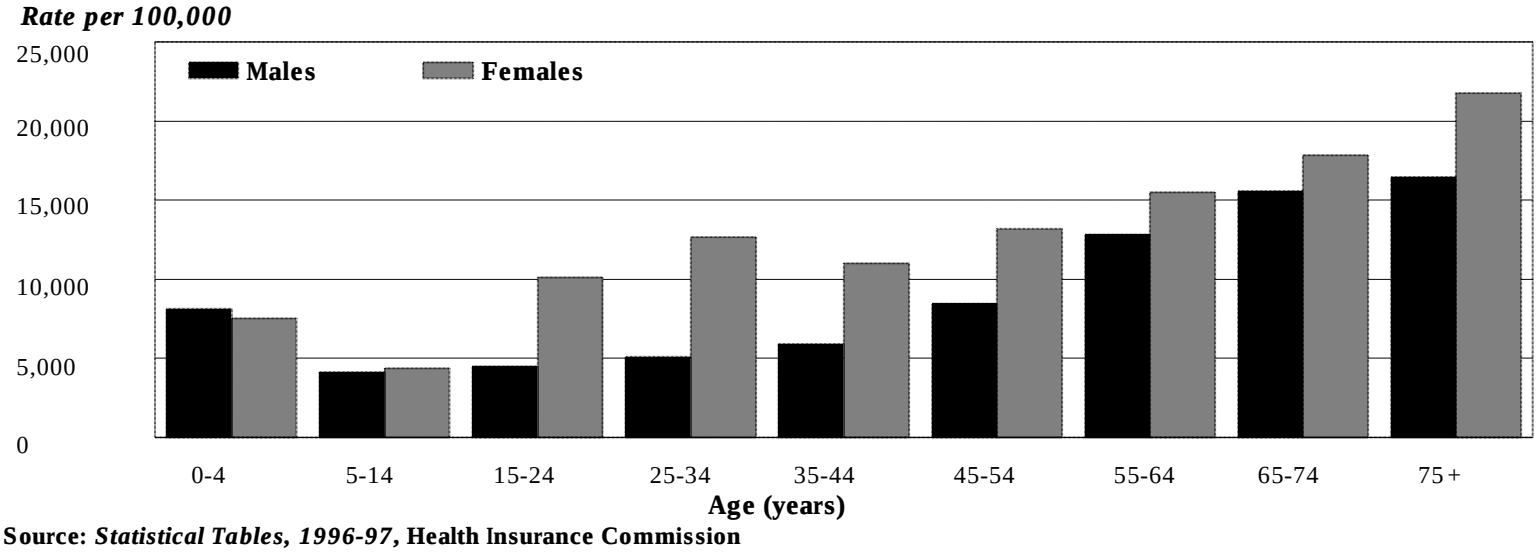
Operational organisation	Remote consultations		Patients attended				Patient transport		Clinics	Patient contacts	Doctors	Nurses
	Radio	Telephone	Field clinics	Other clinics	Inpatient services	Immuni-sations	Evacuation	Hospital transfers				
Queensland												
Mt Isa	6	3,624	4,522	-	-	-	240	473	335	9,200	-	-
Charleville	37	1,893	4,373	-	-	-	185	168	259	6,915	-	-
Cairns	10	6,370	10,609	-	-		396	757	602	18,744	-	-
Rockhampton	-	-	-	-	-	-	14	939	-	953	-	-
Brisbane	-	-	-	-	-	-	5	843	-	948	-	-
Townsville	-	-	-	-	-	-	14	357		371	-	-
Total	**53**	**11,887**	**19,504**	-	**-**	**-**	**854**	**3,537**	**1,196**	**37,031**	**11**	**24**
New South Wales												
Broken Hill	5	6,741	14,624	-	-	506	339	484	917	23,616	-	-
Moomba	-	-	-	5,782	-	-	-	-	-	5,782	-	-
Sydney	-	-	17,962	-	-	-	-	-	-	17,962	-	-
Tasmania	-	-	-	-	-	-	-	162		162	-	-
Total	**5**	**6,741**	**32,586**	**5,782**	**-**	**506**	**339**	**646**	**917**	**47,522**	**5**	**10**
Central Section												
Alice Springs	60	870	3,552	-	-	-	1,459	237	158	6,336	-	-
Yulara	-	-	-	9,242	-	93	-	-	364	9,699	-	-
Port Augusta	12	8,020	3,682	119	3,683	555	947	574	278	17,870	-	-
Adelaide	-	-	-	-	-	-	306	2,712	-	3,018	-	-
Total	**72**	**8,890**	**7,234**	**9,361**	**3,683**	**648**	**2,712**	**3,523**	**800**	**36,923**	**6**	**25**
Western Operations												
Derby	-	-	7,346	-	-	-	338	662	477	8,823	-	-
Jandakot	98	2,031	3,886	49	58	-	63	1,335	270	7,790	-	-
Kalgoorlie	15	4,267	3,075	80	973	-	281	842	299	9,832	-	-
Meekatharra	2	2,591	735	7,658	1,135	-	82	729	57	12,989	-	-
Port Hedland	146	2,941	1,987	880	1,144	-	184	577	155	8,014	-	-
Total	**261**	**11,830**	**17,029**	**8,667**	**3,310**	**-**	**948**	**4,145**	**1,258**	**47,448**	**10**	**25**
Tasmania Section												
Launceston	-	-	-	118	-	-	180	262	-	560	-	-
All Sections	**391**	**39,348**	**76,353**	**23,928**	**6,993**	**1,154**	**5,033**	**12,113**	**4,171**	**169,484**	**32[2]**	**84[2]**

Source: ***Annual Report 1996*** **Royal Flying Doctor Service of Australia**

GP services by age and sex of patient

Females used GP services more than males, accounting for 60.2 per cent of services in Tasmania in 1996. Females also accounted for more services per person in each age group from the 15 to 24 year age group right through to 75 years and over, with males accounting for more services only in the 0 to 4 year age group (**Figure 6.11**). Females and males had similar rates in the 5 to 14 year age group.

Figure 6.11: General medical practitioner services, by age and sex, Tasmania, 1996-97



Source: ***Statistical Tables, 1996-97*****, Health Insurance Commission**

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General medical practitioner services to males, 1996

Capital city comparison (Australia as the Standard)

Standardised ratios (SRs) for general medical practitioner (GP) services to males varied between the capital cities (broadly in proportion to their population) from the highest ratio in the largest capital city of **Sydney** (125**), to the lowest in **Darwin** (80**). The differential between the highest and lowest ratios is substantial, at just over fifty per cent.

Between 1989 and 1996 the *All capitals* SR increased (relative to the Australian rate) from 108** to 113**, indicating a higher rate of use of GP services by male residents of the capital cities relative to those in the non-metropolitan areas of Australia. At the capital city level, the largest movements were increases in **Melbourne** (where the ratio moved from well below the *All capitals* figure in 1989 to equal it in 1995/96) and **Perth** (where the ratio remained well below the *All capitals* average) to a decrease in **Hobart**.

Table 6.62: General medical practitioner services to males, capital cities
Standardised ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1996	**125****	**113****	**106****	**107****	**101****	**90****	**80****	**87****	**113****
1989	**124****	**99****	**111****	**106****	**91****	**101****	**84****	**86****	**108****

[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)

Males in **Hobart** received 402,111 services from GPs in 1996, four per cent more than expected from the State rates (an SR of 104**). The age distribution is shown in **Figure 6.11** on page 306.

The distribution of standardised ratios for GP services to males covers a relatively narrow range, from 94 to 111, indicating that the rate of use of GP services at the SLA level in **Hobart** did not deviate greatly from the Sate rates. Males in Glenorchy and Kingborough [Part A] (both with the highest ratio of 111**) had 11 per cent more services from GPs in 1996 than were expected from the Tasmanian rates. Clarence (with an SR of 106**) also recorded a statistically highly significant ratio.

Map 6.54 shows that three SLAs of **Hobart** had ratios in the middle range mapped. Brighton (101*) was the only SLA in this group to record an elevated ratio. Derwent Valley [Part A] and Sorell [Part A] (both with ratios of 100) recorded the expected number of GP services for males.

The City of Hobart (with an SR of 94**) was the only SLA where males used fewer GP services than were expected from the Tasmanian rates.

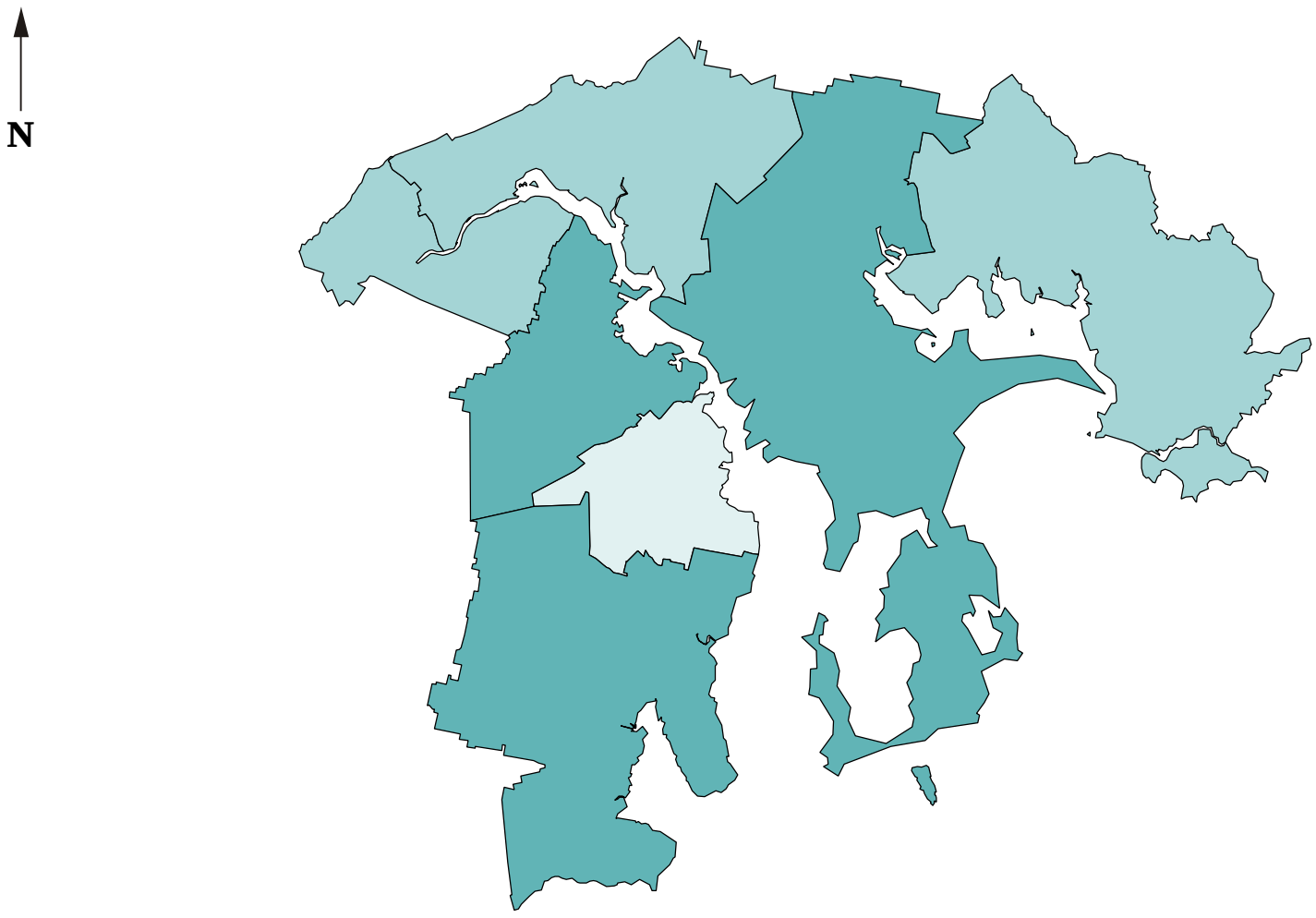
The largest numbers of GP services for males were in Clarence (103,600 services), Glenorchy (99,092 services), Hobart (88,655 services) and Kingborough (53,502 services). The lowest number was recorded in Derwent Valley [Part A] (13,898 GP services).

The distribution of GP services to males does not follow any particular socioeconomic pattern, as seen in other maps. For example, as mentioned at the beginning of this chapter, health services are most used by disadvantaged groups and yet Brighton, which had the highest proportions for the indicators of low socioeconomic status, had just one per cent more GP services for males than were expected from the Tasmanian rates.

There was no consistent evidence in the correlation analysis of an association at the SLA level in **Hobart** between high rates of GP services to males and socioeconomic status.

Map 6.54
General medical practitioner services to males, Hobart, 1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

General medical practitioner services to males, 1996

State/Territory comparison (Australia as the Standard)

Standardised ratios (SRs) for GP services to males were lower in the non-metropolitan areas than in the capital cities, some substantially so. SRs ranged from a high of 83** in Tasmania (the State with the smallest differential between the capital city and *Rest of State* rate) to a very low 31** in the rural and remote areas of the Northern Territory. Readers should be aware of the notes on page 305, under *Data limitations*, as to the gaps in the data which are particularly likely to be contributing to the low rates in the Northern Territory and, to a lesser extent, Western Australia. The information in Chapter 7 as to the numbers and distribution of GPs in these areas is also of relevance.

With the exception of Victoria, SRs declined (relative to the Australian rate) in the non-metropolitan areas of all the States and the Northern Territory. The largest declines were in the Northern Territory, New South Wales and Tasmania,

Table 6.63: General medical practitioner services to males, State/Territory
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1996									
Capital city	125**	113**	106**	107**	101**	90**	80**	87**	113**
Other major urban centres[1]	99**	90**	97**	..	..	..	..	..	97**
Rest of State/Territory	74**	76**	79**	79**	61**	83**	31**	–[2]	74**
Whole of State/Territory	108**	103**	93**	99**	90**	86**	53**	88**	100
1989									
Rest of State/Territory	87**	76**	85**	80**	63**	95**	44**	–[2]	81**

[1]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[2]Data unreliable: 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)

Male residents living in the non-metropolitan areas of Tasmania had four per cent fewer services from GPs in 1996 than expected from the State rates, an SR of 96**; these relatively low rates of use are in line with the lower levels of access to GPs in non-metropolitan areas (see Chapter 7 for details of the distribution of GPs). The total of 546,191 services represented a slight increase (1.1 per cent) on the number of GP services for males in 1989 (540,305 services).

The range of ratios for this variable for non-metropolitan Tasmanian SLAs was greater than that in **Hobart** but, as **Map 6.55** shows, the majority of SLAs had ratios in the middle three ranges mapped, between 85 and 114.

The highest ratios were recorded in George Town [Part A] (with an SR of 120**), in the north, and Sorell [Part B] (115**), in the south east, where males used 20 per cent and 15 per cent more GP services respectively than were expected from the Tasmanian rates.

Significantly elevated ratios were recorded in a further eight SLAs. West Coast (with an SR of 111**) had the highest ratio in this group, with 11 per cent more GP services used by males than were expected from the State rates. In the north of the state, Meander Valley [Part A] (with an SR of 108**), Meander Valley [Part B] (106**), West Tamar [Part A] (103**) and Devonport (102**) were also in this group, as were Break O Day (105**) and Southern Midlands (104**) in the east and Huon Valley (103**) in the south.

Apart from Tasman (with an SR of 82**) and Kingborough [Part B] (80**) in the south east, the lowest ratios for this variable were recorded in the north of Tasmania. These were in the SLAs of Launceston [Part C] (with an SR of 82**), Waratah/Wynyard [Part B] (82**), King Island (79**), Circular Head (76**), George Town [Part B] (73**) and Burnie [Part B] (70**). The lowest ratio (an SR of 64**) was recorded in the island group of Flinders, where 36 per cent fewer GP services were used by males than expected from the Tasmanian rates.

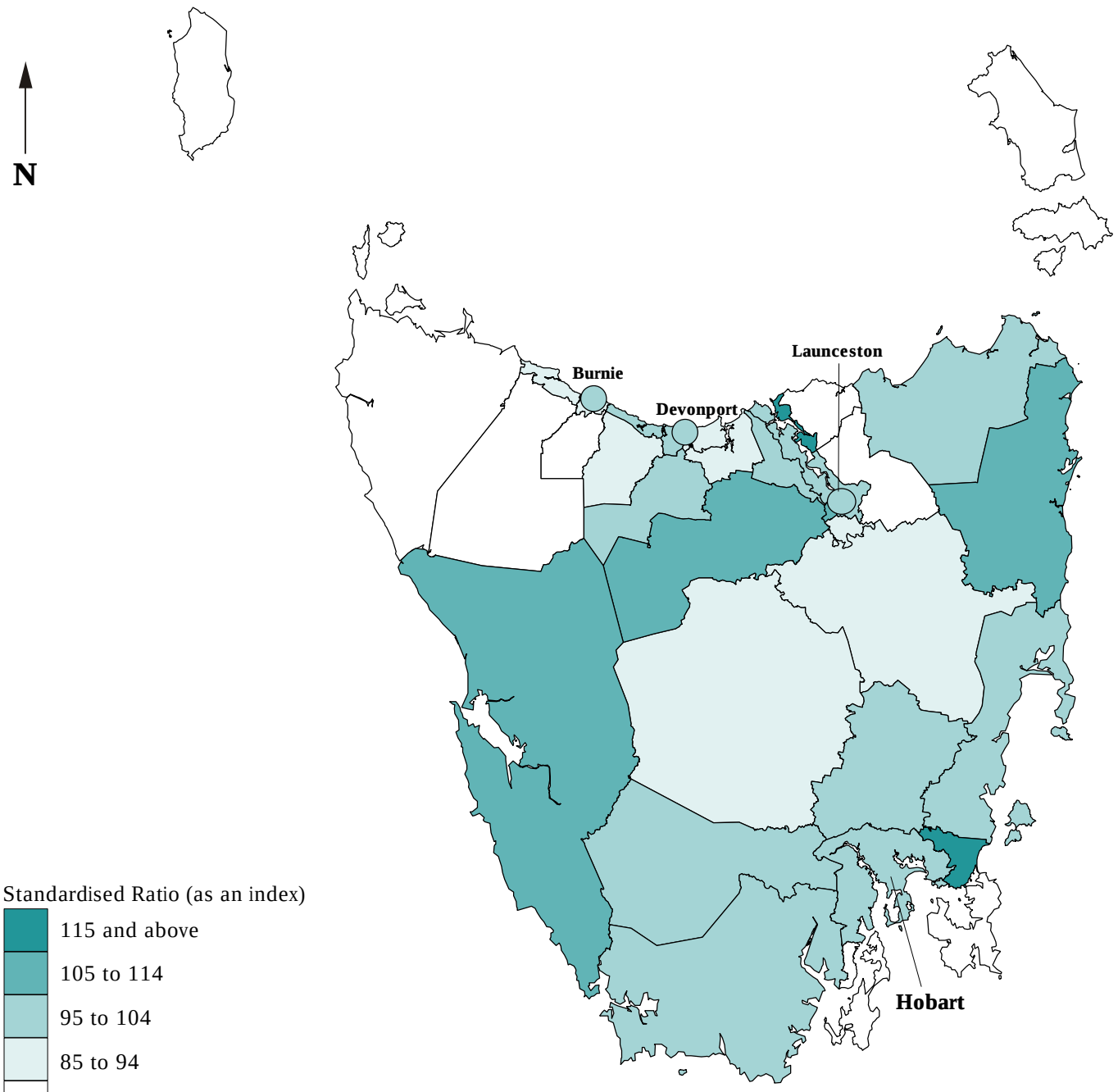
Other SLAs with fewer GP services to males than expected included Launceston (with an SR of 96**), Glamorgan/Spring Bay (95**), Burnie [Part A] (94**), Latrobe [Part A] (94**) and Waratah/Wynyard [Part A] (87**).

The largest numbers of GP services to males were recorded in Launceston (116,138 services), Devonport (49,860 services), West Tamar (37,044 services) and Central Coast [Part A] (34,430 services).

The results of the correlation analysis revealed a weak association at the SLA level with indicators of socioeconomic disadvantage: the strongest of these was an inverse correlation with the variable for managers and administrators, and professionals (-0.48). There were also weak correlations with the variables for single parent families (0.37), unemployment (0.35) and low income families (0.29). These results, together with the weak inverse correlation with the IRSD (-0.28), suggest the existence of an association at the SLA level between high rates of GP services to males and socioeconomic disadvantage. There were also correlations of meaningful significance with the variables for people who reported their health status as fair or poor (0.58) and the Physical Component Summary score (an inverse correlation of –0.61).

Map 6.55
General medical practitioner services to males, Tasmania, 1996

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

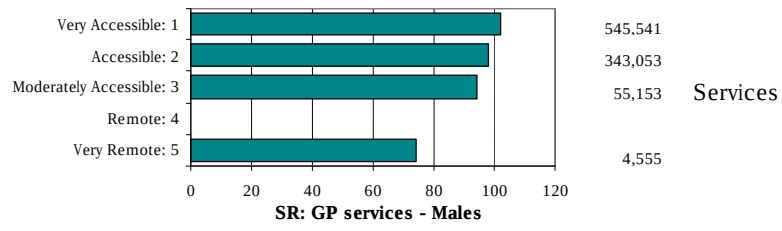


Expected numbers were derived by indirect age standardisation, based on Tasmanian totals

Source: Calculated on data from ABS 1996 Census

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



Standardised ratios for general medical practitioner (GP) services to males decrease steadily across the ARIA categories from an SR of 102 in the Very Accessible areas to an SR of 94 in the Moderately Accessible areas, before dropping to an SR of 74 in the Very Remote areas (26 per cent fewer services than expected). Details of the distribution of GPs (Chapter 7) are of relevance in interpreting these data.

Source: Calculated on ARIA classification, DHAC

General medical practitioner services to females, 1992

Capital city comparison (Australia as the Standard)

As was the case for GP services to males, the level of GP services received by females resident in the capital cities closely mirrored population size. There was, however, a lower differential (of 44.4 per cent) between the highest ratio, of 117** in **Sydney**, and the lowest, of 81** in **Darwin**, than was evident for males (56.2 per cent).

Between 1989 and 1996 SRs declined (relative to the Australian rates) in five of the capital cities, with the largest declines being in **Darwin** and **Hobart**.

Table 6.64: General medical practitioner services to females, capital cities
Standardised admission ratios

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
1996	**117****	**110****	**107****	**105****	**102****	**96****	**81****	**88****	**110****
1989	**120****	**99****	**110****	**103****	**92****	**102****	**88****	**89****	**107****

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

As noted in the introductory text, females use more general medical practitioner (GP) services than males, 6.6 services per females and 4.7 services for males. The highest rates of use by women, and the greatest difference between their rates of use and those of men, were by women in the 20 to 50 year age groups. The age distribution of women receiving these services is shown in **Figure 6.11** on page 306.

Hobart (Tasmania as the Standard)

In 1989, female residents of **Hobart** used 532,937 GPs services. In 1996, this number had increased by 17.5 per cent to 626,330 services, four per cent more than expected from the State rates (an SR of 104**). This was a greater increase than that recorded for males over the same period.

The distribution of ratios for this variable extended over a similar range to that for males and the rank of SLAs was the same for male and female data (**Map 6.56**).

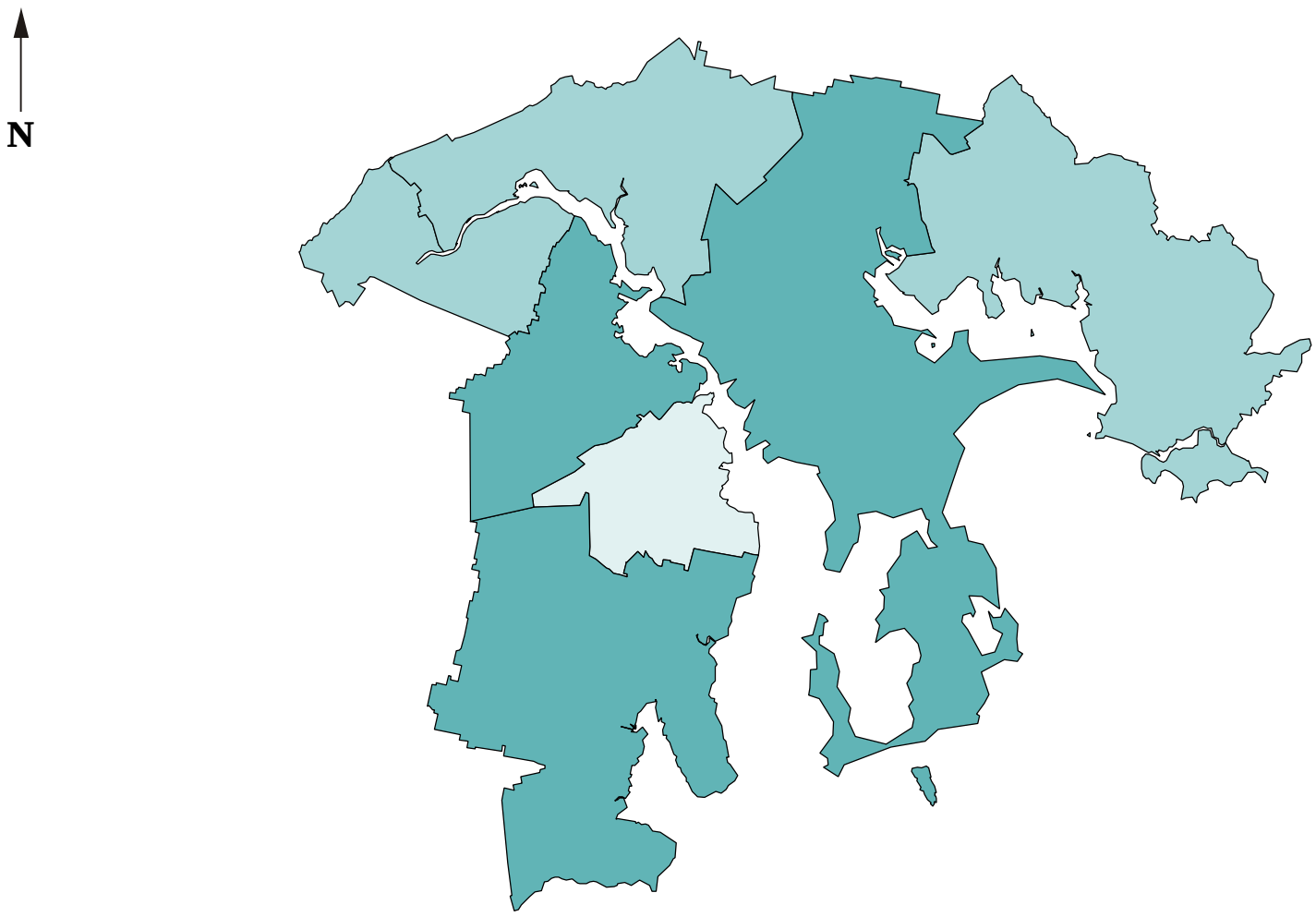
Glenorchy had the highest ratio (an SR of 112**), with 12 per cent more GP services to females than expected from the State rates. Of the remaining six SLAs in **Hobart**, three recorded elevated ratios: Kingborough [Part A] (with an SR of 109**) on the lower western side of the Derwent River, and Clarence (107**) and Brighton (103**) on the east. Sorell [Part A] (99*) and Derwent Valley [Part A] (98*) recorded smaller numbers of services to females than were expected from the Tasmanian rates. Females in the City of Hobart used seven per cent fewer GP services than were expected, a standardised ratio of 93**.

The largest numbers of GP services to females were recorded in Clarence (159,777 services), Glenorchy (158,364 services) and Hobart (142,789 services). Derwent Valley [Part A] had the lowest number of 19,821 services.

The correlation analysis showed there to be a weak association at the SLA level between high rates of GP services to females and socioeconomic disadvantage.

Map 6.56
General medical practitioner services to females, Hobart, 1996

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



Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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

General medical practitioner services to females, 1992

State/Territory comparison (Australia as the Standard)

As for males, standardised ratios (SRs) for GP services for females were lower in the *Rest of State/Territory* areas than in the capital cities for all the States and the Northern Territory. SRs were, however, generally higher than those for males. Again, SRs ranged from the highest in Tasmania (89**) to the lowest in the Northern Territory (33**). The data limitations for these rural and remote areas should borne in mind when using this data (see page 305). The information in Chapter 7 as to the numbers and distribution of GPs in these areas is also of relevance.

There was less movement in the SRs between 1989 and 1996 than was evident for GP services to males. The largest declines in GP service use were in the ratios for Queensland and the Northern Territory.

Table 6.65: General medical practitioner services to females, State/Territory
Standardised admission ratios

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1996									
Capital city	117**	110**	107**	105**	102**	96**	81**	88**	110**
Other major urban centres[1]	98**	92**	97**	..	..	..	..	..	97**
Rest of State/Territory	78**	81**	82**	82**	70**	89**	33**	–[2]	79**
Whole of State/Territory	105**	102**	95**	99**	94**	93**	55**	89**	100
1989									
Rest of State/Territory	88**	79**	100	81**	70**	95**	46**	–[2]	87**

[1]Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld)
[2]Data unreliable: 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)

As for male residents of the non-metropolitan areas of Tasmania, females had fewer services from GPs in 1996 than expected from the State rates (three per cent fewer, an SR of 97**). These low rates of use are in line with the lower levels of access to GPs in non-metropolitan areas (see Chapter 7 for details of the distribution of GPs). The total of 808,089 GP services to females in 1996 represented an increase of 11.1 per cent on the number of 727,674 services in 1989. As in **Hobart**, this was a greater rate of increase than that for males over the same period of time.

Although the standardised ratios for use of GP services by females in the non-metropolitan areas extended over a wider range than for **Hobart** (**Map 6.57**), the majority of ratios were within 15 per cent of the level expected from the State rates.

The most highly elevated ratio, an SR of 132**, was recorded in Sorell [Part B] in the south east, where there were 32 per cent more GP services to females than were expected from the Tasmanian rates. Other ratios elevated by more than 15 per cent were recorded in George Town [Part A] (with an SR of 129**) and Meander Valley [Part A] (117**) along the Tamar River; and in West Coast (117**).

SLAs with elevated ratios of statistical significance included Derwent Valley [Part B] (with an SR of 114**), Central Highlands (112**), Southern Midlands (110**), Meander Valley [Part B] (108**), Break O Day (107**), Central Coast [Part B] (106 **), Huon Valley (105**), West Tamar [Part A] (103**) and Devonport (101*).

All SLAs with ratios between 85 and 100 were located in the north of Tasmania. Latrobe [Part A] (with an SR of 96**), Kentish (95**), Northern Midlands [Part B] (95**) and Launceston (93**) had the highest ratios in this group, while Northern Midlands [Part A] (88**) and Dorset (89**) had the lowest ratios. Females in Burnie [Part A] (90**) recorded 10 per cent fewer GP services than were expected from the Tasmanian rates.

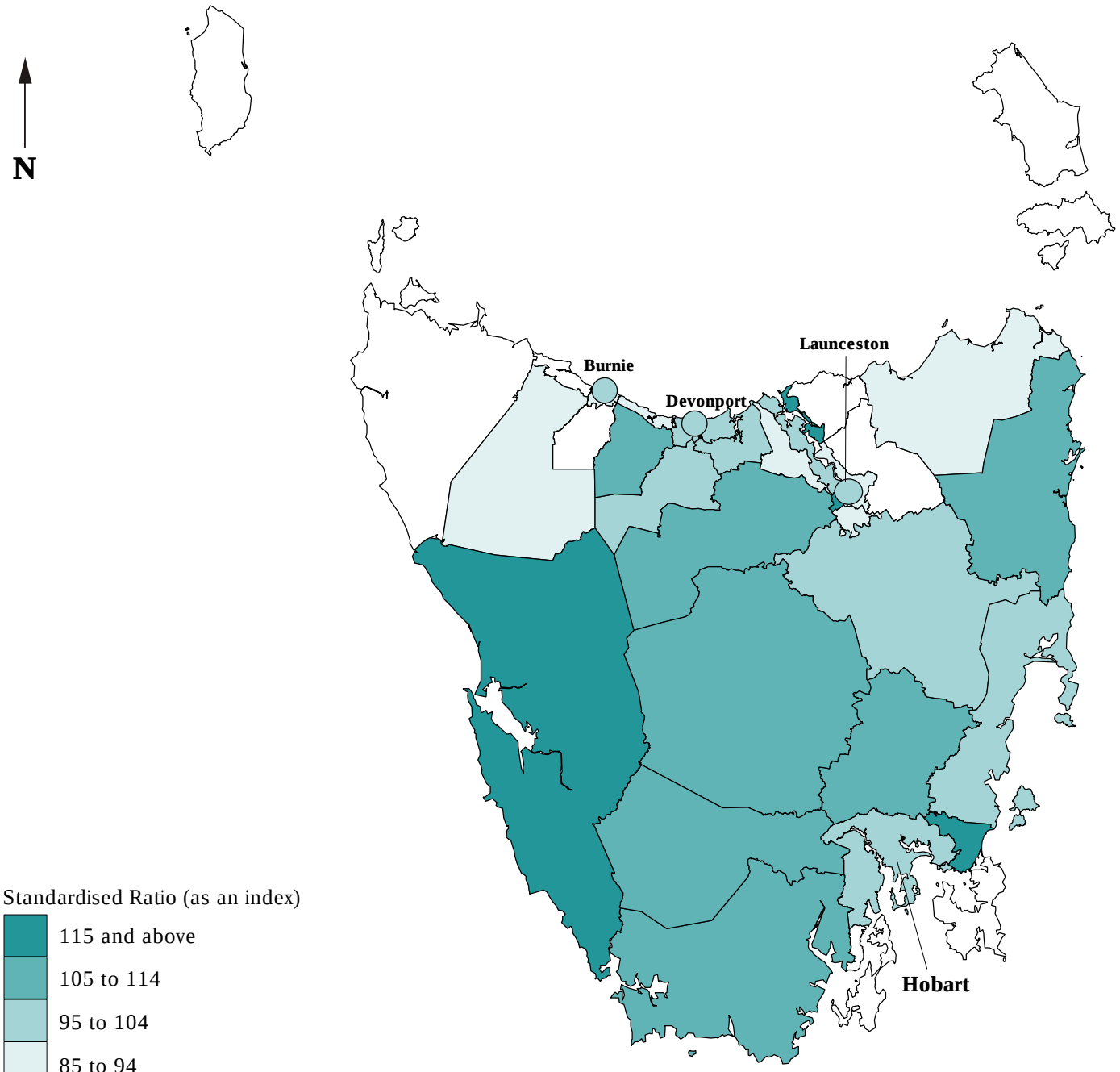
The lowest ratio (an SR of 72**) was recorded in Flinders, where there were 28 per cent fewer GP services to females than were expected from the State rates. Other low ratios were recorded in Burnie [Part B] (an SR of 73**), Waratah/Wynyard [Part A] (78**), George Town [Part B] (81**), King Island (82**), Circular Head (82**) and Launceston [Part C] (84**) in the north; and Tasman (75**) and Kingborough [Part B] (76**) in the south.

The largest numbers of GP services to females in non-metropolitan Tasmania were recorded in Launceston (183,822 services), Devonport (78,010), West Tamar [Part A] (54,025) and Central Coast [Part A] (51,090).

The correlation analysis showed there to be a weak association at the SLA level between high rates of GP services to females and socioeconomic disadvantage. There were correlations of meaningful significance with the variables for people reporting their health status as fair or poor (0.57) and The Physical Component Summary score (an inverse correlation of –0.61).

Map 6.57
General medical practitioner services to females, Tasmania, 1996

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



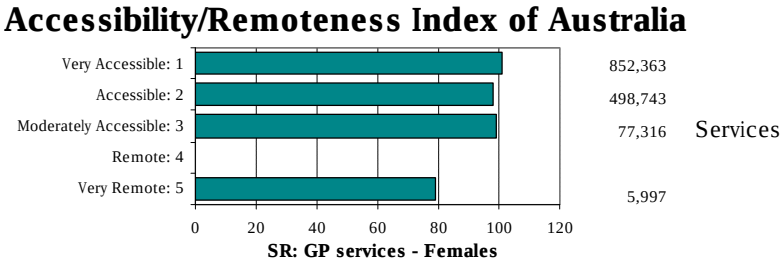
Standardised Ratio (as an index)

- 115 and above
- 105 to 114
- 95 to 104
- 85 to 94
- below 85

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



Standardised ratios for general medical practitioner (GP) services to females decrease steadily across the ARIA categories from an SR of 101 in the Very Accessible areas to an SR of 98 in the Accessible areas, before dropping to an SR of 79 in the Very Remote areas (26 per cent fewer services than expected). Details of the distribution of GPs (Chapter 7) are of relevance in interpreting these data.

Source: Calculated on ARIA classification, DHAC

Immunisation status of children at 12 months of age, 1998

Capital city comparison

Immunisation data are collected by the Health Insurance Commission which maintains the Australian Childhood Immunisation Register (ACIR). The ACIR, a project funded by the Commonwealth Government through the Commonwealth Department of Health and Aged Care, provides comprehensive information on the immunisation status of children under seven years of age in Australia. These data are used to provide a measure of coverage at a National, State/Territory and local level and to provide an effective management tool for monitoring immunisation coverage and service delivery. The register was commenced in 1996 and by mid 1998 had sufficient coverage of the immunisation status of children at twelve months of age to be used for this analysis. Hull et al. (1999) reported that 80.1 per cent of vaccinations recorded in the ACIR for New South Wales were provided by GPs, 8.4 per cent by municipal councils and 11.5 per cent by other providers (eg. Government operated community health centres, Aboriginal health services and Royal Flying Doctor services).

The data shown here are the proportion of children born between 1 October 1996 and 30 September 1997 who were registered with Medicare and who were shown on the ACIR at 31 December 1998 as being fully immunised. Children who were fully immunised at 12 months of age were those who had been immunised for three doses of DTP (diphtheria, tetanus and pertussis), three doses of OPV (oral polio vaccine) and three doses of Hib (*Haemophilus influenza* type b). The calculations shown in the tables and maps were made by the National Centre for Immunisation Research and Surveillance (NCIRS).

Immunisation rates for the capital cities were all close to the *All capitals* average of 82.5 per cent, ranging from 79.7 per cent in **Sydney** to 86.9 per cent in **Canberra**.

Table 6.66: Proportion of children who were fully immunised at 12 months of age, capital cities, 1998

Per cent

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra[1]	All capitals
79.7	84.0	85.4	84.5	81.2	84.0	80.0	86.9	82.5

[1]Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

Hobart

In 1998, there were 2,450 children aged 12 months who were fully immunised in **Hobart**, 84.0 per cent of the children of this age.

The proportions of fully immunised children at the SLA level in **Hobart** were all within a relatively narrow range, from 79 to 89 per cent (**Map 6.58**).

The highest proportions of fully immunised children at 12 months were recorded in Sorell [Part A] (88.2 per cent of children aged 12 months), Kingborough [Part A] (87.8 per cent) and the City of Hobart (85.2 per cent). The latter two SLAs generally recorded the highest proportions for indicators of high socioeconomic status, including high income families and high status occupations such as managers and professionals, and administrators.

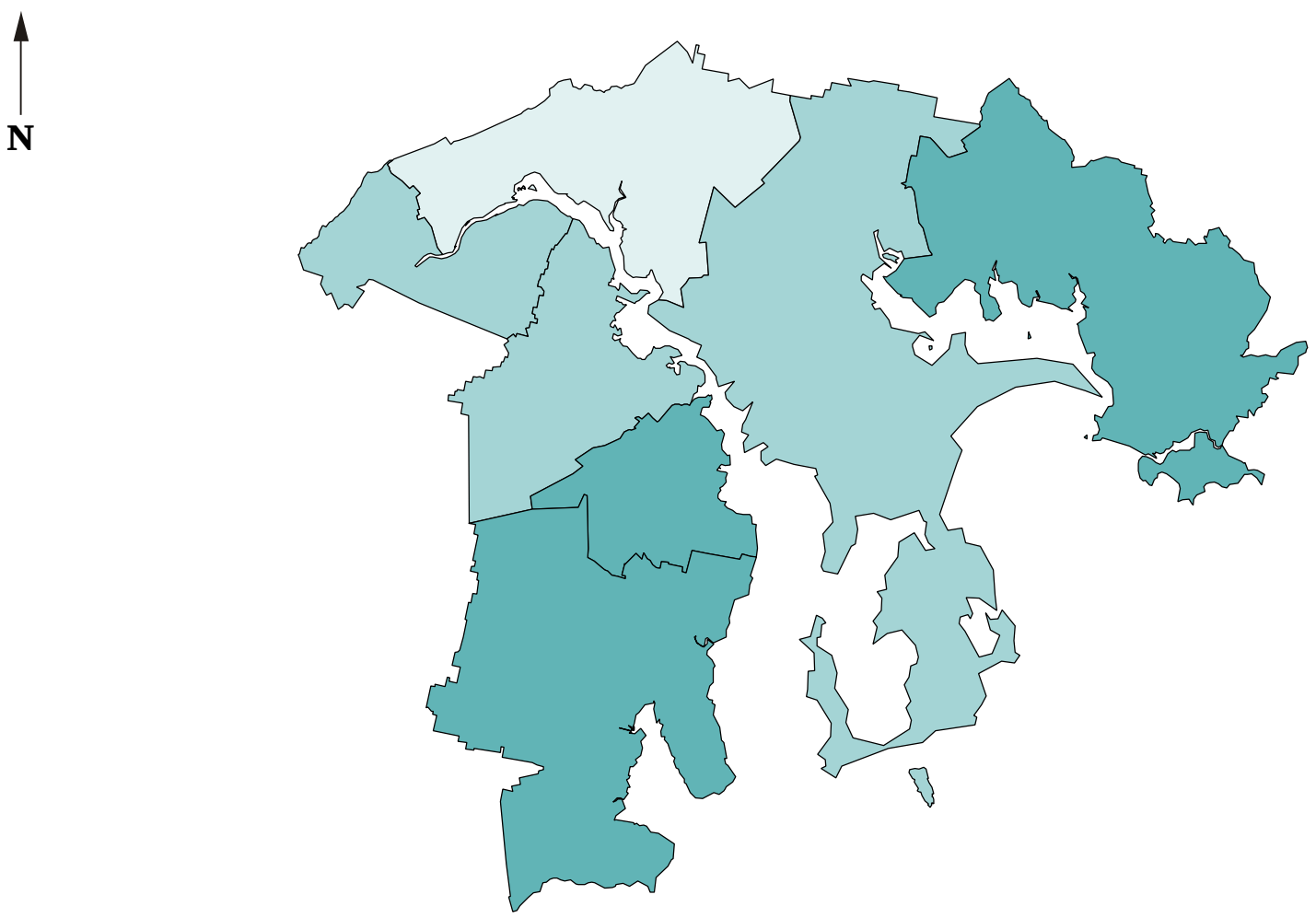
Glenorchy (84.0 per cent), Derwent Valley [Part A] (83.4 per cent) and Clarence (82.2 per cent) had the next highest proportions.

The lowest rate of immunisation was in Brighton, with 79.0 per cent of children aged 12 months being fully immunised. This SLA has consistently had the highest proportions for indicators of low socioeconomic status in **Hobart**, including single parent families, unemployed people, low income families and public rental housing. Brighton also had the highest proportion of 0 to 4 year old children in **Hobart**.

The largest numbers of fully immunised children were in Clarence (612 children), Glenorchy (603 children) and Hobart (436 children). Lower numbers were recorded in Kingborough [Part A] (313 children), Brighton (244 children), Sorell [Part A] (153 children) and Derwent Valley [Part A] (90 children).

There was a correlation of meaningful significance with the variable for females labour force participation (0.69) and weaker correlations with managers and administrators, and professionals (0.44) and high income families (0.33). Inverse correlations of substantial significance were recorded with the variables for housing authority rented dwellings (-0.88), single parent families (-0.78) and the Indigenous population (-0.73), and of meaningful significance with unemployed people (-0.69), low income families (-0.64), unskilled and semi-skilled workers (-0.54) and early school leavers (-0.53). These results, together with the correlation of substantial significance with the IRSD (0.72), indicate the existence of an association at the SLA level between high rates of immunisation among children aged 12 months and high socioeconomic status.

Map 6.58
Immunisation status of children at 12 months of age, Hobart, 1998
as a percentage of all children at 12 months of age in each Statistical Local Area



Per cent children fully immunised

- *90.0% or more*
- *85.0 to 89.9%*
- *80.0 to 84.9%*
- *75.0 to 79.9%*
- *fewer than 75.0%*

Source: Calculated on data from ABS 1996 Census

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Immunisation status of children at 12 months of age, 1998

State/Territory comparison

Details of the information described below are on the previous text page. Immunisation rates were higher in the *Rest of State/Territory* areas than in the capital cities in a number of States, with the highest rates in Queensland and Victoria. As can be seen from the graph of the ARIA index (opposite page), these higher rates do not apply uniformly across the *Rest of State/Territory* areas. With the exception of the Northern Territory, immunisation rates for the non-metropolitan areas of Australia were all close to the *Rest of State/Territory* average of 83.6 per cent. The low rate reported for the Northern Territory reflects a number of factors, including difficulties in transmitting accurate data on levels of immunisation in the Territory: it is unclear whether the real rate is lower than in other parts of Australia.

Table 6.67: Proportion of children who were fully immunised at 12 months of age, capital cities, 1998

Per cent

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total[1]
Capital city	79.7	84.0	85.4	84.5	81.2	84.0	80.0	86.9[1]	82.5
Other major urban centres[2]	86.0	86.9	84.2	..	..	..	..	..	85.4
Rest of State/Territory	81.8	86.0	86.1	83.6	80.6	84.5	62.8	–[3]	83.6
Whole of State/Territory	81.0	84.6	85.5	84.2	81.0	84.3	70.6	86.8	83.0

[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

In 1989, there were 3,783 children aged 12 months in the non-metropolitan areas of Tasmania who had been fully immunised, 84.5 per cent of the children of this age.

The SLAs with the highest proportions of fully immunised children aged 12 months were located in the north and north-west of the State (**Map 6.59**). A band of SLAs with some of the lowest proportions stretched from the western coast eastwards.

The highest proportion of fully immunised children, 93.0 per cent of children aged 12 months, was in Circular Head. Proportions of above 90.0 per cent were also recorded in nearby Central Coast [Part A] and Central Coast [Part B] (both with 92.3 per cent), Waratah/Wynyard [Part B, 90.9 per cent and Part A, 90.8 per cent], Latrobe [Part B] (90.4 per cent) and Burnie [Part A] (90.2 per cent).

The next highest rates, all in the north of the State, were in Latrobe [Part A] (89.8 per cent of children aged 12 months), Meander Valley [Part A] (88.7 per cent), Dorset (88.6 per cent), Northern Midlands [Part A] (88.5 per cent), West Tamar [Part B] (88.2 per cent), Devonport (86.5 per cent) and Burnie [Part B] (85.7 per cent).

Of the eleven SLAs with proportions in the middle range mapped, four formed a group extending from Derwent Valley [Part B] (83.8 per cent of children aged 12 months) and Central Highlands (81.0 per cent), through Southern Midlands (83.5 per cent) to Glamorgan/Spring Bay on the eastern coast (85.0 per cent). The remaining SLAs with values in this range were again in the northern reaches of the State. These included West Tamar [Part A] (83.9 per cent), Launceston (83.2 per cent), George Town [Part A] (82.7 per cent) and Flinders (81.8 per cent).

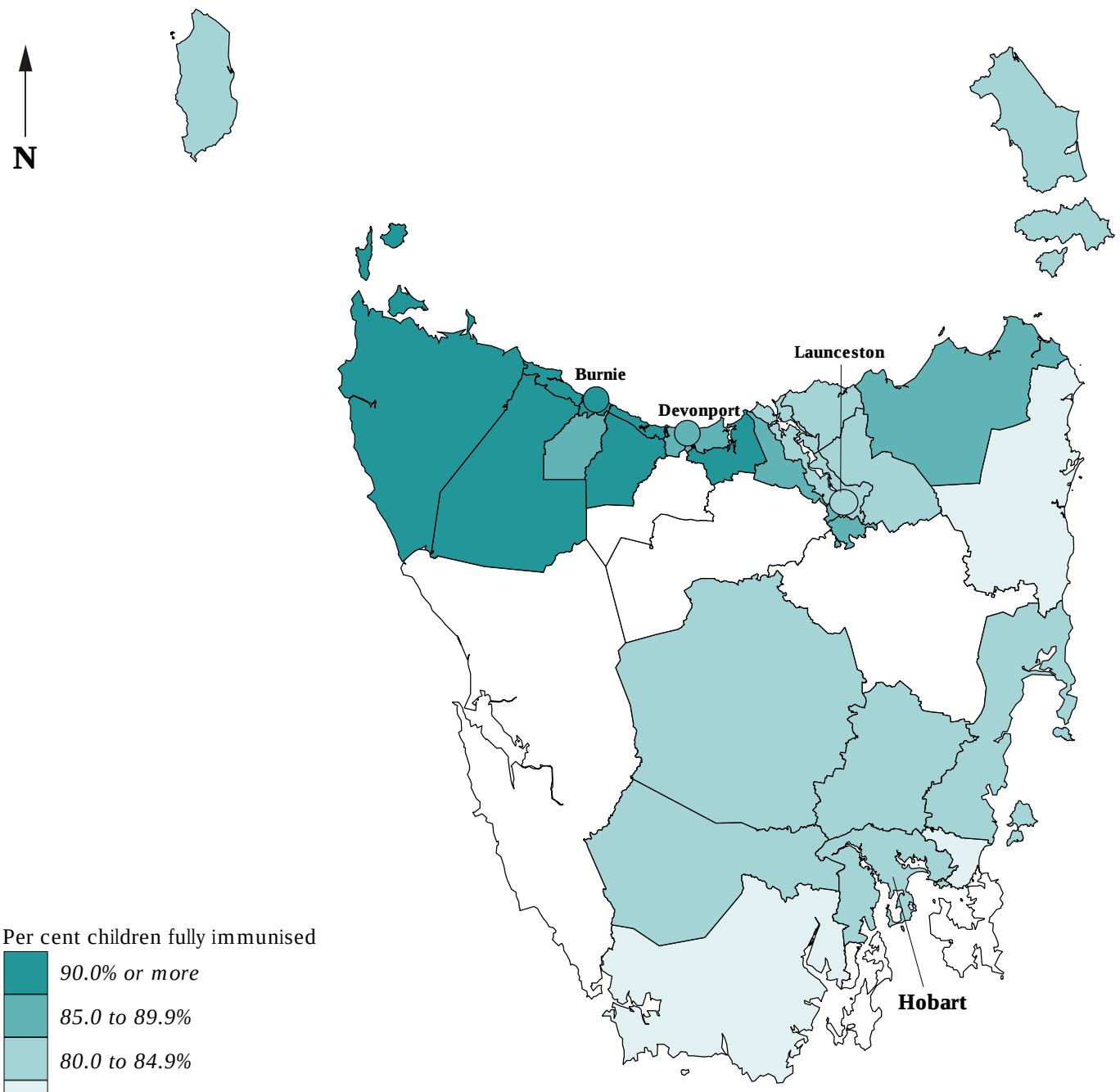
The lowest rates of immunisation among children aged 12 months were found in two locations. Along the south east coast, the SLA of Tasman had the lowest proportion (63.2 per cent) but representing a total of just 19 children, and Kingborough [Part B] recorded 72.4 per cent.

As mentioned above, a band of low rates extended from West Coast (68.8 per cent) through Kentish (73.8 per cent) and Meander Valley [Part B] (72.0 per cent) to Northern Midlands [Part B] (74.6 per cent).

The largest numbers of fully immunised children aged 12 months outside of **Hobart** were recorded in the towns of Launceston (779 children), Devonport (342 children), and Burnie [Part A] (255 children). West Tamar [Part A] (248 children), Central Coast [Part A] (220 children) and Huon Valley (202 children) were the only other SLAs with over 200 children in this category.

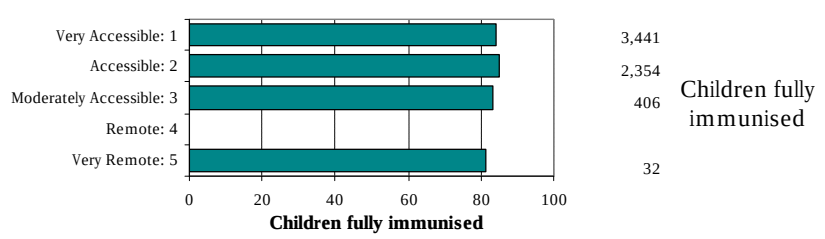
There was a weak association evident in the correlation analysis at the SLA level with indicators of socioeconomic advantage: the strongest of these were inverse correlations with the variables for low income families (-0.47) and unemployed people (-0.27). Weak positive correlations were recorded with the variables for high income families (0.28) and female labour force participation (0.21). These results, together with the weak positive correlation with the IRSD (0.25), suggest the existence of an association at the SLA level between high rates of immunisation among children aged 12 months and high socioeconomic status.

Map 6.59
Immunisation status of children at 12 months of age, Tasmania, 1998
as a percentage of all children at 12 months of age in each Statistical Local Area



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

Accessibility/Remoteness Index of Australia



There is little variation in recorded immunisation rates across the ARIA categories, with between 83.3 per cent (in the Moderately Accessible areas) and 84.9 per cent (in the Accessible areas) of 12 month old children being fully immunised, and a slightly lower proportion of 81.3 per cent in the Very Remote areas.

Source: Calculated on ARIA classification, DHAC

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