7 Availability of selected health services

Introduction

The location of services and facilities in relation to the distribution of the population is an important indicator of accessibility. Unfortunately the data currently available as to the location of health, welfare and other services and facilities are limited. This is true even for data at the SLA level: the range of data by actual address location that can be mapped precisely are even more limited.

Greater interest is, however, being shown in establishing databases of services by exact location. Such databases can assist in developing a better understanding of the patterns of provision, access to and use of services and inform policy development and strategic planning processes for the location and delivery of health services. These initiatives are being aided by the use of Geographical Information Systems (GIS) techniques[1].

In this chapter data are mapped at the SLA level for general medical practitioners (GPs), hospital beds (public acute and private hospitals) and residential aged care facilities (nursing home places and hostel places). The data for GPs are for the 1996/97 financial year and for public acute hospital beds they are for 1995/96; the remaining data are at 30 June 1997.

Data mapped

Population per GP

The spatial distribution of GPs has been illustrated by mapping the population per GP in each area.

Data are of the number of full-time equivalent (FTE) GPs[2] per practice site. Data were available for postcode areas and were converted to SLA.

The rate of population per GP was calculated for each SLA and is mapped over five ranges. In many non-metropolitan SLAs the rate was very high, because the denominator, the FTE number of GPs, was very small. An examination of the distribution of rates across all non-metropolitan areas in Australia revealed that a sensible cut-off would be where the rate of population per GP exceeded 10,000 people per GP. Most of the SLAs with rates of this size had fewer than 0.3 FTE GPs. On the maps, these areas are shown as having 'No GP' (or fewer than 10,000 people per GP) even though they may have a GP practising for one session per week. The other SLAs are mapped across the remaining four ranges.

The GPs included in this analysis exclude GPs working in salaried practice who do not submit accounts to Medicare. Examples include GPs working for the Royal Flying Doctor Service and the Aboriginal Medical Service, those working in specialist services such as low vision clinics, as well as in a small number of community health centres (see comments on page 297 in relation to GP services not included in the data mapped). If, however, these GPs meet the definition quoted above for work performed in another practice, they will be included as practising from that location.

Users should be cautious not to place too heavy an emphasis on the population per GP in any one SLA, as the location of the principal practice in an SLA may be close to the population of a neighbouring SLA and provide a significant number of services to people in this neighbouring SLA. This is less of a problem for the larger areas (SSDs) mapped in the Australian atlas.

It is not possible to directly compare the data shown here with that in the first edition of the atlas because of the use in this edition of the more accurate FTE measure. In the first edition GPs were defined as the number of medical practitioners who performed (during 1990/91) at least 1,000 GP services (based on selected items in the Commonwealth Medical Benefits Schedule) for which Medicare benefits were paid, and who received more than 50 per cent of fee-charged income from those items (ie. they were charging patients for services appropriate for a GP for more than 50 per cent of the income they derived from Medicare). This was a relatively small number of services and, as such allowed for the inclusion, in the number of GPs, of many (but not all) of the medical practitioners who were practising part-time in medicine.

Despite this change in definition, the data for the earlier period have been shown below to allow users to examine variations in the rates between the States and Territories at each reference date.

Hospital beds

The number of beds in public acute hospitals and private hospitals has been mapped per 1,000 population of the area in which the hospital is located. The public hospital data were available at 30 June 1996 and the private hospital data at 30 June 1997.

Questions remain as to the accuracy of the data, even at this broad level of publication, as it is has not been used in this way before and has therefore not been subject to scrutiny. Although the public hospitals are referred to as 'acute' hospitals, they treat and care for patients with long term care needs, including for rehabilitation (leading to a return to life outside of a hospital or nursing home) and those who are unlikely to ever leave such care, whether in a hospital or nursing home (see below under *Residential aged care facilities*).

The data for some States is also likely to be more difficult to obtain in the future as the organisational arrangements for the management and delivery of health services changes, with hospital data being available only for areas or networks, and not by each service location.

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[1] GIS is an organised collection of computer hardware and software designed to efficiently capture, store, update, manipulate, analyse and display all forms of geographically referenced information

[2] In computing full-time equivalent GPs, use was made of a threshold of $71,725 in Schedule fee income in 1995-96. Practitioners with a Schedule fee income above the average, were given a fraction of '1'. All other practitioners were given a proportion of 1, having regard to the Schedule fee income for the practitioner concerned relative to the threshold income of $71,725

Some data are already supplied at the establishment level, even when there are two or more separately located campuses operated by the establishment. In these cases the campus location without bed numbers was removed from the file before mapping.

Residential aged care facilities

Nursing home places and hostel places are mapped per 1,000 population aged 70 years and over, in line with the Commonwealth planning targets for residential care places of 90 places per 1,000 population aged 70 years and over. This target is comprised of 40 nursing home places and 50 hostel places per 1,000 population aged 70 years and over. Data for community aged care packages have not been mapped as these packages are allocated on a regional basis that does fit well with the areas mapped.

In many areas (in particular areas away from the capital cities and other major regional centres) of Australia where there are few (or no) nursing home facilities, people requiring long term intensive care are often cared for in public hospitals (where they are classified as 'long stay nursing home type patients'). Overall, 1.8 per cent of patient days in public acute hospitals in Western Australia were for nursing home type patients, 6.4 per cent of bed days in the non-metropolitan areas, and 0.3 per cent in **Perth** (**Table 7.1**). New South Wales had 12.6 per cent of its bed days used by nursing home type patients, with 9.7 per cent in South Australia and 9.5 per cent in Tasmania. South Australia had the highest proportion in the non-metropolitan areas, with 30.8 per cent of bed days used by nursing home type patients; New South Wales had the second highest proportion, with 25.9 per cent.

As the number of beds used by these patients is not available, their details have not been included in the maps.

Table 7.1: Patient days for nursing home type patients in public acute hospitals, by area, States and Territories, 1997/98

Location of hospital	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
					Number				
Metropolitan	270,289	32,545	32,166	2,675	3,737	948	2,081	1,171	345,612
Non-metropolitan	442,350	41,602	136,682	21,380	128,382	30,746	..	388	801,530
Total	712,639	74,147	168,848	24,055	132,119	31,694	2,081	1,559	1,147,142
					Per cent: Nursing home type patient bed days as a proportion of all bed days				
Metropolitan	6.9	1.2	2.1	0.3	0.4	0.6	0.8	1.1	3.3
Non-metropolitan	25.9	4.3	13.7	6.4	30.8	17.0	..	0.5	17.1
Total	12.6	2.0	6.6	1.8	9.7	9.5	0.8	0.8	7.5

Source: AIHW, *unpublished data*

The tables and maps of nursing home and hostel places show each of these variables separately. To assist readers in assessing the provision of residential care places in relation to the Commonwealth planning targets (90 places per 1,000 population aged 70 years and over) they have been combined in **Table 7.2**.

In all capital cities, excluding **Darwin** (72 places per 1,000 population), the number of residential care places per 1,000 population was above the Commonwealth planning target. There were more places per 1,000 population in the capital cities than in the *Rest of State /Territory* areas of Australia in all but the Northern Territory and Victoria (where there were fewer).

Table 7.2: Nursing home and hostel places per 1,000 population aged 70 years and over, capital cities, 1997

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Capital city	101	91	103	105	102	99	72	96	99
Other major urban centres [2]	84	96	74	..	..	..	..	..	82
Rest of State/Territory	81	94	88	74	75	87	72	–[3]	85
Whole of State/Territory	93	92	92	97	96	92	72	96	93

[1]Includes Queanbeyan (C)
[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

Gaps and deficiencies in the data

In addition to the limitations noted above in the *Introduction* as to the small range of data available, the limitations of the choropleth mapping technique should also be kept in mind when reading this chapter.

For example, users should be cautious not to place too much emphasis on the population per GP in any one SLA, as the location of the practice in an SLA may be close to the population of a neighbouring SLA and provide a significant number of services to people in that neighbouring SLA. Other factors also impact on accessibility, including the availability of private and public transport. However, where a contiguous group of SLAs all have high populations per GP (high relative to the State or Territory average), it is likely that the level of provision is low. Similarly, where regional groupings of SLAs together have relatively low nursing home bed rates, provision of these care places is clearly low (although readers should be aware of the note above as to the use, in some instances, of hospital beds for long term care).

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Population per general medical practitioner, 1996/97

Capital city comparison

Details of general medical practitioners (GPs) included in the following analysis, and the way in which the number of GPs has been calculated, are on page 313.

As can be seen from **Table 7.3**, the population per GP was highest in **Darwin** (1,642 people per GP) and **Canberra** (1,467 people per GP), (indicating that there were fewer GPs per head of population practising in these cities) and lowest in **Sydney** (1,118 people per GP) and **Adelaide** (1,145 people per GP).

Although calculated in a different way (see notes on page 313 under *Data mapped*), the 1990/91 figures can be used to examine the differences of rates between the capital cities. The earlier rates show that levels of provision of GPS in **Hobart**, **Brisbane** and **Darwin** have decreased between the periods shown, while levels of provision in Melbourne have moved closer to the *All capitals* average (**Table 7.3**).

Table 7.3: Population per general medical practitioner, capital cities

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra [1]	All capitals
1996/97	1,118	1,181	1,182	1,145	1,259	1,167	1,642	1,467	1,169
1990/91	860	921	834	827	1,015	820	900	1,042	886

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

Perth

In 1996/97, there were 981 GPs practising in **Perth**, of whom almost three quarters (74.0 per cent) were males. On average, there was one GP for every 1,259 people, with 1,701 people per male GP and 4,844 people per female GP. For each female GP there were 2.8 male GPs. Only in Claremont did female GPs (three) outnumber male GPs (two), while in Serpentine-Jarrahdale there were equal numbers. The lowest rates of male GPs to female GPs were in East Fremantle and Wanneroo: Central Coastal (both with 1.5 male GPs per female GP), Melville (1.9) and Nedlands and Fremantle Central (both with 2.2).

In general, the highest rates of population per GP (ie. the lowest levels of provisions) were recorded in the outer and middle areas, and the lowest rates closer to the city centre (**Map 7.1**).

The highest rates of population per GP were recorded in Serpentine-Jarrahdale, 3,693 people per GP and 3 GPs. In Wanneroo: South-East there were 1,913 people per GP and 16 GPs, while there were more than 1,600 people per GP in Wanneroo: North-West (1,814 and 9 GPs), Swan (1,761 and 39) and Cockburn (1,758 and 32).

Eight SLAs recorded between 1,400 and 1,599 people per GP including Claremont (1,600 people per GP and 5 GPs), Kwinana (1,583 and 12), Wanneroo: North-East (1,556 and 9), Canning (1,486 and 46) and Armadale (1,481 and 33).

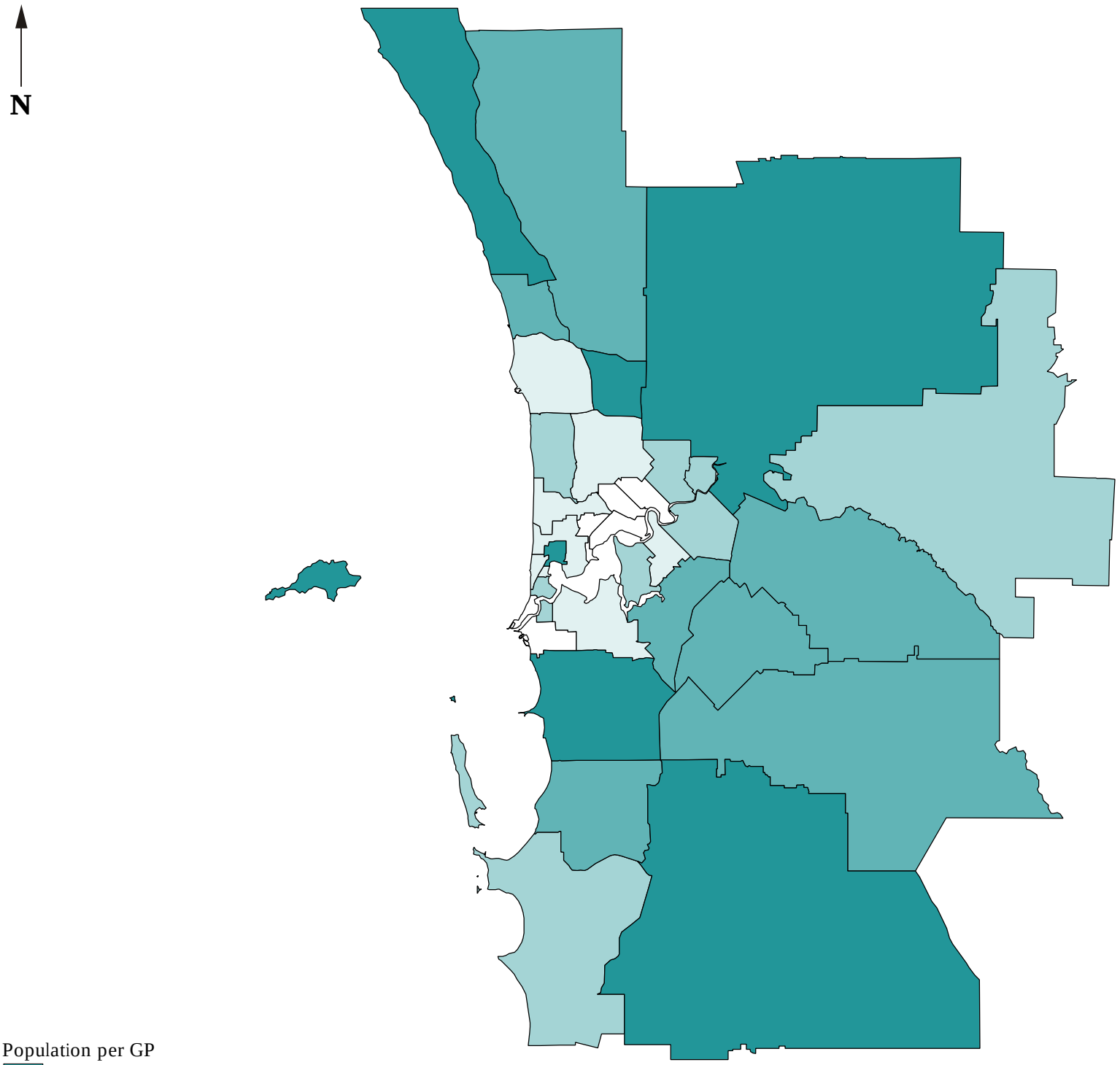
At the other end of the scale, SLAs with fewer than 1,000 people per GP were generally located in the older, more established inner areas of **Perth**. The lowest rates of population per GP were recorded in the City of Perth (386 people per GP and 22 GPs), while slightly higher rates were calculated for Vincent (588 and 42), Fremantle (745 and 32), Subiaco (770 and 19) and Stirling: South-Eastern (959 and 26). There were nine SLAs with between 1,000 and 1,199 people per GP, with the lowest numbers in this range recorded in Nedlands (1,94 people per GP and 19 GPs) and Peppermint Grove (1,115 and 1).

The largest numbers of GPs were located in Wanneroo: South-West (87 GPs), Stirling: Central (81) and Melville (76), with lesser numbers in Gosnells (51), Canning (46), Stirling: Coastal (45), Rockingham (43), Vincent (42) and Swan (39).

There was a weak association evident in the correlation analysis at the SLA level with indicators of socioeconomic disadvantage: the strongest of these were with the variables for early school leavers (0.45) and unskilled and semi-skilled workers (0.43). There were meaningful inverse correlations with the variables for people aged 65 years and over (-0.50) and dwellings without a motor vehicle (-0.53). The inverse correlation with the IRSD (-0.20) also suggests a positive association between high rates of population per GP and socioeconomic disadvantage.

Map 7.1
Population per general medical practitioner, Perth, 1996/97

number of people in each Statistical Local Area per general medical practitioner (GP)



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Population per general medical practitioner, 1996/97

State/Territory comparison

The notes on page 313 as to the GPs and GP type services not covered by this data are of particular relevance to the data for the non-metropolitan areas. The population per GP was higher in the non-metropolitan areas of the States and the Northern Territory than in the capital cities, indicating that there were fewer GPs in these areas (**Table 7.4**). The *Rest of State/Territory* figures ranged from 1,464 people per GP in Tasmania to a very high 3,604 people per GP in the Northern Territory. The rate of population to GPs in Western Australia was also well above the *Rest of State/Territory* average, at 1,968 people per GP.

Although calculated in a different way (see notes on page 313 under *Data mapped*), the 1990/91 figures show that New South Wales, South Australia, Tasmania and the Northern Territory had fewer people per GP in the *Rest of State/Territory* areas than the average for these areas (ie. more GPs) whereas in 1996/97 New South Wales had just above the average and the Northern Territory had a considerably higher rate.

Table 7.4: Population per general medical practitioner, State/Territory

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1996/97									
Capital city	1,118	1,181	1,182	1,145	1,259	1,167	1,642	1,467[1]	1,169
Other major urban centres[2]	1,339	1,337	1,188	..	..	..	..	..	1,278
Rest of State/Territory	1,656	1,559	1,616	1,517	1,968	1,464	3,604	–[3]	1,627
Whole of State/Territory	1,250	1,262	1,335	1,225	1,400	1,325	2,356	1,451	1,290
1990/91									
Rest of State/Territory	942	1,196	1,203	1,145	1,374	1,000	1,133	–[3]	1,147

[1]Includes Queanbeyan (C)
[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

Rest of State

There were 1,968 people per GP and 243 GPs in the non-metropolitan areas of Western Australia in 1996/97, considerably more than the rate of 1,259 in **Perth**.

The male/female imbalance in the GP workforce was more pronounced in rural areas than in the city. Male GPs represented 84.8 per cent of the GP population, with 5.6 male doctors for every female doctor. This was equivalent to 2,321 people for every male GP compared with 12,951 for every female GP.

Almost one quarter (23.0 per cent) of SLAs had no GPs. Overall, the highest levels of provision of GP services (fewer people per GP) were in the more populous areas south-west of the State.

Six SLAs, all with fewer than 0.5 full time equivalent (FTE) GPs, recorded more than 10,000 people per GP; Derby-West Kimberly, Shark Bay, Laverton, Cranbrook, Halls Creek and Ngaanyatjarraku.

High rates of population per GP, between 3,000 and 9,999, were recorded in fourteen SLAs. In the more populous south western region were Nannup (with 8,779 people per GP and 0.13 FTE GPs), Brookton (7,523 and 0.12), Capel (5,213 and 1), Williams (5,075 and 0.20) and Perenjori (4,733 and 0.14). Further north, SLAs with rates in this range included Exmouth (9,872 people per GP and 0.39 FTE GPs), Wyndham–East Kimberley (8,344 and 1), Upper Gascoyne (5,174 and 0.06), Carnarvon (4,765 and 2), Ashburton (3,893 and 2) and East Pilbara (3,876 and 2).

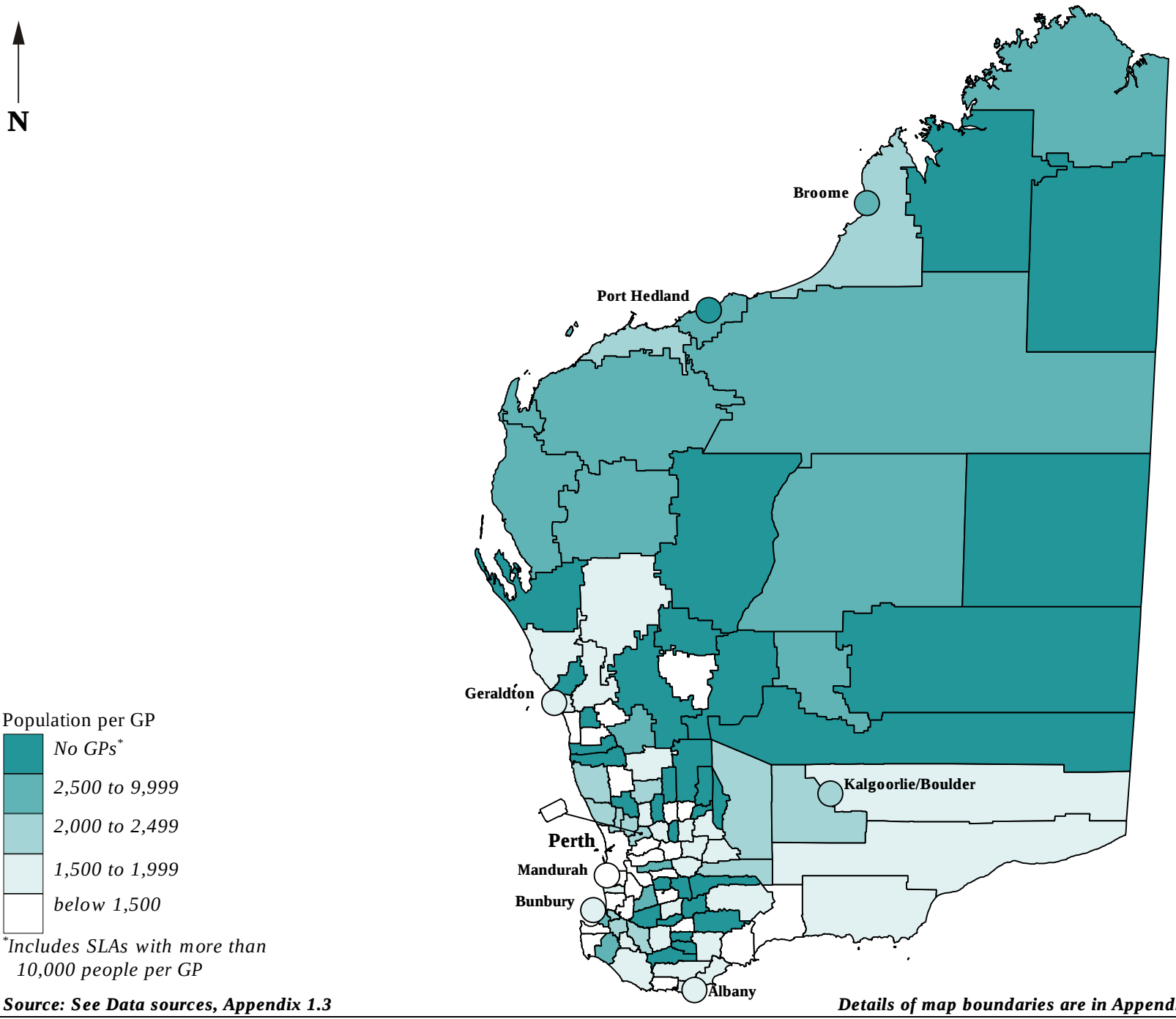
The lowest rate of population per GP was in Trayning, with one doctor practising among 489 residents. There were fewer than 1,000 people per GP in four other SLAs; Wyalkatchem (650 people per GP and 1 GP), Narrogin Town (901 and 5), Narrogin Shire (903 and 1) and Three Springs (931 and 1). Fewer than 1,200 people per GP were recorded in Morawa (1,035 people per GP), Katanning (1,064) and Ravensthorpe (1,076). For SLAs with five or more GPs, the lowest rates were recorded in Busselton (1,210 people per GP and 14 GPs), Augusta–Margaret River (1,271 and 6), Murray (1,293 and 7), Harvey (1,336 and 11) and Mandurah (1,474 and 26).

In 1996/97, only 16 non-metropolitan SLAs had more than five GPs. Mandurah, with 26 GPs, had the largest number, while there were more than 10 GPs in Bunbury (17 GPs), Kalgoorlie/Boulder (15), Busselton (14) and Geraldton and Harvey (both with 11).

There was no consistent evidence in the correlation analysis of an association at the SLA level in the non-metropolitan areas of Western Australia between high rates of population per GP and socioeconomic status.

Map 7.2
Population per general medical practitioner, Western Australia, 1996/97

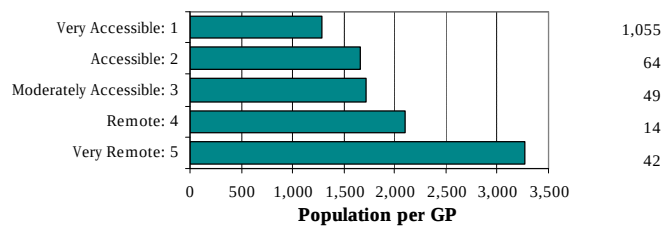
number of people in each Statistical Local Area per general medical practitioner (GP)



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



	GPs
1,055	
64	
49	
14	
42	

The rate of population per general medical practitioner (GP) increases steadily across the first four ARIA categories, before increasing more markedly in the Very Remote areas. The lowest rate, of 1,283 people per GP, is recorded in the Very Accessible areas (the highest level of provision of GP services), with higher rates in the Accessible (1,669 people per GP), Moderately Accessible (1,717) and Remote (2,102) areas, respectively. There are 3,262 people per GP in the Very Remote areas, more than two and a half times the number of people per GP in ARIA category 1. Although levels of provision of GP services are low in these remote areas, readers should note the cautions on the page opposite as to the limitations of this data.

Source: Calculated on ARIA classification, DHAC

Public acute hospital beds per 1,000 population, 1995/96

Capital city comparison

In 1995/96, there were 3.1 beds (average available beds over 1995/96) per 1,000 population in public acute hospitals in the capital cities. There was little variation among the capital cities, with rates varying from 2.7 per 1,000 population in **Canberra** to 4.0 in **Hobart** (**Table 7.5**).

Over the period from 1989 to 1995/96, the rate of public acute hospital beds decreased in each of the capital cities for which data were available in the first edition of the atlas, with the exception of **Melbourne** (where the rate remained stable at 2.8 public hospital beds per 1,000 population) and **Adelaide** and **Sydney** (both with a small increase, from 3.1 beds to 3.2 per 1,000 population). The largest decline occurred in **Brisbane**, where the rate decreased from 4.1 public hospital beds per 1,000 population in 1989 to 3.4 in 1995/96.

Table 7.5: Public acute hospital beds per 1,000 population, capital cities

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra [1]	All capitals
1995/96	**3.2**	**2.8**	**3.4**	**3.2**	**3.1**	**4.0**	**3.5**	**2.7**	**3.1**
1989	**3.1**	**2.8**	**4.1**	**3.1**	**3.3**	**..**	**..**	**..**	**3.2**

[1]Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

Perth

In 1995/96, there were 3,482 public acute hospital beds (average available beds over 1995/96) in **Perth**, representing 3.1 beds per 1,000 population. These beds were located in 24 hospitals, an average of 145 beds per hospital.

The distribution of public acute hospitals is confined to fewer SLAs than is the case with private hospitals (**Map 7.3**). However, although the inner and middle suburbs are well served with public hospitals, there is a better provision in the outlying suburbs than is the case for private hospitals.

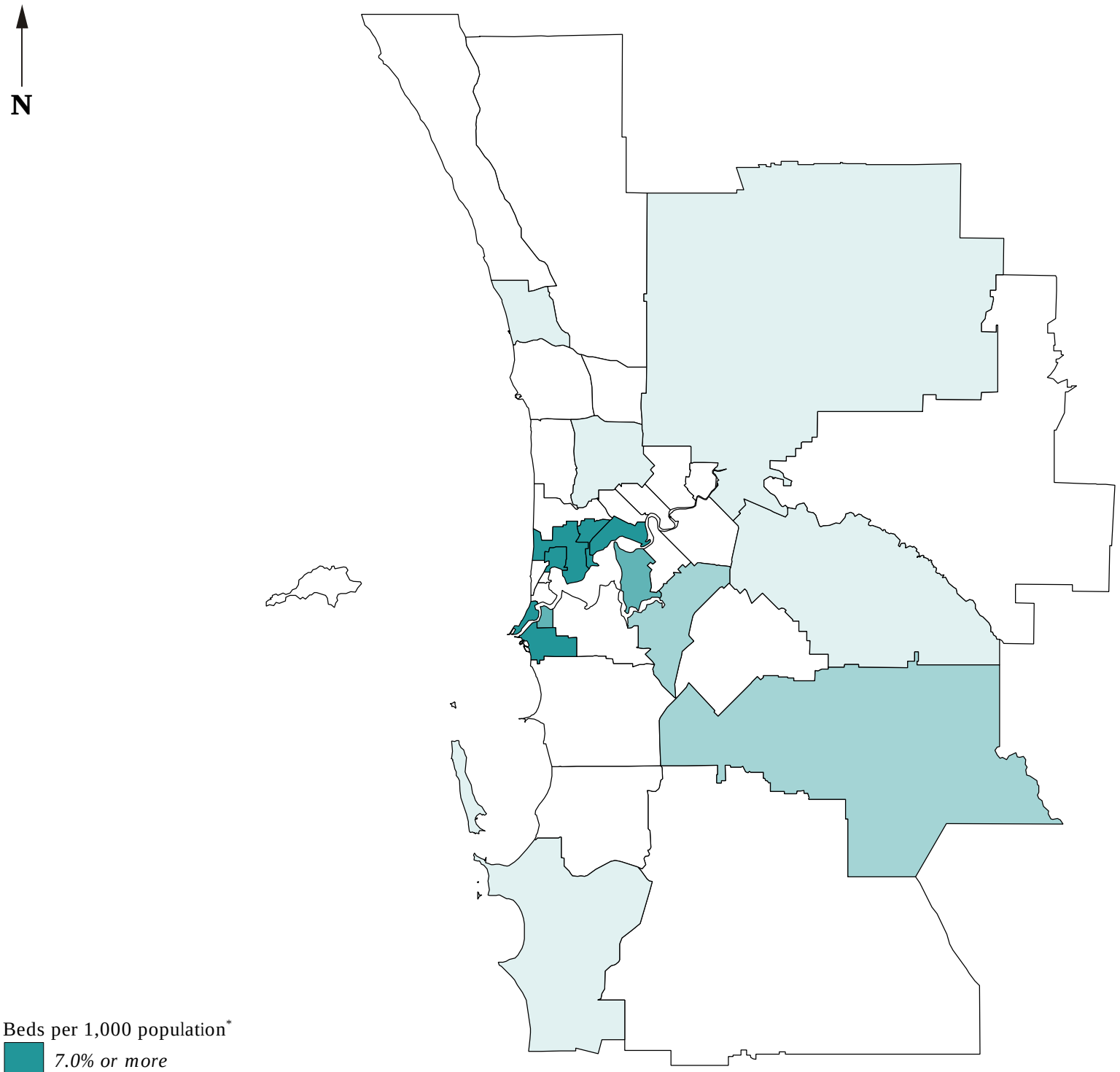
The highest rate of provision of public acute hospital beds was in the City of Perth (with 95.0 beds per 1,000 population), almost three times the rate of next ranked Subiaco (36.7). Rates of above 10 public acute hospital beds per 1,000 population were recorded in Claremont (30.5 beds per 1,000 population), Nedlands (28.9) and Fremantle Central (17.2). Elsewhere, there were relatively high rates in East Fremantle (6.5 beds per 1,000 population), South Perth (5.2) and Canning (4.1).

The City of Perth had the highest average number of beds available during 1995/96, with 807, with 595 in Nedlands, 543 in Subiaco and 413 in Fremantle Central. Canning (276 beds) and Claremont (265) were the only other **Perth** SLAs with more than 200 available beds.

The correlation analysis was not undertaken for this variable.

Map 7.3
Public acute hospital beds per 1,000 population, Perth, 1995/96

number of public acute hospital beds* in each Statistical Local Area per 1,000 population



*Beds are average available beds over 1995/1996

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Public acute hospital beds per 1,000 population, 1995/96

State/Territory comparison

There were more beds (average available beds over 1995/96) per 1,000 population in public acute hospitals in the *Rest of State /Territory* areas of Australia than in the capital cities in all but Tasmania and the Northern Territory (where there were fewer). The average *Rest of State /Territory* rate across Australia was 4.0 public acute hospital beds per 1,000 population, with similar rates recorded in most non-metropolitan areas excluding South Australia, where the rate was higher, at 5.9 beds per 1,000 population. The beds in the non-metropolitan areas include beds used by long stay patients (see page 313).

The non-metropolitan areas of New South Wales, Victoria and Queensland recorded similar rates in both periods as shown in **Table 7.6**. Western Australian recorded a considerable decrease, down from 6.4 public hospital beds per 1,000 population in 1989 to 3.6 public acute hospital beds in 1995/96, with a smaller decrease in South Australia.

Table 7.6: Public acute hospital beds per 1,000 population, State/Territory

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1995/96									
Capital city	3.2	2.8	3.4	3.2	3.1	4.0	3.5	2.7[1]	3.1
Other major urban centres [2]	3.2	3.3	2.2	..	..	..	..	..	2.8
Rest of State/Territory	4.6	3.6	3.7	5.9	3.6	2.6	2.7	–[3]	4.0
Whole of State/Territory	3.6	3.0	3.3	3.9	3.3	3.2	3.0	2.6	3.4
1989									
Rest of State/Territory	4.5	3.9	4.6	6.5	6.4	..	..	..	4.7

[1]Includes Queanbeyan (C)
[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

Rest of State

In the non-metropolitan areas of Western Australia, there were 3.6 public acute hospital beds (average available beds over 1995/96) per 1,000 population based on a total of 73 hospitals with an average 1,745 available beds.

The location of public hospitals outside of the metropolitan area is very much aligned with the major centres of population, and spread relatively uniformly throughout the State (**Map 7.4**).

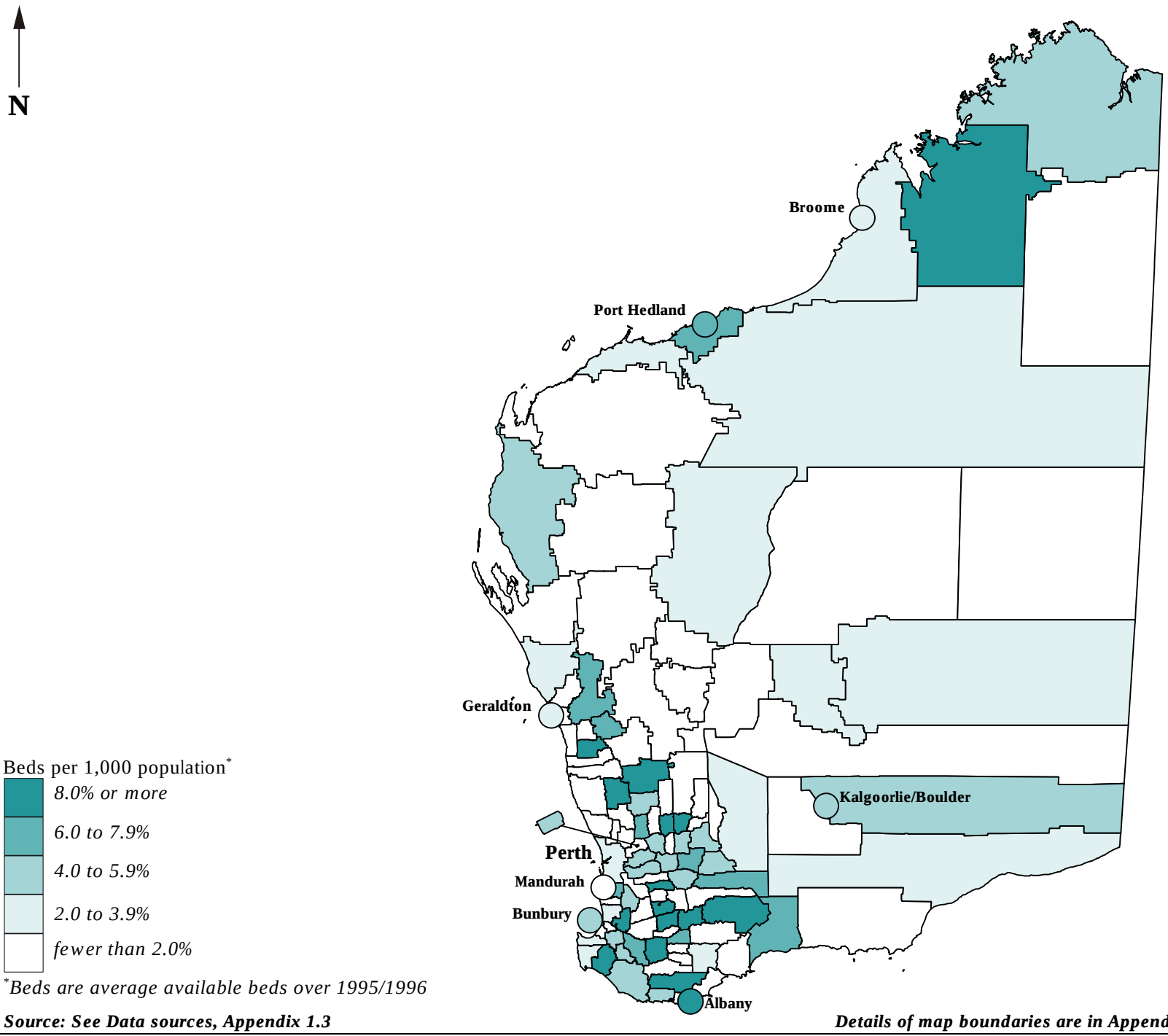
The highest rate of provision of public acute hospital beds was in Narrogin Shire (69.2 beds per 1,000 population), and there were ten or more beds per 1,000 population in Trayning (20.0), Nannup (14.9), Pingelly (14.0), the town of Albany (11.9), Dalwallinu (11.8), Wyalkatchem (10.8), Moora (10.2) and Three Springs (10.0). In 17 other SLAs there were more than 6 public hospital beds per 1,000 population.

Regional centres tended to have the largest numbers of public acute hospital beds, with more than 100 located in the town of Albany (172 beds), Kalgoorlie/Boulder (147) and Bunbury (110), as well as 90 in Port Hedland and 83 in Collie.

The correlation analysis was not undertaken for this variable.

Map 7.4
Public acute hospital beds per 1,000 population, Western Australia, 1995/96

number of public acute hospital beds* in each Statistical Local Area per 1,000 population

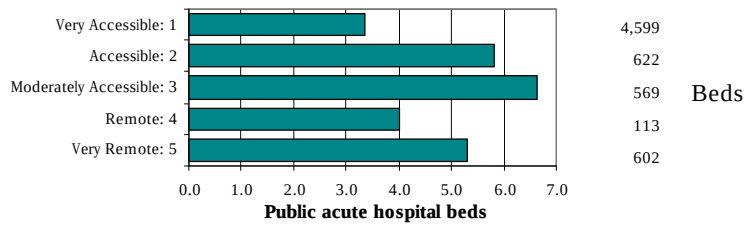


*Beds are average available beds over 1995/1996

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

Accessibility/Remoteness Index of Australia



	Beds
Very Accessible: 1	4,599
Accessible: 2	622
Moderately Accessible: 3	569
Remote: 4	113
Very Remote: 5	602

Beds in public acute hospitals are located throughout Western Australia, with the highest levels of provision in the Moderately Accessible (6.6 public acute beds per 1,000 population), Accessible (5.8) and Very Remote (5.3) ARIA categories. The lowest level of provision is in the Very Accessible areas (3.4 public acute beds per 1,000 population), although these areas have the largest number of beds and the widest range of services. There were 4.0 public acute beds per 1,000 population in the Remote areas.

Source: Calculated on ARIA classification, DHAC

Private hospital beds per 1,000 population, 30 June 1997

Capital city comparison

At 30 June 1997, there were 1.5 private hospital beds per 1,000 population in the capital cities. The majority of capital cities had near average percentages for this variable, with lower rates recorded in both **Canberra** (a rate of 0.5) and **Sydney** (a rate of 1.1). **Adelaide** and **Hobart** recorded the highest rates with 2.0 and 2.1 private hospital beds per 1,000 population, respectively (**Table 7.7**).

The *All capitals* rate increased slightly between the two periods for which data were analysed, rising from 1.4 private hospital beds per 1,000 population in 1989 to 1.5 in 1997.

Table 7.7: Private hospital beds per 1,000 population, capital cities

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra [1]	All capitals
1997	**1.1**	**1.7**	**1.7**	**2.0**	**1.7**	**2.1**	**1.7**	**0.5**	**1.5**
1989	**1.2**	**1.6**	**1.5**	**1.8**	**1.5**	**..**	**..**	**..**	**1.4**

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

Perth

At 30 June 1997, there were 1.7 private hospital beds per 1,000 population in **Perth** based on a total of 2,240 beds in 24 private hospitals.

The largest numbers of private hospital beds per 1,000 population were generally located in the older inner and middle suburbs, with no beds in many of the outlying SLAs. Over all, there were 20 SLAs without a private hospital.

The highest rates of provision of private hospital beds were in the City of Perth and Subiaco, with 32.0 and 24.8 beds per 1,000 population respectively. Rates of four beds or more per 1,000 population were recorded in East Fremantle (12.4), Nedlands (10.8), Stirling: South-Eastern (9.6), Claremont (8.3) and Cambridge (5.8).

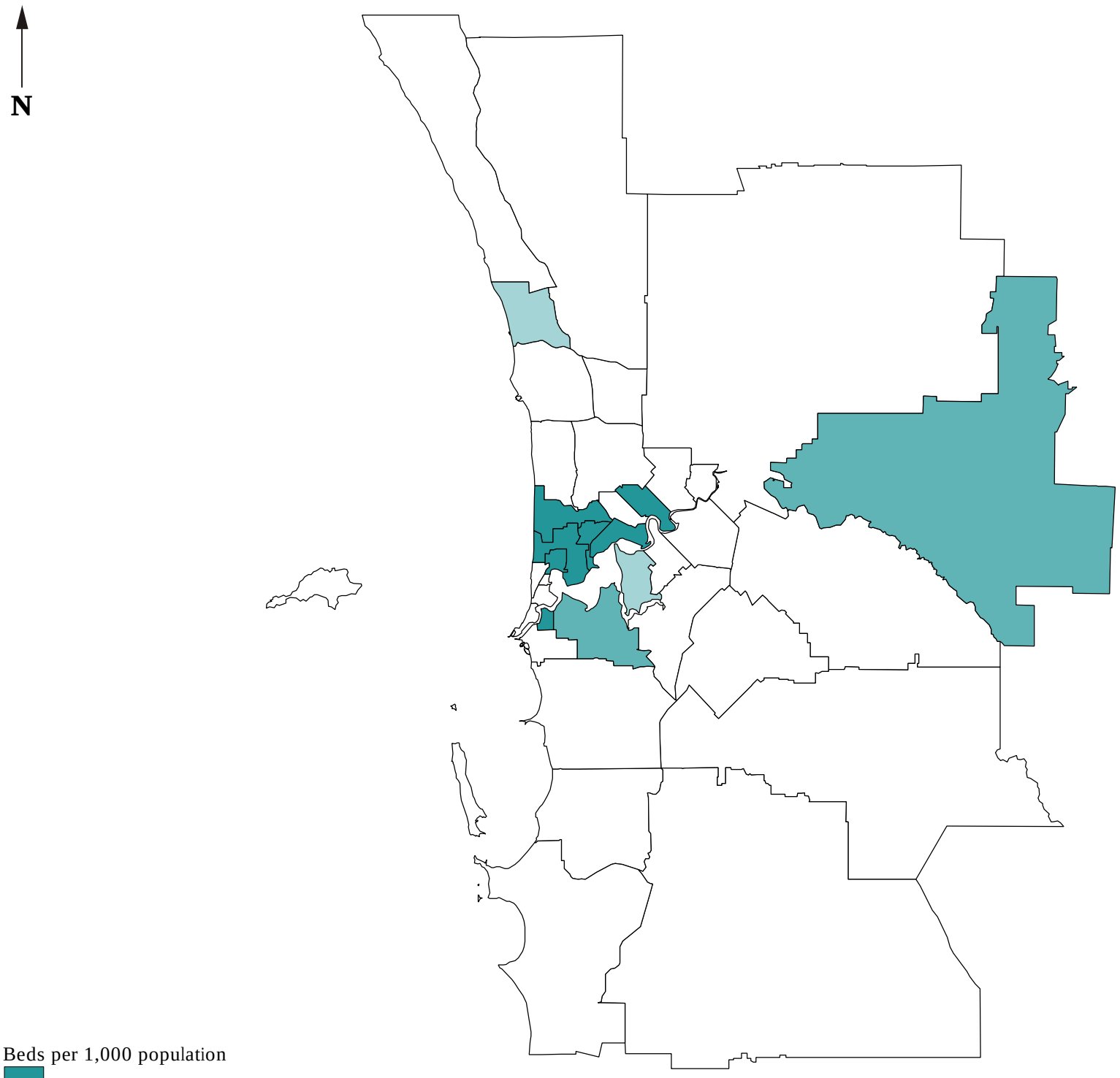
The lowest rates were in Gosnells and Rockingham (both with 0.7 beds per 1,000 population) and Stirling: Central and Wanneroo: South-West (both 0.9).

The largest numbers of beds were in Subiaco (379 private hospital beds), Melville (327), Stirling: South-Eastern (254), Nedlands (228) and the City of Perth (185).

The correlation analysis was not undertaken for this variable.

Map 7.5
Private hospital beds per 1,000 population, Perth, 1997

number of private hospital beds in each Statistical Local Area per 1,000 population



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Private hospital beds per 1,000 population, 30 June 1997

State/Territory comparison

In 1997, rates of private hospital beds were higher in the capital cities than in the *Rest of State/Territory* areas, with the exception of the Northern Territory, with no private hospital beds in the non-metropolitan areas (**Table 7.8**). The highest non-metropolitan rate was recorded in Tasmania (1.9 private hospital beds per 1,000 population), while the lowest (excluding the Northern Territory) was recorded in South Australia and Western Australia (both with a rate of 0.4).

Rates of private hospital beds in the *Rest of State/Territory* remained reasonably consistent between 1989 and 1997, with slight decreases occurring in Victoria, Queensland and Western Australia. The rate recorded in New South Wales increased marginally from 0.6 private hospital beds per 1,000 population in 1989 to 0.7 in 1997, while the rate in South Australia remained consistent (0.4 private hospital beds per 1,000 population).

Table 7.8: Private hospital beds per 1,000 population, State/Territory

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1997									
Capital city	1.1	1.7	1.7	2.0	1.7	2.1	1.7	0.5[1]	1.5
Other major urban centres[2]	1.0	1.3	2.0	..	..	..	..	..	1.4
Rest of State/Territory	0.7	0.8	1.2	0.4	0.4	1.9	0.0	–[3]	0.8
Whole of State/Territory	1.0	1.4	1.6	1.6	1.4	2.0	0.8	0.5	1.3
1989									
Rest of State/Territory	0.6	0.9	1.3	0.4	0.5	..	..	..	0.8

[1]Includes Queanbeyan (C)
[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

Rest of State

There were only three private hospitals (with a total of 204 beds) in the non-metropolitan areas of Western Australia in 1997. Between them, these hospitals provided 0.4 beds per 1,000 population.

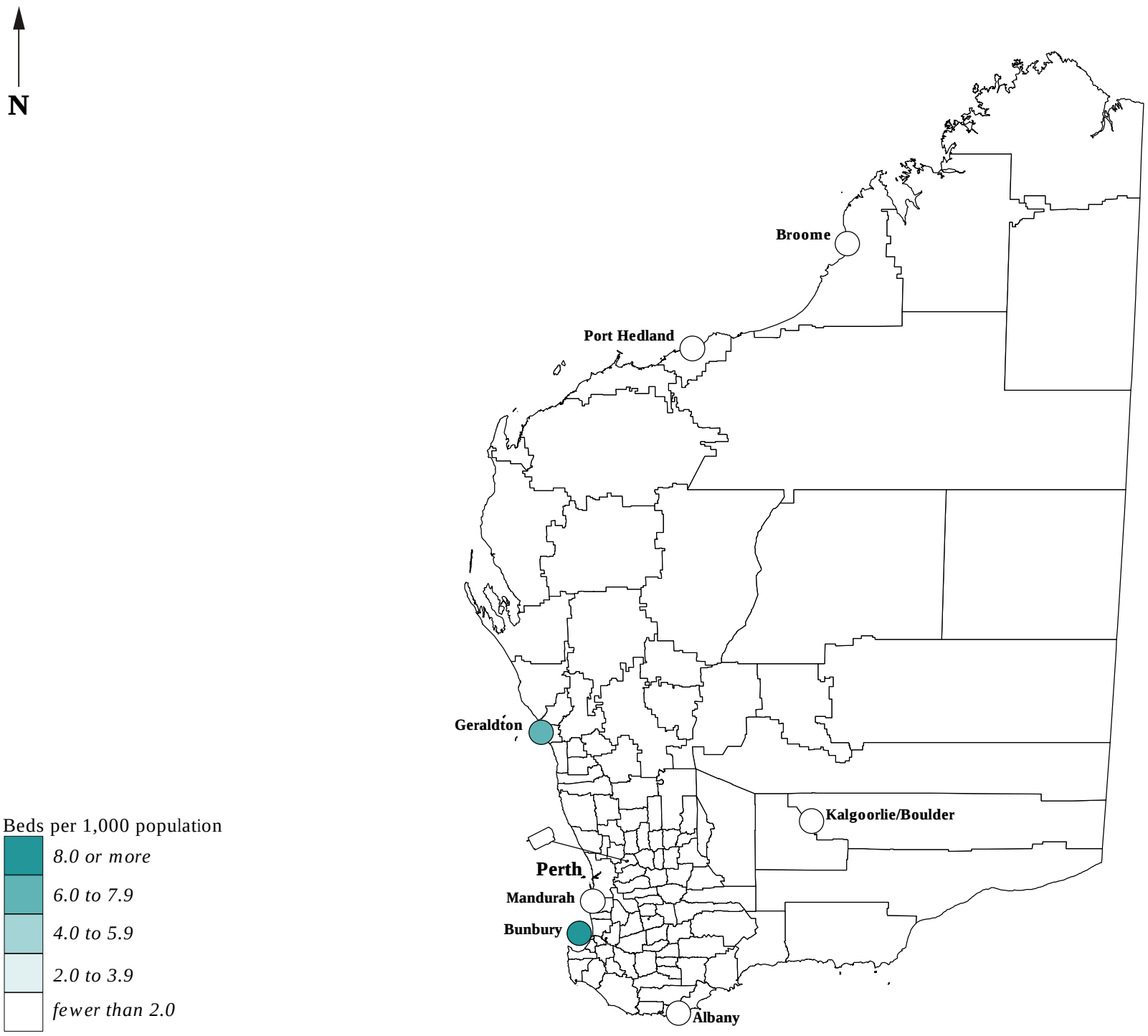
As **Map 7.6** shows, these hospitals were located in the three large populated centres of Bunbury, Geraldton and Albany Shire.

There were 125 beds in Bunbury (4.5 beds per 1,000 population), 74 in Geraldton (3.6) and five in Albany Shire (0.4).

The correlation analysis was not undertaken for this variable.

Map 7.6
Private hospital beds per 1,000 population, Western Australia, 1997

number of private hospital beds in each Statistical Local Area per 1,000 population



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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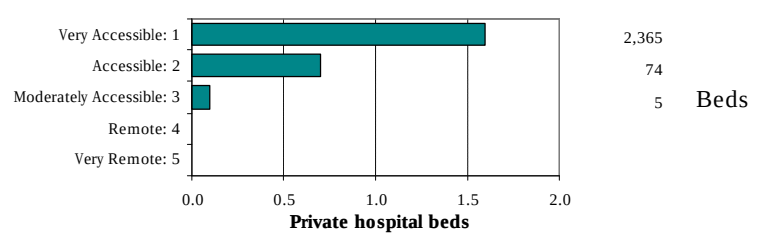


Private hospital beds were only located in the three 'accessible' categories, with rates of 1.6 private hospital beds per 1,000 population in the Very Accessible ARIA category, 0.7 in the Moderately Accessible category and a very low 0.1 private hospital beds per 1,000 population in the Accessible category. The majority of these beds (2,365 beds, 96.8 per cent) were located in areas in the Very Accessible category at 30 June 1997.

Source: Calculated on ARIA classification, DHAC

Nursing home places per 1,000 population aged 70 years and over, 1997

Capital city comparison

There were 56 nursing home places per 1,000 population aged 70 years and over in the capital cities at 30 June 1997. The range of rates was from a high of 65 in **Sydney**, 58 in **Adelaide** and 57 in **Hobart**, to a low of 39 in **Canberra** and 41 in **Darwin** (**Table 7.9**).

The rates for all of the cities for which data were published in the first edition of the atlas have decreased, some more substantially than others. This is largely a result of moves to meet the target rate of 40 nursing home places per 1,000 population aged 70 years and over. At the same time, the number of hostel places has increased (page 332). The largest decrease was recorded in **Perth**, where the rate decreased from being equivalent to the *All capitals* average in 1992 to 7.1 per cent below in 1997, a drop of 24.6 per cent: the decrease of 23.9 in **Brisbane** was almost as marked.

Table 7.9: Nursing home places per 1,000 population aged 70 years and over, capital cities

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra [1]	All capitals
1997	65	48	54	58	52	57	41	39	56
1992	79	53	71	74	69	..	..	..	69

[1]Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

Perth

At 30 June 1997, there were 4,840 places in 87 nursing home facilities in **Perth**, 52 places per 1,000 population aged 70 years and over.

The inner areas of **Perth** had the highest rates of nursing home places per 1,000 population aged 70 years and over (**Map 7.7**). Five SLAs had no nursing home places.

The highest level of provision of nursing home places was recorded in Subiaco, where there were 235 places per 1,000 population aged 70 years and over. Rates of more than 100 places per 1,000 were recorded in Stirling: South-Eastern (164 places per 1,000 population), South Perth (125), Canning (102) and Mosman Park (101). Elsewhere, relatively high rates were recorded in Victoria Park (89 places per 1,000 population), Fremantle (72), East Fremantle (71), Vincent and Swan (both 68), Cambridge (63) and Wanneroo: South-East (62).

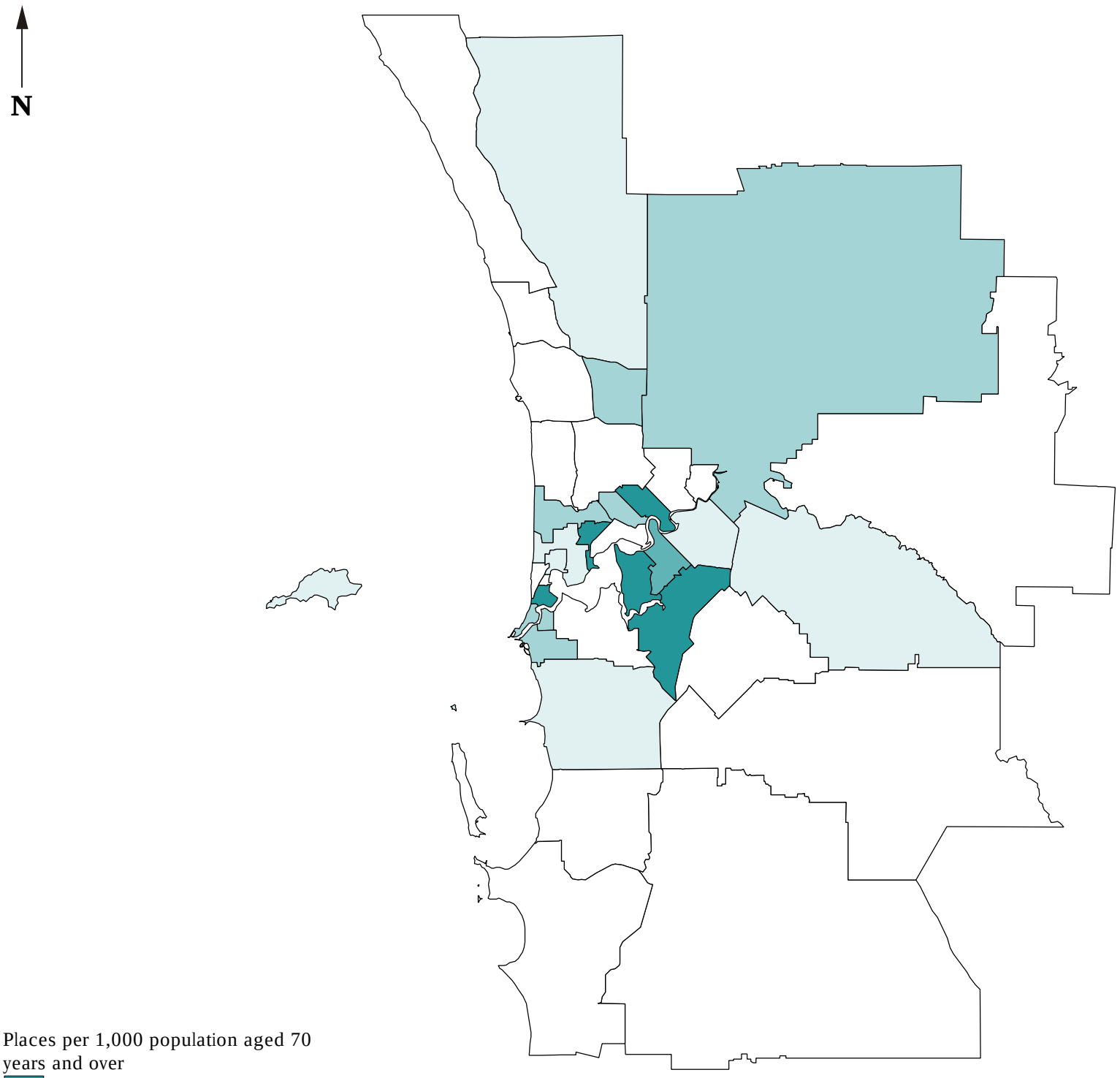
The lowest rates were in Stirling: Coastal (5), Wanneroo: Central Coastal (7), Gosnells and Stirling: Central (both 12), Wanneroo: South-West (20) and Mundaring (25), with rates of between 5 and 25 per 1,000 people aged 70 years and over.

The largest numbers of places were in Stirling: South-Eastern (596 places) and South Perth (527), while there were more than 300 in each of Canning (434), Victoria Park (351), Subiaco (335) and Melville (300).

The correlation analysis was not undertaken for this variable.

Map 7.7
Nursing home places per 1,000 population aged 70 years and over, Perth, 1997

number of nursing home places in each Statistical Local Area per 1,000 population aged 70 years and over



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Nursing home places per 1,000 population aged 70 years and over, 1997

State/Territory comparison

Readers should note the comments on page 313 under the heading *Data mapped* regarding the limitations of this data, especially in regard to the availability, in some instances, of beds in hospitals for long term aged care. Such beds are not included in this data.

There were fewer places per 1,000 population aged 70 years and over in the *Rest of State /Territory* areas of Australia than in the capital cities in all but the Northern Territory (where there were more places) (**Table 7.10**). The highest rates in the *Rest of State /Territory* areas were in Tasmania (49 places per 1,000 population aged 70 years and over) and Victoria (45 places).

Of the States and Territories for which data were published in the first edition of the atlas, South Australia had a very low rate of nursing home places per 1,000 population aged 70 years and over in the *Rest of State /Territory* areas in both periods (a rate of 27 in 1992 and 28 in 1997). In this context it is worthwhile noting that South Australia has the highest proportion of its inpatient bed days in non-metropolitan hospitals used by nursing home type patients (**Table 7.1**, page 314; New South Wales has second highest in the non-metropolitan areas). Western Australia had the only other rate below the *Rest of State /Territory* average for either period.

Table 7.10: Nursing home places per 1,000 population aged 70 years and over, State/Territory

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1997									
Capital city	65	48	54	58	52	57	41	39[1]	56
Other major urban centres [2]	45	55	35	..	..	..	..	..	42
Rest of State/Territory	39	45	40	28	31	49	44	–[3]	40
Whole of State/Territory	55	48	45	50	47	52	42	37	50
1992									
Rest of State/Territory	52	53	52	27	40	..	..	..	50

[1]Includes Queanbeyan (C)
[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

Rest of State

At 30 June 1997, there were 914 places in 23 nursing home facilities in the non-metropolitan areas of Western Australia, 31 places per 1,000 population aged 70 years and over.

As **Map 7.8** shows, the location of SLAs with the largest numbers of nursing home places per 1,000 population aged 70 years and over tends to reflect the distribution of regional towns. A majority (87.6 per cent) of SLAs had none of these facilities.

The highest rate of provision of nursing home places was in Brookton, where there were 250 places per 1,000 population aged 70 years and over, slightly more than in next ranked Derby–West Kimberley (225). Rates of more than 80 nursing home places per 1,000 population were recorded in Narrogin (113 places), Kalgoorlie/Boulder (107), Port Headland (103) and Bunbury (82).

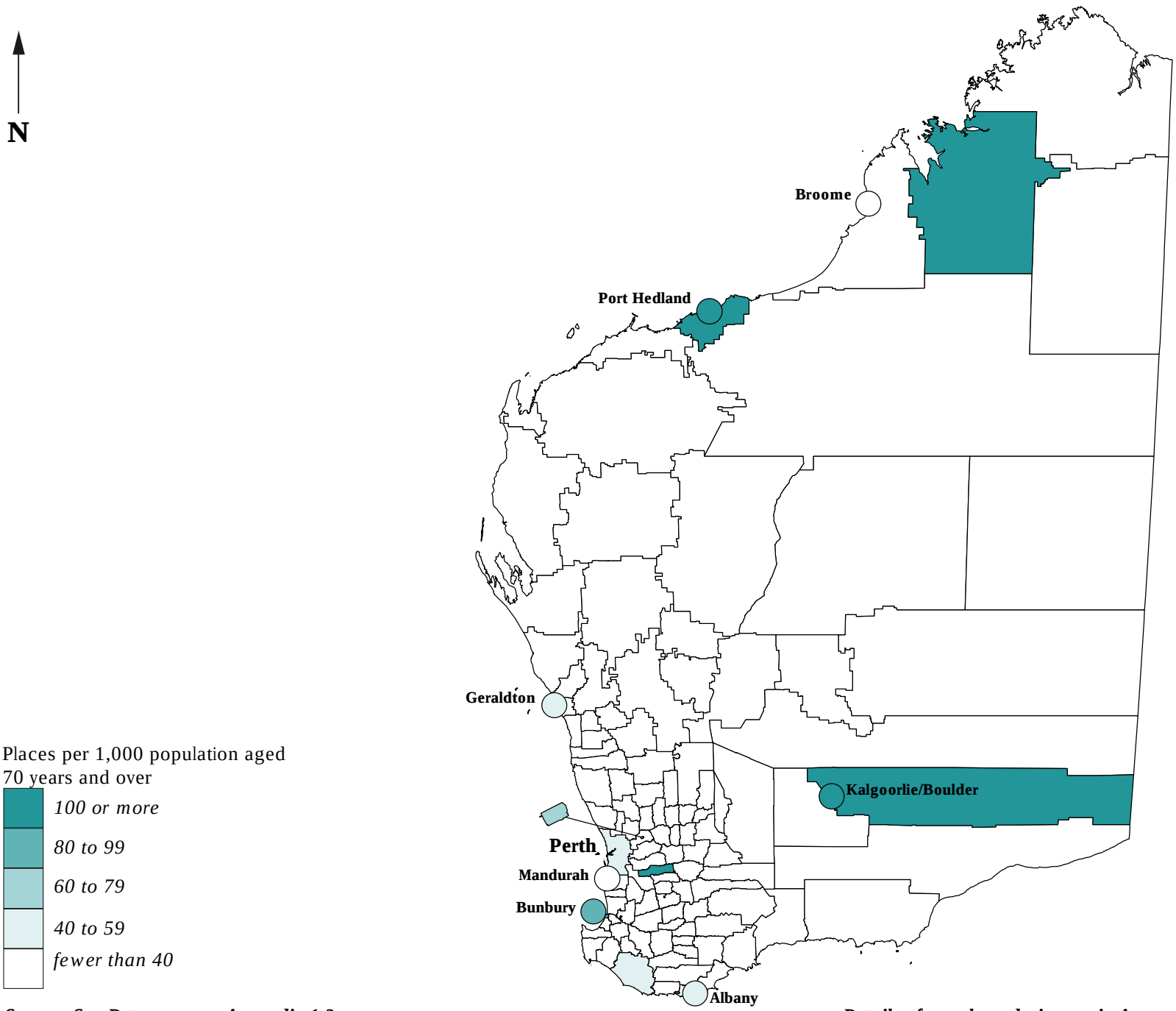
The lowest rates were calculated for Esperance (2 nursing home places per 1,000 population aged 70 years and over) and Augusta–Margaret River (15).

Regional centres provided the largest number of places, with more than 100 in each of Bunbury (192 nursing home places), Mandurah (138), the town of Albany (108) and Kalgoorlie/Boulder (107). In Narrogin, Derby–West Kimberley and Geraldton there were 50 or more nursing home places.

The correlation analysis was not undertaken for this variable.

Map 7.8
Nursing home places per 1,000 population aged 70 years and over, Western Australia, 1997

number of nursing home places in each Statistical Local Area per 1,000 population aged 70 years and over



Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

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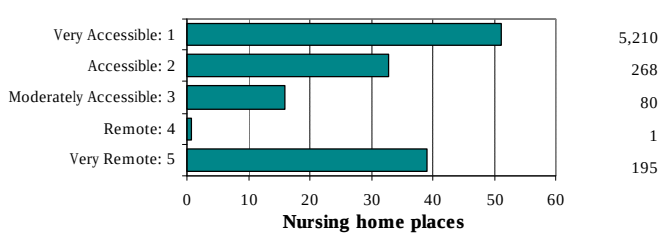


The provision of nursing home places decreases from 51 places per 1,000 population aged 70 years and over in the Very Accessible ARIA category to under one (0.7) places per 1,000 population aged 70 years and over in the Remote category, before increasing to the second highest ratio in the Very Remote category (39 places per 1,000 population aged 70 years and over). The Accessible and Moderately Accessible areas had 33 and 16 nursing home places per 1,000 population aged 70 years and over, respectively.

Source: Calculated on ARIA classification, DHAC

Hostel places per 1,000 population aged 70 years and over, 1997

Capital city comparison

There were 43 hostel places per 1,000 population aged 70 years and over in the capital cities at 30 June 1997. The range of rates was from a high of 57 places in **Canberra**, 50 in **Perth** and 49 in **Brisbane** to a low of 30 in **Darwin** (**Table 7.11**).

The rates for all of the cities for which data were published in the first edition of the atlas have increased, some more substantially than others, in all of the capitals other than **Brisbane** (the city with the highest rate in 1992). This is largely a result of moves to meet the target rate of 50 hostel places per 1,000 population aged 70 years and over. At the same time, the number of nursing home places has decreased (page 328). The largest increase was recorded in **Sydney**, where the rate increased from 28 places per 1,000 population aged 70 years and over in 1992 to 36 in 1997, an increase of 22.2 per cent.

Table 7.11: Hostel places per 1,000 population aged 70 years and over, capital cities

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra [1]	All capitals
1997	36	43	49	47	50	42	30	57	43
1992	28	35	55	43	45	..	..	..	37

[1]Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

Perth

At 30 June 1997, there were 4,613 places in 113 hostel facilities in **Perth**, 50 hostel places per 1,000 population aged 70 years and over.

The geographic distribution of facilities providing hostel accommodation for the aged (**Map 7.9**) is relatively similar to that for nursing homes, with the highest rates in the inner areas of **Perth**.

The highest rate of provision of hostel places was in the City of Perth, where 116 places were available per 1,000 population aged 70 years and over. In the SLAs of Stirling: South-Eastern and Fremantle, the rates were 108 and 99 respectively, with other high rates in Wanneroo: Central Coast (82 hostel places per 1,000 population aged 70 years and over), Canning (82), Wanneroo: North-East (78), Serpentine-Jarrahdale (75), Wanneroo: South-East (74), Vincent (69), Wanneroo: North-West (67), Cottesloe (64) and Kalamunda (62).

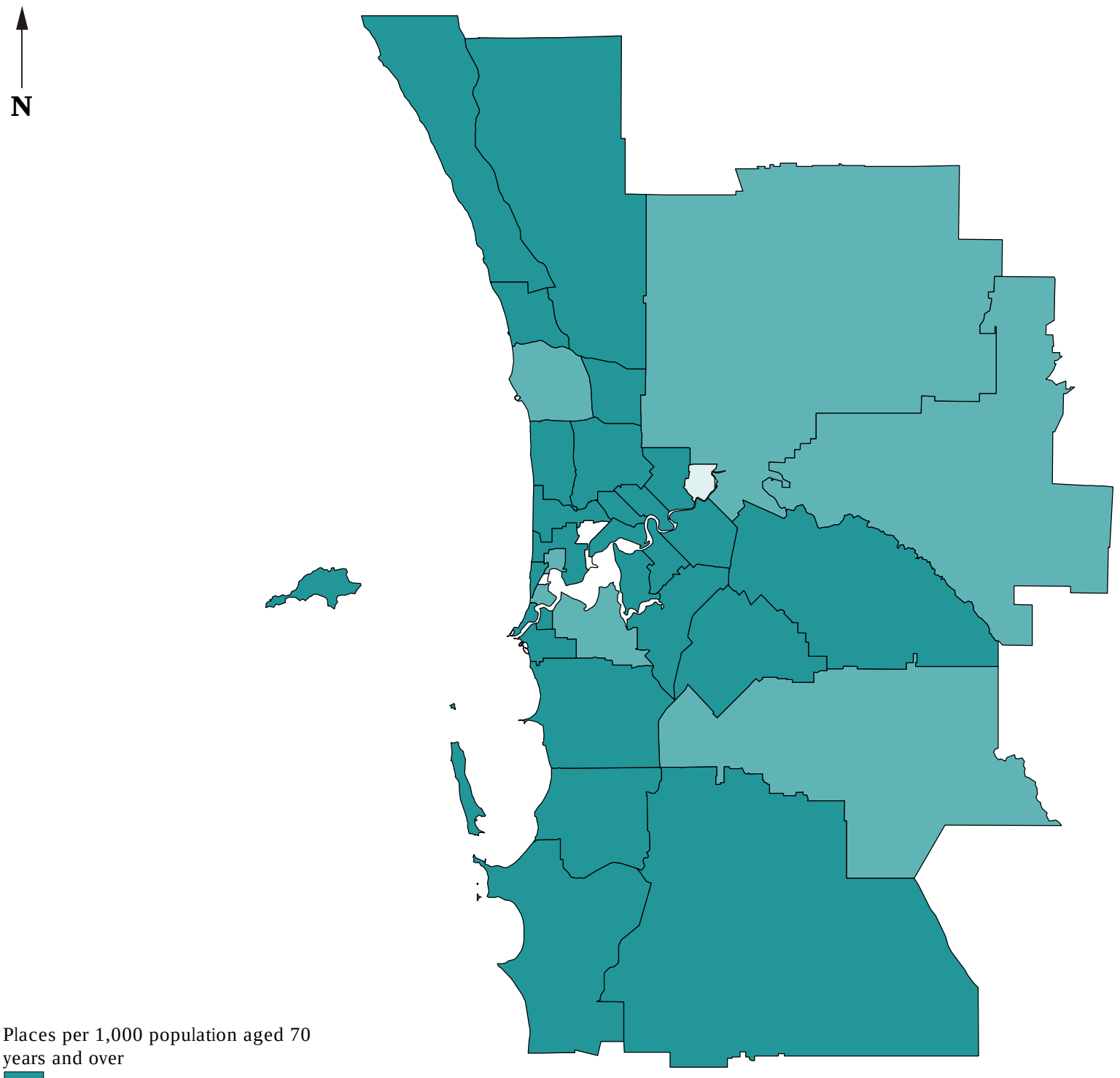
The lowest rates of provision of hostel places were typically in the outer, developing areas of the metropolitan area. Rates of less than 18 hostel places per 1,000 population aged 70 years and over were recorded in Bassendean, 30 in Melville, 32 in both Mosman Park and Swan, 34 in Armadale, 36 Wanneroo: South-West and 39 in Mundaring.

The largest numbers of hostel places were in Stirling: South-Eastern (391 places), Canning (348 places) and Stirling: Central (320 places). There were more than 200 hostel places in Fremantle (255), Melville (248) and Stirling: Coastal (247). Neither Peppermint Grove nor Subiaco had a hostel for aged people.

The correlation analysis was not undertaken for this variable.

Map 7.9
Hostel places per 1,000 population aged 70 years and over, Perth, 1997

number of hostel places in each Statistical Local Area per 1,000 population aged 70 years and over



Places per 1,000 population aged 70 years and over

- *40 or more*
- *30 to 39*
- *20 to 29*
- *10 to 19*
- *fewer than 10*

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2

National Social Health Atlas Project, 1999

Hostel places per 1,000 population aged 70 years and over, 1997

State/Territory comparison

There were fewer hostel places per thousand population aged 70 years and over in the *Rest of State /Territory* areas of Australia than in the capital cities in all but New South Wales and Victoria (with more places) and Queensland (with the same number of places) (**Table 7.12**). The highest rates were in Victoria and Queensland and the lowest was in the Northern Territory.

Of the States/Territories for which data were published in the first edition of the atlas, the largest increase in the *Rest of State /Territory* areas was recorded for Victoria. There was a small increase in the rate in New South Wales and a small decrease for Western Australia: the rate in Queensland and South Australia remained the same.

Table 7.12: Hostel places per 1,000 population aged 70 years and over, State/Territory

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
1997									
Capital city	36	43	49	47	50	42	30	57[1]	43
Other major urban centres[2]	40	42	39	..	..	..	..	..	40
Rest of State/Territory	42	49	49	46	43	39	28	–[3]	46
Whole of State/Territory	38	45	47	47	48	40	29	60	43
1992									
Rest of State/Territory	39	40	49	46	45	..	..	..	42

[1]Includes Queanbeyan (C)
[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

Rest of State

At 30 June 1997, there were 1,261 places in 62 hostel facilities in the non-metropolitan areas of Western Australia, 43 places per 1,000 population aged 70 years and over.

As **Map 7.10** shows, SLAs with the largest rate of hostel places per 1,000 population aged 70 years and over were scattered throughout Western Australia. Although there were more hostel facilities than nursing homes, there were no hostels in just over half (56.6 per cent) the non-metropolitan SLAs.

The highest rates of provision of hostel places were recorded in Three Springs, where there were 308 hostel places per 1,000 population aged 70 years and over, and in Morawa (235). Other high rates were recorded in Kellerberrin (with 222 hostel places per 1,000 population aged 70 years and over), Kojonup (167), Kondinin (140), Boyup Brook (119), Halls Creek (117), Meekatharra (111) and Narembeen (103).

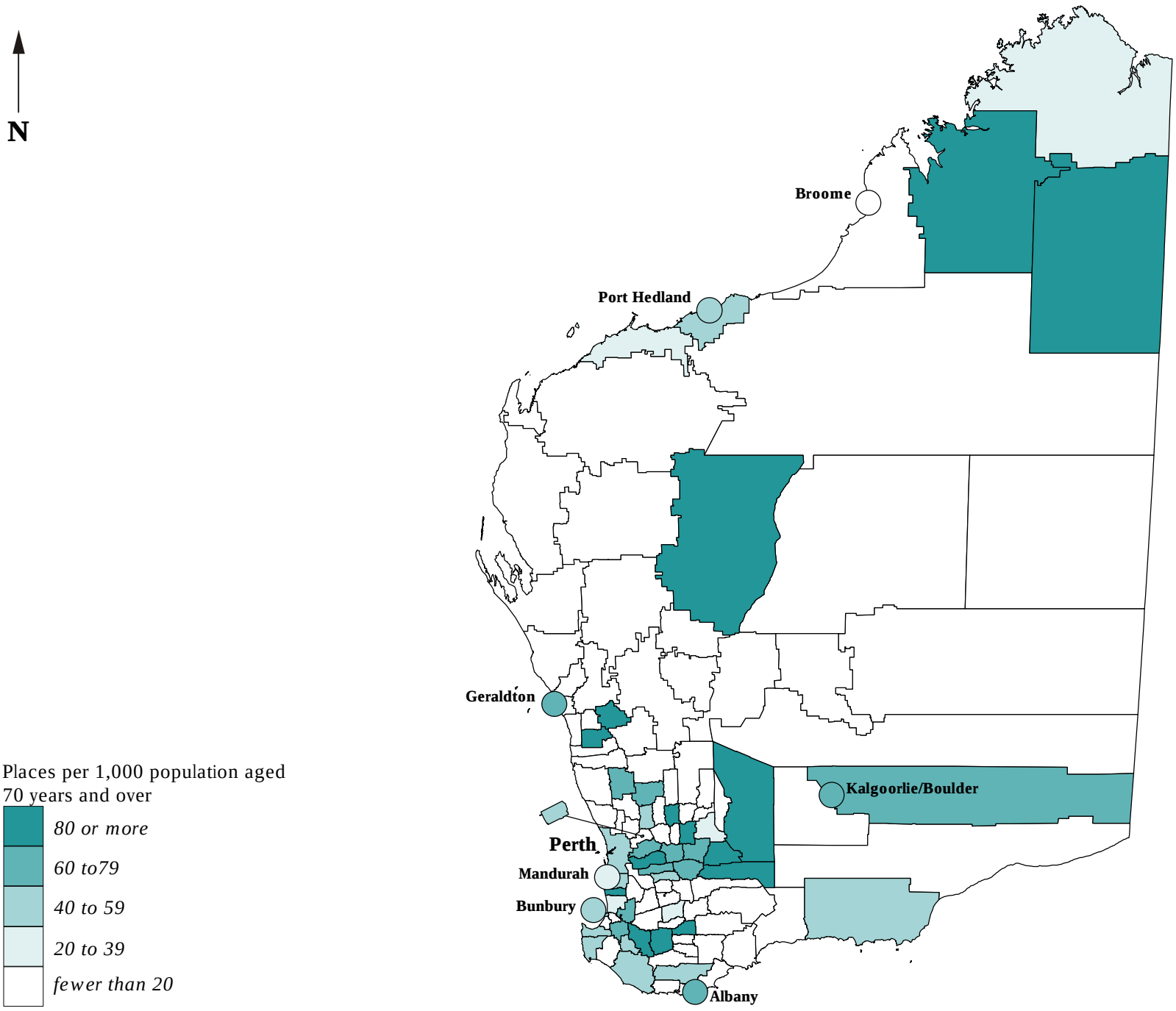
The lowest rates were calculated for Broome (14 hostel places per 1,000 population aged 70 years and over), Carnarvon (18) and Denmark and Roebourne (both 20), with rates of between 25 and 40 in Merredin, Wyndham–East Kimberley, Mandurah, Harvey and Wagin.

The largest number of hostel places were provided in regional centres. There were 130 places in Mandurah, 121 in Bunbury, 112 in Albany and 101 in Geraldton. Relatively high numbers of places were available in Busselton (88 hostel places) and Kalgoorlie/Boulder (69).

The correlation analysis was not undertaken for this variable.

Map 7.10
Hostel places per 1,000 population aged 70 years and over, Western Australia, 1997

number of hostel places in each Statistical Local Area per 1,000 population aged 70 years and over



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

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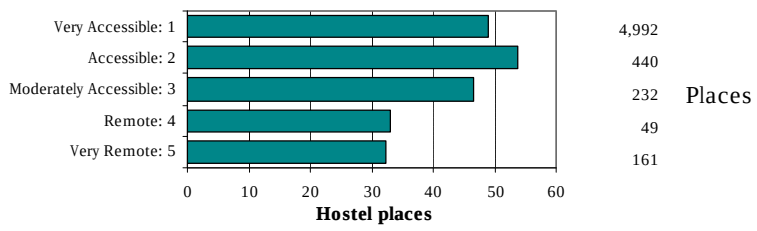

The provision of aged care hostel places is strong across the spectrum of ARIA categories. The rate of provision is highest in the three 'accessible' categories, with rates of 54 hostel places per 1,000 population aged 70 years and over in the Accessible category and 49 and 46, respectively, in the Very Accessible and Moderately Accessible categories. There are lower levels of provision in the Remote (33 hostel places per 1,000 population aged 70 years and over) and Very Remote (33 places) areas.

Source: Calculated on ARIA classification, DHAC

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