

## 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<sup>1</sup>.

In this chapter data are mapped at the postcode 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 is for the 1996/97 financial year and for public acute hospital beds it is for 1995/96; the remaining data is 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<sup>2</sup> per practice site in each postcode area.

The rate of population per GP was calculated for each postcode area and is mapped over five ranges.

The GPs included in this analysis exclude GPs working in salaried practice who do not submit accounts to Medicare. Although not necessarily applicable to the data in this atlas for the ACT, examples are 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 185 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 area, as the location of the principal practice in an area may be close to the population of a neighbouring area and provide a significant number of services to people in this neighbouring area.

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 was 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. Some data is 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.

<sup>1</sup>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.

<sup>2</sup>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.

## 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 has 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, with people requiring long term intensive care often cared for in public hospitals (where they are

classified as 'long stay nursing home type patients'). Although this is of little relevance in this atlas, the data have been included, as in the other atlases in this series. Overall, 0.8 per cent of patient days in public acute hospitals in the Australian Capital Territory (**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
	<b>Number</b>								
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
	<b>Per cent: Nursing home type patient bed days as a proportion of all bed days</b>								
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: AHW, unpublished data

The tables and maps of nursing home and hostel places included later in this chapter 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 and are shown 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, 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 <sup>2</sup>	84	96	74	..	..	..	..	..	82
Rest of State/Territory	81	94	88	74	75	87	72	.. <sup>3</sup>	85
Whole of State/Territory	93	92	92	97	96	92	72	96	93

<sup>1</sup>Includes Queanbeyan (C).

<sup>2</sup>Includes Newcastle and Wollongong (NSW); Geelong (Vic); and Gold Coast-Tweed Heads and Townsville-Thuringowa (Qld).

<sup>3</sup>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 or postcode area, as the location of the practice in an area may be close to the population of a neighbouring area and provide a significant number of services to people in that neighbouring area.

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 or postcodes 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 195.

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 195 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 <sup>1</sup>	All capitals
<b>1996/97</b>	<b>1,118</b>	<b>1,181</b>	<b>1,182</b>	<b>1,145</b>	<b>1,259</b>	<b>1,167</b>	<b>1,642</b>	<b>1,467</b>	<b>1,169</b>
<b>1990/91</b>	<b>860</b>	<b>921</b>	<b>834</b>	<b>827</b>	<b>1,015</b>	<b>820</b>	<b>900</b>	<b>1,042</b>	<b>886</b>

<sup>1</sup>Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

## Canberra-Queanbeyan

In 1996/97, there were 1,467 people per GP in **Canberra-Queanbeyan**. Of the total of 221 GPs, 149 were males (67.3 per cent) and 72 were females (32.7 per cent), a rate of 2,181 people per male GP and 4,482 people per female GP. This predominance of male GPs in **Canberra-Queanbeyan** (2.1 male GPs to each female GP) was evident across the postcode areas mapped, with the exception of the postcode areas of Belconnen North (13.1 GPs, 1.3 female GPs to each male GP), Eastern Fringe (2.3 to 1) and Tuggeranong South East (one to one). In Kowen/Majura, there was an estimated 0.33 FTE female GPs.

In Queanbeyan, there were 1,679 people per GP, with females comprising over one quarter (28.2 per cent) of the 16 GPs.

### Postcode-based areas

In general, the highest rates of population per GP (lowest levels of provision of GP services) were recorded in the southern and northern areas, with lower rates (higher levels of provision of GP services) in the central and eastern areas of **Canberra (Map 7.1)**.

The highest rates, of above 3,000 people per GP, were in the south of the city in the postcode areas of Tuggeranong South (3,965 people per GP and three GPs), Tuggeranong South East (3,511 and nine GPs) and Tuggeranong North East (3,192 and four GPs). The northern area of Gungahlin-Hall had the next highest rate, with 2,173 people per GP.

Above average rates were also recorded in Belconnen South (1,839 people per GP), Weston Creek (1,826), Belconnen Balance (1,733), Belconnen West (1,730), Kambah (1,709), Belconnen North (1,695) and Woden South (1,571).

Four postcode areas had fewer than 1,000 people per GP: they were Tuggeranong North West (452 people per GP), Woden Central (730), Eastern Fringe (985) and Canberra North (997). Relatively low rates were also recorded in Canberra Central (1,033 people per GP), Kowen/Majura (1,048) and Canberra South (1,052).

The largest numbers of GPs were recorded in Tuggeranong North West (26 GPs), Canberra North (25 GPs), Belconnen West (23 GPs) and Canberra Central (19 GPs).

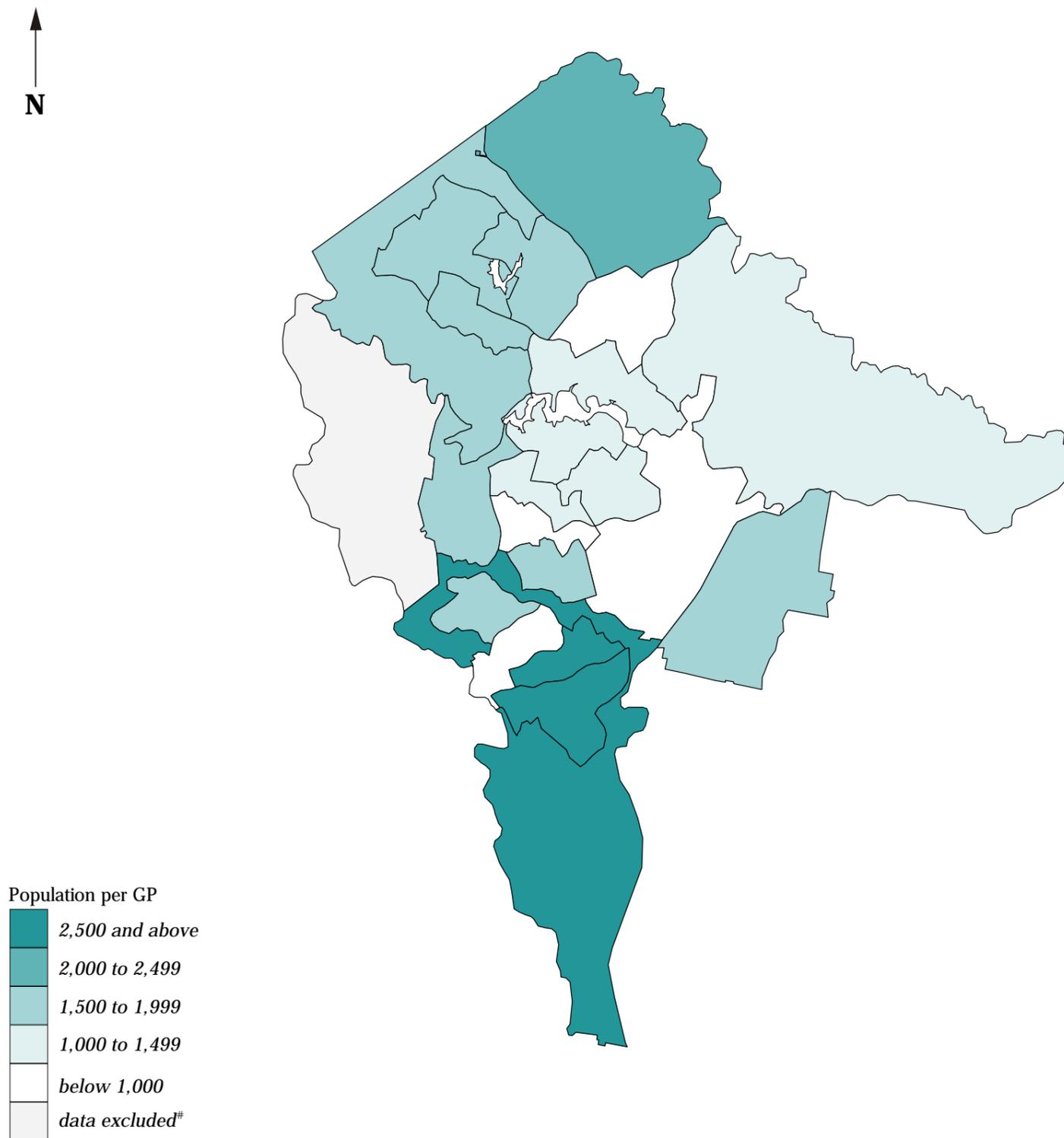
There was a correlation of substantial significance with high proportions of children aged from 0 to 4 years (0.81) and an inverse correlation of meaningful significance with the variable for people aged 65 years and over (-0.50). These results suggest there are few GPs in areas with high proportions of children aged 0 to 4 years (typically in the outer areas) and more GPs in areas with high proportions of people aged 65 years and over.

In 1996/97, there were 0.2 FTE GPs, a rate of 2,064 people per GP in the ACT-Balance Statistical Subdivision.

## Map 7.1

### Population per general medical practitioner, Canberra-Queanbeyan, 1996/97

number of people in each area\* per general medical practitioner (GP)



\* SLAs have been grouped to approximate postcode areas

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

Source: See Data sources, Appendix 1.3

Details of map boundaries are in Appendix 1.2  
National Social Health Atlas Project, 1999

## 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 7.4).

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 7.4: Public acute hospitals: beds per 1,000 population, capital cities**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra <sup>1</sup>	All capitals
<b>1995/96</b>	<b>3.2</b>	<b>2.8</b>	<b>3.4</b>	<b>3.2</b>	<b>3.1</b>	<b>4.0</b>	<b>3.5</b>	<b>2.7</b>	<b>3.1</b>
<b>1989</b>	<b>3.1</b>	<b>2.8</b>	<b>4.1</b>	<b>3.1</b>	<b>3.3</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>3.2</b>

<sup>1</sup>Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

### Canberra-Queanbeyan

In 1995/96, there were 860 beds (average available beds) in four public hospitals in **Canberra-Queanbeyan**, 2.7 public acute hospital beds per 1,000 population.

The largest hospital, with 587 beds, was located in the postcode area of Woden North (52.8 beds per 1,000 population), in the SLA of Garran. Smaller numbers of beds were in hospitals located in Belconnen North (182 beds, 7.8 beds per 1,000 population), in the SLA of Bruce, and in Canberra Central (11 beds, 0.6 beds per 1,000 population) (Map 7.2).

There were 80 public acute hospital beds in Queanbeyan, a rate of 2.9 public acute hospital beds per 1,000 population.

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

There were no public hospitals in the ACT-Balance Statistical Subdivision.

## 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 7.5).

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 7.5: Private hospitals: beds per 1,000 population, capital cities**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra <sup>1</sup>	All capitals
<b>1997</b>	<b>1.1</b>	<b>1.7</b>	<b>1.7</b>	<b>2.0</b>	<b>1.7</b>	<b>2.1</b>	<b>1.7</b>	<b>0.5</b>	<b>1.5</b>
<b>1989</b>	<b>1.2</b>	<b>1.6</b>	<b>1.5</b>	<b>1.8</b>	<b>1.5</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>1.4</b>

<sup>1</sup>Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

### Canberra-Queanbeyan

In 1997, there were 169 beds in two private hospitals in **Canberra-Queanbeyan**, 0.5 private hospital beds per 1,000 population.

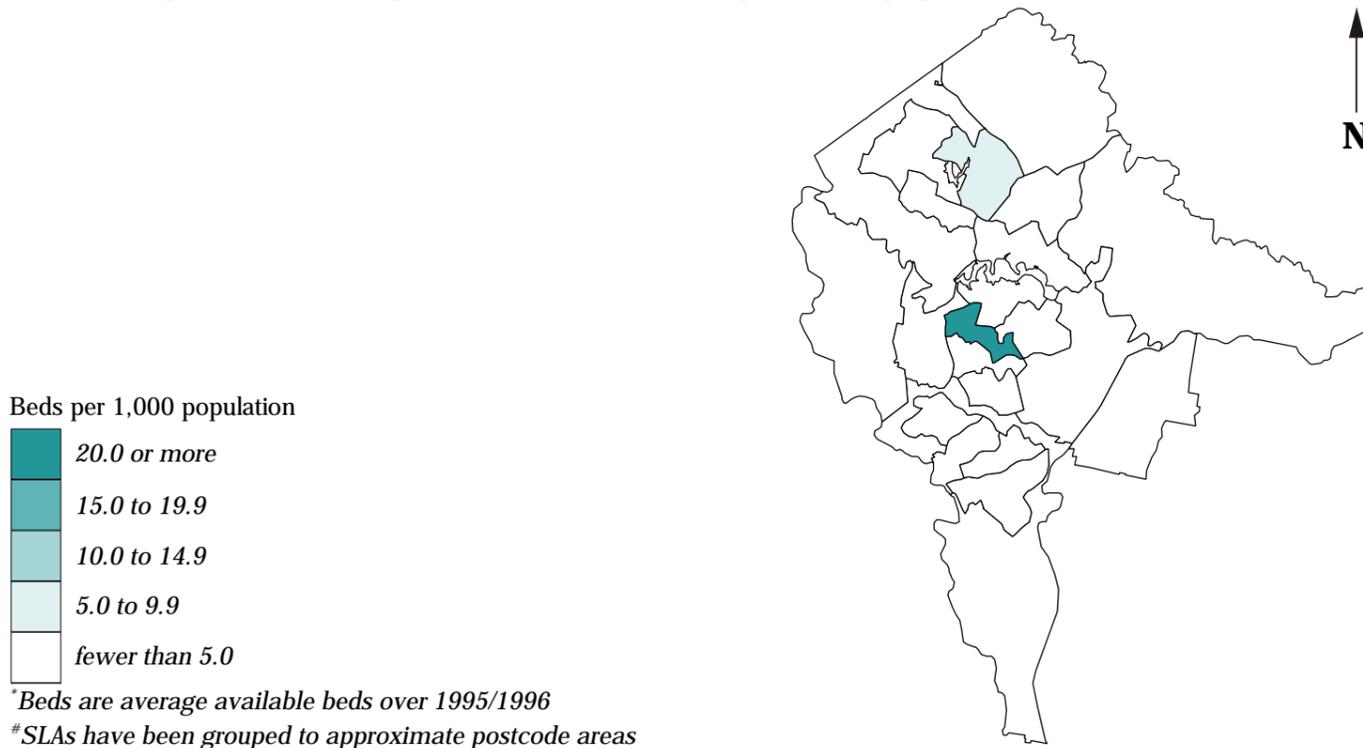
One hospital, located in the SLA of Deakin (in the postcode area of Canberra Central), had 119 beds (6.1 private hospital beds per 1,000 population), while a second hospital, located in the SLA of

Bruce (in the postcode area of Belconnen North), had 50 beds (2.1 private hospital beds per 1,000 population) (Map 7.3). There were no private hospitals in Queanbeyan.

There were no private hospitals in the ACT-Balance Statistical Subdivision.

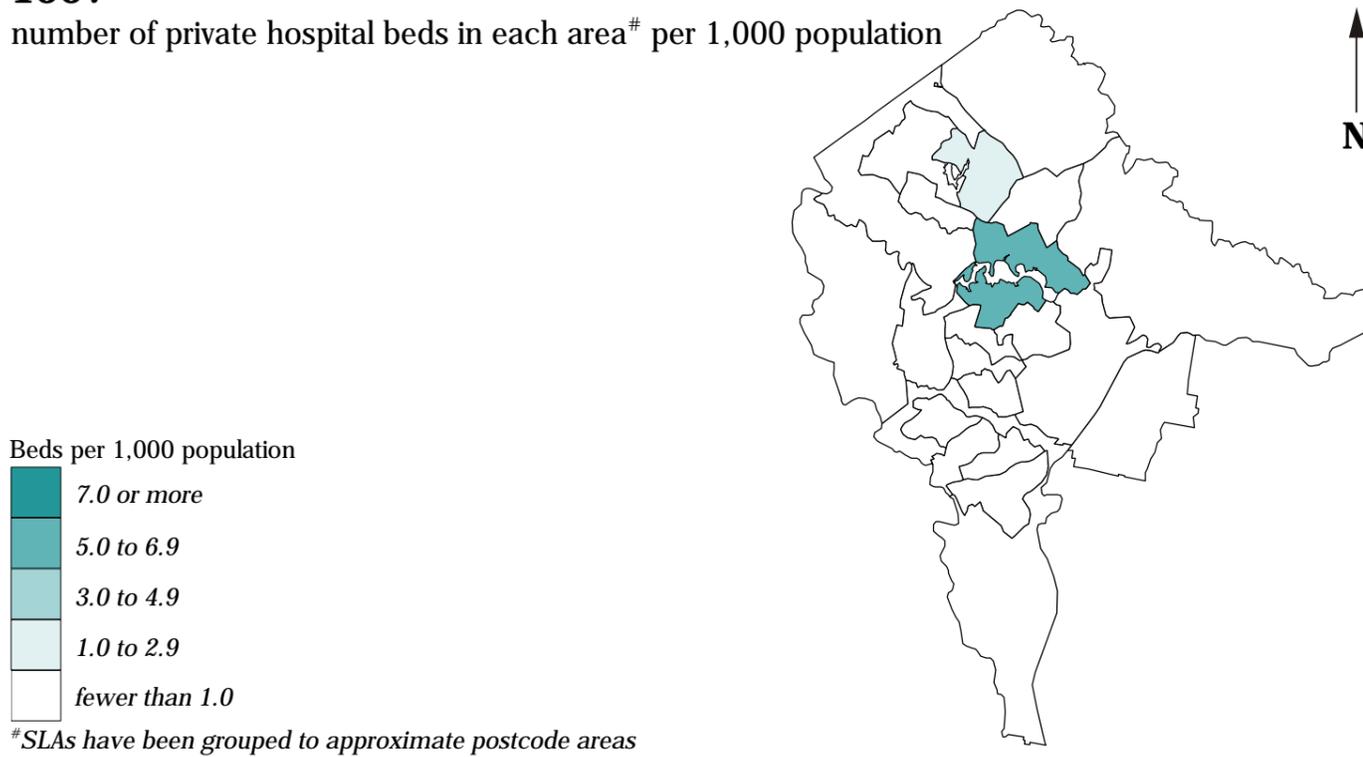
**Map 7.2: Public acute hospital beds per 1,000 population, Canberra-Queanbeyan, 1995/96**

number of public acute hospital beds\* in each area# per 1,000 population



**Map 7.3: Private hospital beds per 1,000 population, Canberra-Queanbeyan, 1997**

number of private hospital beds in each 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

## 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 7.6).

The rates for all of the cities for which data was 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 (see below). 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 7.6: Nursing home places per 1,000 population aged 70 years and over, capital cities**

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

<sup>1</sup>Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

### Canberra-Queanbeyan

At 30 June 1997, there were 611 nursing home places (in seven nursing home facilities) in **Canberra-Queanbeyan**, representing 39 places per 1,000 population aged 70 years and over.

Two nursing homes, with 193 places, were located in the postcode area of Canberra South (a rate of 12.7 nursing home places per 1,000 population aged 70 years and over), while there was one nursing home in each of Canberra North (80 places, 3.2 places per 1,000 population aged 70 years and over), Woden

North (52 places, 4.7 places per 1,000 population aged 70 years and over), Weston Creek (60 places, 2.6 places per 1,000 population aged 70 years and over) and Belconnen South (134 places, 7.2 places per 1,000 population aged 70 years and over).

There was one nursing home in Queanbeyan with 92 places, 61.7 places per 1,000 population aged 70 years and over.

There were no nursing home places in the ACT-Balance Statistical Subdivision.

## 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 7.7). The rates for all of the cities for which data was 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 (see above). 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 7.7: Hostel places per 1,000 population aged 70 years and over, capital cities**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra <sup>1</sup>	All capitals
<b>1997</b>	<b>36</b>	<b>43</b>	<b>49</b>	<b>47</b>	<b>50</b>	<b>42</b>	<b>30</b>	<b>57</b>	<b>43</b>
<b>1992</b>	<b>28</b>	<b>35</b>	<b>55</b>	<b>43</b>	<b>45</b>	..	..	..	<b>37</b>

<sup>1</sup>Includes Queanbeyan (C)

Source: See *Data sources*, Appendix 1.3

### Canberra-Queanbeyan

There were 58 hostel places per 1,000 population aged 70 years and over in **Canberra-Queanbeyan** in 1997, a total of 16 hostel facilities and 884 places.

There were three hostel facilities in both Canberra South (155 places, 89.8 places per 1,000 population aged 70 years and over) and Weston Creek (108 places, 82.4 places per 1,000 population aged 70 years and over). Two hostel facilities were located in Canberra North (with a total of 149 places, 65.9 places per 1,000 population aged 70 years and over), Woden North (159 places, 153.8 places per 1,000 population aged 70 years and over) and

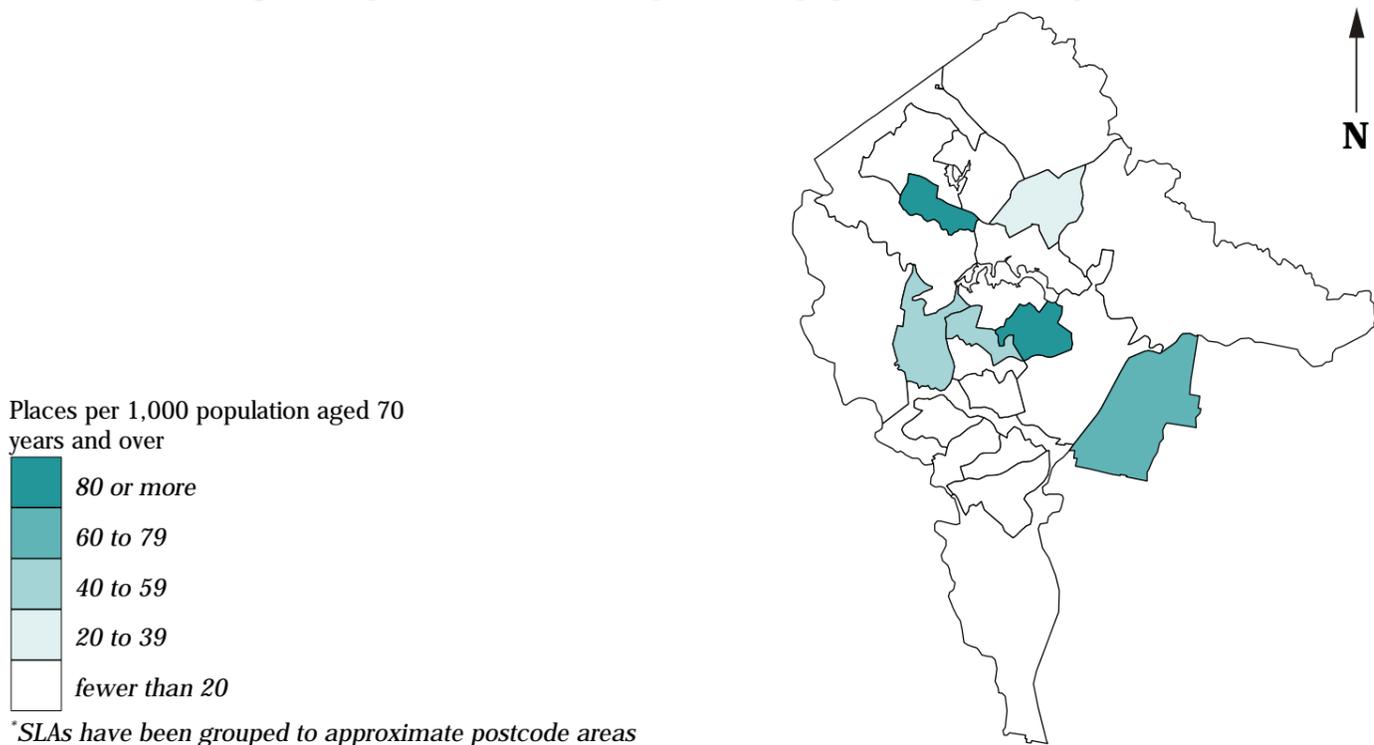
Belconnen South (105). There was one hostel facility in each of Canberra Central (34 places, 20.9 places per 1,000 population aged 70 years and over), Woden South (70 places, 74.4 places per 1,000 population aged 70 years and over) and Belconnen West (49 places, 40.9 places per 1,000 population aged 70 years and over).

Queanbeyan had one hostel facility which had 55 places 36.9 places per 1,000 population aged 70 years and over).

There were no hostel places in the ACT-Balance Statistical Subdivision.

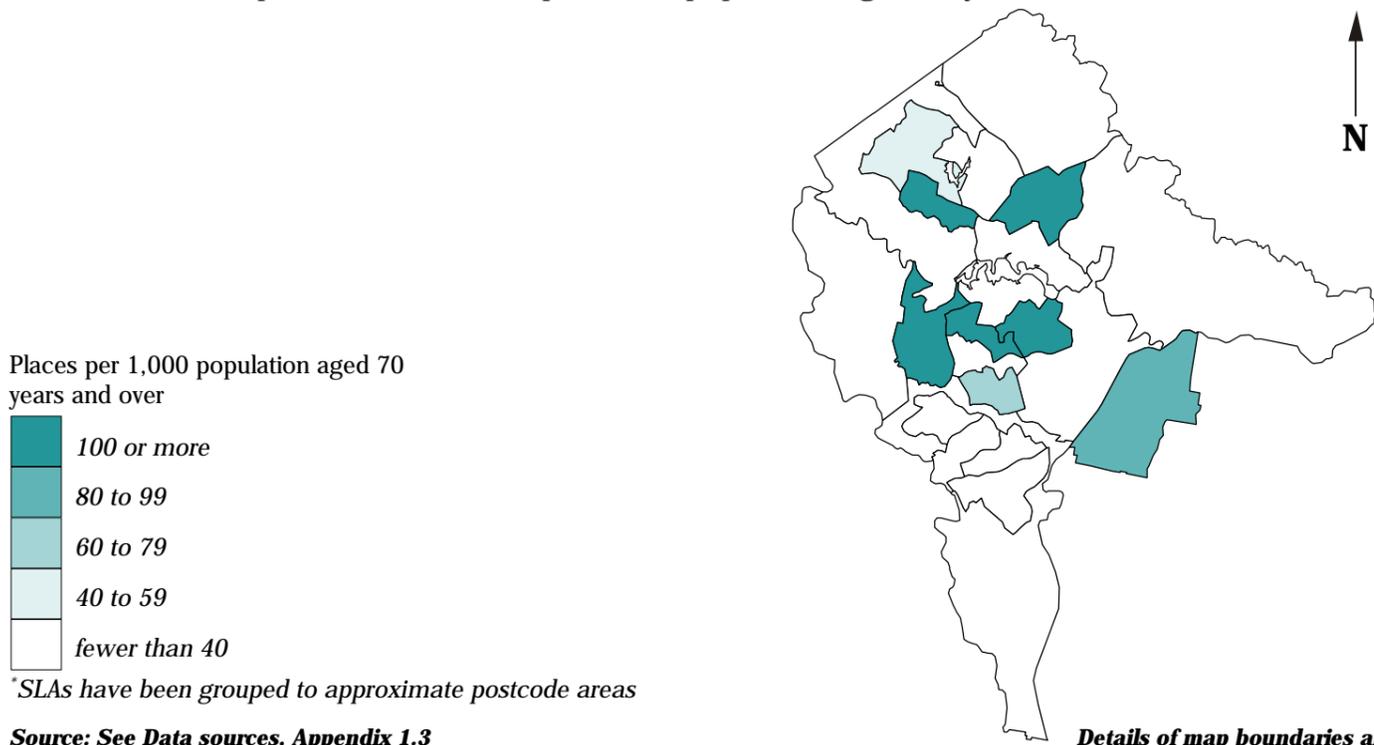
**Map 7.4: Nursing home places per 1,000 population aged 70 years and over, Canberra-Queanbeyan, 1997**

number of nursing home places in each area\* per 1,000 population aged 70 years and over



**Map 7.5: Hostel places per 1,000 population aged 70 years and over, Canberra-Queanbeyan, 1997**

number of hostel places in each 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

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