7 Analysis of regional health expenditure

This chapter examines differences in health utilisation and costs for Aboriginal and Torres Strait Islander people living in remote areas as compared to those living in accessible areas based on those expenditures that can be analysed by ARIA category. Difference in population size across and within regions, differences in access, differences in service delivery costs and possible differences in health needs all contribute to a different distribution of health resources. Analysis of regional factors is particularly important in light of the fact that over a quarter of Aboriginal and Torres Strait Islander people live in remote and very remote areas of Australia.

This analysis is restricted to the 50% of health services expenditure data that can be apportioned according to regions for both Aboriginal and Torres Strait Islander people and the total population (refer to Box 7.1).

Box 7.1: Composition of regional expenditure estimates

The expenditure categories within this chapter account for just over 50% of total recurrent expenditure on health services for Aboriginal and Torres Strait Islander people but are not entirely comparable with estimates in other chapters of the report. It is important to note the following points when examining results in this chapter:

- *The estimates of Commonwealth benefits under the Medicare Benefits Schedule exclude Medicare benefits for optometry and dental services.*
- *As in the Commonwealth chapter, Medicare and PBS estimates are calculated using BEACH (Bettering the Evaluation and Care of Health) survey data from 1998 and 1999, but are limited to records containing a valid postcode. As a consequence, 2.7% of services could not be attributed to a region. Thus the combined total of regional expenditures does not equal national expenditure reported in Chapter 3.*
- *Analysis of high-care residential aged care relates to Commonwealth expenditures only on residents with higher levels of dependency receiving health care services of a type that would have previously been mostly provided in a nursing home. The resident contribution is not included.*
- *The analysis of expenditures on hospital separations examines public expenditures for admitted patients from public acute-care institutions and private hospitals—both acute and non-acute public and private separations are incorporated. Private medical costs are not included in these expenditure estimates.*
- *OATSIH expenditure is limited to expenditure on services, including grants to State Governments where these are directed to service provision in Aboriginal and Torres Strait Islander communities. It excludes expenditure directed to areas such as consultancies, data, national projects, program development and capital costs as these are not available by ARIA. Consequently, the estimate is different from that presented in Chapter 3 for expenditure through OATSIH programs. Chapter 3 expenditure excludes grants to the States. The estimates have been adjusted to remove the welfare component and service use by non-Indigenous people, in accordance with the methodology in Chapter 3.*

The Accessibility/Remoteness Index of Australia (ARIA) classification has been used as the framework for analyses of regional expenditures. The location of the recipient of care is used to allocate an ARIA region in the examinations of Medicare and pharmaceutical benefits, high-care residential aged care and admitted patient data from public acute-care institutions. Expenditures by the Office of Aboriginal and Torres Strait Islander Health (OATSIH), however, are distributed according to service location. The details of the ARIA classification are described in Appendix 2.

Regional population and mortality data

The demographic pattern of Australia's Aboriginal and Torres Strait Islander population differs from the non-Indigenous population. Of the Aboriginal and Torres Strait Islander population, 27.5% resides in areas that are remote or very remote and comprises almost a quarter of the total population in these areas (see Table 7.1).

Only 2.6% of the total population resides in areas that are either remote or very remote from service centres. The vast majority (97%) resides in areas that are at least moderately accessible to service centres. Within the Aboriginal and Torres Strait Islander population, 72% resides in areas that are at least moderately accessible to service centres, with 27.5% in areas that are remote or very remote. This 27.5% comprises 11% of the total population residing in remote areas and 35% residing in very remote areas (see Figure 7.1).

Table 7.1: Population distribution in Australia by ARIA, 1998–99

	Total population		Indigenous population	
ARIA category	**No.**	**%**	**No.**	**%**
Highly accessible	15,349,960	81.5	173,746	42.7
Accessible	2,225,248	11.8	80,171	19.7
Moderately accessible	772,544	4.1	40,653	10.0
Remote	243,834	1.3	26,028	6.4
Very remote	242,176	1.3	85,912	21.1
Total	**18,833,763**	**100.0**	**406,510**	**100.0**

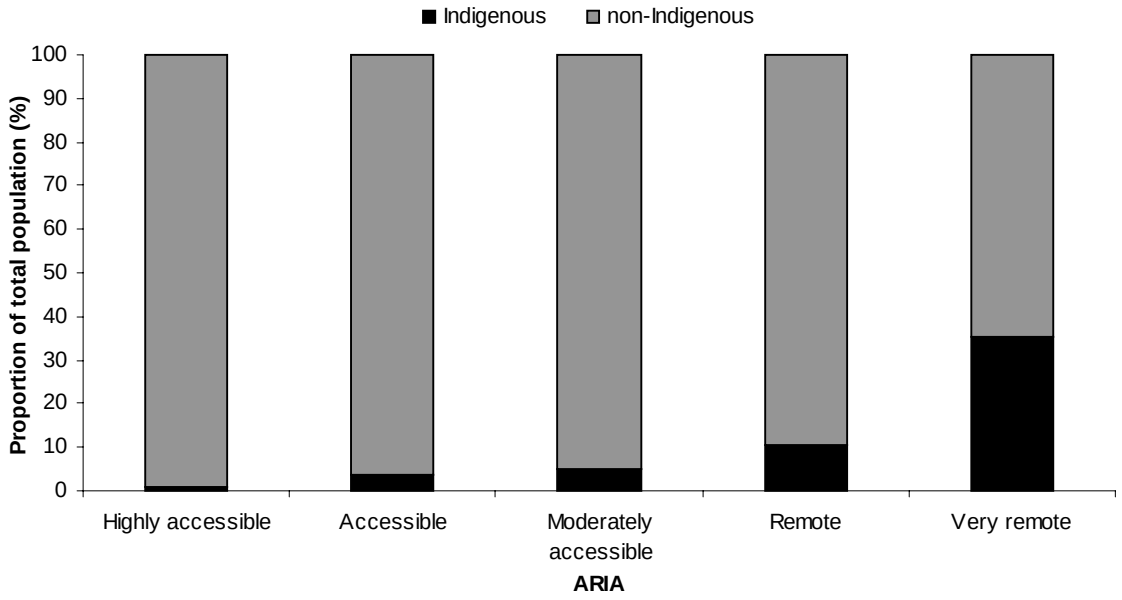
Note: The populations in this table include Other Territories.

Source: Adjusted ABS census data 1996, calculated on ARIA classification, DHAC 1999b.

The internal migration patterns of Aboriginal and Torres Strait Islander people between zones since 1996 are not taken into account in this projection because estimates for this population by statistical local area (SLA) were sourced from 1996 Census data. Accordingly, these estimates should be used with caution. Australian Bureau of Statistics (ABS) experimental projections of the Aboriginal and Torres Strait Islander population between 1996 and 1998–99 (ABS 1998) have been used to estimate the growth between 1996 and 1998–99 of Aboriginal and Torres Strait Islander ARIA populations. The increasing propensity to identify as an Aboriginal

and/or Torres Strait Islander person between the 1991 and 1996 censuses has meant that these populations are more difficult to project.

Such uncertainties restrict the publication of detailed age and sex population estimates for each region. However, some aggregate demographic patterns are worth noting. Within the non-Indigenous population 12.4% is aged 65 years and over. However, these people are under-represented in remote and very remote regions—comprising 8.3% and 3.3% of the total population respectively. The pattern is quite different for older Aboriginal and Torres Strait Islander people: people aged 55 years and over comprise 5.4% of the population and represent 7.1% and 7.5% in remote and very remote regions respectively. These demographic patterns are particularly relevant to health service use, especially residential aged care.



Note: The populations in this figure include Other Territories.

Source: Adjusted ABS Census data 1996, calculated on ARIA classification, DHAC 1999b.

Figure 7.1: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous people in the total population by ARIA, 1998–99 (%)

There are very few gender differences in relation to ARIA categories (see Table 7.2). Among the total population all regions other than highly accessible have a slightly higher proportion of males to females. The percentage difference between genders is greatest in the very remote region—relative to the total population, 16% more males reside in this area. The percentage differences between gender are not as high among the Indigenous population.

Table 7.2: Population distribution in Australia by gender and ARIA, 1998–99

	Total population			Indigenous population		
ARIA category	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Highly accessible (%)	81.0	82.0	81.5	42.5	43.0	42.7
Accessible (%)	12.0	11.6	11.8	19.5	19.9	19.7
Moderately accessible (%)	4.2	4.0	4.1	10.1	9.9	10.0
Remote (%)	1.4	1.2	1.3	6.5	6.3	6.4
Very remote (%)	1.4	1.2	1.3	21.4	20.9	21.1
Total (number)	**9,372,604**	**9,461,159**	**18,833,763**	**200,742**	**205,768**	**406,510**

Note: The populations in this table include Other Territories.

Source: Adjusted ABS census data 1996, calculated on ARIA classification, DHAC 1999b.

The higher mortality experienced by Aboriginal and Torres Strait Islander people is reflected in analysis of mortality by region. For all regions, whether metropolitan, rural or remote, the mortality rate of Aboriginal and Torres Strait Islander persons is at least twice the mortality rates of non-Indigenous people in those regions (AIHW 2000d:225). However it is not currently possible to draw conclusions about mortality differentials between regions for Aboriginal and Torres Strait Islander people because of the variable quality of the data.

Expenditure on admitted patient services

Data on separations and admitted patient expenditure from acute-care institutions is particularly informative in relation to the different health requirements of Aboriginal and Torres Strait Islander people in the more remote regions. Information collected indicating the patient's usual place of residence was used to allocate an ARIA category to patient separations. The analysis was conducted on separation and expenditure data adjusted for under-identification. Adjustment to public hospital data was according to the rates specified in Table 4.3, except for Western Australia where no under-identification factor was applied. In New South Wales different identification factors were applied for each Area Health Service (AHS) according to the data obtained from their record linkage project. This AHS-specific under-identification factor was applied to each patient's record according to the AHS hospital they used, but the regional analysis was according to the usual place of residence of the patient. In Queensland different under-identification factors were applied to each SLA. Little administrative data was available for each region on this issue, so a factor was applied so that the separation rates for Aboriginal and Torres Strait Islander people in each SLA were the same. In the analysis that follows Queensland is excluded, as the method for estimating Queensland obscures the very differences that one is attempting to understand.

The analysis in this chapter includes private hospitals. Estimates of Aboriginal and Torres Strait Islander private hospital usage are subject to substantial error. Frequently the Aboriginal and Torres Strait Islander status of private hospital

separations is not recorded. Analysis of linked hospital morbidity data from New South Wales revealed that the level of under-identification in private hospitals was 53.4%. This is probably an underestimate of actual under-identification. Data from all private hospitals have been adjusted by this factor. Sensitivity was done using different under-identification factors and the analysis below is little affected by the under-identification factor used, because so few of the Aboriginal and Torres Strait Islander population are recorded as using private hospitals. Even a doubling of a very low rate is still a very low rate.

Separations per head of population increase as one lives in more remote regions, but much of the increase is due to the Aboriginal and Torres Strait Islander population (Table 7.3).

For the non-Indigenous population the separation rate from public acute-care institutions and private hospitals increases somewhat in the less accessible areas, and then declines for people living in the very remote regions. The decline is largely due to age structure differences.

For the Aboriginal and Torres Strait Islander population the separation rate increases significantly as one moves from the highly accessible regions to the moderately accessible and accessible regions. The increase is even more for the remote region—a level 2.8 times the Aboriginal and Torres Strait Islander rate in the highly accessible regions. In the very remote regions separations are two times the amount for Aboriginal and Torres Strait Islander people in areas highly accessible to service centres.

When the Aboriginal and Torres Strait Islander separation rates for both public and private institutions are compared with the non-Indigenous rates in the same regions the difference is small in the highly accessible region—3%. The difference increases to a 176% and 195% difference in the remote and very remote regions respectively. These separation rates are not age-standardised but the differences by region are quite stark, and age-standardised analyses give similar trends (Phillips (in press)).

Table 7.3: Separation rates per 1,000 population, public acute-care institutions and private hospitals[(a)], Aboriginal and Torres Strait Islander status, by ARIA of patient residence, 1998–99

	Indigenous			Non-Indigenous			Total		
	Public	**Private**	**Total**	**Public**	**Private**	**Total**	**Public**	**Private**	**Total**
Highly accessible	293	22	315	201	104	305	202	103	305
Accessible	495	13	508	242	68	310	251	66	317
Moderately accessible	604	5	609	288	55	344	303	53	356
Remote	884	2	886	277	44	321	351	39	390
Very remote	634	1	635	190	25	215	348	16	365
Total	**468**	**13**	**481**	**210**	**99**	**308**	**215**	**97**	**312**

(a) Excludes Queensland hospitals.

Notes

1. 1,056 Indigenous separations and 33,025 non-Indigenous separations are excluded because no ARIA category could be allocated.
2. Separations where Indigenous status is not reported have been allocated between Indigenous and non-Indigenous using the same proportion as for identified separations.
3. Figures have been adjusted for under-identification. See Table 4.3 for public hospital under-identification factors used. Private hospital separations adjusted for under-identification of 53.4%.

Source: AIHW hospital establishments and morbidity data.

Comparison of separation rates per region to the national average for Aboriginal and Torres Strait Islander people shows that Indigenous people in areas highly accessible to service centres have lower separation rates than the national average (Table 7.4). Remote and very remote Aboriginal and Torres Strait Islander people have the greatest differences from the national average—84% and 32% greater. It is probable that the estimated highly accessible rate is too low, as it is difficult to accurately estimate the extent of under-identification. However, even allowing for this, the difference between the remote and very remote areas and the highly accessible areas is very large.

For non-Indigenous people separation rates are 43% lower than the national average in the very remote region. In all other regions, other than the moderately accessible region, the difference from the national average is less than 5%. The low rate in the very remote areas is due to the young age structure of non-Indigenous people living in these areas.

Table 7.4: Average separation rate per 1,000 population, public acute-care institutions and private hospitals[(a)], Indigenous status, by ARIA of patient residence, 1998–99

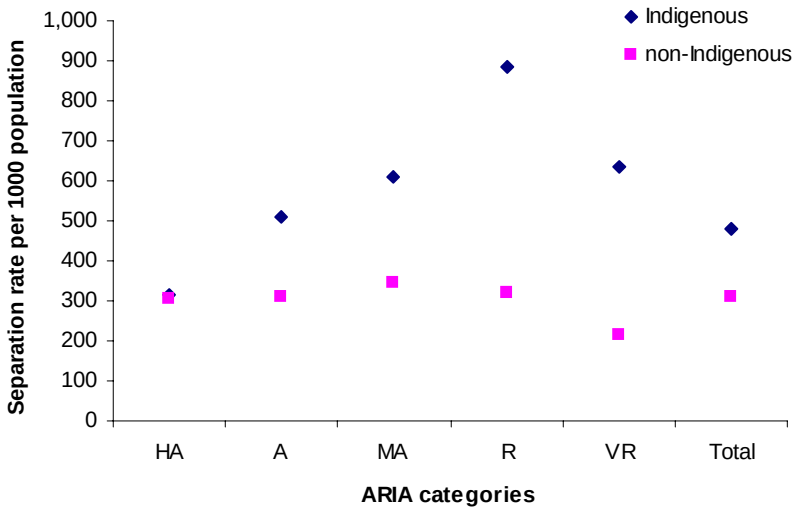
ARIA category	Indigenous	Difference from national Indigenous average (%)	Non-Indigenous	Difference from national non-Indigenous average (%)
Highly accessible	315	–52.7	305	–1.0
Accessible	508	5.6	310	0.6
Moderately accessible	609	26.9	344	11.7
Remote	886	84.2	321	4.2
Very remote	635	32.0	215	–43.3
Total	**481**	. .	**308**	. .

(a) Excludes Queensland hospitals.

Notes

1. 1,056 Indigenous separations and 33,025 non-Indigenous separations are excluded because no ARIA category could be allocated.
2. Separations where Indigenous status is not reported have been allocated between Indigenous and non-Indigenous using the same proportion as for identified separations.
3. Figures have been adjusted for under-identification. See Table 4.3 for under-identification factors used.

Source: AIHW hospital establishments and morbidity data.



(a) Excludes Queensland institutions.

Source: AIHW hospital establishments and morbidity data with adjustment for Aboriginal and Torres Strait Islander under-identification.

Figure 7.2: Separations per 1,000 population, public acute-care institutions and private hospitals[(a)], Aboriginal and Torres Strait Islander people and non-Indigenous people, 1998–99

A total of $311 million was spent on admitted patient services for Aboriginal and Torres Strait Islander people in public acute-care institutions and private hospitals (Table 7.5). Expenditures on services at private acute-care institutions accounted for

1.6% of this total. For non-Indigenous people, expenditures on private institutions were a quarter of the total admitted patient expenditure—$10,913 million.

The admitted patient expenditure per person shows somewhat different trends from separations (Table 7.5). In the highly accessible region the admitted patient expenditure per Aboriginal and Torres Strait Islander person—at $660—is 60% lower than the national average for Indigenous people. The expenditure per person in the highly accessible region is also lower than the equivalent per person expenditure on non-Indigenous people in this region. In comparison, per person expenditure for Aboriginal and Torres Strait Islander people in the remote and very remote regions is 72% and 57% higher than the national average expenditure per Aboriginal and Torres Strait Islander person. The higher expenditure per Aboriginal and Torres Strait Islander person in these regions is due to a combination of higher separation rates in the remote and very remote regions and higher costs per separation.

Fluctuations between regions in per person expenditure are not as marked among expenditure on non-Indigenous people; the greatest difference is in the very remote region where per person expenditure is 25% lower than the national average. Lower per person expenditure in the very remote region is influenced by the lower age structure of non-Indigenous people in these regions of Australia.

Table 7.5: Total admitted patient expenditure, public acute-care institutions and private hospitals[(a)], Indigenous status, by ARIA of patient residence, 1998–99

	Indigenous $m			Non-Indigenous $m		
ARIA category	**Public**	**Private**	**Total**	**Public**	**Private**	**Total**
Highly accessible	84	4	88	6,579	2,380	8,959
Accessible	55	1	56	1,112	241	1,353
Moderately accessible	22	0	23	288	46	334
Remote	31	0	31	91	11	101
Very remote	111	0	111	65	6	70
Total	**306**	**5**	**311**	**8,192**	**2,721**	**10,913**

(a) Excludes Queensland hospitals.

Notes

1. Private medical costs have not been included. Non-admitted patient expenditure in private hospitals was estimated to be 5% of total expenditure and was not included.
2. ARIA categories do not add to the total, as $2.7 million Indigenous expenditure and $94.6 million non-Indigenous is excluded because no ARIA code could be allocated.
3. Expenditure where Indigenous status is not reported has been allocated between Indigenous and non-Indigenous using the same proportion as for identified separations.
4. Figures have been adjusted for under-identification.

Source: AIHW hospital establishments and morbidity data.

Table 7.6: Admitted patient expenditure[a] per person, public acute-care institutions and private hospitals[b], by ARIA of patient residence, 1998–99

ARIA category	Indigenous per person ($)	Difference from national Indigenous average (%)	Non-Indigenous per person ($)	Difference from national non-Indigenous average (%)	Ratio
Highly accessible	660	–59.8	704	–3.0	. .
Accessible	953	–10.7	794	9.5	. .
Moderately accessible	1,185	12.4	879	21.2	. .
Remote	1,813	71.8	836	15.4	. .
Very remote	1,659	57.2	581	–24.8	. .
Total	**1,055**	**. .**	**725**	**. .**	**1.46**

(a) Total expenditures by public acute-care institutions and private hospitals are examined, but private medical costs not included. This underestimates the total costs of a hospital stay, and the underestimate is significantly greater for private hospitals compared with public acute-care institutions.

(b) Excludes Queensland hospitals.

Source: AIHW hospital establishments and morbidity data.

Table 7.7 provides estimates of average cost per separation (including acute and non-acute separations). In the very remote region the cost per separation for Aboriginal and Torres Strait Islander people is 19% higher than the national average for Aboriginal and Torres Strait Islander patients. The next most costly group of patients is those from the highly accessible region. This is largely due to the higher costs in the city hospitals—especially the teaching hospitals. Thus for costs per separation for Aboriginal and Torres Strait Islander people there is a U-shaped curve.

For non-Indigenous people the trend is different, with a steady increase in costs per separation as one moves from residents in highly accessible areas to residents in the more remote areas. This reflects the fact that non-Indigenous people from the accessible and moderately accessible regions tend to use the more expensive city teaching hospitals more often than Aboriginal and Torres Strait Islander people in their regions.

Table 7.7: Average admitted patient expenditure per casemix weighted separation, public acute-care institutions and private hospitals[a], by ARIA of patient residence, 1998–99

ARIA category	Indigenous	Difference from national Indigenous average (%)	Non-Indigenous	Difference from national non-Indigenous average (%)	Ratio
Highly accessible	2,097	–4.5	2,305	–2.0	. .
Accessible	1,877	–16.7	2,557	8.8	. .
Moderately accessible	1,948	–12.5	2,556	8.8	. .
Remote	2,045	–7.1	2,607	10.9	. .
Very remote	2,613	19.3	2,699	14.9	. .
Total	**2,191**	**. .**	**2,350**	**. .**	**0.93**

(a) Excludes Queensland acute-care institutions.

Source: AIHW hospital establishments and morbidity data.

Further analyses are required to understand the reasons for the regional differences in hospital separation rates and expenditure per person. Analyses of differences in age structures, in DRG rates for each age group, and between States are required. In addition the factors driving differences in costs such as length of stay differentials and costs of hospitals used need examination.

Expenditure on medical services and pharmaceuticals

Careful interpretation of the regional patterns of Medicare and PBS benefits to Aboriginal and Torres Strait Islander people is necessary, given the BEACH survey's limited sample of Aboriginal and Torres Strait Islander encounters in some ARIA regions (refer to Appendix 3 for discussion of methodological issues including statistical error). Information for the remote and very remote regions was combined due to the small samples elicited in these two regions. Estimates of service use per region presented here are derived from the patient postcode reported in BEACH data from 1998 and 1999.

Table 7.8 provides some context for the estimates of regional expenditure in this section. The regional pattern of Indigenous and non-Indigenous encounters reflects differences in residential patterns of the Aboriginal and Torres Strait Islander population and the non-Indigenous population. For instance, 81% of non-Indigenous encounters takes place in highly accessible regions, compared with 45% of Aboriginal and Torres Strait Islander encounters.

In the remote and very remote regions, where 27% of the Aboriginal and Torres Strait Islander population resides, their encounters contribute only 12.1% of all Indigenous encounters.

Table 7.8: Encounters per region by Indigenous status, with rates and confidence intervals per 100 Aboriginal and Torres Strait Islander and non-Indigenous encounters, 1998 and 1999 BEACH data

ARIA region	Number of non-Indigenous encounters	Proportion of non-Indigenous encounters (%)	95% confidence interval	Number of Indigenous encounters	Proportion of Indigenous encounters (%)	95% confidence interval
Highly accessible	161,632	80.5	79.3–81.8	1,090	44.7	35.6–53.9
Accessible	23,670	11.8	10.7–12.9	674	27.7	20.4–35.0
Moderately accessible	7,765	3.9	3.2–4.5	296	12.2	8.5–15.8
Remote and very remote	2,138	1.1	0.7–1.4	294	12.1	4.5–19.6
Unknown	5,456	2.7	. .	82	3.4	. .

Source: AIHW – GPSCU BEACH data, 1998 and 1999.

The combined sum of total benefits to each region does not equal the total benefits paid in Chapter 3 ($79.7 million), as a region could not be determined for all encounters.

Generally Aboriginal and Torres Strait Islander people's access to Medicare and the PBS was less than half that of non-Indigenous people in each region (Chapter 3). Medicare and pharmaceutical benefits paid per person were generally greatest in areas that are highly accessible to service centres and least in the remote and very remote regions (Table 7.9). Aboriginal and Torres Strait Islander people living in the most remote regions were found to receive approximately half of the benefits received by Aboriginal and Torres Strait Islander people within the highly accessible region. This was similar to the pattern for non-Indigenous people; however, the lower benefits to non-Indigenous people in the remote and very remote regions must be considered in light of the younger non-Indigenous age structure in these regions.

Some of these differences may be explained by the use of Aboriginal Community Controlled Health Services (ACCHSs) or non-admitted patient services at hospitals. However, as discussed in Chapter 3, a large proportion of ACCHSs now bill Medicare; accordingly, benefits paid to ACCHSs would be reflected in these estimates. Without information on the full set of services available in each region it is difficult to draw conclusions.

Differences between regions were most apparent in the PBS benefits; it was estimated that for every dollar spent on Aboriginal and Torres Strait Islander people in the highly accessible region, only 40 cents was spent on Indigenous people in the remote and very remote regions. The difference between non-Indigenous and Aboriginal and Torres Strait Islander per person expenditure is even more stark; one-seventh of the pharmaceutical benefits to highly accessible non-Indigenous people reaches Aboriginal and Torres Strait Islander people in remote regions.

Differences between regional medical benefits to Aboriginal and Torres Strait Islander people were also evident for general practitioner services; in the highly accessible region Aboriginal and Torres Strait Islander people received over two times the benefits paid to Indigenous people in the remote and very remote regions. Comparison of GP-derived pharmaceutical benefits in the accessible and remote regions demonstrated a similar pattern; per person benefits to Aboriginal and Torres Strait Islander people in accessible areas was more than 2.4 times that of benefits paid per person in remote regions.

Table 7.9: Estimated Medicare and PBS benefits paid per person per region[a], by type of service, for Indigenous and non-Indigenous people, 1998–99 ($)

	Indigenous					Non-Indigenous				
	HA	A	MA	R & VR	All[b] regions	HA	A	MA	R & VR	All[b] regions
Medicare										
GP	79.0	78.4	69.8	37.8	70.5	132.1	101.3	100.2	80.9	126.1
Pathology	28.6	26.8	26.4	14.3	26.7	56.6	46.3	41.4	27.2	54.1
Imaging	22.9	26.6	22.7	15.6	22.6	59.9	48.4	43.9	29.1	57.3
Specialist	26.3	24.1	23.9	16.0	23.5	118.7	92.7	89.3	59.3	113.3
Total Medicare	*156.7*	*155.8*	*142.9*	*83.7*	*143.4*	*367.3*	*288.7*	*274.9*	*196.6*	*350.8*
PBS[c]										
GP	48.7	53.0	46.4	22.3	44.8	125.0	97.7	96.0	78.8	125.4
Specialist	5.8	4.8	4.2	0.3	5.1	26.1	18.5	15.7	10.0	24.5
Doctor's bag	0.4	0.6	0.5	0.0	0.4	0.7	0.7	0.7	0.4	0.7
Total PBS	*54.9*	*58.4*	*51.1*	*22.6*	*50.3*	*151.8*	*117.0*	*112.4*	*89.2*	*150.6*
All benefits	**211.6**	**214.1**	**194.0**	**106.3**	**193.6**	**519.1**	**405.6**	**387.3**	**285.8**	**501.4**

(a) ARIA categories: Highly accessible (HA), Accessible (A), Moderately accessible (MA), Remote and very remote (R & VR).

(b) Regions were not known for all BEACH encounters, 'All regions' include those encounters for which a region was not known.

(c) RPBS benefits through regions are not included.

Source: AIHW – GPSCU BEACH data, 1998 and 1999, calculated on ARIA classification, DHAC 1999b.

Regional differences in per person benefits for Aboriginal and Torres Strait Islander people are summarised in Table 7.10. The ratios of benefits per person per region for Aboriginal and Torres Strait Islander people to the national total for Aboriginal and Torres Strait Islander people are presented in the upper section of Table 7.10. In the lower section, estimated total benefits per region for Aboriginal and Torres Strait Islander people are compared with the national total of benefits for non-Indigenous people.

Overall, there are much lower levels of Medicare/PBS benefits to Aboriginal and Torres Strait Islander people compared with non-Indigenous people. And then within the Aboriginal and Torres Strait Islander population there are marked differences in the estimates of benefits received in the different regions. Those living in the remote and very remote regions receive lower shares of Medicare and pharmaceutical benefits than their counterparts in more accessible regions. For example, outlays through the PBS to remotely located Aboriginal and Torres Strait Islander people were found to be less than half (45%) of that spent on Aboriginal and Torres Strait Islander people across all regions. Aboriginal and Torres Strait Islander people in the highly accessible region receive marginally more (9%) than the national estimate of total Medicare and PBS benefits to Aboriginal and Torres Strait Islander people.

Comparison of per person benefits for Aboriginal and Torres Strait Islander people with national estimates for non-Indigenous people highlights the disparity for remote and very remote regions. The national average for Indigenous people is

39 cents for every dollar spent on non-Indigenous people. In the remote and very remote regions it is estimated that Aboriginal and Torres Strait Islander people receive a fifth of the benefits received by non-Indigenous people nationally. For Aboriginal and Torres Strait Islander people located in the highly accessible and accessible regions, 42 and 43 cents (respectively) is spent for every dollar spent on non-Indigenous people. This is somewhat above the national average for Aboriginal and Torres Strait Islander people, but not substantially above.

This indicates that regional differences in use of Medicare/PBS are contributing to some extent to the low overall Indigenous/non-Indigenous population ratio of 0.39:1, but are not the dominant explanation.

Table 7.10: Estimated Medicare and PBS benefits, ratios per person for Aboriginal and Torres Strait Islander people to total Indigenous and total non-Indigenous benefits, 1998–99

Services	Highly accessible	Accessible	Moderately accessible	Remote and very remote	Total all areas
			Ratio to total Indigenous benefits per person		
Total Medicare benefits	1.09	1.09	1.00	0.58	1.00[(a)]
Total pharmaceutical benefits[(b)]	1.09	1.16	1.02	0.45	1.00[(a)]
All benefits	**1.09**	**1.11**	**1.00**	**0.55**	**1.00[(a)]**
			Ratio of Aboriginal and Torres Strait Islander to total non-Indigenous benefits per person		
Total Medicare benefits	. .	. .	. .	. .	. .
Total Pharmaceutical benefits	. .	. .	. .	. .	. .
All benefits	**0.42**	**0.43**	**0.39**	**0.21**	**0.39[(c)]**

(a) All BEACH encounters for which region is known.

(b) RPBS benefits are not included.

(c) Regions were not known for all BEACH encounters. 'Total' here includes those encounters for which a region was not known.

Source: AIHW – GPSCU BEACH data, 1998 and 1999, calculated on ARIA classification, DHAC 1999b.

OATSIH funding by region

The Commonwealth Department of Health and Aged Care provides resources for the provision of primary health care in Aboriginal and Torres Strait Islander communities through OATSIH. Details of the composition of this expenditure are provided in Box 7.1.

Table 7.11 provides OATSIH expenditure, by ARIA. An estimate of the welfare component of these services, and use of services by non-Indigenous people was removed, in accordance with the methodology described for ACCHSs in Chapter 3. Categorisation by ARIA is done by service location rather than place of residence of the patient.

Remote and very remote per person expenditure is higher than for more accessible regions. The substantially higher expenditure per person in the remote region may be explained by the location of ACCHSs, which are often situated in remote regions

yet provide services to people in very remote regions. This is partly the result of historical distribution and lack of access to alternative services such as general practitioners in private practice. However, without information on the full range of services available in each region this is difficult to determine.

The lower per person expenditure in the moderately accessible region is partially explained by the higher use of other services by Indigenous people in this region (Table 7.15). Per person expenditure in the remote and very remote regions combined is $386, 81% higher than spending on Aboriginal and Torres Strait Islander people in highly accessible regions. In light of estimates of Medicare and PBS benefits to remote regions, these differences are not remarkable.

Table 7.11: OATSIH expenditure[(a)], by ARIA category, total and per person for Aboriginal and Torres Strait Islander people, 1998–99

ARIA category	Total ($m)	Total Indigenous—health component ($m)	Per person exp ($)
Highly accessible	47.9	36.9	212.48
Accessible	24.1	18.2	226.82
Moderately accessible	6.4	4.0	97.93
Remote	22.0	17.9	686.96
Very remote	32.3	25.5	296.37
Remote and very remote	*54.2*	*43.2*	*385.57*
Total	**132.6**	**102.4**	**295.02**

(a) Excludes capital expenditures.

Source: Commonwealth Department of Health and Aged Care, unpublished data.

Commonwealth expenditure on high-care residential aged care by ARIA

Commonwealth expenditure on high-care residential aged care relates to services that would have previously been mostly provided in a nursing home, that is services for residents with high levels of dependency (residential classification scales 1 to 4).

Flexible Care Services operate mainly in regional and remote areas and currently service approximately 20% of Aboriginal and Torres Strait Islander aged care clients in a mix of high, low and community care aged places. Flexible Care Services expenditures for Aboriginal and Torres Strait Islander people totalled $5,872,000. It is estimated that 63% of this ($3,720,899) was allocated to Indigenous high-care places. The Australian Capital Territory and Western Australia did not receive Flexible Care Service funds. Tasmania received funds but no expenditure was allocated to high-care places.

The data in this section are only on Commonwealth benefits for aged care homes, as data by region for resident payments and subsidies by State Governments to their

aged care homes were not available. But there is unlikely to be much bias in the results because these payments and subsidies have been omitted.

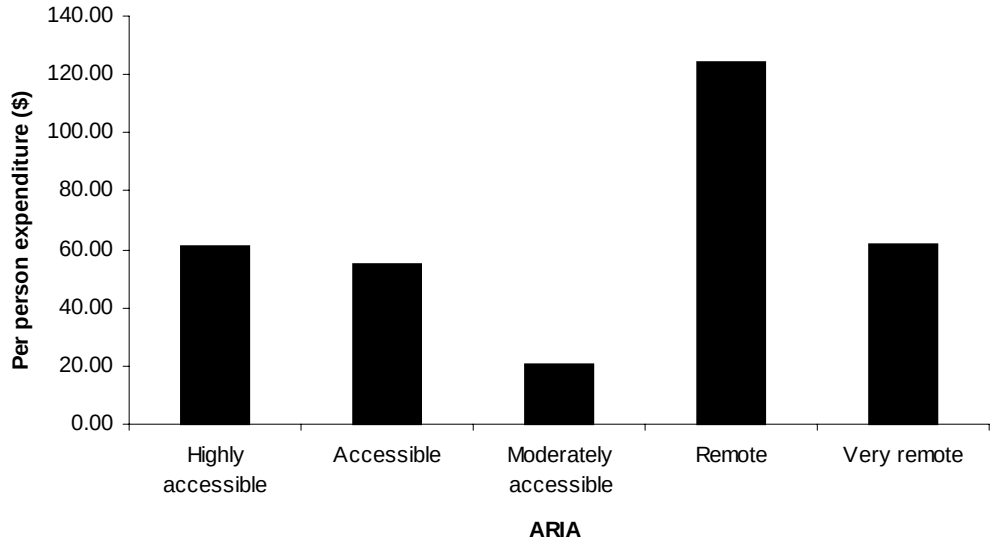
Overall, Aboriginal and Torres Strait Islander people received less than 1% ($24,407,968) of the total Commonwealth expenditure on high-care residential aged care—$2,641,641,139 (Table 7.12). This proportion varied from region to region ranging from 0.5% in the highly accessible areas to 51% in the very remote regions. This difference relates to both where the Aboriginal and Torres Strait Islander population lives (Table 7.1) and to different usage rates in different regions (Table 7.12).

Table 7.12: Government funding for Aboriginal and Torres Strait Islander high-care residential aged care by ARIA region, 1998–99

	ARIA					
	Highly accessible	Accessible	Moderately accessible	Remote	Very remote	Total
Indigenous ($)	10,585,304	4,428,347	834,319	3,233,147	5,326,850	24,407,968
Non-Indigenous ($)	2,274,800,547	263,429,895	62,865,626	11,115,498	5,021,604	2,617,233,171
Total	**2,285,385,852**	**267,858,243**	**63,699,945**	**14,348,645**	**10,348,454**	**2,641,641,139**

Source: AIHW analysis of DHAC unpublished residential care data, calculated on ARIA classification, DHAC 1999b.

Expenditure on aged care per person for the non-Indigenous population declines steadily with increasing remoteness from service centres. This pattern is not unexpected in light of the younger age structure of the non-Indigenous population in more remote areas. Among the Aboriginal and Torres Strait Islander population the pattern is quite different, with the highest per person expenditure occurring in the remote areas ($124) and the least in moderately accessible areas ($20) (Figure 7.3).



Source: Derived from Commonwealth Department of Health and Aged Care unpublished data, calculated on ARIA classification, DHAC 1999b.

Figure 7.3: Commonwealth benefits for Aboriginal and Torres Strait Islander high-care residential aged care by ARIA, 1998–99

The proportion of government funding for Aboriginal and Torres Strait Islander populations varies greatly according to location, with significantly more expenditure on aged care per person occurring in the remote and very remote regions. Per person expenditure on aged care, calculated on the total population in each region, is presented in Table 7.13. Readers should interpret these figures in light of population demographics discussed earlier in this chapter. For instance, the proportion of the non-Indigenous population aged over 65 years in remote and very remote regions is much lower than that in the more accessible regions.

Table 7.14 facilitates interpretation of the expenditures on Aboriginal and Torres Strait Islander people. Per person expenditure is highest in the remote region where only 6% of Aboriginal and Torres Strait Islander people reside. Comparatively, in the moderately accessible region, where 6.3% of Aboriginal and Torres Strait Islander people are aged 55 years and over, per person expenditure is $20.52.

However, these results also provide evidence of a greater provision of services to the remote region, particularly in comparison with the two surrounding regions. It should also be remembered that residential home care may not be the most appropriate model of care for many Aboriginal and Torres Strait Islander people. Community Aged Care Packages and Flexible Care Services were developed as a response to the different needs of Aboriginal and Torres Strait Islander people in remote areas.

Table 7.13: Per person expenditure on high-care residential aged care by ARIA, 1998–99

ARIA	Indigenous $	non-Indigenous $	Ratio
Highly accessible	60.92	149.89	0.41
Accessible	55.24	122.81	0.45
Moderately accessible	20.52	85.89	0.24
Remote	124.22	51.03	2.43
Very remote	62.00	32.14	1.93
Remote & very remote	*76.47*	*43.14*	*1.77*
Total	**60.04**	**142.03**	**0.42**

Note: Based on total population including Other Territories.

Source: AIHW analysis of DHAC unpublished residential care data, calculated on ARIA classification; DHAC 1999b.

Table 7.14: Age distribution of Aboriginal and Torres Strait Islander population by ARIA, 1998–99

ARIA	Proportion of total Indigenous population	Indigenous people 55+ years (%)
Highly accessible	42.7	5.4
Accessible	19.7	6.2
Moderately accessible	10.0	6.3
Remote	6.4	7.1
Very remote	21.1	7.5

Source: Adjusted ABS census data1996, calculated on ARIA classification, DHAC 1999b.

Summary

This chapter demonstrates differences in health utilisation and costs for Aboriginal and Torres Strait Islander people living in remote areas compared with those living in accessible areas, based on those expenditures that can be analysed by ARIA category. Had it been possible to include a greater proportion of total expenditures in the analysis (such as State-funded community health services) then the overall pattern of expenditure distribution shown here may have been different.

Aboriginal and Torres Strait Islander people in the remote and very remote regions have rates of separation from hospitals more than twice that of Aboriginal and Torres Strait Islander people in the highly accessible region. Age structure does not account for any significant part of the difference. The causes of this pattern are not able to be determined from these data. They could be related to different patterns of service delivery, differences in access, different health needs, or a mix of these and other factors.

Commonwealth expenditure on aged care facilities for Aboriginal and Torres Strait Islander people is higher than in more accessible regions.

There are less services provided through the Medicare and pharmaceutical benefit schemes for people in the remote and very remote regions compared with the more accessible regions. The higher OATSIH expenditure (mainly through the ACCHSs) in

the remote and very remote regions may balance this lower provision through the Medicare and pharmaceutical benefit schemes, but it must be borne in mind that ACCHSs are providing many more services than medical.

Consideration must also be given to the cost of delivering services to the very remote regions, which hospital analyses indicate are higher.

Overall for these selected health services there is approximately twice the expenditure per person for Aboriginal and Torres Strait Islander people living in the remote and very remote areas compared with those living in the highly accessible areas.

Table 7.15: Health expenditures per person on selected health services, Aboriginal and Torres Strait Islander people and non-Indigenous people, by ARIA, 1998–99 ($)

Area of expenditure		Highly accessible	Accessible	Moderately accessible	Remote and very remote	Total
Public acute-care institutions and private hospitals[(a)]	Indigenous	660	953	1,185	1,690	**1,055**
	Non-Indigenous	704	794	879	709	**725**
High-care residential aged care (Commonwealth benefit only)	Indigenous	61	55	21	76	**60**
	Non-Indigenous	150	123	86	43	**142**
Medicare (medical only)[(b)]	Indigenous	157	156	143	84	**143**
	Non-Indigenous	367	289	275	197	**351**
PBS[(c)]	Indigenous	55	58	51	23	**50**
	Non-Indigenous	152	117	112	89	**151**
OATSIH	Indigenous	212	227	98	386	**252**
Total for selected health services	**Indigenous**	**1,145**	**1,449**	**1,498**	**2,259**	**1,561**
	Non-Indigenous	**1,373**	**1,323**	**1,352**	**1,038**	**1,368**

(a) Excludes Queensland hospitals.

(b) Excludes Medicare benefits for optometry and dental services.

(c) Excludes Repatriation Pharmaceutical Benefits Scheme.

Source: AIHW Health Expenditure Database.