Expenditures on health services for Aboriginal and Torres Strait Islander people, 1998–99

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Preface

The 1998 report, *Expenditures on Health Services for Aboriginal and Torres Strait Islander People*, produced by the National Centre for Epidemiology and Population Health and the Australian Institute of Health and Welfare (AIHW), provided information about expenditure for Aboriginal and Torres Strait Islander people, and how this compared with expenditure for non-Indigenous Australians.

The first report provided detailed information about where and for what purposes this expenditure occurred, and although there were uncertainties with some data, the report did provide *for the first time* a comprehensive picture of a most important area of Australian health services use. The report dispelled some myths about Aboriginal and Torres Strait Islander health services expenditure that were then current.

Three years on, this second report examines Aboriginal and Torres Strait Islander health expenditure in 1998–99. It repeats the analyses of the first report, in some cases with more refined methods. It also extends the analyses by examining health expenditures for Aboriginal and Torres Strait Islander people in remote regions of Australia as compared with more accessible regions.

This report could not have been put together without the cooperation of all State and Territory health authorities, and the guidance of the Aboriginal and Torres Strait Islander Health Expenditure Steering Committee. Professor John Deeble from the National Centre for Epidemiology and Population Health had a major role, especially in terms of his intellectual contribution. In addition to the principal authors—Justine Boland, John Goss and John Deeble—staff in the Health and Welfare Expenditure Unit of the Australian Institute of Health and Welfare and in the Office of Aboriginal and Torres Strait Islander Health made a very important contribution.

This report highlights areas where work is required to more accurately identify the extent and type of health services being delivered to Aboriginal and Torres Strait Islander people. Hospitals have improved their identification practices, but further work is required. There are still major inadequacies in the identification of Aboriginal and Torres Strait Islander use of mainstream community health services. Work to improve this situation is occurring through the implementation of *The Aboriginal and Torres Strait Islander Health Information Plan…This time, let's make it happen* (AIHW 1997).

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Executive summary

Background

This report examines expenditures on the provision of health services to Aboriginal and Torres Strait Islander people by Australian governments and the private sector for the 1998–99 financial year. It follows on an earlier report covering similar expenditures for the 1995–96 financial year by Deeble et al. (1998).

As noted in that earlier report, the life circumstances of Aboriginal and Torres Strait Islander people differ from the general Australian population in a number of important respects which significantly affect their general health status and consequent health care needs. It is estimated that the total Aboriginal and Torres Strait Islander population in 1998–99 was 406,000 people. This represents 2.2% of Australia's total population. Of these, over a quarter (27.5%) reside in remote areas, compared with only 2.6% of the total Australian population. The age demographic for Aboriginal and Torres Strait Islander people is much younger than the Australian norm. The average annual income for Indigenous Australians is also much lower than for their non-Indigenous counterparts.

Related to these distinctive circumstances, Aboriginal and Torres Strait Islander people typically have the poorest health status of all Australians. Average life expectancy at birth is estimated to be 20 years lower than that of other Australians and the infant mortality rate in the Northern Territory, Western Australia and South Australia[1] for 1995–97 was over three times the rate for all Australian infants.

Key results

Health expenditures by the categories of government and private sector, by region and by primary or secondary/tertiary health care are examined. The patterns of health expenditure in 1998–99 are compared with the findings of the first report on expenditures in 1995–96.

The task of measuring health resource allocation for Aboriginal and Torres Strait Islander people is a difficult one. This reflects the limitations of the data which are often difficult to obtain and/or incomplete in nature. Significantly, the vast majority of Indigenous health expenditure is allocated through mainstream health programs and such services generally do not, or only incompletely, document use specifically by Aboriginal and Torres Strait Islander people—Medicare data, for example, do not include an Indigenous identifier. Inadequate or incomplete data have required the

[1] The Northern Territory, Western Australia and South Australia are the only States with accurate Indigenous identification in death statistics in this period.

use of surveys and other estimation techniques. Even such crucial information as the number of Aboriginal and Torres Strait Islander people in Australia is uncertain. In this report the 'low' Australian Bureau of Statistics estimate of the Aboriginal and Torres Strait Islander population was used (see Appendix 2). Uncertainties with data have impact with regard to the estimates of hospital admission rates, expenditure and expenditure ratios. Thus interpretation of the numbers in this report should allow for these enumeration and statistical errors.

The findings of this report are very similar in nature to those of the first report on health expenditures for Aboriginal and Torres Strait Islander people in 1995–96.

Despite their much poorer health status—on average three times worse than other Australians'—total expenditures per person for health services for Aboriginal and Torres Strait Islander people are not much higher than for the rest of the population. Total expenditures were estimated at $1,245 million in 1998–99. That was equivalent to $3,065 per person, compared with the $2,518 per person estimated to have been spent for non-Indigenous people, a ratio of 1.22:1. (This ratio is subject to the data uncertainties discussed above. For example, the 'high' population estimate is 8½% higher than the 'low' population estimate. If the 'high' estimate was used, the Indigenous/non-Indigenous health expenditure and morbidity ratios would decrease proportionally).

There were significant differences in the patterns of expenditure. Aboriginal and Torres Strait Islander people were on average much higher users of publicly funded health services than non-Indigenous people. Reflecting their significantly lower income level, Indigenous people used fewer privately funded services such as doctors in private practice, private hospitals, dentists and other privately funded allied heath professionals. When relative income position was taken into account, public expenditures on the health of Aboriginal and Torres Strait Islander people appear to have been similar to that for non-Indigenous people in low-income groups.

In common with other low-income groups Indigenous people have relatively poor health status; however, their health is worse. Because the health status of Indigenous people is so poor the opportunities to improve it are considerable. In this context it is noteworthy that the ratio of per person Indigenous to non-Indigenous expenditures on primary health care services, where much of the work to improve overall health status occurs, was 1.27:1.

Expenditures through the major Commonwealth-funded health programs, Medicare and the Pharmaceutical Benefits Scheme, were much lower for Aboriginal and Torres Strait Islander people than for other Australians. Together they contributed only 7.3% of total expenditures on health services for Indigenous people compared with 23.9% of total expenditures for non-Indigenous people. Per person expenditure on Aboriginal and Torres Strait Islander people through these two programs was 37% of that for non-Indigenous people.

Aboriginal and Torres Strait Islander people were much higher users of State-funded health services, in particular admitted patient services in hospitals and community health services.

The report also examined variations in the patterns of expenditure between highly accessible and more remote areas based on the Accessibility/Remoteness Index of Australia (ARIA) scale of remoteness. Due to the limitations of the data, only 50% of expenditures could be included in this analysis, and it is therefore difficult to determine any overall trends in expenditure between regions. The analysis did show decreasing levels of access to Medicare-funded services and pharmaceutical benefits as remoteness increased. In contrast, there was an increase in admitted patient expenditure with increasing remoteness. This was reflected in patterns of expenditure by State. States with a large proportion of Indigenous people living in remote regions generally had higher per person expenditures on hospital services. These higher hospital expenditures are partly due to the higher cost of providing services in remote regions. If the higher costs of providing services in remote areas could be factored in, the ratio of Aboriginal and Torres Strait Islander health service use to non-Indigenous services use would be lower than the expenditure ratio of 1.22:1. For example, the Commonwealth Grants Commission recognises the higher costs of service delivery in remote areas. Further research is needed in this area (McDermott 1995).

Overall, when sources of funds are examined, the Commonwealth and State Governments contributed very similar amounts to health services for Aboriginal and Torres Strait Islander people. Over 50% of the Commonwealth's contribution was indirect through its contribution to public hospital funding.

It is difficult to directly compare the figures in this report with those of the first report on 1995–96 expenditure as there have been changes in both methodology and data availability. Nonetheless, after controlling for population growth and inflation, there are areas where it is possible to say with some confidence that there have been increases in funding and service provision.

A note on rounding: **Figures in tables and the text have sometimes been rounded. Discrepancies between totals and sums of components are due to rounding.**

1 Overview

This chapter summarises the main results of the 1998–99 study. Methodologies, sources of data and more detailed results are shown in the chapters which follow.

Funding and administration of health services in Australia is a shared responsibility, with Commonwealth, State and local governments, and individuals all contributing funding for the full mix of health services used by the community, and with differing administrative arrangements for different services. In this report expenditure is reported primarily by program. The term 'program' is used to group services of the same type—for example, medical, allied health or hospital services—that also have the same funding and administrative arrangements (Appendix 1).

These arrangements may be quite complex. For example, the Pharmaceutical Benefits Scheme (PBS) is administered by the Commonwealth, with pharmaceuticals being provided by private providers and paid for by a mix of Commonwealth funds and consumer co-payments. Public hospitals provide both public and private services. They are administered by State governments and jointly funded by the Commonwealth, the States and private patient payments. Private hospital services are administered and delivered by private organisations, regulated by Governments and funded through a mix of private payments from health funds and consumers and Commonwealth funding through the Department of Veterans' Affairs (DVA) and the 30% rebate for private health insurance.

The information on expenditure provided below is arranged to reflect this diversity and provides the same information from a number of different viewpoints. Expenditure is presented by area of administrative responsibility, by source of funds, by type of service and by jurisdiction. There is also an analysis of regional patterns of expenditure, an examination of the split between primary and secondary/tertiary care, and a comparison with the estimates for 1995–96 produced for the first expenditure report.

This information should be considered in the context of Aboriginal and Torres Strait Islander health status, income and demographics:

(a) Aboriginal and Torres Strait Islander people have the poorest health of any sub-population in Australia. Life expectancy at birth for Aboriginal and Torres Strait Islander people is estimated to be about 20 years lower than for all Australians (ABS & AIHW 1999).

(b) The incomes of Aboriginal and Torres Strait Islander people are much lower than those of the non-Indigenous population. The median weekly income for Aboriginal and Torres Strait Islander adult males was $189, less than half of the median for non-Indigenous males.

(c) Over a quarter of Aboriginal and Torres Strait Islander people (27.5%) reside in remote and very remote areas, compared with 2.6% of the total population.

Total expenditures

Total expenditures on health services for Aboriginal and Torres Strait Islander people are estimated at $1,245 million in 1998–99. That was equivalent to $3,065 per person, compared with the $2,518 per person estimated to have been spent for non-Indigenous people. The ratio of expenditures for Aboriginal and Torres Strait Islander people to those for non-Indigenous people was 1.22:1.

While the sections below examine expenditures for health services for Aboriginal and Torres Strait Islander people from a number of perspectives, in all cases the patterns of expenditure are different from those of non-Indigenous people, with higher use of hospital and community health services and lower use of the major Commonwealth programs and private services. In both aggregate expenditures and their composition, these patterns are consistent with a low-income population in which 27.5% of people live in areas classified as remote on the Accessibility/ Remoteness Index of Australia (ARIA) classification of access to service centres (compared with 2.0% of non-Indigenous people). Only 62% live in places where service centres are seen as accessible or highly accessible, as compared with 94% of other Australians. That is quite apart from questions about whether underlying health status was sufficiently reflected in service use or whether the services available were both medically and culturally appropriate.

Total expenditures, by administrative responsibility

Tables 1.1 and 1.2 and Figures 1.1 and 1.2 examine total expenditures and total expenditures per person, by area of administrative responsibility.

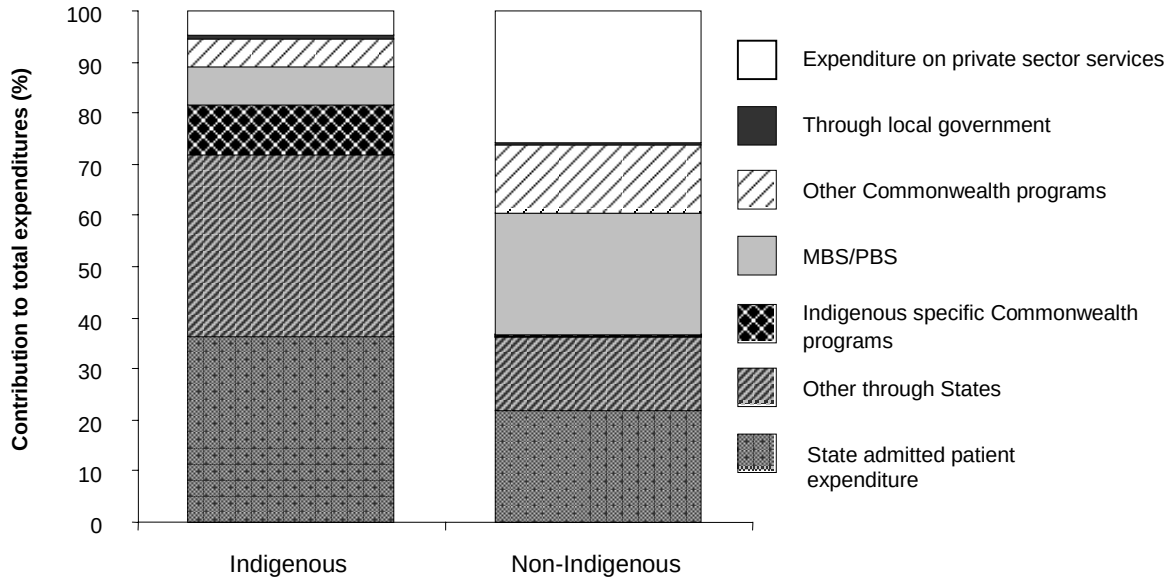
Table 1.1: Estimated health expenditures for Aboriginal and Torres Strait Islander people and non-Indigenous people, by program, 1998–99

			Contribution to total expenditures	
	Indigenous ($m)	Non-Indigenous ($m)	Indigenous (%)	Non-Indigenous (%)
Through State programs				
Admitted patient expenditure	453	10,096	36.4	21.8
Other through State program exp.	443	6,850	35.6	14.8
Total through State programs	**896**	**16,947**	**72.0**	**36.5**
Through Commonwealth programs				
Indigenous specific Cwlth programs	121	10	9.7	. .
Medicare/PBS	91	11,071	7.3	23.9
Other Commonwealth programs	69	6,196	5.5	13.3
Total through Cwlth programs	**281**	**17,277**	**22.6**	**37.2**
Through local government programs	**8**	**206**	**0.6**	**0.4**
Services through private sector programs	**60**	**11,982**	**4.8**	**25.8**
Total recurrent expenditure	**1,245**	**46,412**	**100.0**	**100.0**

Source: AIHW Health Expenditure Database.

These tables and figures cover all expenditures, including those by individuals. Administrative responsibility rests with the level of government where decisions are made as to financing arrangements, the range of services to be provided and eligibility criteria. This way of presenting expenditure does not examine the mix of funding sources for each program.

Figure 1.1 shows the difference in the composition of recurrent health expenditure for Aboriginal and Torres Strait Islander people as compared with that for non-Indigenous people.



Source: AIHW Health Expenditure Database.

Figure 1.1: Composition of total recurrent health expenditure for Aboriginal and Torres Strait Islander people and non-Indigenous people, 1998–99

The composition of expenditures through Commonwealth, State and privately administered programs was quite different for Aboriginal and Torres Strait Islander people from that for the rest of the population.

Of all expenditure on Aboriginal and Torres Strait Islander people, 72% was through programs administered by State or Territory Governments. That was almost twice the percentage for non-Indigenous people. Two-thirds of the State expenditure was for public hospital services, mostly for admitted patients.

Spending through Commonwealth programs accounted for 23% of expenditures on Aboriginal and Torres Strait Islander people. Almost half of this was for Indigenous-

specific services, mainly through grants to Aboriginal Community Controlled Health Services (ACCHSs). The remainder represents the estimated Aboriginal and Torres Strait Islander share of outlays for nationwide health services. The differences between Commonwealth and State expenditure patterns are due to the different roles of the two levels of government. The Commonwealth's largest programs are community-wide and fund services to the whole population, usually through private providers. The States and Territories are major service providers to people who are disadvantaged by socioeconomic status or location. All of those people, including many Aboriginal and Torres Strait Islander people, rely heavily on public hospitals and state-run community health services.

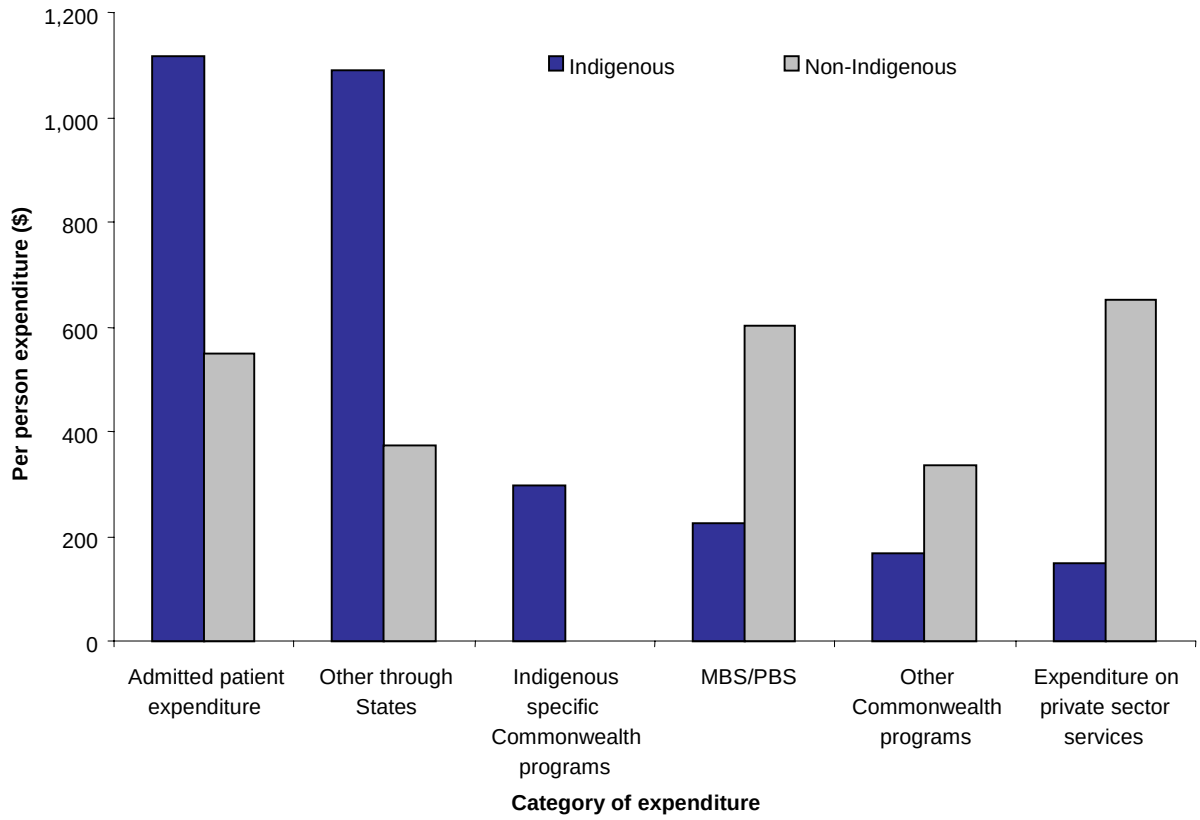
For Aboriginal and Torres Strait Islander people, the proportion of outlays on private sector services such as private hospitals, private dentists and allied health professionals was very low. At 5%, it was one-fifth of the percentage for other Australians and reflects the lower socioeconomic status of Aboriginal and Torres Strait Islander people.

Table 1.2 and Figure 1.2 present the same information, but on a per person basis. Expenditure per person through State programs for Aboriginal and Torres Strait Islander people is $2,205 per person out of total health expenditure of $3,065 per person. This is 140% higher than for non-Indigenous persons—a ratio of 2.4:1. For Commonwealth programs the Aboriginal and Torres Strait Islander/non-Indigenous per person ratio is lower at 0.74:1. These differences reflect the different roles of the two levels of government discussed above.

Table 1.2: Estimated health expenditures per person for Aboriginal and Torres Strait Islander people and non-Indigenous people, by program, 1998–99

	Per person Indigenous ($)	Per person non-Indigenous ($)	Ratio Indigenous/ non-Indigenous
Through State programs			
Admitted patient expenditure	1,115	548	2.04
Other through State program expenditure	1,090	372	2.93
Total through State programs	**2,205**	**920**	**2.40**
Through Commonwealth programs			
Indigenous specific Commonwealth programs	298	1	. .
Medicare/PBS	224	601	0.37
Other Commonwealth programs	169	336	0.50
Total through Commonwealth programs	**691**	**937**	**0.74**
Through local government programs	**20**	**11**	**1.78**
Services through private sector programs	**148**	**650**	**0.23**
Total recurrent expenditure	**3,065**	**2,518**	**1.22**

Source: AIHW Health Expenditure Database



Source: AIHW Health Expenditure Database.

Figure 1.2: Estimated total expenditures through government and private sector programs for Aboriginal and Torres Strait Islander people and non-Indigenous people, per person, 1998–99

Sources of funds

Table 1.3 looks at financing rather than administration. For non-Indigenous Australians, governments met about 68% of recurrent health care costs, with the remainder being privately financed. For Aboriginal and Torres Strait Islander people the proportions were quite different. Governments funded just over 90% of their health care costs and, as might be expected from their economic situation, private payments, whether through various types of insurance or out-of-pocket, met less than 10% of total expenditures. Governments meet a similar proportion of health care costs for non-Indigenous people in low socioeconomic groups (Deeble et al. 1998). Overall, the ratio of Indigenous to non-Indigenous expenditures per person was 1.64:1 for public funding alone, slightly higher than in the 1995–96 figures of 1.52:1. The difference between the Indigenous to non-Indigenous expenditure ratio for government expenditures and the ratio for all health expenditures is explained by the much lower use of private services by Aboriginal and Torres Strait Islander people.

All of the State and Territory outlays were direct; that is, their outlays went through programs and/or authorities which they themselves administered. However, over

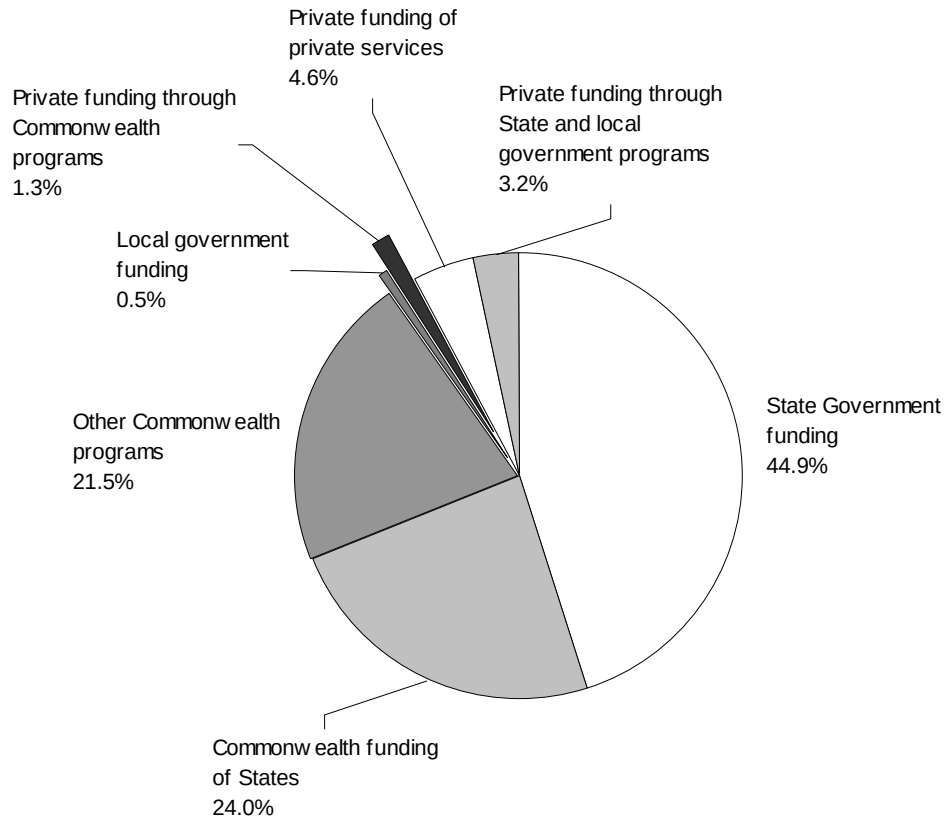
50% of the Commonwealth's overall contribution was indirect, through its sharing of the cost of public hospitals and some other services under the Australian Health Care Agreements, public health funding agreements and other payment arrangements. When these payments by the Commonwealth to the States are included, the two levels of government contributed very similar amounts to funding expenditure on services for Aboriginal and Torres Strait Islander people.

Table 1.3: Estimated expenditures per person, by source of funds, Aboriginal and Torres Strait Islander people and non-Indigenous people, 1998–99 ($)

Source of funds	Indigenous	%	Non-Indigenous	%	Ratio Indigenous/ other
State government funding (of State government programs*)*	1,376	44.9	484	19.2	2.84
Commonwealth Government funding					
Indigenous specific programs	298	9.7	1	—	. .
Medicare/PBS	196	6.4	506	20.1	0.39
Other Commonwealth programs	163	5.3	366	14.5	0.45
Payments to States	735	24.0	334	13.2	2.20
Total Commonwealth funding	***1,393***	***45.5***	***1,206***	***47.9***	***1.15***
Local government funding	**15**	**0.5**	**9**	**0.4**	**1.67**
Total government funding	***2,783***	***90.8***	***1,700***	***67.5***	***1.64***
Patient and other private payments					
State Government programs	94	3.1	101	4.0	0.93
Commonwealth Government programs	40	1.3	141	5.6	0.29
Local government programs	5	0.2	2	0.1	2.21
Private sector programs	141	4.6	574	22.8	0.25
Total private funding[(a)]	***281***	***9.2***	***819***	***32.5***	***0.34***
Total health funding	**3,065**	**100.0**	**2,518**	**100.0**	**1.22**

(a) 'Private funding' includes funding from out-of-pocket payments by patients, health insurance funding and other funding sources such as workers' compensation.

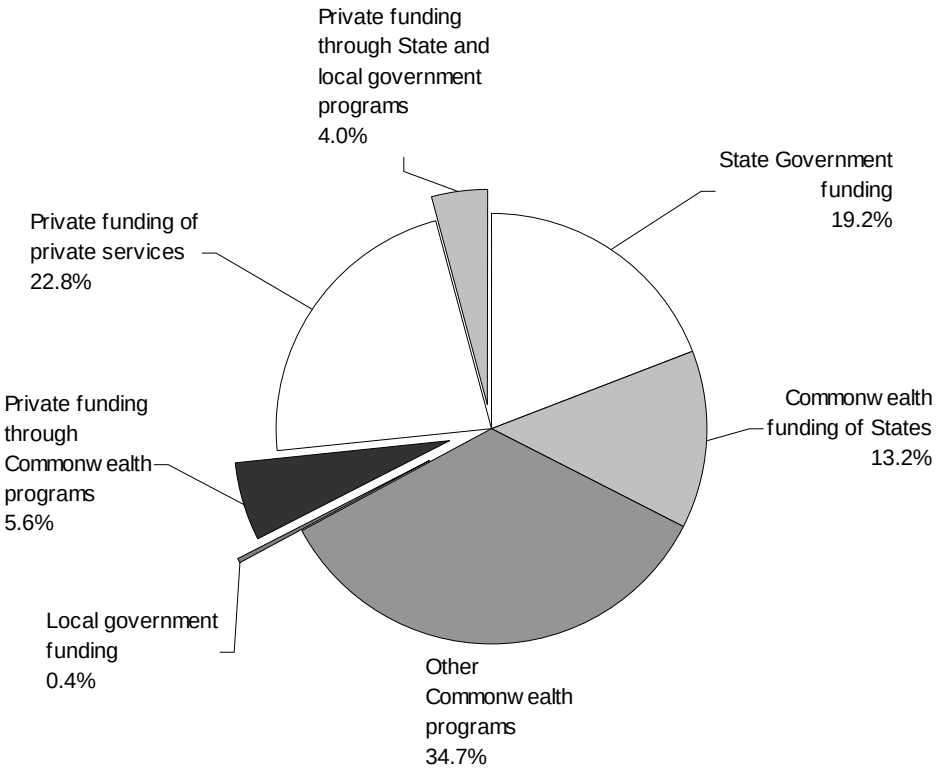
Source: AIHW Health Expenditure Database.



Note: 'Private funding' includes funding from out-of-pocket payments by patients, health insurance funding and other funding sources such as workers' compensation.

Source: AIHW Health Expenditure Database.

Figure 1.3: Funding of recurrent health expenditure for Aboriginal and Torres Strait Islander people, 1998–99



Note: 'Private funding' includes funding from out-of-pocket payments by patients, health insurance funding and other funding sources such as workers' compensation.

Source: AIHW Health Expenditure Database.

Figure 1.4: Funding of recurrent health expenditure for non-Indigenous people, 1998–99

Expenditures, by type of service

Table 1.4 and Figure 1.5 show per person expenditure by type of service, for Aboriginal and Torres Strait Islander people, together with similar data for non-Indigenous people. More detail on expenditures under State and Commonwealth Government programs are provided in Chapters 3 and 5.

Table 1.4: Estimated expenditures, by program, for Aboriginal and Torres Strait Islander people and non-Indigenous people, per person, 1998–99

	Per person Indigenous	Per person non-Indigenous	Ratio Indigenous/ non-Indigenous
Expenditures through government programs			
Acute-care institutions			
Admitted patient services	1,125	558	2.02
Non-admitted patient services	307	139	2.21
Mental health institutions	64	25	2.53
Public hospitals	*1,496*	*722*	*2.07*
High-care residential aged care	99	209	0.47
Community and public health	874	170	5.14
Patient transport	106	31	3.39
Medicare[(a)] and other medical	179	468	0.38
PBS medicines	61	195	0.31
Administration & research	101	72	1.40
Total government program expenditure	**2,917**	**1,868**	**1.56**
Expenditures on private sector services			
Private hospitals	25	222	0.11
Dental & other professional	42	213	0.20
Non-PBS medicines & appliances	66	144	0.46
Medical (compensable, etc.)	11	37	0.30
Administration	5	34	0.14
Total private sector services expenditure	**148**	**650**	**0.23**
Total	**3,065**	**2,518**	**1.22**

(a) Includes Medicare optometrical and dental as well as medical services.

Source: AIHW Health Expenditure Database.

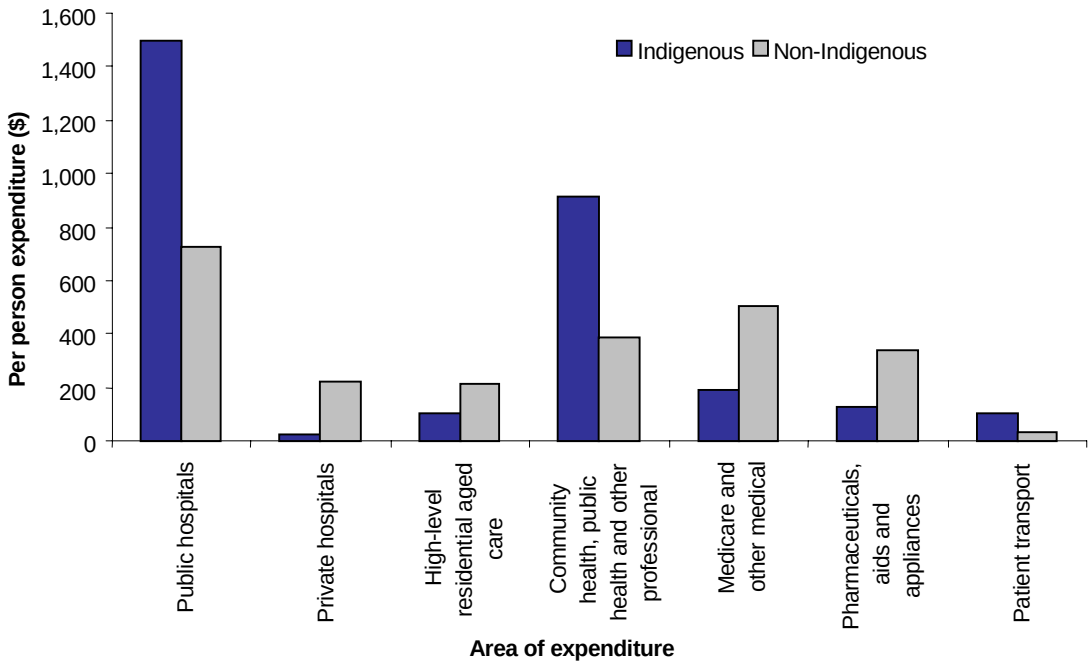
As in the 1995–96 data, the pattern is one where Aboriginal and Torres Strait Islander people were much more dependent on public hospital care than non-Indigenous people, although the difference in expenditures on admitted patient services was smaller when all hospital treatment (public and private) was considered. In 1998–99, over one-third of all admissions were to private hospitals, and very few of these were for Aboriginal and Torres Strait Islander people. For all public and private hospitals,

the Indigenous to non-Indigenous expenditure ratio was 1.61:1, compared with a ratio of 2.07:1 when only public hospital expenditures are considered.

Aboriginal and Torres Strait Islander people were higher users of community health services such as State Government community services, ACCHSs and the Aboriginal Coordinated Care Trials (CCTs). These programs deliver services in an integrated way, rather than having separate provision for medical and dental services and other health professional services, as is frequently the case in the general community. This results in a high Indigenous to non-Indigenous ratio of 5.14:1 for community and public health. This ratio should be interpreted in the context of the low ratio for private medical, dental and other health professional services.

When private dental and other health professional health care is combined with government-provided community and public health care, the ratio decreases from 5.14 to 2.39:1 (Figure 1.5).

Aboriginal and Torres Strait Islander people also used patient transport much more, particularly the Royal Flying Doctor Service (RFDS) in remote areas.



Source: AIHW Health Expenditure Database.

Figure 1.5: Estimated total expenditures for Aboriginal and Torres Strait Islander people and non-Indigenous people, by area of expenditure, per person, 1998–99

Selected expenditures, by jurisdiction

Table 1.5 shows expenditures per person, by jurisdiction and type of service, for the 80% of expenditures on Aboriginal and Torres Strait Islander people which flow through State and Territory programs and the ACCHSs.

Table 1.5: Estimated government expenditures for Aboriginal and Torres Strait Islander people, by jurisdiction, per person, 1998–99 ($)

State/Territory	State Government admitted patient care	State Government other health services	ACCHSs (Commonwealth Government)	Total Commonwealth and local government	Total expenditure through government programs
New South Wales	945	884	151[a]	n.a.	n.a.
Victoria	793	650	392[b]	n.a.	n.a.
Queensland	1,068	946	157	n.a.	n.a.
Western Australia	1,516	1,257	439	n.a.	n.a.
South Australia	1,434	916	700	n.a.	n.a.
Tasmania	836	809	(b)	n.a.	n.a.
Aust. Capital Territory	1,206	1,226	(a)	n.a.	n.a.
Northern Territory	1,219	1,989	432	n.a.	n.a.
Total	**1,115**	**1,090**	**287**	**711**	**2,917**

(a) Australian Capital Territory ACCHS funding is included with New South Wales.

(b) Tasmanian ACCHS funding is included with Victoria.

Regional variation

Expenditures on admitted patient hospital services, Medicare/PBS benefits and Commonwealth expenditure on high-care residential aged care (nursing homes) were able to be analysed by region according to the Accessibility/Remoteness Index of Australia (ARIA). Together they account for about 50% of all expenditures for Aboriginal and Torres Strait Islander people. Other Commonwealth health services and State Government community and public health services were not able to be allocated by region. 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 somewhat different.

ARIA is a system which classifies localities according to an indicator of the accessibility of services (distance from service centres) into the five categories of 'highly accessible', 'accessible', 'moderately accessible', 'remote' and 'very remote'. The distribution of Aboriginal and Torres Strait Islander people across these regions is quite different from that of non-Indigenous people. In particular, the proportion living in remote and very remote regions is more than ten times that for other Australians. Given the accessibility criteria for ARIA classification, there should be

an association between residence and service use. It would be expected to be both lower in total and different in composition in the remote and very remote areas as compared with better served regions. This would clearly lead to spending on Aboriginal and Torres Strait Islander people being lower, given more of this population live in remote areas. However, if their health status differed across the regions or the mix of services they used was more or less expensive than the average, this relationship might not hold.

Table 1.6 summarises the analysis in Chapter 7 on regional differences.

- For Medicare and the PBS, outlays were lower in remote and very remote areas than in the more 'accessible' ones. This was also the case for non-Indigenous people but for this group there are age structure differences which partially explain the differences (Phillips (in press)). Aboriginal and Torres Strait Islander people's access to these selected programs was generally less than half that of other people in each region.
- Expenditure on ACCHSs was highest in the remote regions. In the absence of information about the full range of services in each region it is difficult to draw conclusions about the reason for this distribution. It may reflect higher costs in remote regions, poor access to other services or historical factors.
- Aboriginal and Torres Strait Islander people in the remote regions have rates of separation from hospitals, and associated expenditure, more than twice that of Aboriginal and Torres Strait Islander people in the highly accessible region.
- Expenditure on aged care facilities for Aboriginal and Torres Strait Islander people in the remote regions is higher than in the more accessible regions.

Further analysis is required to understand the reasons for the difference in hospital separations and expenditure. Such analysis would separately identify the impact of the higher cost of delivering hospital services to the very remote regions.

With Medicare data, the uniform payment schedule does not allow examination of the relative costs of delivering medical services in remote areas relative to more accessible areas.

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. Of expenditures on Aboriginal and Torres Strait Islander people in remote areas, 75% is on hospital services compared with 58% in highly accessible areas.

In contrast to remote areas, and to the estimates of total expenditure, expenditures on Aboriginal and Torres Strait Islander people in the highly accessible areas are less than those for non-Indigenous people in the same area. This is significant in view of their poorer health status.

Table 1.6: Health expenditures per person on selected health services, Aboriginal and Torres Strait Islander people and non-Indigenous people, by ARIA region, 1998–99 ($)

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

(a) Excludes Queensland acute-care institutions.

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

(c) Excludes the Repatriation Pharmaceutical Benefits Scheme (RPBS).

Expenditures on primary and secondary/tertiary services

Primary health services are those provided to whole populations (community and public health services) and those provided in, or flowing from, a patient-initiated contact with a health service. Secondary services are those generated within the system by referral, hospital admission, etc.

For Aboriginal and Torres Strait Islander people, expenditure on primary health services comprised:

- allocated expenditures on community and public health services;
- all expenditures by ACCHSs;
- estimates of all Medicare-paid general practitioner (GP) services to Indigenous people (and the diagnostic services ordered by them);
- estimates of all GP-ordered PBS drugs;
- 50% of the estimated cost of hospital outpatient services; and
- half of the cost of transport for Aboriginal and Torres Strait Islander patients.

The remainder was classified as secondary/tertiary.

For non-Indigenous people, the same basic divisions were applied, although some of the proportions were naturally different. Administration and research were not divided for either group.

As in the first report (but contrary, perhaps, to some expectations) the overall ratio of Indigenous to non-Indigenous expenditures per person was somewhat higher for primary care services than for secondary/tertiary ones—1.27:1 compared with 1.19:1—and much higher for government programs—(1.74:1 and 1.44:1 respectively (Table 1.7). This was despite the relatively high hospital admission rate for Aboriginal and Torres Strait Islander people.

There were (at least) three factors of significance here. The first was the very much higher use of both hospital outpatient and community health services by Aboriginal and Torres Strait Islander people. This is a category where non-Indigenous population use is largely limited to low-income groups.

Second, as might be expected, the use of transport services was high. Aboriginal and Torres Strait Islander patients accounted for nearly half the cost of the RFDS and the need for local transport was also high.

The third factor was the very low Aboriginal and Torres Strait Islander use of private dentistry, drugs and Medicare-paid medical services, particularly those of private specialists with all of their flow-on effects in terms of private hospitalisation and relatively high-cost, high-technology treatment. Low spending in these areas almost offset any pro-primary bias in government-run services for Aboriginal and Torres Strait Islander people.

These data do not give any indication as to the appropriate distribution between primary health care and secondary/tertiary health care services for Aboriginal and Torres Strait Islander people. The balance between primary and secondary/tertiary health care services required by, and culturally appropriate for a young, low-income population may well be different from the balance that is required by, and is appropriate for the general population. There is evidence that much Aboriginal and Torres Strait Islander mortality and morbidity is preventable and 'that further consideration is needed to service delivery reform at all levels (i.e. primary, secondary and tertiary) in the health system and the distributions of funding' (Stamp, Duckett & Fisher 1998).

Comparisons with the first report

The structure embodied in these estimates is very similar to that in the first report. All of the numbers are of course higher because of inflation (health care costs rose by 7% over the three years) and the share of Aboriginal and Torres Strait Islander people would have increased a little because the estimated Aboriginal and Torres Strait Islander population was 7% larger than the estimated population in 1995–96. (The population used in the 1995–96 report was 4% lower than the latest ABS estimates of the Aboriginal and Torres Strait Islander population in 1995–96. The calculations in this section use the latest estimates. See also Appendix 7). However, these factors can be removed by expressing all results on a per person basis at 1997–98 prices (see Chapter 6). On that basis, the 1998–99 expenditures for Aboriginal and Torres Strait Islander people were 29% higher than in the earlier survey and those for the non-Indigenous population were 10% higher.

Table 1.7: Direct expenditures[(a)] on primary and secondary/tertiary health services through Commonwealth, State and local government programs and the private sector, 1998–99

	Primary				Secondary/Tertiary			
	Total ($m)		Per person ($)		Total ($m)		Per person ($)	
Source	**Indigenous**	**Other**	**Indigenous**	**Other**	**Indigenous**	**Other**	**Indigenous**	**Other**
Expenditures through government programs								
Acute-care institutions								
Admitted patient services	. .	. .	. .	. .	457	10,278	1,125	558
Non-admitted patient services	62	1,281	154	70	62	1,281	154	70
Mental health institutions	. .	. .	. .	. .	26	465	64	25
High-care residential aged care	. .	. .	. .	. .	40	3,853	99	209
Community and public health	355	3,137	874	170	. .	. .	. .	. .
Patient transport	22	115	53	6	22	461	53	25
Medicare and other medical	59	5,773	146	313	13	2,859	32	155
PBS drugs & appliances	22	3,242	55	176	2	360	6	20
Total government programs	**521**	**13,549**	**1,282**	**735**	**623**	**19,557**	**1,533**	**1,061**
Ratio: Indigenous/other per person			***1.74***				***1.44***	
Expenditure on private sector services								
Private hospitals	. .	. .	. .	. .	10	4,092	25	222
Dental & other professional	17	3,928	42	213	. .	. .	. .	. .
Medical (compensable etc.), non-PBS medicines & appliances	26	2,731	66	149	5	609	13	33
Total private sector	**43**	**6,659**	**107**	**361**	**15**	**4,701**	**37**	**255**
Ratio: Indigenous/other per person			0.30				0.14	
Total govt & private	**564**	**20,208**	**1,389**	**1,096**	**638**	**24,258**	**1,570**	**1,316**
Ratio: Indigenous/other per person			***1.27***				***1.19***	

(a) Administration and research not included.

Source: AIHW Health Expenditure Database.

It is tempting to interpret this as a real change in both relative spending and service use. However, the results should not be read that way. The two reports, though conceptually similar, were in many ways quite separate attempts to estimate the same thing. First, very few data sources reflected a consistent collection. The only information which is, in principle, recorded consistently is that in the hospital morbidity collection for admitted patients. It was the base for much of the State and Territory estimates, but it is subject to problems of under-identification which make it difficult to separate real changes from statistical artefacts with any certainty (see Chapter 4). In other services, the databases were different. The most recent estimates of Medicare and PBS outlays, for example, used a national survey of GP practice in lieu of the more limited, though more directed, surveys used in the 1995–96 report. Had that been available for the first report some figures would have been different.

Second, some of the methods of estimation and costing changed. Public hospital outlays were one such case. The first study adjusted Aboriginal and Torres Strait Islander costs only for differences in length of stay, whereas the calculations for 1998–99 added factors relating to higher cost intensity for Indigenous separations, and differentials in costs of hospitals within States. Finally, the range of services for which there was some basis for estimating Aboriginal and Torres Strait Islander use widened. All of these changes make comparisons hazardous.

Table 1.8 separates, by program, changes in those expenditures where the indicators gave documented support for some 'real' differences (column 2) from those where different methodologies and different data sources make it impossible to separate real increases from changes in the estimation process (column 3). The two were of broadly similar importance. However, there were elements of 'real' increase in the second category, so that the true difference between 1995–96 and 1998–99, while clearly less then 29%, was somewhat more than 15%. That was significantly more than the 10% per person increase in non-Indigenous spending.

Overall the aggregate effect was small. The proportion of all Australian health expenditures going to Aboriginal and Torres Strait Islander people would have increased from 2.2% of recurrent expenditure in 1995–96 to 2.6% of recurrent expenditure in 1998–99.

Table 1.8: Changes in health services expenditure per Aboriginal and Torres Strait Islander person from 1995–96 to 1998–99, 1997–98 prices (per cent)

Type of program	Documented (real) change %	Additional changes: changes in methods, new data sources and real change %	Total %	Percentage of total expenditure
State & Territory programs	12	9	22	72.0
Commonwealth programs	20	19	42	22.6
Other sectors	30	38	79	5.5
All programs	**15**	**12**	**29**	**100.0**

Note: Numbers in this table must be combined geometrically not added arithmetically—e.g. 15 + 12 does not equal 29, but 1.15 * 1.12 =1.29

2 Background

In 1998 the National Centre for Epidemiology and Population Health (NCEPH) at the Australian National University and the Australian Institute of Health and Welfare (AIHW) published a report for the Commonwealth Department of Health and Family Services on expenditure on health services for Aboriginal and Torres Strait Islander people in 1995–96. This report was groundbreaking. Until that report, neither Australia nor any other industrialised country had actually estimated the health services expenditure for its Indigenous peoples.

The 1995–96 data showed that, for all types of health services and for all sources of funds, recurrent expenditure for and by Aboriginal and Torres Strait Islander people was about $853 million. Per person, total spending for Aboriginal and Torres Strait Islander people was $2,320, 8% higher than the health services per person expenditure by and for other Australians.

In order to ascertain what changes, if any, there had been in health services expenditure for Aboriginal and Torres Strait Islander people since 1995–96, the Office of Aboriginal and Torres Strait Islander Health of the Department of Health and Aged Care (DHAC), contracted the Institute, in association with Professor John Deeble of NCEPH, to estimate health services expenditure in 1998–99. This work was done under the umbrella of a decision of the Australian Health Ministers' Conference that regular estimates should be made of health services expenditure for Aboriginal and Torres Strait Islander people.

Terms of reference

The terms of reference of the consultancy were to:

(a) estimate expenditure on Aboriginal and Torres Strait Islander health in comparison with expenditure on the health of the rest of the Australian population for the 1998–99 year, within the categories of government, regions, States and Territories and to assess whether the care is primary or secondary/tertiary health care;

(b) compare expenditure on Aboriginal and Torres Strait Islander health with expenditure for other Australians of like socioeconomic status, including analysis of health status linked to health expenditure by income group for both Aboriginal and Torres Strait Islander people and other Australians;

(c) assess the validity of data received from contributing agencies; and

(d) compare patterns of expenditure on health care by Commonwealth, State and Territory Governments for Aboriginal and Torres Strait Islander people and other Australians, between 1995–96 and 1998–99.

Thus the main purposes of the study were to first prepare a report that identified expenditure on Aboriginal and Torres Strait Islander health, in comparison with

expenditure on the health of the rest of the Australian population for the 1998–99 year. The second purpose was to conduct a comparative analysis of findings from the previous report on 1995–96 health expenditure and the current 1998–99 report. This comparison was to take into account such differences as population growth, growth in general health services expenditure, changes in methodology and improvements in data.

Data for this report were collected from the Commonwealth Department of Health and Aged Care (DHAC) and from State and Territory health authorities. Estimates of Aboriginal and Torres Strait Islander Medicare and Pharmaceutical Benefits Scheme (PBS) usage and expenditure were obtained from the Bettering the Evaluation and Care of Health (BEACH) survey.

The comparison of the health expenditures and health status of Aboriginal and Torres Strait Islander people with non-Indigenous people of like socioeconomic status was undertaken by the Centre for Aboriginal and Economic Policy Research (CAEPR) at ANU. The results of this analysis will be published separately.

Demographic information

Economic and demographic factors impact on health service requirements. Aboriginal and Torres Strait Islander people comprise 2.2% of Australia's total population, with more than 50% residing in New South Wales and Queensland. Estimates of the Aboriginal and Torres Strait Islander population are confounded by an increasing propensity to identify as such, and by changes in census enumeration procedures. The low projection of the Aboriginal and Torres Strait Islander population used in this report assumes that the propensity to identify as an Aboriginal and/or Torres Strait Islander person which applied at the time of the 1996 Census did not change. Appendix 2 discusses the population estimates used within this report in greater detail.

Aboriginal and Torres Strait Islander people have a much younger age structure than the population as a whole. For instance, 39% of the Aboriginal and Torres Strait Islander population was aged under 15 years in 1998–99 compared with 21% of the total population, whereas 2.6% of the Aboriginal and Torres Strait Islander population was aged over 65 years, compared with 12.2% of the total population. A large proportion of Aboriginal and Torres Strait Islander people resides in remote and very remote areas of Australia—27.5%, compared with 2.6% of the total population. In contrast, 81.5% of Australia's population are located in highly accessible areas, whereas only 42.7% of the Aboriginal and Torres Strait Islander population lives in this region.

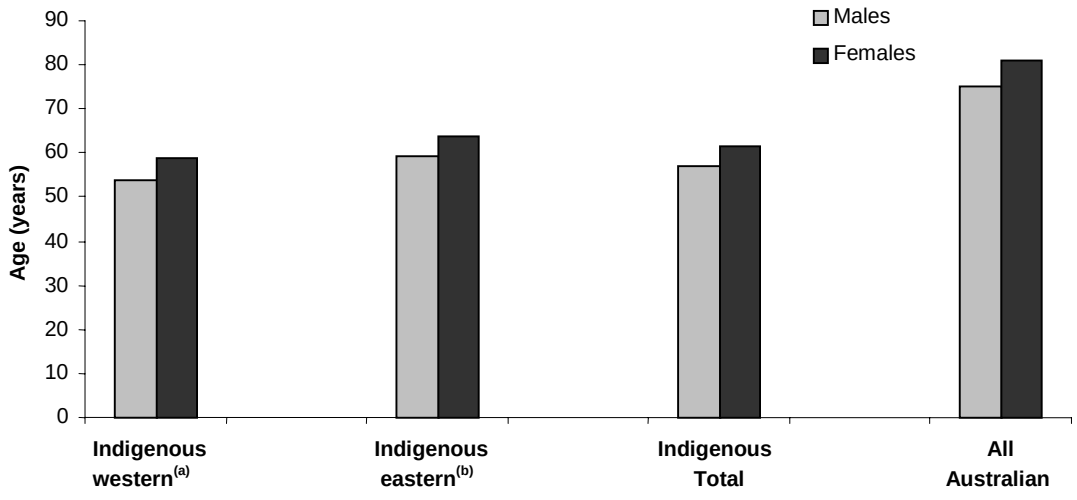
Health status and the assessment of need

Aboriginal and Torres Strait Islander people have a greater requirement or need for health services than do other Australians because of their relatively poorer health status. They experience higher infant mortality rates, higher age-specific death rates

for every age group and higher levels of serious illness. The following section provides context for the estimates of the Aboriginal and Torres Strait Islander people's proportion of government and total health expenditure addressed in this report.

The poor health status of Aboriginal and Torres Strait Islander people, particularly compared with other Australians, is well documented. The infant mortality rate is a key indicator of a community's health. The infant mortality rate for all Australians for 1995–97 was 6.05 infant deaths per 1,000 live births for males and 4.95 infant deaths per 1,000 live births for females (ABS 2000c). The infant mortality rate for 1995–97 for Aboriginal and Torres Strait Islander people in those States which have relatively reliable mortality data—that is, the Northern Territory, Western Australia and South Australia—was 18.7 infant deaths per 1,000 live births for males and 17.3 infant deaths per 1,000 live births for females. This is 3.1 times the rate for all Australian infant males and is 3.5 times the rate for all Australian infant females (ABS 2000c).

The proportion of babies born with low birthweight is much higher. In 1994–96, about 12% of babies born to Aboriginal and Torres Strait Islander mothers were of low birthweight, compared with about 6% of babies born to non-Indigenous mothers. Of the 84 maternal deaths in Australia for the period 1991–93, nine were Indigenous mothers and 75 were non-Indigenous mothers. This gave a maternal mortality rate per 100,000 births of 41 for Indigenous mothers and 10 for non-Indigenous mothers (NHMRC 1998).



(a) Western Australia, South Australia and the Northern Territory.

(b) New South Wales, Victoria, Queensland, Tasmania and the Australian Capital Territory.

(c) Based on changes in age structure between successive censuses.

Source: ABS & AIHW 1999.

Figure 2.1: Life expectancy at birth(c) for Aboriginal and Torres Strait Islander people and for all Australians, 1991–96

Aboriginal and Torres Strait Islander life expectancies are increasing more slowly than non-Indigenous life expectancies. In the period 1991–96, life expectancy at birth for all Australians was 75.2 years for males and 81.1 years for females. In the same period, life expectancy for Aboriginal and Torres Strait Islander people was 56.9 years for males and 61.7 years for females (Figure 2.1). These life expectancies are comparable to those for all Australian males at the beginning of the twentieth century and Australian females in the 1920s (ABS & AIHW 1999).

The age-specific death rates for the years 1995–97 were higher in every age group for Aboriginal and Torres Strait Islander males and females than for Australians as a whole (Table 2.1). Within the age groups 35–44 and 45–54, Aboriginal and Torres Strait Islander people died at rates six to seven times higher than those experienced by all Australians.

Table 2.1: Age-specific death rates[(a)] for the Aboriginal and Torres Strait Islander population and the total Australian population, 1995–97

	Males			Females		
Age group (years)	Indigenous rate[(b)]	Australian rate[(c)]	Rate ratio[(d)]	Indigenous rate[(b)]	Australian rate[(c)]	Rate ratio[(d)]
Less than 1	1,873	605	3.1	1,731	495	3.5
1–4	114	38	3.0	102	27	3.7
5–14	60	18	3.3	29	14	2.0
15–24	275	103	2.7	69	36	2.0
25–34	574	132	4.4	226	49	4.6
35–44	1,107	172	6.4	627	89	7.0
45–54	1,923	343	5.6	1,288	215	6.0
55–64	3,869	988	3.9	2,566	559	4.6
65–74	5,976	2,805	2.1	4,704	1,525	3.1
75 and over	11,334	9,086	1.2	8,889	7,074	1.3

(a) Rates are per 100,000. Based on year of occurrence.

(b) Data for deaths of people identified as Aboriginal and/or Torres Strait Islander for usual residents of Western Australia, South Australia and the Northern Territory combined.

(c) Data are for all of Australia, including deaths identified as of Aboriginal and/or Torres Strait Islander people.

(d) Aboriginal and Torres Strait Islander rate divided by Australian rate.

Source: ABS 2000c.

Standardised mortality rates (SMR) are a measure of health status. An SMR greater than one (>1) for Aboriginal and Torres Strait Islander Australians shows an 'excess' mortality compared with the total Australian population. The SMR for Aboriginal and Torres Strait Islander males and females for 1995–97 was 3.0. The observed deaths were based on figures from Western Australia, South Australia and the Northern Territory, while the expected deaths were based on all-Australian rates for all States and Territories (ABS 2000c). SMRs are commonly used as an indicator of the relative need for health services, but do not adequately address the capacity to benefit from health service resources. They are a measure of relative health status, but the chance of dying is not well correlated with actual health service needs,

especially when the age structures of the two populations being compared are quite different.

The high hospital admission rates for Aboriginal and Torres Strait Islander people are documented in Chapter 4. These utilisation rates indicate greater levels of morbidity among Aboriginal and Torres Strait Islander people. These rates are not, however, an ideal indicator of morbidity as barriers to access such as the lack of available hospital beds may influence utilisation. Furthermore, incomplete identification of Aboriginal and Torres Strait Islander people within hospital records restricts the usefulness of these data for accurately assessing the sorts of morbidity associated with their admission. Circulatory diseases, injury, neoplasms, respiratory diseases and endocrine diseases together accounted for over three-quarters of deaths identified as Indigenous in Western Australia, South Australia and the Northern Territory combined in 1995–97. While these causes of death were similar for all the Australian population, deaths from these and most other causes occurred at greater rates for Aboriginal and Torres Strait Islander people than for other Australians.

The Australian Bureau of Statistics reported from the 1995 National Health Survey (NHS) on a variety of health risk factors that were more predominant in the Aboriginal and Torres Strait Islander population than the non-Indigenous population in the non-sparsely settled areas of Australia. For example, among adults aged 18 years or more, Aboriginal and Torres Strait Islander people were more likely (40%) than non-Indigenous people (34%) to report taking no exercise for sport, recreation or fitness in the two weeks prior to interview (ABS 1999). Based on self-reported measurements of height and weight provided in the 1995 NHS, Aboriginal and Torres Strait Islander adults aged 18 years and over were about twice as likely to be categorised as obese as non-Indigenous people (ABS 1999). Aboriginal and Torres Strait Islander males and females were also more likely to be smokers; smoking was reported by 56% of Indigenous males, and 46% of Indigenous females, compared with 27% of non-Indigenous males and 20% of non-Indigenous females (ABS 1999).

Although a greater proportion of Aboriginal and Torres Strait Islander people in non-sparsely settled areas abstained from alcohol in the week prior to the NHS interview (41% of Indigenous males and 60% of Indigenous females compared with 34% of non-Indigenous males and 54% of non-Indigenous females), a greater proportion of Aboriginal and Torres Strait Islander people were at a high level of risk with respect to alcohol use. The NHS classified 13% of Aboriginal and Torres Strait Islander males and 3% of Aboriginal and Torres Strait Islander females as being at a high level of risk, compared with 5% of non-Indigenous males and 1% of non-Indigenous females (ABS 1999).

It should be noted that, due to concerns about the quality of the data in the NHS for Aboriginal and Torres Strait Islander people who lived in sparsely settled areas, ABS excluded the data for people living in these areas from the analysis reported above. This excluded 18% of the Aboriginal and Torres Strait Islander population and 0.5% of the non-Indigenous population.

Adding to the risk of ill health is the effect of diseases that are characteristically seen in underdeveloped nations, such as endemic skin infections, rheumatic fever, leprosy and trachoma. The prevalence of these diseases is often underestimated in Australia,

and they almost exclusively affect Aboriginal and Torres Strait Islander people (DHAC 2000b).

Need and the allocation of resources

Various socioeconomic factors contribute to ill health (DHAC 1999c). Drawing on information from the 1990 National Health Survey and the 1994 National Aboriginal and Torres Strait Islander Survey, the first report on expenditures on health services for Aboriginal and Torres Strait Islander people (Deeble et al. 1998) examined government health expenditure per person for all Aboriginal and Torres Strait Islander people, and for all Australians by quintile of equivalent family income. The results allowed an examination of government expenditures per capita for Indigenous and non-Indigenous people of like socioeconomic status. When relative income position was taken into account, public expenditures on the health of Aboriginal and Torres Strait Islander people appear to have been similar to that for non-Indigenous people in the same income group. Both groups have relatively poor health status. However, the health of the Aboriginal and Torres Strait Islander population is considerably worse and because it is at such a low level, the opportunities to improve it are considerable.

When addressing the greater 'need' for health services that Aboriginal and Torres Strait Islander Australians experience compared with non-Indigenous Australians, a range of factors need to be considered, including social, cultural and economic factors. Acknowledgment should be given to the history of dispossession, alienation, ongoing poverty and disadvantage that confronts Aboriginal and Torres Strait Islander people. Understanding the educational, linguistic and lifestyle norms of Aboriginal and Torres Strait Islander people assists in providing more effective health care, as does understanding the geographical area where the service is being delivered. Factors such as income, education and social participation have been shown to play an important role in determining health status and are relevant to the delivery of health services and allocation of health resources.

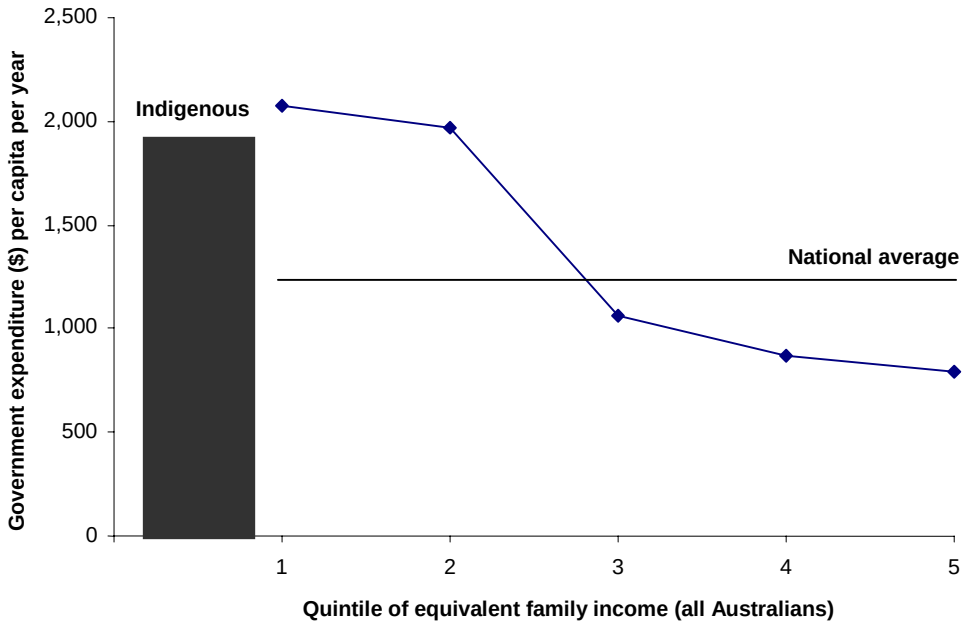
Socioeconomic analysis

The incomes of Aboriginal and Torres Strait Islander people are much lower than those of the non-Indigenous population. Information from the 1996 census revealed that the median weekly income of Aboriginal and Torres Strait Islander males aged 15 years and over was $189, less than half that for non-Indigenous males ($415). The difference between the medians for female incomes was less pronounced—15% lower, with Aboriginal and Torres Strait Islander females' median income at $190, compared with $224 for non-Indigenous females (ABS & AIHW 1999). Aboriginal and Torres Strait Islander people had lower median incomes in every occupation group and at all levels of qualification. This information is particularly important in light of analysis of health expenditures by quintile of equivalent family income included in the first report (Deeble et al. 1998). Similar research analysing the 1995 National Health Survey has been undertaken by the Centre for Aboriginal Economic

Policy Research (CAEPR) at the Australian National University and is to be published as a companion volume to this report.

The analysis in the first report showed that total expenditures on health services were larger for poorer people than for the rich, which is in line with expectations, and that public expenditures were much larger for the poor than for the rich. For instance, in the lowest income quintile governments funded 77% of total expenditure, whereas in the highest income quintile they funded 49%.

When the relative incomes of Aboriginal and Torres Strait Islander people were taken into account, it was found that public health expenditures for Aboriginal and Torres Strait Islander people as a whole were similar to that for non-Indigenous people in the same income class. Figure 2.2 represents the findings of the analysis. Estimated expenditure for all Australians is shown by quintile of equivalent family income in 1993–94 values. The total estimated per person expenditure for Aboriginal and Torres Strait Islander people is also represented.



Source: Deeble et al. 1998.

Figure 2.2: Estimated government health expenditure per person for Aboriginal and Torres Strait Islander people and for all Australians by quintile of equivalent family income, 1993–94

Limitations

Any thorough analysis of health must extend beyond examination of the physical determinants of health status. A comprehensive discussion of the definition of health is included in Appendix 1. As discussed therein, the former National Aboriginal Health Strategy Working Party (1989) identifies the other fundamental components

of health as the social, emotional and cultural well-being of the whole community. However, in order to make the expenditure data within this report as comparable as possible with other national health data, a more limited definition of health must be adopted. This definition limits the scope of this report, restricting analyses to activities primarily directed towards improving health and treating sickness and injury. Many other factors—such as levels of employment, income and housing—have a direct bearing on the health of a community, but activities to improve these factors are not classified as health activities in the national accounts framework used in this report. The conceptual limitations implied by the relatively narrow focus of this report must remain uppermost in the minds of readers, particularly when making comparisons of Aboriginal and Torres Strait Islander and non-Indigenous health.

Other limitations, discussed at the outset of the 1995–96 report, are still obstructions to the gathering of comprehensive and accurate health expenditure information for Aboriginal and Torres Strait Islander people. Only a small proportion of health expenditure is allocated through health programs specifically for Aboriginal and Torres Strait Islander people. Most services are provided through mainstream programs that deliver admitted and non-admitted patient services, community health services, medical and pharmaceutical services and public health services. Estimation of the Aboriginal and Torres Strait Islander use of these services was difficult and subject to statistical errors. The fundamental problem of under-identification of Aboriginal and Torres Strait Islander people in mainstream service records continues, and is confounded by changing measures of the Aboriginal and Torres Strait Islander population in census data. This issue is a major focus of the National Aboriginal and Torres Strait Islander Health Information Plan (AIHW 1997).

All public health institutions are working to improve identification of Aboriginal and Torres Strait Islander people in service records. Public hospitals have been improving the accuracy of identification in their records, yet comprehensive identification of Aboriginal and Torres Strait Islander patients is still not certain. As a consequence, it was necessary to apply large under-identification factors to hospital separations data; for instance, in New South Wales an under-identification factor of 30% was applied.

In brief, the figures presented in this report for health care spending on Aboriginal and Torres Strait Islander people involve substantial estimation. Particular care should be taken in the interpretation of changes in expenditures between 1995–96 and 1998–99 as, for some areas of expenditure, different estimation methods were used in the two years. Factors such as population growth and inflation also must be considered.

3 Commonwealth expenditure on Aboriginal and Torres Strait Islander health services

This chapter presents data in respect of Commonwealth expenditures for Aboriginal and Torres Strait Islander people and for non-Indigenous people.

Commonwealth funding of health care for Aboriginal and Torres Strait Islander people may be through Commonwealth-managed mainstream programs, such as Medicare, the Pharmaceutical Benefits Scheme (PBS) and public health programs, or through Indigenous-specific programs, such as Aboriginal Community Controlled Health Services (ACCHSs). The Commonwealth also funds private sector programs through initiatives such as private health insurance subsidies and provides funding to States and Territories by way of grants for State-managed programs such as hospitals and State community and public health programs.

The main focus of this chapter is Commonwealth funding of Commonwealth programs such as Medicare and the PBS, and various community and public health programs, including Indigenous-specific programs. Although Medicare and pharmaceutical services are delivered by private providers, they are considered to be Commonwealth programs because most of the expenditure is funded by the Commonwealth and it determines exactly what services are subsidised. Commonwealth funding of the private sector by way of private health insurance subsidies is also examined here. The Commonwealth funding of State and Territory programs, or grants to States, is described in Table 3.6 of this chapter. (Full details of State and Territory programs are given in Chapter 5.)

Patients also fund some components of health service costs for services delivered through Commonwealth programs—for example, patient payments for Medicare or PBS services. Total expenditures of $281 million through Commonwealth programs include patient funding.

Total Commonwealth funding of recurrent health services expenditure for Aboriginal and Torres Strait Islander people (excluding transfers to States) was estimated to be $267 million (Table 3.1). Of this, around a fifth was for Medicare services, 8% was for PBS benefits, and around 45% ($121.2 million) was for Indigenous-specific health services. The remaining 25% ($66.3 million) was for other health services including general administration.

Per person expenditure by the Commonwealth for Aboriginal and Torres Strait Islander people (excluding payments to States) was $658 compared with $786 for non-Indigenous persons. Of the $658 spent per Aboriginal and Torres Strait Islander person, the Commonwealth contributed $146 to Medicare, $50 to the PBS and $298 to Indigenous-specific programs. Combined, Commonwealth funding of these Commonwealth programs represented $495 per person, which is approximately 75% of total Commonwealth per person expenditure for Aboriginal and Torres Strait

Islander people (Figure 3.1). The remaining $163 was spent on high-care residential aged care ($54) the RFDS ($19) and other health services. Of the total $786 spent per non-Indigenous person, almost two-thirds (64%—$506) of health funding is through benefits paid for Medicare services and the PBS.

In regard to Medicare funding, the per person expenditure for Aboriginal and Torres Strait Islander people was estimated at $146 compared with $356 for non-Indigenous people, a ratio of 0.41:1. For PBS expenditure the Indigenous to non-Indigenous ratio was 0.33:1.

Patient and other privately sourced payments through Commonwealth programs, for example medical, pharmaceutical and aged care co-payments, is estimated at $40 per person for Aboriginal and Torres Strait Islander people and $141 per person for non-Indigenous people, a ratio of 0.29:1.

Table 3.1: Commonwealth recurrent health services expenditure for and by Aboriginal and Torres Strait Islander people (excluding payments to States and Territories), 1998–99

	Total expenditure for and by Indigenous persons ($m)	Per Indigenous person ($)	Per non-Indigenous person ($)	Indigenous/ non-Indigenous per person ratio
Medicare[(a)]	59.4	146.11	355.53	0.41
Pharmaceutical Benefits Scheme	20.4	50.25	150.59	0.33
Indigenous-specific health services	121.2	298.22	0.57	. .
Other health services including general administration[(b)]	66.3	163.24	279.29	0.58
Commonwealth funding of health expenditure (excl. payments to States)[(b)]	*267.3*	*657.82*	*785.97*	*0.84*
Commonwealth funding of private sector programs[(b)]	2.7	6.73	76.61	0.09
Commonwealth funding of Commonwealth programs[(c)]	*264.5*	*651.08*	*796.11*	*0.82*
Patient and other private funding[(d)] of Commonwealth programs	16.4	40.34	141.34	0.29
Total expenditure through Commonwealth programs[(e)]	**280.9**	**691.42**	**937.44**	**0.74**

(a) Includes Medicare payments for optometrical and dental services.

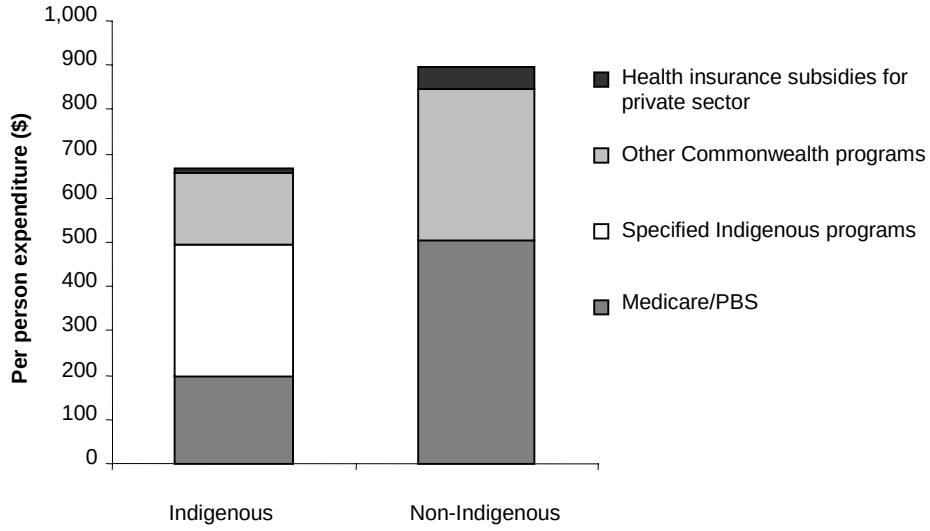
(b) Most of this expenditure is private health insurance subsidies. For the non-Indigenous population it also includes $27.32 per person of Department of Veterans' Affairs' expenditure.

(c) Commonwealth funding of health expenditure for Aboriginal and Torres Strait Islander people ($267.3m) includes some funding of private sector programs through private health insurance subsidies ($2.7m). This funding is deducted in order to arrive at Commonwealth funding of **Commonwealth** programs ($264.5m).

(d) 'Private funding' includes funding from out-of-pocket payments by patients and other funding sources such as donations.

(e) Expenditure through Commonwealth programs includes the Commonwealth subsidy of Commonwealth programs as well as the patient contribution to these programs—for example, Medicare co-payments.

Source: AIHW Health Expenditure Database.



Note: Excludes Commonwealth grants to States and Territories.

Source: AIHW Health Expenditure Database.

Figure 3.1: Composition of Commonwealth funding of health services expenditure, per person, Aboriginal and Torres Strait Islander people and non-Indigenous people, 1998–99

Data sources

Apart from the Medicare and PBS estimates, which were based on the Bettering the Evaluation and Care of Health (BEACH) survey (AIHW: Britt et al. 1999 & AIHW: Britt et al. 2000), the data on expenditures for Aboriginal and Torres Strait Islander people and for the population as a whole were obtained from two sources, namely information from survey returns provided by the various divisions of the Department of Health and Aged Care (DHAC), and its 1998–99 annual report.

It should be noted that:

(a) Commonwealth data is reported on a cash basis, not accrual; and

(b) Details of the derivation of expenditures for Medicare and the PBS are included in Appendix 3.

Commonwealth programs with an Aboriginal and Torres Strait Islander element, whether mainstream or specific to Aboriginal and Torres Strait Islander people, were coded by area of expenditure. The areas of expenditure of relevance are: acute-care institutions, aged care, medical services, community health services (including community mental health), public health, research and administration.

The bulk of Commonwealth expenditure for Aboriginal and Torres Strait Islander persons is directed to programs specifically for them, administered by the Department's Office for Aboriginal and Torres Strait Islander Health (OATSIH).

Commonwealth programs

Aboriginal community-controlled health services

The bulk of OATSIH funding is directed towards ACCHSs (previously known as Aboriginal Medical Services), which are health services that are planned and governed by local Aboriginal communities. The services deliver holistic and culturally appropriate health and health-related services (DHAC 2000a) to Aboriginal and Torres Strait Islander people, with funding provided by State/Territory and Commonwealth Governments.

ACCHSs across the country offer a wide range of services, including general and specialist health services, eye health services, hearing services, substance use services, mental health services, remote health services, sexual health services, services fostering emotional and social well-being and transport. Furthermore they often fulfil a social role—for example, by acting as a community centre (Keys Young 1997). Many of these functions are important social determinants of health, but some of these functions are considered to be primarily serving 'welfare', 'community development' or other objectives. For the purposes of this report on health services, these 'non-health service functions' are excluded. Appendix 1 considers this issue in more detail.

The 1995–96 report estimated that health services accounted for about 75–80% of total outputs of ACCHSs, with the remainder being services mostly of a welfare nature.

It was estimated that $77 million (77%) of the $100 million Commonwealth funding for ACCHSs in 1998–99 were spent on health services for Aboriginal and Torres Strait Islander people. Non-Indigenous use of ACCHSs has been estimated to be 9.7% of total episodes of care. In the absence of other information, this proportion is assumed to apply to contacts as well, and so 9.7% of all contacts has been deducted from contacts provided by all health workers to arrive at an estimate of Indigenous use and expenditure.

In line with our discussion of the meaning of 'health' in Appendix 1, the non-health component has been estimated by assuming that contacts delivered by counsellors or social workers and 'other staff' are of a non-health services nature. In addition, it is considered that one-quarter of the contacts delivered by Aboriginal Health Workers are of a non-health services nature. Contacts by doctors, nurses, dentists and other medical practitioners are assumed to be of a health nature. Of course, this neat division does not occur in practice. Some contacts by doctors and nurses are of a welfare nature and some contacts by counsellors or social workers are of a health nature. However, until better data is collected regarding the nature of the service, the only alternative is to use the profession of the worker as a proxy for the nature of the service.

Other specific Aboriginal and Torres Strait Islander health programs

In addition to the grants to ACCHSs and other health services, there are a number of other OATSIH programs, such as the program to combat infectious diseases of Aboriginal and Torres Strait Islander people and the substance misuse services program. There are also a number of smaller programs specific to Aboriginal and Torres Strait Islander people that are administered by Divisions of the Commonwealth Department of Health and Aged Care other than OATSIH.

A sum of $121.2 million was spent through programs targeted to Aboriginal and Torres Strait Islander persons, including Indigenous flexible service models for high-care residential aged care ($3.721 million), the Indigenous portion of the OATSIH health services program ($77.4 million), combating infectious diseases of Indigenous people ($4.83 million), substance misuse programs ($17.22 million), coordinated care trials (CCTs) for Aboriginal communities ($8.81 million), public health ($0.995 million) and OATSIH administration for Indigenous health services ($8.207 million) (Tables 3.8 and A3.19).

Mainstream health programs

A significant proportion of Commonwealth expenditure on health services for Aboriginal and Torres Strait Islander people goes through mainstream programs. In this report the method of estimating the proportion of mainstream funding that flows to Aboriginal and Torres Strait Islander people varies. In some cases it is based on a measure of utilisation. In other cases, the proportion of the population who are Aboriginal and/or Torres Strait Islander is used.

Expenditure through Medicare and the PBS is estimated mostly using BEACH data (see below). The methodologies used to apportion other mainstream expenditure to Aboriginal and Torres Strait Islander people and the expenditures in each area are described in the section titled ‘Other mainstream health programs’.

Benefits under Medicare and the Pharmaceutical Benefits Scheme

None of the Medicare or PBS data record Aboriginality. For the 1995–96 report, therefore, there were two specific-purpose surveys of general practitioners (GPs) and pharmacies in those Divisions of General Practice where the proportion of Aboriginal and Torres Strait Islander people in the population served was above the national average in the 1991 Census (1.7%). One in three full-time GPs were surveyed and one in two pharmacies. The results were expanded to provide national estimates of services or medications provided and benefits paid.

For this report alternatives were available, namely the results of the first two years of survey data from the BEACH study of general practice activity. BEACH is a joint undertaking of the Australian Institute of Health and Welfare and the University of Sydney's Family Medicine Research Centre. The study has been undertaken annually since April 1998. The survey comprises about 100,000 doctor–patient encounters provided by random samples of approximately 1,000 GPs throughout the country

each year. The results for 1998–99 were published in 1999 and those for 1999–2000 were published in 2000.

Aboriginal and Torres Strait Islander status was amongst the patient details collected for each encounter—identified, in principle, by the GPs asking a specific question rather than by their impressions or beliefs. In general the data from BEACH were more detailed than that collected in the 1995–96 study. However, there were also disadvantages; for instance, the BEACH collections were primarily designed to examine GP activities, not Aboriginal and Torres Strait Islander health care or the operations of Medicare and the PBS.

Results

Table 3.2 summarises the results for both services and medications provided and Medicare and PBS outlays. In all cases the methodology was to expand the BEACH data according to the proportion of all Medicare-paid GP services covered by BEACH. Resulting estimates of average benefits and total outlays were then standardised, for all GP-generated outlays, to the national figures for those services published by the Commonwealth Department of Health and Aged Care in May 2000 (DHAC 2000b).

There was also some independent information about services provided to patients of those ACCHSs and State Aboriginal and Torres Strait Islander services which participate in Medicare. The only services for which no benchmarks were available were those provided and generated by private specialists post-referral. These contribute comparatively little to Aboriginal and Torres Strait Islander outlays and, in any case, the standardisation process applies only to the valuation of services, not to their use. The utilisation data come from BEACH, which is the most reliable source.

Table 3.3 shows benefit outlays per person for Aboriginal and Torres Strait Islander and non-Indigenous people and the Indigenous or non-Indigenous ratio for each broad type of service. Table 3.4 compares the outlays per person and expenditure ratios in 1998–99 with those in the 1995–96 report.

Table 3.2: Estimated services provided and Medicare and PBS benefits paid for Aboriginal and Torres Strait Islander people, 1998–99

	Services/items (m)	Average benefit ($)	Total ($m)	% all benefits
Medicare[(a)]				
Primary				
GP	1.236	23.2	28.7	1.22
Pathology	0.380	24.7	9.4	1.37
Imaging	0.090	79.4	7.1	1.16
Specialist				
Consultations	0.090	49.8	4.5	0.48
Procedures	0.065	78.0	5.1	0.46
Pathology	0.043	34.2	1.5	0.46
Imaging	0.017	123.5	2.1	0.46
Total Medicare[(a)]	*. .*	*. .*	*58.3*	*0.87*
Pharmaceutical benefits				
GP	0.850	21.4	18.2	0.78
Specialist	n.a.	n.a.	2.1	0.46
Doctor's bag	0.007	23.3	0.2	1.22
Total PBS	*. .*	*. .*	*20.4*	*0.73*
Total benefits	**. .**	**. .**	**78.7**	**0.81**

(a) Medicare estimates do not include benefits paid for optometry and dental services.

Sources: AIHW – GPSCU BEACH data, 1998 and 1999; DHAC, *Medicare Statistics,* various; Deeble et al. 1998; Health Insurance Commission, *Annual Report 1998–99.*

Table 3.3: Estimated Medicare and pharmaceutical benefits paid per person, by type of service, for Aboriginal and Torres Strait Islander and non-Indigenous people, 1998–99

	Indigenous ($)	Non-Indigenous ($)	Ratio: Indigenous/ non-Indigenous
Medicare[(a)]			
GP	70.5	126.1	0.56
Pathology	26.7	54.1	0.49
Imaging	22.6	57.3	0.39
Specialist	23.5	113.3	0.21
Total Medicare	*143.4*	*350.8*	*0.41*
Pharmaceutical benefits			
GP	44.8	125.4	0.36
Specialist	5.1	24.5	0.21
Doctor's bag	0.4	0.7	0.56
Total PBS	*50.3*	*150.6*	*0.33*
All benefits	**193.6**	**501.4**	**0.39**

(a) Medicare estimates do not include benefits paid for optometry and dental services.

Sources: AIHW – GPSCU BEACH data 1998 and 1999; DHAC, *Medicare Statistics*, various; Deeble et al. 1998; Health Insurance Commission, *Annual Report 1998–99.*

Table 3.4: Estimated Aboriginal and Torres Strait Islander and non-Indigenous Medicare and PBS benefits per person, 1995–96 and 1998–99

	1995–96			1998–99		
	Indigenous ($)	Non-Indigenous ($)	Ratio	Indigenous ($)	Non-Indigenous ($)	Ratio
Medicare[(a)]						
GP	44	130	0.34	71	126	0.56
Pathology	15	48	0.31	27	54	0.49
Imaging	16	49	0.33	23	57	0.39
Specialist	13	104	0.13	24	113	0.21
Total	88	331	0.27	143	351	0.41
PBS	27	123	0.22	50	151	0.33
All benefits	**115**	**454**	**0.25**	**194**	**501**	**0.39**

(a) Medicare estimates do not include benefits paid for optometry and dental services.

Sources: AIHW – GPSCU BEACH data 1998 and 1999; DHAC, *Medicare Statistics*, various; Deeble et al. 1998; Health Insurance Commission, *Annual Report 1998–99*.

As can be seen, all of the estimated Indigenous to non-Indigenous expenditure ratios were higher in 1998–99 than in 1995–96. Some of this reflected improvements in identifying and quantifying use specific to Aboriginal and Torres Strait Islander people. Specialist-prescribed drugs were not included in the 1995–96 estimates, and the data for pathology and imaging services were better in the more recent surveys. However, the effects of this were relatively small. There were also very few changes in the way in which services were delivered. Per GP consultation, the rate of prescribing actually fell a little and, taken together, the rates of GP referral to specialists and hospitals were almost the same.

Almost all of the difference thus appears to have come from the higher rate of reported GP use by Aboriginal and Torres Strait Islander people recorded in the BEACH surveys—three contacts per person per year in 1998–99, compared with 1.95 per year in the 1995–96 estimates. Because all of the specialist services and prescribed drugs were generated by these GP contacts, they are the key statistic. Some of the increase may have been due to a better recording of non-surgery contacts in the later survey, particularly those in institutions. However, the numbers in this category were small.

Interpretation

If these data had come from either full population surveys or comprehensive Medicare/PBS records, their interpretation would be clear: the Aboriginal and Torres Strait Islander use of Medicare-paid services and drugs would have increased significantly over the three years. The only issue would then be the extent to which the difference represented a 'real' increase in service use or simply changes in entitlement rules and practices which transferred some of the costs from block grants to the mainstream benefit schemes.

That is not a simple question. There were certainly changes in law and practice over these years. The practice of ACCHSs (or their doctors) claiming Medicare benefits for their clients was facilitated from 1997 onwards. By 1998–99, 83% of the ACCHSs

which employed doctors claimed Medicare benefits of $7.6 million for 194,000 GP services and 78,000 other services provided or ordered by their doctors. Also, from 1997 State-salaried doctors in 51 locations in Queensland and Western Australia became entitled to bill Medicare, covering 84,400 GP consultations and 18,000 other services, for benefit payments of nearly $2.7 million in 1998–99. All told, ACCHSs and State Aboriginal and Torres Strait Islander services claimed for 278,000 GP services and 96,000 other medical services in 1998–99. Benefits of $10.3 million were paid.

The difficulty was in determining how many of these Medicare-paid services were 'new' or simply the result of shifts in funding. The State-provided services were clearly new, because the relevant Commonwealth/State agreements required new doctor appointments with no reduction in existing service volumes. However, the ACCHSs' position was unclear. Their total medical service volumes in 1995–96 were unknown. Some Medicare billing certainly occurred in 1995–96 and there are estimates from Commonwealth sources of benefit payments of between $2 million and $3 million in that year, covering between 80,000 and 100,000 GP visits. The maximum figure of new ACCHS service provision would then be between 94,000 and 114,000. However, that had to be reconciled with other Commonwealth data which indicated that the number of full-time-equivalent doctors employed by Aboriginal-controlled health organisations rose by 28% over the three-year period. Applying all of this information we estimate that:

(a) In total, ACCHSs provided about 234,000 GP services in 1998–99 (194,000/0.83). Of these, 194,000 were billed to Medicare and an estimated 40,000 were funded by Commonwealth block grants to ACCHSs; and

(b) In 1995–96, the corresponding figures were about 183,000 GP services in total, of which between 85,000 and 100,000 were billed to Medicare. Because the higher figure is the more probable, a figure of 95,000 has been assumed. Therefore, by subtraction, 88,000 were funded from block grants.

The estimated composition of the ACCHSs' 234,000 GP services in 1998–99 is shown in Table 3.5.

Table 3.5: Estimated composition of GP services provided by Aboriginal Community-Controlled Health Services, 1998–99

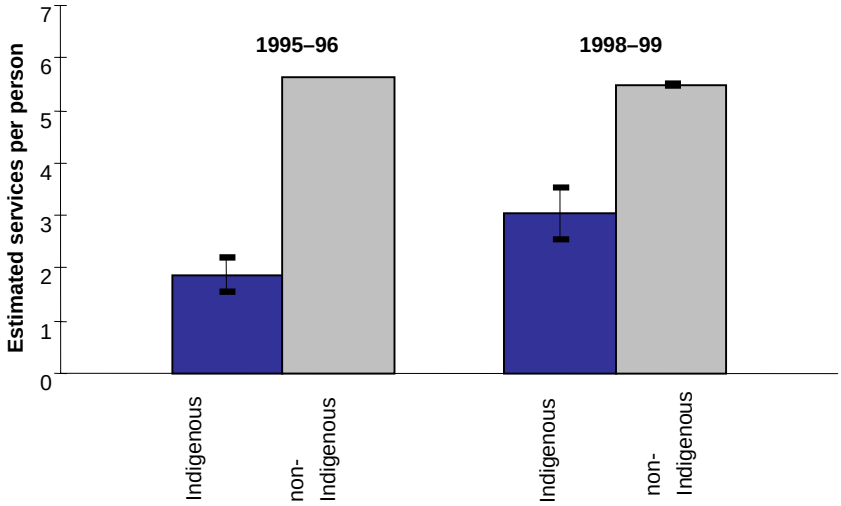
	'000
Currently funded through grants	40
Currently Medicare-funded	194
Total	**234**
Of the 194,000 Medicare-funded GP services	
–Medicare-funded in 1995–96	95
–Formerly funded from grants	48
–New services (calculated by subtraction)	51

Half of the increase in Medicare billing by ACCHSs of 99,000 GP services could thus be attributed to 'new' services (51,000). Adding the 84,400 additional GP visits provided by State organisations then raised the total to about 135,000 new services

since 1995–96, or about 75% of all the additional Medicare billing by organisations for Aboriginal and Torres Strait Islander people.

However, services specific to Aboriginal and Torres Strait Islander people are a relatively small component of those ultimately paid by Medicare. In 1998–99, they represented 278,000 (22%) of the 1.236 million Medicare-paid GP services estimated to have been used by Aboriginal and Torres Strait Islander people nationally. Nearly one million were attributed to privately practising GPs—about 336,000 visits more than in the 1995–96 report—and the interpretation of that apparent increase is more difficult. In both years, all of the information came from surveys in which the numbers of Aboriginal and Torres Strait Islander patients were quite small. They were therefore open to potential sampling error.

Figure 3.2 shows the 95% confidence limits to the estimated GP use per Aboriginal and Torres Strait Islander person in the BEACH surveys, together with an approximation to the same error estimation for 1995–96. As can be seen the ranges almost overlap. The lower level of the 1998–99 estimate is only 0.2 services per person more than the highest likely figure for 1995–96. However, these figures almost certainly understate the possible range of error. The methodology of the first survey limited it to doctors and pharmacists in areas with an Aboriginal and Torres Strait Islander population share at or above the national average, which gave a much smaller sampling of metropolitan regions than country areas. Totals could be estimated by differential expansion factors but the potential error could not be. In the 1998–99 case, standardisation to overall Medicare data was based on GP attendances only, which is an appropriate procedure for estimating totals but not for calculating likely sampling error where the variation in every generated good or service becomes a separate factor. Under these circumstances both of the estimates of sample variation must be conservative.



Source: AIHW–GPSCU BEACH data; Deeble et al. 1998.

Figure 3.2: Estimated GP use by Aboriginal and Torres Strait Islander and non-Indigenous Australians with confidence intervals, 1995–96 and 1998–99

But sampling error was not the major issue. There were systematic, non-sampling improvements in reporting and content in the later surveys. More importantly, the BEACH studies addressed the Aboriginal and Torres Strait Islander identification problem directly, by asking patients to identify themselves, whereas the 1995–96 estimates incorporated an assumed under-identification factor of 20%, the same as the national average assumed for public hospital admissions in that year. There was indirect support for that figure but no external evidence by which it could be checked. This combination of systematic differences in content and a potentially large but unknown error in estimating under-identification initially means that the differences between the two surveys (which were undertaken within two years of each other) cannot be disaggregated by cause or, indeed, statistically confirmed as 'real'. All that can be said is that the BEACH data—which appear to be reliable for the whole population—provide the best current evidence of Medicare and PBS use by Aboriginal and Torres Strait Islander people. However, they are still subject to survey error.

It is probable that the administrative efforts of the Health Insurance Commission (HIC) and an increasing awareness of Indigenous health issues led to both higher Aboriginal and Torres Strait Islander enrolments and a higher service use under Medicare generally, but the extent of the increase is not known.

Summary

Given all of the possible errors in the survey used for the 1995–96 report and in those conducted under BEACH, it is hard to test the above results. Nor is it easy to identify what, if any, additional services (not necessarily medical) might have been provided as a result of administrative and other changes affecting Medicare/PBS use. However, it would appear that:

(a) There have been some real increases in the volume of Medicare-funded services provided by ACCHSs and State health authorities. Our best estimate is that these amounted to about 135,000 GP services and 55,500 other services for which benefits of about $5.3 million were paid in 1998–99.

(b) In 1998–99, a further $3.0 million in Medicare benefits were paid for medical services provided by ACCHSs which had previously been paid from the Services' grant funds. This was effectively new money available for health services provided by these organisations.

For privately provided Medicare and PBS services, estimated benefit payments for Aboriginal and Torres Strait Islander people were about $29 million higher in 1998–99 than in 1995–96. While the balance of probabilities is that this represents some real increase in use, the available evidence does not allow this to be separated from statistical error and other variations in the surveys on which the estimates were based.

Other mainstream health programs

Private health insurance subsidy schemes

In 1998–99 $1,057 million was allocated to the Private Health Insurance Incentives Scheme, which operated to 31 December 1998, and to the Private Health Insurance 30% rebate, which has operated since then. Of this $1,057 million, $783 million was allocated as a direct subsidy through the health insurance funds, and $274 million was a subsidy through the tax system. Based on results from the 1995 Australian Bureau of Statistics National Health Survey, which found that 0.3% of Australians with private health insurance were Aboriginal and/or Torres Strait Islander, it is estimated that $3 million of the $1,057 million was of benefit to Aboriginal and Torres Strait Islander people. Those subsidies are allocated across all areas of expenditure according to the proportions in Table 5.12 of *Australia's Health 2000* (p.253) and are included in Table 3.8 under 'other' for each relevant program and in Table A3.19.

Blood fractionation products

The federal funding of blood products was allocated to Aboriginal and Torres Strait Islander people according to their proportion of public and private hospital admitted patient expenditure.

Residential aged care (health component)

In general, the health component includes only those aged care services where residents require a high level of care. Other services, where lower levels of care are required (formerly hostel-type care), and the Home and Community Care Program are regarded as welfare services.

Commonwealth funding for high-care residential aged care in 1998–99 totalled $2.4 billion, of which $25.7 million or 1.1% was for Aboriginal and Torres Strait Islander people. In addition there was $3.7 million of subsidy for high-care in Indigenous

flexible care services. Details of these expenditures are in Appendix 4. Only the Commonwealth funding for non-State Government high-care residential aged care is included in the tables in this chapter, as the funding for State Government high-care residential aged care is included in Chapter 5.

Medical services

Of the $64.5 million expenditure for medical services for Aboriginal and Torres Strait Islander people, $58.3 million was incurred under the Medicare Benefits Schedule (MBS) (see section on Medicare and the PBS above for details). Some medical services expenditure occurs through other programs, such as alternative GP funding arrangements and the mainstream CCTs. These expenditures are allocated according to the proportion of GP Medicare benefits that Aboriginal and Torres Strait Islander people receive. (Note that the health services provided through the Indigenous CCTs and ACCHS funding are classified as community health). Expenditure through programs to support medical services in areas with a shortage of doctors is allocated according to the proportion of MBS benefits that are used by Aboriginal and Torres Strait Islander people in remote and moderately accessible areas.

Health program grants for pathology

These figures are based on utilisation data. Total health program grants for Western Australia's private pathology providers in 1998–99 amounted to $16,502,395, of which $1,954,868 related to services provided to Northern Territory residents. Of these services for Northern Territory residents, it was estimated that 99%, or $1,935,319, was for Aboriginal and Torres Strait Islander people.

Health program grants for medical practitioner services

Total health program grants for a Northern Territory Government organisation providing medical practitioner services amounted to $1,133,860 in 1998–99, of which 90% or $1,020,474 was the estimated Aboriginal and Torres Strait Islander component.

Other health professionals

The proportion of expenditure on optometry services for Aboriginal and Torres Strait Islander people is assumed to be the same as that for pharmaceutical benefits. Use of these services is thought to be low for Aboriginal and Torres Strait Islander people, given the costs associated with optometrical devices.

Community health

Per person Commonwealth expenditure on community health programs for Aboriginal and Torres Strait Islander people was significantly greater than expenditure for non-Indigenous community health programs. This difference is largely attributable to the inclusion of Aboriginal and Torres Strait Islander Health Service Programs and the Aboriginal Coordinated Care Trials in this section. Both these programs include medical services. Domiciliary nursing care benefit was

allocated to Aboriginal and Torres Strait Islander people in proportion to their use of mainstream high-care residential aged care.

Public health

Expenditure on Aboriginal and Torres Strait Islander people through public health programs was higher than expenditure per person on non-Indigenous people. Commonwealth contributions to a number of Aboriginal and Torres Strait Islander-specific programs explain this difference. Mainstream public health programs such as the National Mental Health Program and the Australian Radiation Protection and Nuclear Safety Authority cannot identify recipients of expenditure in the same way as other programs. Expenditure through these programs has been distributed according to the Aboriginal and Torres Strait Islander population proportion.

Patient transport

The Commonwealth contribution to patient transport is mostly through support of the Royal Flying Doctor Service (RFDS). It is estimated that 46.5% of use of the RFDS is by Aboriginal and Torres Strait Islander people.

Health research

National Health and Medical Research Council grants for Aboriginal and Torres Strait Islander health research were $2.7 million.

Department of Veterans' Affairs

Expenditures by the Department of Veterans' Affairs (DVA) on health services for returned servicemen and women have not been allocated to Aboriginal and Torres Strait Islander people. Aboriginal and Torres Strait Islander veterans are thought to comprise a very small proportion of Australia's surviving veterans; however, there is no information from which to reliably estimate expenditures on Aboriginal and Torres Strait Islander people. There was also no allocation of DVA expenditures to the Aboriginal and Torres Strait Islander population in the 1995–96 report.

Administration

Administration costs for the Office of Aboriginal and Torres Strait Islander Health in 1998–99 were $10.4 million. It was estimated that $2.2 million of the $10.4 million was used for administering the welfare services component and the non-Indigenous component of OATSIH expenditures, so this $2.2 million was not counted as Indigenous health expenditure. The non-OATSIH administration was assumed to be in proportion to the Aboriginal and Torres Strait Islander proportion of non-OATSIH program expenditure—that is, 1.0% of non-OATSIH administration.

Grants to States and Territories

Data presented in the State and Territory health services expenditure chapter (Chapter 5) include Commonwealth payments to the States and Territories. To avoid

double counting, these grants have not been included within other tables in this chapter. Table 3.6 provides information on the Indigenous portion of Commonwealth grants to State and Territory authorities, payments of Commonwealth subsidies to State Government residential aged care and payments by OATSIH to State Governments for health programs specific to Aboriginal and Torres Strait Islander people ($299 million). Acute-care institutions receive the majority of such payments—87% or $260 million.

Table 3.6: Commonwealth payments to State and Territory authorities[(a)], by area of expenditure, total and per person, 1998–99

	Total ($m)		Per person ($)		Indigenous/ non-Indigenous
Area of expenditure	**Indigenous**	**Other**	**Indigenous**	**Other**	**ratio**
Acute–care institutions	*260*	*5,687*	*639*	*309*	*2.1*
Admitted patient services	195	4,265	479	231	2.1
Non-admitted patient services	65	1,422	160	77	2.1
Aged care homes	2	196	6	11	0.5
Community and public health	32	197	78	11	7.3
Administration	5	67	12	4	3.3
Total	**299**	**6,148**	**735**	**334**	**2.2**

(a) Includes specific purpose payments and grants to States and Territories ($6,232 million), subsidies for State Government high-care residential aged care ($198 million), and payments by OATSIH to States and Territories for Indigenous specific programs ($17 million).

Source: AIHW Health Expenditure Database.

Summary

Total Commonwealth funding of recurrent health services expenditure for Aboriginal and Torres Strait Islander people, including Medicare and PBS programs but excluding transfers to States, is estimated to be $267 million (Table 3.7). This represented 1.6% of the total Commonwealth recurrent funding of health services—$16,351 million in 1998–99 (excluding grants to the States). Per person expenditure for Aboriginal and Torres Strait Islander people was $658 compared with $873 for non-Indigenous persons.

Table 3.7: Commonwealth expenditures for Aboriginal and Torres Strait Islander people and non-Indigenous people, by type of service, 1998–99

Service	Total $m	Indigenous $m	Non-Indigenous $m	Per person ($) Indigenous	Per person ($) Non-Indigenous	Ratio: Indigenous/ Non-Indigenous
Benefits paid through Medicare[(a)]	6,611.6	59.4	6,552.2	146.11	355.53	0.41
Benefits paid through the PBS	2,795.6	20.4	2,775.2	50.25	150.59	0.33
Indigenous-specific health programs[(b)]	131.7	121.2	10.5	298.22	0.57	. .
Other Commonwealth programs	***6,812.1***	***66.3***	***6,745.8***	***163.24***	***366.04***	***0.48***
DHAC funding of other Commonwealth programs	4,487.3	59.4	4,427.8	146.21	240.26	0.61
DHAC general administration	726.2	6.9	719.3	17.03	39.03	0.44
DVA funding of private and Commonwealth programs	1,598.7	. .	1,598.7	. .	86.75	. .
Total Commonwealth funding (excluding payments to States)	***16,351.0***	***267.3***	***16,083.7***	***657.82***	***872.74***	***0.75***
Commonwealth (DHAC & DVA) funding of private sector programs	1,414.6	2.7	1,411.9	6.73	76.61	0.09
Total Commonwealth funding of Commonwealth programs[(c)]	***14,936.4***	***264.5***	***14,671.9***	***651.08***	***796.10***	***0.82***
Patient and other private payments for Commonwealth programs	***2,621.2***	***16.4***	***2,604.8***	***40.34***	***141.34***	***0.29***
Patient payments through Medicare	1,153.1	7.0	1,146.1	17.13	62.19	0.28
Patient payments through the PBS	601.3	4.4	597.0	10.71	32.39	0.33
Payments by residents of aged care facilities	747.7	5.1	742.6	12.49	40.29	0.31
Funding of research by private sector	119.1	0.0	119.1	0.00	6.46	. .
Total expenditures through Commonwealth programs[(d)]	**17,557.6**	**280.9**	**17,276.7**	**691.42**	**937.44**	**0.74**

(a) Includes benefits paid through Medicare for optometrical and dental services as well as medical services.

(b) Includes administration costs of OATSIH.

(c) Commonwealth funding of Commonwealth programs equals 'Total Commonwealth funding (excluding payments to States)' and subtracting 'Commonwealth funding of private sector programs'.

(d) Total expenditures through Commonwealth programs equals 'Commonwealth funding of Commonwealth programs' plus 'Patient and other private payments for Commonwealth programs'.

Source: AIHW Health Expenditure Database.

Of the $267 million, around 22% ($59.4 million) was for Medicare services, 8% ($20.4 million) for PBS benefits, around 45% ($121.2 million) for Aboriginal and

Torres Strait Islander health services and the remainder ($66.3 million) for other health services including administration (Table 3.7). In comparison, Medicare benefits of $6,552 million represented 41% and pharmaceutical benefits of $2,775 million represented 17% of the total Commonwealth funding of non-Indigenous health services.

Patient co-payments and other private payments through Commonwealth programs comprised 15% of total expenditures of $17,558 million through Commonwealth programs. However, these payments represented only 6% of the total Aboriginal and Torres Strait Islander expenditures of $281 million through Commonwealth programs.

Comparison of 1995–96 and 1998–99 Commonwealth expenditures

In the 1995–96 report, it was estimated that $178 million was spent through Commonwealth programs for health services for Aboriginal and Torres Strait Islander persons (excluding grants to the States). The estimate for expenditures through Commonwealth programs in 1998–99 was $281 million. Differences in estimation procedures and the effect of sample error mean that the difference between the two amounts cannot be interpreted as growth in expenditure.

There have undoubtedly been some increases in real expenditures over this period. However, the extent of these is unclear. Approximately half of the change is due to documented increases in service delivery to the value of $55.1 million. This is described below. The remaining half is due to method changes, survey error and some real increases that cannot be quantified. The documented increase in health services expenditure per Aboriginal and Torres Strait Islander person of 20% compares with a 10% increase in real per person expenditure for non-Indigenous people.

Documented increases in service delivery include:

- Medical services delivered by ACCHSs and State medical services increased by 135,000 GP services and 55,500 other medical services, for which Medicare benefits of about $5.3 million were paid in 1998–99.
- Health services expenditure through Indigenous-specific health programs, after adjustment for non-Indigenous use, increased by $35.5 million.

In addition to the above, OATSIH paid $14.3 million to States and Territories for Indigenous-specific health services in 1998–99, such as for sexual health, Remote Communities Initiatives, Coordinated Care Trials and for an ACCHS in the Australian Capital Territory. These payments were included in Commonwealth direct expenditure in the 1995–96 report (and so were double counted) but in 1998–99 are not double counted as they are counted only in State expenditure. Thus to measure the true increase in expenditure between the two years, this $14.3 million needs to be added to the $35.5 million and $5.3 million above to ascertain documented increases in services. This gives a total of documented increases in expenditure on services delivered of $55.1 million.

Table 3.8: Estimated Commonwealth funding (excluding payments to States) of health services for Aboriginal and Torres Strait Islander people and the total population, by type of service, 1995–96 report versus 1998–99 report, current prices

	1998–99 report			1995–96 report		
	Total	Indigenous		Total	Indigenous	
Service	$'000	$'000	Per cent Indigenous	$'000	$'000	Per cent Indigenous
Acute-care institutions						
Blood fractionation products	122,500	4,082	3.3	96,510	3,754	3.9
Other	613,000	1,839	0.3			
Aged care						
High-care residential aged care services[(a)]	2,445,397	25,744	1.1	2,001,732	4,276	0.2
Other	1,761	1,503	85.4			
Medical services						
Medicare benefits	6,459,314	58,253	0.9	5,894,321	32,400	0.5
Other	441,297	6,274	1.4	175,413	1,193	0.7
Dental services						
Medicare benefits	6,242	45	0.7	2,180	115	5.3
Other	131,000	393	0.3			
Other health professional						
Optometrical services	146,050	1,067	0.7	141,881	848	0.6
Other	51,135	156	0.3			
Community health services						
Office of Aboriginal and Torres Strait Islander Health[(b)]	111,694	103,413	92.6	114,843	89,662	78.1
Family planning	12,384	267	2.2	14,389	144	1.0
Hearing services	132,378	8,037	6.1	93,276	1,000	1.1
Other	148,941	1,447	1.0	119,821	230	0.2
Pharmaceuticals						
Pharmaceutical benefits	2,795,645	20,419	0.7	2,381,350	9,300	0.4
Other	9,000	27	0.3			
Aids and appliances						
Other	41,003	123	0.3			
Public health						
National public health	113,335	2,445	2.2			
Combating infectious diseases of Indigenous people (OATSIH)	4,832	4,832	100.0			
Other	10,948	1,210	11.1	79,868	4,142	5.2
Patient transport						
RFDS	16,560	7,700	46.5	16,469	6,588	40.0
Other	27,000	81	0.3			
Research	174,333	2,796	1.6	174,117	6,128	3.5

(continued)

Table 3.8 (continued): Estimated Commonwealth funding (excluding payments to States) of health services for Aboriginal and Torres Strait Islander people and the total population, by type of service, 1995–96 report vs 1998–99 report, current prices

	1998–99 report			1995–96 report		
	Total	Indigenous		Total	Indigenous	
Service	$'000	$'000	Per cent Indigenous	$'000	$'000	Per cent Indigenous
Administration						
OATSIH	10,410	8,207	78.8	4,560	4,560	100.0
General	726,176	6,918	1.0	481,440	3,392	0.7
Total expenditure through Medicare and the PBS	**9,407,252**	**79,783**	**0.8**	**8,417,552**	**42,548**	**0.5**
Indigenous specific health programs[(c)]	131,652	121,169	92.0	114,843	89,662	78.1
Other Commonwealth programs plus general administration	5,213,433	66,326	1.3	3,255,215	30,963	1.0
Total Commonwealth funding (excl. payments to States)	**14,752,337**	**267,278**	**1.8**	**11,787,610**	**163,173**	**1.4**
Total expenditures through Commonwealth programs (excl. payments to States)[(d)]	**16,462,435**	**280,931**	**1.7**	**15,980,241**	**178,105**	**1.1**

(a) Excludes Commonwealth subsidy for high care in State Government residential aged care homes.

(b) Total expenditures through the Office of Aboriginal and Torres Strait Islander Health are not comparable for the 1998–99 and the 1995–96 reports, as the 1995–96 number of $114.8m included OATSIH payments of $25.2m for services which were considered of a welfare nature, whereas the 1998–99 number of $111.7m excluded the payment for those services of $14.6m.

(c) Includes administration costs of OATSIH.

(d) The difference between total Commonwealth funding and total expenditures through Commonwealth programs is patient contributions and Commonwealth funding of non-Commonwealth programs.

Note: Table excludes DVA payments, therefore totals above do not correspond with Table 3.7.

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4 Hospital admissions and expenditure for Aboriginal and Torres Strait Islander patients

Hospital expenditure is a major portion (38%) of total health services expenditure, so estimating hospital expenditure is crucial in estimating total expenditure. It is an area where the data are more easily reconciled than in any other major area of Aboriginal and Torres Strait Islander health services, but there are also inadequacies in the data and it must be interpreted with care.

Estimating the under-identification of Aboriginality in hospital records

Under-identification in service records is the largest single issue in the estimation of Aboriginal and Torres Strait Islander health expenditures. As pointed out in the 1995–96 report, estimating the magnitude of under-identification is complicated by dependence on a combination of self-identification and community acceptance, which may be highly variable according to context. In some environments it is not safe to identify oneself as Indigenous. However, some benchmark is needed and self-identification in the Census is commonly taken as the base.

Admitted patient hospital treatment is the only health service in which the Indigenous status of patients is, in principle, collected routinely. In the first report, hospitalisation represented about 40% of all the estimated expenditures for and by Aboriginal and Torres Strait Islander people and a much higher proportion (nearly 53%) of expenditures by State and Territory Governments. Although some limited surveys have been conducted in other services, admitted patient usage data are the base for many of the States' estimates for non-admitted patient use, and in some jurisdictions for community health services as well. The methodology in the first report was to allocate expenditures according to the proportion of cost-weighted separations reported for Aboriginal and Torres Strait Islander people, adjusted for the estimated level of under-identification in each jurisdiction, and with costs adjusted for length of stay. A similar methodology has been used in this report although some of the adjustments for relative treatment costs are more sophisticated.

The 1995–96 results

The 1995–96 report used a mixture of State authority estimates, anecdotal evidence and a test of 'reasonableness' to estimate the likely understatement of Aboriginal and Torres Strait Islander use of acute-care institutions. Although it was unlikely to be completely satisfactory, it was assumed that for the Northern Territory and Western

Australia coverage was complete. There was likely to be under- and over-identification in these States, so it was assumed that these errors balanced and that the reported proportions were the best estimates of the true proportions.

The estimate for under-identification in New South Wales (33%) was supported by work done by the State Health Department, although the figure finally adopted was a little higher than the State's preferred one. There was no comprehensive evidence in the other States, although some limited surveys of individual institutions had been done, and Queensland had applied some local indicators drawn from them. Use in the Australian Capital Territory was clearly under-reported considerably. Because there was almost no reporting of Aboriginal and Torres Strait Islander use in Tasmania, its figures were constructed from the data for other States. The national average under-identification factor, weighted for Aboriginal and Torres Strait Islander hospital use, was 17%, which implied an expansion of 20% in the reported usage figures nationally. This under-identification factor was critical to many of the estimates of State and Territory government expenditures on Aboriginal and Torres Strait Islander people. It was also applied to the results of the sample surveys of Medicare and Pharmaceutical Benefits Scheme (PBS) use and therefore to some Commonwealth expenditures as well.

For public acute-care institutions, Table 4.1 shows the reported separation rates per 1,000 population for Aboriginal and Torres Strait Islander and non-Indigenous people, and the ratios of Aboriginal and Torres Strait Islander to non-Indigenous use finally adopted. (In all the usage tables, no figures are shown for Tasmania or the Australian Capital Territory because of large reporting errors. Outlays in these jurisdictions have been estimated in another way.)

Table 4.1: Separation rates per 1,000 population, public acute-care institutions, Indigenous status by State, 1995–96

Indigenous status	NSW	Vic	Qld	WA	SA	NT
Base rates						
Indigenous	231	238	348	481	427	492
Other	201	191	186	180	214	158
Estimated under-identification (%)	33	25	15	—	10	—
Ratio: Indigenous/other						
Base	1.15	1.25	1.87	2.67	2.00	3.10
Adjusted	1.73	1.67	2.38	2.67	2.23	3.10

The adjusted ratios were consistent with the demography of the various States and Territories. They were also consistent with the expectation that Aboriginal and Torres Strait Islander health status would be lowest, and reliance on public hospital admission would be highest, where the proportion of the Aboriginal and Torres Strait Islander population living in remote areas was greatest. However, it was clear that, even after adjustment, use in New South Wales and Victoria differed significantly from the other jurisdictions.

Reported results, 1998–99

Table 4.2 shows the reported separation rates per 1,000 population for Aboriginal and Torres Strait Islander and non-Indigenous people in each jurisdiction in 1998–99, distinguishing between same-day admissions (of which repeated admissions for renal dialysis are an important component in some jurisdictions) and overnight admissions. Percentage changes over 1995–96 are also shown. As can be seen:

(a) In every State and Territory except South Australia the ratio of reported Aboriginal and Torres Strait Islander to non-Indigenous separation rates increased. The South Australian figure barely changed.

(b) For both the Aboriginal and Torres Strait Islander and non-Indigenous populations, all of the increase was in same-day admissions. Except for Aboriginal and Torres Strait Islander patients in Queensland, all overnight admission rates fell.

(c) The differences widened between New South Wales and Victoria on the one hand and Queensland, Western Australia and the Northern Territory on the other. South Australian rates remained higher than in the two largest States but the difference did not increase.

(d) Reported increases in the northern and western States were substantial.

Table 4.2: Reported separation rates per 1,000 population, public acute-care institutions, Indigenous status by State, 1998–99

Indigenous status	NSW	Vic	Qld	WA	SA	NT	Aust
			Base rates				
Indigenous							
Same day	82	112	181	206	200	336	166
Overnight	164	147	237	361	269	265	225
Total	**246**	**259**	**418**	**567**	**469**	**601**	**391**
Other							
Same day	81	100	89	84	106	70	90
Overnight	117	107	109	97	128	95	111
Total	**199**	**208**	**198**	**181**	**233**	**165**	**201**
Ratio: Indigenous/other	**1.24**	**1.25**	**2.11**	**3.13**	**2.01**	**3.65**	**1.94**
			Percentage increase: 1998–99 / 1995–96				
Indigenous							
Same day	26	44	50	75	30	46	47
Overnight	–1	–8	4	–1	–2	1	1
Total	**7**	**9**	**20**	**18**	**10**	**22**	**16**
Other							
Same day	7	21	20	18	23	13	17
Overnight	–6	0	–3	–11	—	–2	–4
Total	**–1**	**9**	**6**	**—**	**9**	**4**	4

Note: Australian total includes estimates for Tasmania and the Australian Capital Territory.

Adjustment for previously estimated under-identification would of course reduce the inter-State differences in ratios of Aboriginal and Torres Strait Islander to non-Indigenous use. However, it would not change the rates of growth. At face value, hospitalisation for Aboriginal and Torres Strait Islander people rose much more than for the non-Indigenous population, though not as rapidly in cost-weighted terms. But it is not immediately clear how much of the apparent change was 'real' and how much the result of better identification. If our 1995–96 assumption of complete enumeration in the Northern Territory and Western Australia was correct, their changes would stand but there are a number of possibilities in other States and Territories. The New South Wales submission, in particular, reported significant efforts to improve public hospital identification in recent years. If that succeeded, there may have been no increase in use at all (or even a decrease) in Aboriginal and Torres Strait Islander admitted patient usage in that State. It is therefore important to review our estimation of reporting accuracy in the light of any additional evidence over the last two years.

Application of under-identification estimates to the final results

The final estimates of under-identification have taken into account the studies documented in Appendix 5 and other evidence, in deciding whether any changes in the previously determined proportions should be made. For each jurisdiction, the results were as follows:

New South Wales

The New South Wales submission divided estimated under-identification into two parts, namely the 13% estimated from multiple admissions of Aboriginal and Torres Strait Islander people and an additional component (implicitly for initial identification) of between 15% and 25%. The New South Wales preferred figure was 20%. Taken together, the two factors would imply an expansion of about 36% in the reported number of unweighted separations, or about 27% under-identification. However, in cost-weighted terms, it was closer to 30% because under-identification appeared to be greater for the more expensive metropolitan admissions.

We have assumed a 30% under-identification. It implies some improvement in identification since 1995–96—about 3%—which is consistent with advice from the New South Wales Health Department.

Victoria

There were no directly supporting data for the estimate of 25% under-identification in 1995–96. It was a judgment based on the reported usage rates relative to other States and Territories, the factors likely to influence them and some conformity with the more supported estimate for New South Wales. The figure was somewhat higher than the Victorian authorities then contemplated.

The additional information since then is from the Koori Health Unit survey (Appendix 5). This survey is likely to have somewhat overstated the errors in

reported usage figures; however, their direction may be valid. If the survey levels of under- and over-reporting were accepted the result would be:

- a net over-identification of about 15%, based on the recording of multiple admissions over time; and
- a possible under-identification of about 34% in initial identification, based on the proportion of mis-recorded 'definite' and 'probable' Aboriginal and Torres Strait Islander hospital admissions in the same study.

The net effect would be an increase of 28% in the reported figures, equivalent to under-identification of about 22%.

This is useful additional information. However, the uncertainties surrounding it are such that no change in the previous estimate of 25% net under-identification has been made. It is of the right order of magnitude and, with only 0.5% of its resident population identifying as Aboriginal, the usage data for Victoria may be so subject to recording error that any apparent differences may not be real. The same must apply to any reported changes since 1995–96, but since only 6% of all Aboriginal and Torres Strait Islander people live in the State it has little effect on any national figures.

Queensland

The Queensland submission suggested under-identification of 32% (the same as submitted in 1995–96) based on some surveys of individual hospitals in recent years. However, these were largely from hospitals in the south-east corner, where the proportion of Aboriginal and Torres Strait Islander patients is low. Less information was available for more distant areas. Data from the Department's Epidemiological Unit show that in 1998–99 about 20% of all Aboriginal and Torres Strait Islander separations was for people living in Aboriginal communities or in remote areas with less than 5% of their population recorded as Aboriginal but where identification was believed to be complete. That is consistent with the ABS & AIHW (AHMAC, AIHW & ABS 1999) result where identification averaged around 94% in areas where a 'high' proportion of the population were Aboriginal and Torres Strait Islander, compared with only 66% where the proportion was low. About 35% of Queensland's Aboriginal and Torres Strait Islander population lives in the regions of Mount Isa, Cooktown, Cairns and the Torres Strait area. If the ABS results applied to them, the combined data suggest a State-wide identification of between 75% and 80% in 1998–99.

The 1995–96 estimate of under-identification in Queensland was 15%. That was almost certainly too low and we have increased it to 20% for the current calculations. The resulting estimates of utilisation are certainly high but the rates are broadly comparable with those in Western Australia and the Northern Territory.

Western Australia and the Northern Territory

These were the 'gold standard' jurisdictions in the first report, in so far as their identification was assumed to be as complete as possible. The ABS & AIHW study (AHMAC, AIHW & ABS 1999) suggested that under-identification in three Northern

Territory hospitals might have been about 3% but that is still a very high level of accuracy.

There might have been some differences in the way same day admissions were defined. All of the States and Territories reported large increases in same day admission rates but growth in Western Australia was very rapid indeed—75% per person over three years was a 21% increase per person per year with only a modest reduction (1%) in overnight admission rates.

Western Australia has confirmed the high accuracy of its identification through a data-linking exercise which showed accuracy of Aboriginal identification of 94% in 1994–95 and 1995–96, and 95% in 1996–97. An under-identification factor of 6% has been applied in 1998–99 in line with this study.

South Australia

The 10% under-identification estimate used in the 1995–96 survey has been retained. There is no new evidence, other than the ABS & AIHW study (AHMAC, AIHW & ABS 1999) in which nearly half of the sampled hospitals were South Australian and which suggested under-identification of about this magnitude.

Tasmania

Recording errors in Tasmania are so large that no under-identification factor could be applied. Instead a survey of outpatient clinic usage was used to allocate admitted patient expenditure.

Australian Capital Territory

The under-identification factor found for the two main Australian Capital Territory hospitals in the ABS & AIHW hospital identification study (AHMAC, AIHW & ABS 1999) was applied to the Australian Capital Territory data.

Application

Table 4.3 shows overall separation rates per 1,000 population in 1998–99, before and after adjustment for estimated under-identification, and the ratios of Aboriginal and Torres Strait Islander to non-Indigenous hospital use derived from them. The data are not cost-weighted.

Table 4.3: Separation rates for Aboriginal and Torres Strait Islander people and non-Indigenous people per 1,000 population, public acute-care institutions, by State, 1998–99

Separation type	NSW	Vic	Qld	WA	SA	NT	Aust
Reported							
Indigenous	246	259	418	567	469	601	391
Other	199	208	198	181	233	165	201
Est. under-identification (%)	**30**	**25**	**20**	**6**	**10**	**—**	**16**
Adjusted							
Indigenous	352	346	522	603	521	600	463
Other	197	207	194	180	232	165	199
Ratio: Indigenous/other	**1.79**	**1.67**	**2.69**	**3.35**	**2.24**	**3.64**	**2.32**

(a) Australia includes estimates for Aboriginal and Torres Strait Islander patients in the Australian Capital Territory and Tasmania.

Note: The separations where Indigenous status was not reported have been allocated between 'Indigenous' and 'Other' in the proportion of the identified separations.

As in the 1995–96 report, adjustment for under-identification narrows the inter-State differences but only marginally alters the relative position of New South Wales and Victoria.

Table 4.4 shows the change in hospital separations between 1995–96 and 1998–99 with the numbers in all years adjusted for under-identification. There is a higher rate of increase for Aboriginal and Torres Strait Islander separations than for non-Indigenous separations for all States and Territories. Particularly significant is the increase of almost 30% in Aboriginal and Torres Strait Islander separations in Queensland, Western Australia and the Northern Territory.

Note: The 30% increase for Queensland assumes an under-identification factor in 1995–96 of 20%, not the factor of 15% assumed in the 1995–96 report. If the 1995–96 factor had been used, the increase in Aboriginal and Torres Strait Islander separations would have been 37%—from 42,466 to 58,343.

Table 4.4: Separations for Aboriginal and Torres Strait Islander people and non-Indigenous people, adjusted for under-identification, public acute-care institutions, by State, 1995–96 and 1998–99

	NSW	Vic	Qld	WA	SA	NT	Aust[(a)]
Aboriginal and Torres Strait Islander people							
1995–96	37,419	7,099	45,121	26,758	10,360	25,257	154,562
1998–99	40,663	8,155	58,343	35,501	12,074	32,509	188,031
% change	8.7	14.9	29.3	29.3	16.5	28.7	21.7
Non-Indigenous people							
1995–96	1,203,525	859,772	586,867	305,988	309,077	20,752	3,412,244
1998–99	1,222,498	960,838	648,884	318,940	340,051	22,376	3,651,384
% change	1.6	11.8	10.6	4.2	10.0	7.8	7.0

(a) Australia includes derived estimates for Aboriginal and Torres Strait Islander patients in the Australian Capital Territory and Tasmania.

Summary

Nationally, the estimated under-identification factor for 1998–99 has hardly changed from that for 1995–96. The rate for New South Wales has fallen by about 3% but the original estimate for Queensland was almost certainly too low and it has been increased by 5%. A Western Australian under-identification factor of 6% has been applied in 1998–99, whereas no factor was applied in 1995–96. None of the other State under-identification estimates have been changed; however, they are all approximations only and the additional information obtained since 1996, summarised in Appendix 5, has confirmed some aspects and thrown doubt on others. The ABS & AIHW survey (AHMAC, AIHW & ABS 1999) has established a reliable methodology for assessing accuracy and confirmed earlier estimates for the Northern Territory and South Australia. This information has been used, together with the broad assumptions we made in relation to likely identification levels in areas where the proportion of Aboriginal and Torres Strait Islander people in the population varied markedly.

The survey implied a level of recording accuracy which the Victorian and New South Wales studies suggested could not be assumed in the larger States where Aboriginal and Torres Strait Islander patients are relatively rare and both under-reporting and over-reporting are possible. The general assumption of automatic under-identification in the reported figures could therefore be wrong. At this point of time the estimated under-identification factors are as good as can be devised. However, sufficient uncertainty surrounds them to make interpretation of all but the largest changes of hospital use over time extremely hazardous.

Overview of hospital costing

There are a number of factors driving differences in admitted patient expenditures between Aboriginal and Torres Strait Islander people and non-Indigenous people. The high hospital admission rate of Aboriginal and Torres Strait Islander people is well documented. Studies outlined in Appendix 5 and discussed earlier in this chapter provide evidence that Aboriginal and Torres Strait Islander people are under-identified in hospital separations. The average diagnosis-related group (DRG) cost weight of Aboriginal and Torres Strait Islander patients is lower due to higher numbers of low-cost DRGs such as dialysis and lower numbers of high-cost surgical DRGs. There is also evidence to suggest that, within DRGs, Aboriginal and Torres Strait Islander patients have higher costs per episode due to more complications, which lead to longer lengths of stay. It is also probable that Aboriginal and Torres Strait Islander patients have higher costs per day due to more additional diagnoses.

The geographic distribution of Aboriginal and Torres Strait Islander people means that the cost structure of the hospitals used by them is different from the cost structure of the hospitals used by non-Indigenous people. Aboriginal and Torres Strait Islander people are more likely to use remote high-cost hospitals than non-Indigenous people. They are also more likely to use some lower-cost hospitals such as small non-remote rural hospitals and remote Queensland hospitals.

Utilisation and cost weights

Aboriginal and Torres Strait Islander people use more hospital separations per head of population than non-Indigenous people do, with the differential varying between jurisdictions. (See Table 6.7 of *Australian Hospital Statistics 1998–99* (AIHW 2000a) and Table 4.2 in this chapter.)

The average cost weight of these separations is lower for Aboriginal and Torres Strait Islander people. This overall pattern is fairly consistent across Australia (Table 4.5). However, South Australia shows a higher average cost weight (0.97) for Aboriginal and Torres Strait Islander people than other States. This is due to a number of Northern Territory patients with high cost weights being treated in South Australian public hospitals. South Australian Aboriginal and Torres Strait Islander patients treated in South Australia have a cost weight of 0.83. In contrast, the Northern Territory patients comprise 18% of the cost-weighted separations in South Australian public hospitals and have an average cost weight of 2.7. (We have used the national public cost weights in this table to give a consistent measure across jurisdictions and sectors.)

Table 4.5: Average national public hospital cost weight, acute separations by sector and jurisdiction, 1998–99

Sector	Aboriginality	NSW	Vic	Qld	WA	SA	NT	Aust[(a)]
Private	Indigenous	0.72	0.91	0.70	0.59	0.88	. .	0.73
	Non-Indigenous	0.89	0.93	0.93	0.89	0.98	. .	0.92
	Total	*0.88*	*0.93*	*0.92*	*0.89*	*0.98*	*. .*	*0.91*
Public	Indigenous	0.84	0.89	0.83	0.83	0.97	0.70	0.82
	Non-Indigenous	1.03	1.00	0.99	0.97	1.00	0.90	1.00
	Total	*1.03*	*1.00*	*0.98*	*0.96*	*1.00*	*0.78*	*1.00*
Total	Indigenous	0.83	0.89	0.83	0.82	0.97	0.70	0.82
	Non-Indigenous	0.99	0.98	0.97	0.94	0.99	0.90	0.98
	Total	**0.98**	**0.97**	**0.96**	**0.93**	**0.99**	**0.78**	**0.97**

(a) Australia includes the Australian Capital Territory and Tasmania.

Source: Hospital morbidity database.

Average length of stay and complexity

At the total level, the average length of hospital stay for Aboriginal and Torres Strait Islander people is longer than for non-Indigenous people within the same DRGs. This leads to the cost per casemix-adjusted separation estimate for Aboriginal and Torres Strait Islander people being higher when using the Institute's length of stay adjustment (Appendix 5). There are a number of factors behind these differences including hospital/regional variations and levels of complexity.

The variation in the average length of stay by Australian Refined-DRG (ARDRG) may also be due to structural and other factors. For example, in Table 4.6 the average length of stay for DRG O60D *Normal vaginal delivery* shows variation in average length of stay between jurisdictions and between Aboriginal and Torres Strait

Islander and non-Indigenous people within jurisdictions. Part of the reasons for these variations may include differences in clinical practice and post discharge support structures, in particular the availability of home midwifery and mothercraft hospitals.

Table 4.6: Average length of stay for AR-DRG O60D *Normal vaginal delivery* for public hospitals by jurisdiction, 1998–99

	NSW	Vic	Qld	WA	SA	NT	Aust
Indigenous	3.0	2.8	2.8	3.2	2.5	4.4	3.1
Non-Indigenous	3.1	3.2	2.7	3.2	3.1	3.4	3.1
Difference	–0.1	–0.4	0.1	0.0	–0.6	1.0	0.0

Regional differences

To understand the variations introduced by the differences between hospitals it is useful to relate the Aboriginal and Torres Strait Islander population distribution to the peer group information in Appendix Table A11.2 of *Australian Hospital Statistics 1998–99* (AIHW 2000a). A high proportion of Aboriginal and Torres Strait Islander people live in areas where the hospitals are relatively high-cost, such as the Northern Territory and other remote parts of Australia. However, there are counteracting factors. Some other parts of Australia, where there are high proportions of Aboriginal and Torres Strait Islander people, have hospitals which are lower-cost than the rest of Australia, with the most extreme example being the remote hospitals in Queensland. These hospitals report very low costs per separation. This may be due to a number of factors such as the patients being more like overnight outpatients rather than ordinary hospital admitted patients.

Rural hospitals in particular treat higher numbers of Aboriginal and Torres Strait Islander patients. In New South Wales and Queensland, these hospitals have a lower average cost per casemix-adjusted separation than most of the metropolitan hospitals, particularly the teaching hospitals.

The combined effect on the jurisdictions

Applying a length of stay adjustment to the cost estimates has minimal effect in New South Wales, Victoria, Queensland and Western Australia (columns 4 and 7 of Table 4.7). It increases the relative size of the cost per casemix-adjusted separation for South Australia and the Northern Territory.

Scaling the expenditure by the total admitted patient expenditure within the hospitals in the State has a somewhat different effect (columns 5 and 8 of Table 4.7). This occurs because hospitals treating higher proportions of Aboriginal and Torres Strait Islander persons are less expensive in New South Wales and Queensland. In Western Australia, the reverse is true, with hospitals treating higher proportions of Aboriginal and Torres Strait Islander persons being more expensive than the average.

Table 4.7: Relative State-based weight adjustment of cost per casemix-adjusted separation for public hospitals 1998–99

		Cost per casemix-adjusted separation (using State-based weights) ($)			Costs relative to State total		
State	Indigenous status	DRG weight only estimate	DRG weights with length of stay adjustment	Scaling to the hospital expenditure	DRG weight only estimate	DRG weights with length of stay adjustment	Scaling to the hospital expenditure
NSW	Indigenous	2,517	2,562	2,571	1.00	0.99	0.96
	Non-Indigenous	2,519	2,584	2,688	1.00	1.00	1.00
	Total	2,519	2,584	2,686	1.00	1.00	1.00
Vic	Indigenous	2,317	2,279	2,309	1.00	0.98	0.98
	Non-Indigenous	2,319	2,329	2,345	1.00	1.00	1.00
	Total	2,319	2,329	2,345	1.00	1.00	1.00
Qld	Indigenous	2,275	2,302	2,192	1.00	1.01	0.94
	Non-Indigenous	2,282	2,288	2,341	1.00	1.00	1.00
	Total	2,281	2,287	2,335	1.00	1.00	1.00
WA	Indigenous	2,415	2,389	2,867	1.00	0.98	1.05
	Non-Indigenous	2,416	2,436	2,725	1.00	1.00	1.00
	Total	2,416	2,432	2,736	1.00	1.00	1.00
SA	Indigenous	2,266	2,453	2,637	1.00	1.09	1.13
	Non-Indigenous	2,262	2,250	2,329	1.00	1.00	1.00
	Total	2,262	2,254	2,337	1.00	1.00	1.00
NT	Indigenous	2,404	2,901	3,454	1.00	1.06	1.06
	Non-Indigenous	2,410	2,556	3,062	1.00	0.93	0.94
	Total	2,407	2,737	3,268	1.00	1.00	1.00
Australia	**Indigenous**	**2,375**	**2,484**	**2,676**	**0.99**	**1.03**	**1.06**
	Non-Indigenous	**2,389**	**2,419**	**2,515**	**1.00**	**1.00**	**1.00**
	Total	**2,387**	**2,419**	**2,516**	**1.00**	**1.00**	**1.00**

Notes

1. All results from the AIHW hospital morbidity costing model.

2. Australia includes estimates for the Australian Capital Territory and Tasmania.

The Australian effect can be seen as a combination of differences between the jurisdictions. The higher costs for all patients in Western Australia and the Northern Territory, combined with high proportions of the total Aboriginal and Torres Strait Islander population, increase the differentials across Australia between Aboriginal and Torres Strait Islander patients and non-Indigenous patients. Overall costs per separation within DRGs for Aboriginal and Torres Strait Islander patients are 6% higher than for non-Indigenous patients. But New South Wales costs per separation for Aboriginal and Torres Strait Islander patients are 4% lower and Queensland costs are 6% lower, whereas Western Australia, South Australia and Northern Territory costs per separation for Aboriginal and Torres Strait Islander patients are respectively 5%, 13% and 6% higher.

Higher cost intensity per bed day

Health workers have long argued that there are higher costs involved in treating Aboriginal and Torres Strait Islander people in the same DRG because of greater co-morbidities. Several State health authorities pay extra per casemix-weighted Indigenous separation to hospitals to allow for these claimed extra costs. However, there has been a lack of solid evidence supporting this proposition.

The National Aboriginal and Torres Strait Islander Casemix Study (Brewerton & Associates 1997) measured costs of Aboriginal and Torres Strait Islander and non-Indigenous patients in 10 hospitals in Northern Territory, Western Australia, northern Queensland and South Australia. It showed, after adjustment for casemix, a 5% higher cost for Aboriginal and Torres Strait Islander patients but this difference was not statistically significant.

Recently, modelling work using data from the New South Wales Trendstar hospitals has shown that, after adjustment for casemix, Aboriginal and Torres Strait Islander patients cost 9.4–9.5% more per separation. Of that higher cost, 2.4 to 2.6% was shown to be due to longer length of stay. The hospitals in the study are mostly larger hospitals and mostly metropolitan, so do not represent the costs of many of the smaller rural and base hospitals in New South Wales. However, it is a solid study which supports the anecdotal evidence that has come from various health workers. Therefore it seemed reasonable to make some adjustment for higher cost intensity for Aboriginal and Torres Strait Islander patients. The Institute hospital morbidity cost model already makes allowance for the higher costs that arise for Aboriginal and Torres Strait Islander patients due to longer length of stay. The New South Wales study shows there is a higher cost, not related to length of stay, of 1.094/1.025 = 1.07, i.e. a 7% higher cost intensity per bed day.

It was decided, therefore, to apply a 5% cost loading to Aboriginal and Torres Strait Islander separations. This adds $18 million to the admitted patient expenditure estimates.

Summary

This chapter has used more detailed State morbidity data than the first report in making admitted patient expenditure estimates. This has changed the cost relativities for the different States. For example, this report allows for the impact of the relatively lower-cost New South Wales and Queensland hospitals which treat many Aboriginal and Torres Strait Islander patients, and allows for the higher costs for South Australia because many Aboriginal and Torres Strait Islander patients are treated many hundreds of kilometres from home and many of the high-cost Northern Territory patients are treated in South Australian hospitals. Consequently the rate of growth of public hospital expenditure for Aboriginal and Torres Strait Islander patients from 1995–96 to 1998–99 varies from State to State. In some cases the variation was due to difference in the growth of patients treated, in other cases due to the change in the costing methodology.

The most significant change in methodology is an allowance of 5% for greater costs for Aboriginal and Torres Strait Islander patients due to greater cost intensity per day. This adds $18 million, and brings the admitted patient expenditure estimates up to $453 million.

These admitted patient expenditures are estimates based on modelling techniques, rather than patient costing data. When more hospitals supply patient costing data, the estimates for admitted patient expenditure will be improved.

5 State and Territory health services expenditure for Aboriginal and Torres Strait Islander people

Background information

Community and public health expenditure

There are a number of spending areas which cannot easily be categorised, so for the purposes of this report the category of community health services has been amalgamated with public health. Alcohol and drug services, for example, often include a component of treatment which is classified as 'community health' as well as activities with a preventive or harm minimisation focus, which are classified as 'public health'. It is particularly difficult to distinguish between community and public health for Aboriginal and Torres Strait Islander health programs run on a holistic basis. Under the auspices of the National Public Health Expenditure Project, work is underway to more sharply define the community and public health boundary. At this stage, however, it is appropriate to combine the community and public health categories, particularly if jurisdictional comparisons are to be made. The Northern Territory, for example, categorises a great deal of expenditure as public health for both Aboriginal and/or Torres Strait Islander people and non-Indigenous people. In other States a portion of this expenditure would be included in 'community health'.

Public health expenditure to Aboriginal and Torres Strait Islander people was often allocated according to population shares although, where possible, for activities such as breast and cervical cancer screening, it was based on utilisation data.

Home and Community Care expenditure

Expenditure on HACC was collected from the States but has not been included in this report as it is now classified as welfare services.

Health administration

Unlike in the first report, expenditure on health research is reported separately from expenditure on administration. Expenditure on administration for Aboriginal and Torres Strait Islander people was calculated according to the steps below:

1. The Aboriginal and Torres Strait Islander proportion of each jurisdiction's population was applied to that State or Territory's total administration expenditure.

2. The proportion of total expenditure attributable to Aboriginal and Torres Strait Islander people across all areas of spending (hospitals, nursing homes, etc.) was applied to total expenditure on administration.
3. These two numbers were averaged.

Note: For Victoria, administrative expenditure was included with the functional categories. Therefore, for Victoria, it was effectively calculation 2 which was applied in estimating the portion of administrative expenditure applying for Koori people.

Hospital expenditure

The hospital expenditure data contained in this chapter are those generated by the Institute's hospital morbidity cost model (see Chapter 4 and Appendix 5), with a 5% loading for extra costs incurred for Aboriginal and Torres Strait Islander patients. These numbers differ somewhat from the numbers provided by the States and Territories.

Population

The 1998–99 Aboriginal and Torres Strait Islander populations are based on an average of the ABS low series experimental projections as at 30 June 1998 and 30 June 1999 (ABS 1998). The total State and Territory populations are AIHW estimates of mean resident populations for 1998–99, derived from quarterly data sourced from ABS Catalogue 3101.0 (ABS 2000a). See Appendix 2 for details of populations used.

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

A detailed explanation of the methodology for estimating Aboriginal and Torres Strait Islander expenditure for each State and Territory, together with a discussion of data quality issues, can be found in Appendix 6.

New South Wales

Demography

The 1998–99 Aboriginal and Torres Strait Islander population in New South Wales was estimated to be 115,532 which accounted for 1.8% of the State's total population. This represented over a quarter (28.4%) of the total Australian Aboriginal and Torres Strait Islander population.

Key results

The New South Wales Government recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 is estimated at $211.3 million. This accounts for 3.2% of the State's total health services recurrent expenditure of $6,531.8 million. Expenditure for Aboriginal and Torres Strait Islander people was estimated to be $1,829 per head—1.81 times greater than the State's non-Indigenous per person expenditure ($1,011).

Comments on methods

Data for New South Wales were compiled at the area health service level. Three sets of estimates of recurrent expenditure for Aboriginal and Torres Strait Islander people were derived by New South Wales based on alternate assumptions of under-identification in hospitals, aged care homes and community services. The 'high' assumptions give an estimate 9% higher of $230 million and the 'low' assumptions gave an estimate 7% lower of $196 million. Most of the variation derives from the estimates of admitted patient expenditure where there is considerable uncertainty as to under-identification. The 'medium' estimate in this report was 30% under-identification with a variation from 26% to 34%.

Expenditure estimates in the community and public health area are based on limited utilisation data, so should be treated with care.

Table 5.1: New South Wales Government health expenditure, by program, for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	**Indigenous**	**Total**	**Indigenous share %**	**Indigenous**	**Non-Indigenous**	**Ratio**
Acute-care institutions	*138.3*	*4,900.9*	*2.8*	*1,197*	*762*	*1.57*
Admitted patient services	109.1	3,982.6	2.7	945	620	1.52
Non-admitted patient services	29.2	918.2	3.2	253	142	1.78
Mental health institutions	8.6	208.1	4.1	74	32	2.33
High-care residential aged care	1.4	75.4	1.9	12	12	1.05
Patient transport	8.1	256.7	3.2	70	40	1.77
Community and public health	52.2	973.5	5.4	452	147	3.07
Health research	1.3	66.6	1.9	11	10	1.05
Administration	1.3	50.5	2.5	11	8	1.41
Total	**211.3**	**6,531.8**	**3.2**	**1,829**	**1,011**	**1.81**

Victoria

Demography

The 1998–99 Aboriginal and Torres Strait Islander population in Victoria was estimated to be 23,602, which represented 5.8% of the total Aboriginal and Torres Strait Islander population and 0.5% of the State's total population. This estimate is based on Census estimates with adjustments by the ABS for under-enumeration and population growth since the Census. Koori community organisations consider that the Census underestimates the true number of Aboriginal and Torres Strait Islander people in Victoria by at least 50%.

Key results

The Victorian Government recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 was estimated to be $34.1 million. This accounted for 0.88% of the State's total health services recurrent expenditure of $3,892.7 million. Expenditure for Aboriginal and Torres Strait Islander people was estimated to be $1,444 per head—1.7 times greater than the State's non-Indigenous per person expenditure ($828).

Comments on methods

Within the hospital sector there have been significant data developments more recently. The estimates of admitted patient services for Aboriginal and Torres Strait Islander people were informed by surveys undertaken by the Koori Health Unit which assessed the accuracy of identification in hospital records (Appendix 5). Expenditure through acute-care institutions accounts for 70% of total expenditure on Aboriginal and Torres Strait Islander people.

Expenditure estimates in the community and public health area are not based on utilisation data so should be treated with care.

Table 5.2: Victorian Government health expenditure, by program, for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	**Indigenous**	**Total**	**Indigenous share %**	**Indigenous**	**Non-Indigenous**	**Ratio**
Acute-care institutions[(a)]	*23.7*	*3,072.8*	*0.8*	*1,003*	*654*	*1.53*
Admitted patient services	18.7	2,429.5	0.8	793	517	1.53
Non-admitted patient services	5.0	643.3	0.8	210	137	1.53
High-care residential aged care	0.1	40.3	0.2	3	9	0.32
Patient transport	1.0	96.6	1.0	40	21	1.97
Community and public health	9.2	654.6	1.4	391	139	2.82
Health research	0.1	28.5	0.5	6	6	1.00
Total	**34.1**	**3,892.7**	**0.9**	**1,444**	**828**	**1.74**

(a) Victorian institutional mental health care expenditure is included in admitted patient services of acute-care institutions.

Note: Administration is allocated across the functional categories and is not reported separately.

Queensland

Demography

The 1998–99 Aboriginal and Torres Strait Islander population in Queensland was estimated to be 111,718, which accounted for 3.2% of the State's total population and represented 27.5% of the total Australian Aboriginal and Torres Strait Islander population.

Key results

The Queensland Government recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 was estimated to be $225 million (Table 5.3). This accounted for 7.2% of the State's total health services recurrent expenditure of $3,124 million. Expenditure for Aboriginal and Torres Strait Islander people was estimated to be $2,014 per head—2.3 times the State's non-Indigenous per person expenditure ($861).

Comments on methods

Queensland Government expenditure reported in the 1995–96 report was greatly influenced by the under-identification factor of 15% applied for admitted patient expenditure. Estimates of identification for this report suggest that the factor applied in the 1995–96 report was too low, and so a factor of 20% has been used in this report. This should be kept in mind if the two reports are compared.

Table 5.3: Queensland Government health expenditure, by program, for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	Indigenous	Total	Indigenous share %	Indigenous	Non-Indigenous	Ratio
Acute-care institutions	*157.6*	*2,194.5*	*7.2*	*1,410*	*605*	*2.33*
Admitted patient services	119.4	1,766.1	6.8	1,068	489	2.19
Non-admitted patient services	38.2	428.4	8.9	342	116	2.95
Mental health institutions	8.2	95.2	8.7	74	26	2.86
High-care residential aged care	1.3	101.1	1.3	12	30	0.40
Patient transport	8.4	124.7	6.7	75	35	2.18
Community and public health	47.3	561.1	8.4	424	153	2.78
Health research	0.5	14.8	3.2	4	4	1.00
Administration	1.7	32.6	5.2	15	9	1.64
Total	**225.0**	**3,123.9**	**7.2**	**2,014**	**861**	**2.34**

Western Australia

Demography

The 1998–99 Aboriginal and Torres Strait Islander population in Western Australia was estimated at 58,852, which accounted for 3.2% of the State's total population and represented 14.5% of the total Australian Aboriginal and Torres Strait Islander population.

Key results

The Western Australian Government recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 is estimated at $163 million (Table 5.4). This accounted for 9.0% of the State's total health services recurrent expenditure of $1,823 million. Expenditure for Aboriginal and Torres Strait Islander people was $2,772 per head—3.0 times the State's non-Indigenous per person expenditure ($929).

Comments on methods

Western Australia used a different method from the national morbidity costing method to calculate admitted patient expenditure. This gave an estimate of $89.2 million for admitted patient expenditure for Aboriginal and Torres Strait Islander patients compared with $92.4 million as calculated in the AIHW hospital morbidity costing method.

Table 5.4: Western Australian Government health expenditure, by program, for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	Indigenous	Total	Indigenous share %	Indigenous	Non-Indigenous	Ratio
Acute-care institutions	*113.5*	*1,343.9*	*8.4*	*1,929*	*689*	*2.80*
Admitted patient services	89.2	1,048.2	8.5	1,516	537	2.82
Non-admitted patient services	24.3	295.7	8.2	414	152	2.72
Mental health institutions	4.7	111.9	4.2	79	60	1.32
High-care residential aged care	4.9	78.5	6.3	84	41	2.03
Patient transport	3.6	24.1	15.1	62	11	5.40
Community and public health	33.7	215.4	15.7	573	102	5.63
Health research	0.2	7.9	2.7	4	4	0.84
Administration	2.4	41.0	6.0	42	22	1.93
Total	**163.2**	**1,822.7**	**9.0**	**2,772**	**929**	**2.98**

South Australia

Demography

The 1998–99 Aboriginal and Torres Strait Islander population in South Australia was estimated to be 23,179. This represented 1.6% of South Australia's total population and 5.7% of the total Australian Aboriginal and Torres Strait Islander population.

Key results

The South Australian Government recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 was estimated to be $54.5 million. This accounts for 3.8% of the State's total health services recurrent expenditure of $1,425 million (Table 5.5). Expenditure by the State in respect of Aboriginal and Torres Strait Islander people was estimated to be $2,350 per head—2.5 times the State's non-Indigenous per person expenditure ($935).

Comments on methods

South Australian estimates of Indigenous-specific community and public health programs are good, but there is no data available on Aboriginal and Torres Strait Islander use of mainstream community and public health programs.

The estimate of admitted patient expenditure for Aboriginal and Torres Strait Islander people is much increased compared with the 1995–96 estimate. This is mostly due to the very high DRG cost weight (0.97) that is shown in the South Australian morbidity data for Aboriginal and Torres Strait Islander separations. This is caused by a number of high cost Northern Territory patients (680 in 1998–99) being treated in South Australian public hospitals. These patients have an average cost weight of 2.7. South Australian Aboriginal and Torres Strait Islander patients treated in South Australia have a cost weight of 0.83.

Table 5.5: South Australian Government health expenditure, by program, for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	**Indigenous**	**Total**	**Indigenous share %**	**Indigenous**	**Non-Indigenous**	**Ratio**
Acute-care institutions	*40.0*	*1,053.1*	*3.8*	*1,725*	*691*	*2.50*
Admitted patient services	33.2	842.5	3.9	1,434	552	2.60
Non-admitted patient services	6.7	210.6	3.2	291	139	2.09
Mental health institutions	4.5	75.5	5.9	193	48	3.98
High-care residential aged care	0.1	36.3	0.4	6	25	0.23
Patient transport	1.3	32.3	3.9	55	21	2.60
Community and public health	5.7	91.5	6.2	246	59	4.20
Health research	1.1	69.7	1.6	47	47	1.00
Administration	1.8	66.7	2.7	79	44	1.78
Total	**54.5**	**1,425.2**	**3.8**	**2,350**	**935**	**2.51**

Tasmania

Demography

The 1998–99 Aboriginal and Torres Strait Islander population in Tasmania was estimated to be 15,974, which accounted for 3.4% of the State's population and represented 3.9% of the total Australian Aboriginal and Torres Strait Islander population.

Key results

Tasmanian Government recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 was estimated at $26 million (Table 5.6). This accounted for 6.3% of the State's total health services recurrent expenditure (excluding HACC) of $418 million. Recurrent expenditure in respect of health services provided to Aboriginal and Torres Strait Islander people was estimated to be $1,644 per Aboriginal and Torres Strait Islander person—1.9 times the average expenditure per person for the State's non-Indigenous population ($861).

Comments on methods

Information regarding the methodology for producing these estimates is provided in Appendix 6. The appendix provides details of the serious data deficiencies that cause problems estimating expenditures for Aboriginal and Torres Strait Islander people in Tasmania. Accordingly this data should be used with great care.

Table 5.6: Tasmanian Government health expenditure, by program, for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	Indigenous	Total	Indigenous share %	Indigenous	Non-Indigenous	Ratio
Acute-care institutions	*18.0*	*254.0*	*7.1*	*1,129*	*518*	*2.18*
Admitted patient services	13.3	188.0	7.1	836	383	2.18
Non-admitted patient services	4.7	66.0	7.1	294	135	2.18
High-care residential aged care	0	0	0	0	0	
Patient transport	1.1	15.7	7.1	70	32	2.18
Community and public health	6.7	139.8	4.8	417	292	1.43
Health research	0.3	6.0	5.3	20	12	1.58
Administration	0.1	2.8	4.8	8	6	1.44
Total	**26.3**	**418.4**	**6.3**	**1,644**	**861**	**1.91**

Australian Capital Territory

Demography

The 1998–99 Aboriginal and Torres Strait Islander population in the Australian Capital Territory was estimated to be 3,319, which accounted for 1.1% of the Territory's total population and represented 0.8% of the total Aboriginal and Torres Strait Islander population.

Key results

Australian Capital Territory Government recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 was estimated at $8 million (Table 5.7). This accounted for 2.7% of the Australian Capital Territory's total health services recurrent expenditure of $298 million. Expenditure for Aboriginal and Torres Strait Islander people was estimated to be $2,431 per head—2.6 times the Territory's non-Indigenous per person expenditure ($950).

Comments on methods

The estimates in 1998–99 are much improved compared with the estimates of Aboriginal and Torres Strait Islander expenditure made in 1995–96. Therefore there is little point in comparing the estimates in the two years. The large change in the estimates is not real growth but due to improved methods.

Table 5.7: Australian Capital Territory Government health expenditure, by program, for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	Indigenous	Total	Indigenous share %	Indigenous	Other	Ratio
Acute-care institutions	*6.9*	*239.7*	*2.9*	*2,090*	*763*	*2.74*
Admitted patient services	4.0	149.3	2.7	1,206	476	2.53
Non-admitted patient services	2.9	90.3	3.2	885	286	3.09
Patient transport	0.1	7.5	1.1	25	24	1.01
Community and public health	0.8	38.8	2.1	247	124	1.99
Administration	0.2	12.2	1.9	69	39	1.78
Total	**8.1**	**298.1**	**2.7**	**2,431**	**950**	**2.56**

Northern Territory

Demography

The 1998–99 Aboriginal and Torres Strait Islander population in the Northern Territory was estimated to be 54,137, which accounted for 28.3% of the Territory's total population and represented 13.3% of the total Aboriginal and Torres Strait Islander population.

Key results

Northern Territory Government recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 was estimated at $174 million (Table 5.8). This accounted for 52.6% of the Territory's total health services recurrent expenditure of $330 million. Expenditure for Aboriginal and Torres Strait Islander people was estimated to be $3,208 per head—2.8 times the Territory's non-Indigenous per person expenditure ($1,139).

Comments on methods

Any comparison of Northern Territory Government expenditures in this report with those reported in the 1995–96 report should be made with care. A quite different method has been used for estimating admitted patient costs for Aboriginal and Torres Strait Islander people. The method used in 1995–96 gave a 50% cost loading for Aboriginal and Torres Strait Islander separations. The current method adds a loading for Aboriginal and Torres Strait Islander separations but not as much as 50%. The change in method means that the share of admitted patient expenditure for Aboriginal and Torres Strait Islander people is much reduced, and the growth in total Aboriginal and Torres Strait Islander health expenditure is very low. However, many more services were in fact delivered to Aboriginal people in the three years; for example, hospital separations increased by 29%.

Table 5.8: Northern Territory Government health expenditure, by program, for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	**Indigenous**	**Total**	**Indigenous share %**	**Indigenous**	**Non-Indigenous**	**Ratio**
Acute-care institutions	*79.8*	*177.9*	*44.9*	*1,475*	*714*	*2.06*
Admitted patient services	66.0	143.0	46.1	1,219	561	2.17
Non-admitted patient services	13.8	34.8	39.7	256	153	1.67
High-care residential aged care	0.0	0.1	41.0	1	0	1.76
Patient transport	11.7	18.6	63.0	216	50	4.32
Community and public health	72.1	111.9	64.4	1,332	290	4.59
Health research	2.3	2.7	85.0	42	3	14.36
Administration	7.7	18.8	40.8	142	81	1.75
Total	**173.7**	**329.9**	**52.6**	**3,208**	**1,139**	**2.82**

Australia

Key results

For all States and Territories combined, the recurrent expenditure on health services for Aboriginal and Torres Strait Islander people for 1998–99 was estimated at $896 million (Table 5.9). This accounts for 5% of health services recurrent expenditure through State and Territory programs of $17,8431 million. Expenditure for Aboriginal and Torres Strait Islander people was estimated to be $2,205 per head—2.4 times the non-Indigenous per person expenditure ($920).

Public hospital expenditure accounted for most of the expenditure through State programs—65% for Aboriginal and Torres Strait Islander people and 74% for the non-Indigenous population.

Admitted patient services for Aboriginal and Torres Strait Islander people are 4.8% of separations and 4.4% of expenditure. The expenditure per person ratio is 2.04, which is significantly greater than 1, and reflects the much poorer health status of Aboriginal and Torres Strait Islander people.

It is estimated $8 million was spent for and by Aboriginal and Torres Strait Islander people who are receiving high-intensity care in State Government residential aged care homes. This is 2.4% of the expenditure on high-intensity care in these facilities. In contrast 1.1% of expenditure in non-State Government residential aged care homes was for Aboriginal and Torres Strait Islander people (Table 3.8). The difference reflects a higher proportion of Aboriginal and Torres Strait Islander residents in State Government facilities.

Community and public health expenditure for Aboriginal and Torres Strait Islander people through State programs is $228 million. This is 8.2% of total expenditure in this area and the Aboriginal Torres Strait Islander people/other people ratio is 4.0. This high ratio to some extent compensates for the lower delivery of services to Aboriginal and Torres Strait Islander people through private medical practitioners, private dentists and other private health professionals.

The Aboriginal Torres Strait Islander people/other people ratio of 3.32 for administration expenditure is a statistical quirk due to the high administrative costs in the Northern Territory. Of the $15.3 million estimated administration expenditure for Aboriginal and Torres Strait Islander people, $7.7 million was in the Northern Territory. If Northern Territory is excluded, the ratio falls from 3.32 to 2.02.

Table 5.9: Total State and Territory government health expenditure by program for Indigenous and non-Indigenous people, 1998–99

	Expenditure ($m)			Expenditure per person ($)		
Area of expenditure	Indigenous	Total	Indigenous share %	Indigenous	Non-Indigenous	Ratio
Acute-care institutions	*577.9*	*13,236.7*	*4.4*	*1,422*	*687*	*2.07*
Admitted patient services	453.0	10,549.3	4.3	1,115	548	2.04
Non-admitted patient services	124.9	2,687.4	4.6	307	139	2.21
Mental health institutions	26.0	490.7	5.3	64	25	2.53
High-care residential aged care	7.9	331.6	2.4	19	18	1.11
Patient transport	35.3	576.3	6.1	87	29	2.96
Community and public health	227.9	2,786.7	8.2	561	139	4.04
Health research	5.7	196.1	2.9	14	10	1.37
Administration	15.3	224.5	6.8	38	11	3.32
Total	**896.0**	**17,842.7**	**5.0**	**2,205**	**920**	**2.40**

Summary

The bulk of health expenditure for Aboriginal and Torres Strait Islander people (72%) is through the State and Territory health authorities. And the majority of State and Territory expenditure is through hospitals, especially through admitted patient services.

There is still a high level of uncertainty as to the correctness of Aboriginal and Torres Strait Islander identification in hospitals in certain States. New South Wales and Queensland figures contribute significantly to uncertainty as to the actual level of admitted patient expenditure, because 56% of the Aboriginal and Torres Strait Islander population lives in these two States.

While the best estimate of health expenditure through State and Territory programs for Aboriginal and Torres Strait Islander people is $8967 million, statistical modelling to allow for different under-identification rates gives a 95% confidence that the expenditure is between $871 and $921 million.

Comparison of 1998–99 with 1995–96

Comparisons between 1995–96 and 1998–99 are difficult because of uncertainties in both years with regard to the estimates, and because there have been changes in the methodologies used between 1995–96 and 1998–99.

Expenditure through State Government programs increased $253 million from $645 million in 1995–96 to $896 million in 1998–99.

Of the 22% per person expenditure increase from 1995–96 to 1998–99, the documented real change in expenditures through State and Territory programs is

12%. The remaining difference is explained by different methods, statistical error and possible other real growth (Table 2.2). By comparison, inflation-adjusted expenditure through State Government programs per non-Indigenous person increased about 10% in this period.

There were methodological changes between the first and second report, such as the extra 5% loading given for admitted patients for the higher cost intensity per day in treating Aboriginal and Torres Strait Islander patients, which added $18 million. Also in a number of instances the States and Territories were able to give more comprehensive estimates of the costs of providing health services to Aboriginal and Torres Strait Islander people; for example, the Australian Capital Territory 1995–96 estimates were clearly an underestimate, but this has been corrected in the 1998–99 estimates.

Most (51%) of expenditure through State programs is for admitted patient services. There is clear evidence that hospital admission rates for Aboriginal and Torres Strait Islander people increased substantially more than the rate for non-Indigenous people in the 3 years to 1998–99, even allowing for the uncertainties with regard to identification of Aboriginal and Torres Strait Islander people in hospital records. Reported hospital separation rates per 1,000 population of Aboriginal and Torres Strait Islander people increased 16%, as compared with an increase in separations per 1,000 population for the general population of 4% (Table 4.2). Most of the higher increase was in same day admissions, which results in somewhat lower increases in costs, but the overall impact was still substantial.

Thus the States substantially increased the volume of, and expenditure on, admitted patient services for Aboriginal and Torres Strait Islander people in the period 1995–96 to 1998–99. They may have increased the volume of community and public health and other health services; however, the numbers for these other State health services are less certain, so the extent of the increase in this area is unknown.

6 Total expenditures

This chapter provides information on total expenditures for health services for Aboriginal and Torres Strait Islander people. Spending through private sector programs and local government programs is examined, then drawn together with the information from preceding chapters on expenditures through Commonwealth programs and through State and Territory programs in an analysis of total expenditures. This allows for a description of the source of funds for health services. The differences between funding for Aboriginal and Torres Strait Islander health and non-Indigenous health expenditures are presented.

Finally, decomposition of the changes in expenditure between 1995–96 and 1998–99 is presented.

Private and local government expenditures

Expenditures through non-government (private) programs

In the Australian health system not all health services are provided to people through public programs. Services provided through private programs account for around 22% of all health expenditure and so it is important to examine the different elements of this part of the health system. This also provides context for the examinations of expenditure through government programs presented within this report.

The Aboriginal and Torres Strait Islander and non-Indigenous compositions of private sector program expenditures are quite different from those of government program expenditures. Levels of private sector expenditure are very much lower among Aboriginal and Torres Strait Islander people (Table 6.1), reflecting their substantially greater level of socioeconomic disadvantage. The expenditure per person ratio through private sector programs is greatest for non-PBS medicines and appliances, at 0.46:1. The ratio of expenditures through private hospitals is substantially lower at 0.11:1, estimated at $25 per person for Aboriginal and Torres Strait Islander people and $222 per person for non-Indigenous people.

The estimates of expenditure for Aboriginal and Torres Strait Islander people using private programs are quite uncertain. Only 4% of Aboriginal and Torres Strait Islander people have private health insurance, so this is used to estimate private health insurance subsidies going to Aboriginal and Torres Strait Islander people. For dental and other private health professional services such as physiotherapy it is clear from a variety of sources, including population surveys, that use is low, but there are no good data to say how low. In 1995–96 it was assumed that Aboriginal and Torres Strait Islander people have 20% of the per person usage of these services that the general population has. This assumption has been also used in 1998–99. For non PBS medicines, data from the household expenditure survey on expenditure of low-

income people in this area have been used to estimate Aboriginal and Torres Strait Islander expenditure.

In total, it is estimated $60 million (5%) of the total Aboriginal and Torres Strait Islander health services expenditure of $1,245 million was for private sector services such as private hospitals, private dentists and non-PBS medicines.

Table 6.1: Estimated private sector expenditures for and by Aboriginal and Torres Strait Islander people and non-Indigenous people, total and per person, 1998–99

	Indigenous		Non-Indigenous		
Source	**Total ($m)**	**Per person ($)**	**Total ($m)**	**Per person ($)**	**Ratio**
Private hospitals	10	25	4,092	222	0.11
Dental & other professionals	17	42	3,928	213	0.20
Non-PBS medicines	27	66	2,653	144	0.46
Medical (compensable, etc.)	5	11	688	37	0.30
Private health insurance administration	2	5	622	34	0.14
Total expenditure on private sector services	**60**	**148**	**11,982**	**650**	**0.23**

Note: Part of this private sector expenditure is indirectly funded by the Commonwealth Government through private health insurance subsidies (see Tables 6.2 and 6.3).

Source: AIHW Health Expenditure Database.

Expenditures through local government programs

Local governments have a role in providing community and public health services and aged care services. The expenditure on aged care facilities managed by local governments is included in the Commonwealth programs in Chapter 3. In the community and public health areas it is estimated that local governments manage expenditures of $200 million (ABS Public Finance Database). It is unknown what proportion of these services are used by Aboriginal and Torres Strait Islander people. It is assumed that usage is in proportion to twice the Aboriginal and Torres Strait Islander population proportion; that is, 4.4% of local government expenditures ($8 million) is assumed to be for Aboriginal and Torres Strait Islander people. This assumption was used for some of the State health authorities where no data on community health use by Aboriginal and Torres Strait Islander people were available.

Total expenditures

Details of expenditures through government and private programs are provided in Table 6.2. Expenditures through government programs deliver 95% of the health services used by Aboriginal and Torres Strait Islander people. Comparatively, these programs deliver 74% of total expenditures on health services for non-Indigenous people.

Of expenditure through government programs for and by Aboriginal and Torres Strait Islander people, 69% is for admitted patient services and community and public health.

Total government program expenditures for and by Aboriginal and Torres Strait Islander people were estimated to be $2,918 per person—1.56 times the amount spent for and by non-Indigenous people through these programs.

Expenditure for and by Aboriginal and Torres Strait Islander people through private programs such as private hospitals, dental, other health professionals and over-the-counter medicines was estimated to be $60 million. The Indigenous to non-Indigenous ratio of 0.23:1 reflects lower access to private services by Aboriginal and Torres Strait Islander people due to lower income levels and less accessibility to private services in remote areas.

Table 6.2: Expenditure by program for and by Aboriginal and Torres Strait Islander people and non-Indigenous people, total and per person, 1998–99

	Total expenditure ($m)	Indigenous		Non-Indigenous		Ratio Indigenous/ non-Indigenous
		Total ($m)	Per person	Total ($m)	Per person	
Expenditure through State Government programs						
Acute-care institutions						
Admitted patient services	10,549	453	1,115	10,096	548	2.04
Non admitted patient services	2,687	125	307	2,562	139	2.21
Mental health institutions	491	26	64	465	25	2.53
High-care residential aged care	332	8	19	324	18	1.11
Community and public health	2,787	228	561	2,559	139	4.04
Patient transport	576	35	87	541	29	2.96
Health research	196	6	14	190	10	1.37
Administration	224	15	38	209	11	3.32
Total	**17,843**	**896**	**2,205**	**16,947**	**920**	**2.40**
Per cent of expenditure	*37.4*	*72.0*	*. .*	*36.5*	*. .*	*. .*
Expenditure through Commonwealth Government programs						
Acute-care institutions	186	4	11	181	10	1.07
High-care residential aged care	3,562	32	80	3,530	192	0.42
Community and public health	535	122	299	413	22	13.36
Patient transport	44	8	19	36	2	9.86
Medicare and other medical	8,704	73	179	8,632	468	0.38
PBS drugs	3,627	25	61	3,602	195	0.31
Health research	293	3	7	291	16	0.44
Administration	608	15	36	593	32	1.13
Total	**17,558**	**281**	**691**	**17,277**	**937**	**0.74**
Per cent of expenditure	*36.9*	*22.6*	*. .*	*37.2*	*. .*	*. .*
Expenditure through local government programs	**214**	**8**	**20**	**206**	**11**	**1.78**
Per cent of expenditure	*0.4*	*0.6*	*. .*	*0.4*	*. .*	*. .*
Expenditure on private sector services						
Private hospitals	4,102	10	25	4,092	222	0.11
Dental & other professional	3,945	17	42	3,928	213	0.20
Non-prescribed medicines & appliances	2,680	27	66	2,653	144	0.46
Medical (compensable, etc.)	692	5	11	688	37	0.30
Administration	624	2	5	622	34	0.14
Total	**12,042**	**60**	**148**	**11,982**	**650**	**0.23**
Per cent of expenditure	*25.3*	*4.8*	*. .*	*25.8*	*. .*	*. .*
Total	**47,657**	**1,245**	**3,065**	**46,412**	**2,518**	**1.22**

(a) Includes Medicare optometrical and dental as well as medical services.

Source: AIHW Health Expenditure Database.

Sources of funding

Tables 6.3 and 6.4 look at financing rather than administration. For non-Indigenous Australians, governments met about 68% of recurrent health care costs, with the remainder being privately financed. For Aboriginal and Torres Strait Islander people the proportions were quite different. Governments funded just over 90% of their health costs—$1,131 million out of $1,245 million total expenditure. Governments meet a similar proportion of health care costs for non-Indigenous people in low socioeconomic groups (Deeble et al. 1998).

For State Government programs 96% of the funding for Aboriginal and Torres Strait Islander people was public funding, as compared with 89% for non-Indigenous people. For Commonwealth programs it was a similar pattern, with 94% of the funding for Aboriginal and Torres Strait Islander people being public funding, as compared with 85% for non-Indigenous people. And for private sector services, 5% of the funding for Aboriginal and Torres Strait Islander people was subsidised by Government (through private health insurance subsidies), as compared with 12% for non-Indigenous people. The higher public funding for non-Indigenous people in the private sector is due to the fact that much of the Commonwealth private health insurance subsidies eventually goes towards private hospitals, and Aboriginal and Torres Strait Islander people use this area of private services at an even lower rate than other private services—the Indigenous/non-Indigenous ratio for private hospitals is 0.11:1 as compared with a ratio for all private services of 0.23:1 (Table 6.2).

Overall, the ratio of Indigenous to non-Indigenous expenditures per person was 1.64:1 for public funding alone, somewhat higher than the 1995–96 figures of 1.52:1. The difference between the Indigenous/non-Indigenous expenditure ratio for government expenditures and the ratio for all health expenditures of 1.22:1 is explained by the much lower use of private services by Aboriginal and Torres Strait Islander people.

All of the State and Territory outlays were direct; that is, their outlays went through programs and/or authorities which they themselves administered. However, nearly 50% of the Commonwealth's overall contribution was indirect through its sharing of the cost of public hospitals and some other services under the Australian Health Care Agreements, public health funding agreements and other payment arrangements. When these payments by the Commonwealth to the States are included, the two levels of government contributed very similar amounts to funding expenditure on services for Aboriginal and Torres Strait Islander people—$566 million from the Commonwealth and $559 million from the States and Territories (Table 6.3).

Table 6.3: Sources of funding for government and private sector programs for and by Aboriginal and Torres Strait Islander people, 1998–99, ($m)

Source of funds	Cwlth govt	State govt	Local govt	Total govt	Private	Total
Expenditure through State Govt programs						
Acute-care institutions	259.7	302.9	0.0	562.6	15.3	577.9
Mental health institutions	. .	25.6	0.0	25.6	0.4	26.0
High-care residential aged care	2.4	4.1	0.0	6.5	1.4	7.9
Community and public health	31.8	182.8	0.0	214.6	13.3	227.9
Patient transport	. .	32.5	0.0	32.5	2.8	35.3
Health research	. .	3.3	0.0	3.3	2.5	5.7
Administration	4.9	7.7	0.0	12.6	2.7	15.3
Total	**298.7**	**559.0**	**0.0**	**857.6**	**38.4**	**896.0**
Per cent of expenditure	*. .*	*. .*	*. .*	*95.7*	*4.3*	*100.0*
Expenditure through Commonwealth Government programs						
Acute-care institutions	4.3	0.0	0.0	4.3	. .	4.3
High-care residential aged care	27.2	0.0	0.0	27.2	5.1	32.3
Community and public health	121.7	0.0	0.0	121.7	. .	121.7
Patient transport	7.8	0.0	0.0	7.8	. .	7.8
Medicare and other medical[(a)]	65.6	0.0	0.0	65.6	7.0	72.6
PBS drugs	20.4	0.0	0.0	20.4	4.4	24.8
Health research	2.8	0.0	0.0	2.8	0.0	2.8
Administration	14.7	0.0	0.0	14.7	. .	14.7
Total	**264.6**	**0.0**	**0.0**	**264.6**	**16.4**	**281.0**
Per cent of expenditure	*. .*	*. .*	*. .*	*94.2*	*5.8*	*100.0*
Expenditure through local government programs	**0.0**	**0.0**	**6.0**	**6.0**	**2.0**	**8.1**
Expenditure on private sector services						
Private hospitals	1.7	0.0	0.0	1.7	8.3	10.0
Dental & other professional	0.6	0.0	0.0	0.6	16.4	17.0
Non-prescribed medicines & appliances	0.1	0.0	0.0	0.1	26.8	26.9
Medical (compensable, etc.)	0.0	0.0	0.0	0.0	4.5	4.5
Administration	0.4	0.0	0.0	0.4	1.5	1.9
Total	**2.7**	**0.0**	**0.0**	**2.7**	**57.5**	**60.2**
Per cent of expenditure	*. .*	*. .*	*. .*	*4.5*	*95.5*	*100.0*
Total funding	**566.0**	**559.0**	**6.0**	**1,131.0**	**114.3**	**1,245.2**
Per cent of expenditure	*. .*	*. .*	*. .*	*90.8*	*9.2*	*100.0*

(a) Includes Medicare optometrical and dental as well as medical services.

Source: AIHW Health Expenditure Database.

Table 6.4: Sources of funding for government and private sector programs for and by non-Indigenous people, 1998–99 ($m)

Source of funds	Cwlth govt	State govt	Local govt	Total govt	Private	Total
Expenditure through State Government programs						
Acute-care institutions	5,687	5,709	0.0	11,396	1,263	12,659
Mental health institutions		444	0	444	21	465
High-care residential aged care	196	42	0	238	85	324
Community and public health	197	2,233	0	2,431	128	2,559
Patient transport		208	0	208	333	541
Health research		190	0	190	0	190
Administration	67	102	0	169	40	209
Total	**6,148**	**8,929**	**0**	**15,077**	**1,870**	**16,947**
Per cent of expenditure	*. .*	*. .*	*. .*	*89.0*	*11.0*	*100.0*
Expenditure through Commonwealth Government programs						
Acute-care institutions	181	0	0	181		181
High-care residential aged care	2,787	0	0	2,787	743	3,530
Community and public health	413	0	0	413		413
Patient transport	36	0	0	36		36
Medicare and other medical[(a)]	7,485	0	0	7,485	1,146	8,632
PBS drugs	3,005	0	0	3,005	597	3,602
Health research	172	0	0	172	119	291
Administration	593	0	0	593		593
Total	**14,672**	**0**	**0**	**14,672**	**2,605**	**17,277**
Per cent of expenditure	*. .*	*. .*	*. .*	*84.9*	*15.1*	*100.0*
Expenditure through local government programs	**0**	**0**	**165**	**165**	**42**	**206**
Expenditure on private sector services						
Private hospitals	1,052	0	0	1,052	3,040	4,092
Dental & other professional	182	0	0	182	3,746	3,928
Non-prescribed medicines & appliances	50	0	0	50	2,603	2,653
Medical (compensable, etc.)	0	0	0	0	688	688
Administration	129	0	0	129	494	622
Total	**1,412**	**0**	**0**	**1,412**	**10,570**	**11,982**
Per cent of expenditure	*. .*	*. .*	*. .*	*11.8*	*88.2*	*100.0*
Total funding	**22,231**	**8,929**	**165**	**31,325**	**15,087**	**46,412**
Per cent of expenditure	*. .*	*. .*	*. .*	*67.5*	*22.5*	*100.0*

(a) Includes Medicare optometrical and dental as well as medical services.

Source: AIHW Health Expenditure Database.

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Changes in health expenditures from 1995–96 to 1998–99

Health services expenditure for Aboriginal and Torres Strait Islander people in 1995–96 was estimated to be $853 million. The 1998–99 estimate was $1,245 million. The inflation-adjusted change in per person expenditure was 28%. (Population growth between the three years was 6.5% and health inflation was 6.6%.) Some of this change was due to methodological changes between the first and second reports; some reflected statistical error; and some was due to increases in the volume of services delivered.

The difference between the two estimates is $392 million (nominal), of which $252 million (65%) was in State Government programs, and $107 million was in Commonwealth Government programs.

Changes in expenditures through State Government programs

The change in the State Government program expenditure estimates from $645 million in 1995–96 to $897 million in 1998–99 was divided between increases in admitted patient expenditure and changes in the estimates of other expenditures such as community and public health services. The admitted patient expenditure increase was driven by an increase in hospital separation rates per 1,000 population of 16% for Aboriginal and Torres Strait Islander people, compared with an increase in separations per 1,000 population for the general population of 4%.

Between 1995–96 and 1998–99 population growth was 6.5% and health inflation was 6.6%. The inflation adjusted change in per person expenditure was 22% (Table 6.5).

Out of the 22%, at least 12% was documented increases in the volume of health services, and the remaining change was due to different methods, statistical error and possible other real growth. In contrast, inflation-adjusted expenditure through State Government programs per non-Indigenous person increased about 11% in this period.

There were methodological changes between the first and second reports, such as an extra 5% loading given for admitted patients for the higher cost intensity per day in treating Aboriginal and Torres Strait Islander patients. Also in a number of instances the States and Territories were able to give more comprehensive estimates of the costs of providing health services for Aboriginal and Torres Strait Islander people; for example, the Australian Capital Territory 1995–96 estimates were clearly an underestimate, but this has been corrected in the 1998–99 estimates.

Changes in expenditures through Commonwealth Government programs

There was a 20% documented increase in the per person volume of health services for Aboriginal and Torres Strait Islander people between 1995–96 and 1998–99 through Commonwealth programs. The remaining change of 19% was due to

different methods, statistical error and possible other real growth (see conclusion to Chapter 3).

It is difficult to comprehensively decompose and identify the reasons for the growth in these estimates. However, substantial growth in the volume of services delivered to Aboriginal and Torres Strait Islander people through Indigenous-specific Commonwealth programs has occurred.

Table 6.5: Expenditure for Aboriginal and Torres Strait Islander people, 1995–96 and 1998–99, constant prices[a]

	1995–96		1998–99		1998–99/ 1995–96 Indigenous per person expenditure ratio
Area of expenditure	Total ($m)	Per person Indigenous	Total ($m)	Per person Indigenous	
Admitted patient expenditure	352	923	441	1,084	1.17
Other through the States' expenditure	316	829	431	1,060	1.28
Total through the States' programs	*669*	*1,753*	*871*	*2,145*	*1.22*
Indigenous-specific Commonwealth programs	93	244	118	290	1.19
Medicare/PBS benefits	44	114	78	191	1.67
Other Commonwealth programs	38	98	62	152	1.55
Private funding[b] of Commonwealth programs	7	18	16	39	2.21
Total through Commonwealth Government (excluding grants to States)	*181*	*474*	*273*	*672*	*1.42*
Total through Commonwealth & State Government programs	*849*	*2,227*	*1,145*	*2,817*	*1.26*
Through local government expenditure	4	10	8	19	2.02
Private sector (estimated)	31	82	59	144	1.77
Total recurrent expenditure	884	2,318	1,211	2,981	1.29

(a) Constant price health services expenditures are expressed in chain volume measures, referenced to the year 1997–98.

(b) 'Private funding' includes funding from out-of-pocket payments by patients, health insurance funding and other funding sources such as workers' compensation.

Source: AIHW Health Expenditure Database.

Overall changes in expenditures from 1995–96 to 1998–99

Due to changes in methods used in the two years and inherent errors in the estimating processes, it is difficult to ascertain the extent of the change in health funding for Aboriginal and Torres Strait Islander people between 1995–96 and 1998–99. An analysis of the impact of statistical and methodological changes on the differences in expenditure estimates in the two studies suggests that there has been an increase in inflation-adjusted per person health service expenditure for Aboriginal and Torres Strait Islander people in the period which is at most 29% and at least 15%.

Table 6.6 shows, by program, changes in the per person constant price estimates for which there was documentary support—and which were unquestionably real—

(column 2), and those where differences in sources and methods make the real content uncertain (column 3). The two were of approximately equal importance. However, there were elements of real change in the second category, so that the true difference between 1995–96 and 1998–99, though clearly less than 29%, was certainly more than 15%.

By comparison, the increase in constant price health services expenditure per person for non-Indigenous people in this period was 10%.

Table 6.6: Changes in health services expenditure per Aboriginal and Torres Strait Islander person from 1995–96 to 1998–99, 1997–98 prices (per cent)

Type of program	Documented (real) change %	Additional changes: changes in methods, new data sources and real changes not documented %	Total %	Per cent total expenditure
State & Territory programs	12	9	22	72.0
Commonwealth programs	20	19	42	22.6
Other sectors	30	38	79	5.5
All programs	**15**	**12**	**29**	**100.0**

Source: AIHW Health Expenditure Database.

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**

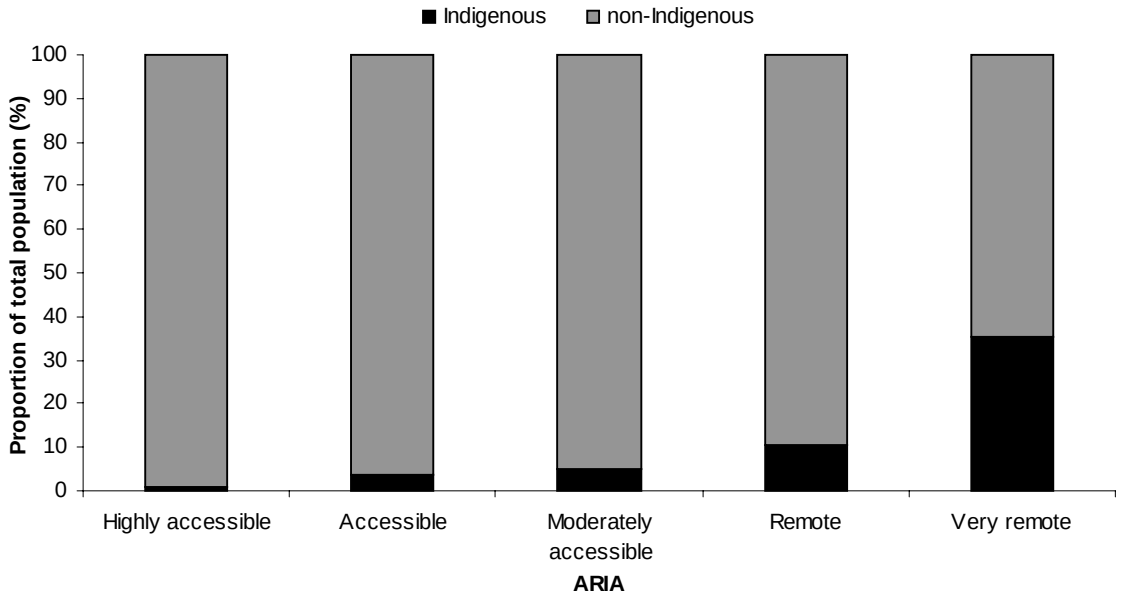
Note: The populations in this table include Other Territories.

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

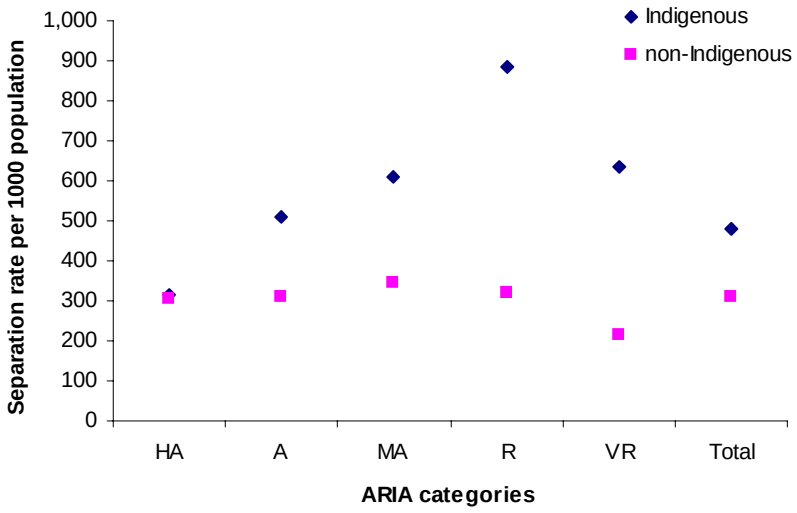
ARIA category	Indigenous	Difference from national Indigenous average (%)	Non-Indigenous	Difference from national non-Indigenous average (%)
Highly accessible	315	–52.7	305	–1.0
Accessible	508	5.6	310	0.6
Moderately accessible	609	26.9	344	11.7
Remote	886	84.2	321	4.2
Very remote	635	32.0	215	–43.3
Total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

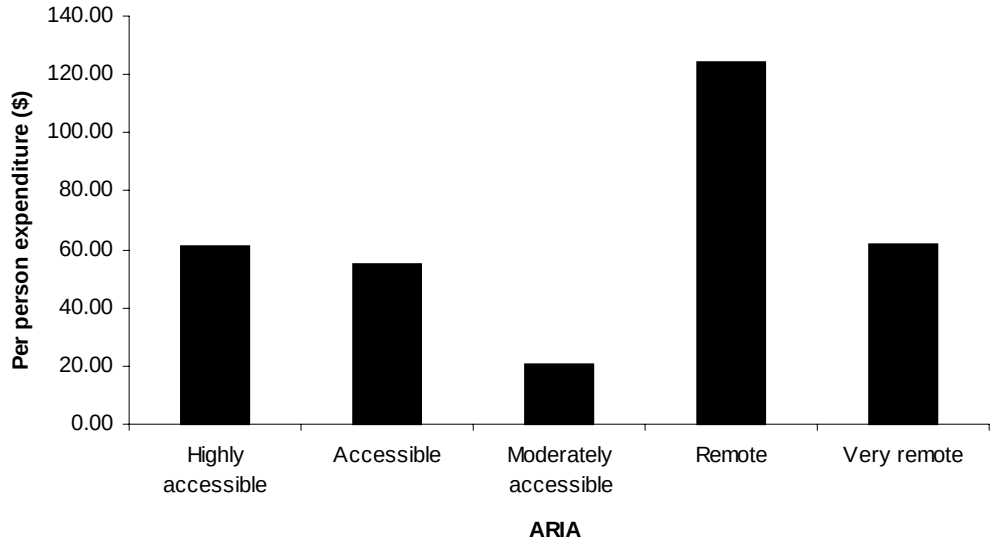
Overall, Aboriginal and Torres Strait Islander people received less than 1% ($24,407,968) of the total Commonwealth expenditure on high-care residential aged care—$2,641,641,139 (Table 7.12). This proportion varied from region to region ranging from 0.5% in the highly accessible areas to 51% in the very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

8 Recommendations for methodology / data enhancement

A great number of reports have been written concerning the health of Aboriginal and Torres Strait Islander people and they arrive at the same conclusion—that the data collected is of lower quality than that which could potentially be obtained and reported. Several factors have been put forward to explain the poor quality of data including: antiquated and convoluted administrative systems, privacy concerns, legislative barriers, inadequate funds, cultural misunderstandings and insufficient urgency.

A key recommendation of many of the reports mentioned in this chapter was for the improved identification of Aboriginal and Torres Strait Islander people across the health spectrum.

Primary health care estimates

Both this report and the first report relied on surveys to make estimates of the use of medical and pharmaceutical services by Aboriginal and Torres Strait Islander people and the cost. Surveys are inherently unreliable due to sample error, and when one is attempting to measure usage by a small group in society, such as Aboriginal and Torres Strait Islander people, the sample error is higher. In addition there are non-sampling errors such as under-identification.

The only way to reduce sample error is by substantially increasing the size of the survey, but this can be quite expensive. It is more accurate and efficient if the data can be collected as a by-product of routine administrative collections.

A major step forward in enabling the collection of comprehensive information on Medicare and Pharmaceutical Benefits Scheme (PBS) usage would be a voluntary identifier through the Medicare enrolment system as to whether a person was Aboriginal and/or Torres Strait Islander. Because of the voluntary nature there would need to be a statistical adjustment of the data to enable valid estimates of Medicare and PBS usage to be made, and it may be several years before reliable data is gathered.

In addition the Medicare number needs to be linked to pharmaceuticals issued under the PBS. The Commonwealth Government announced (in the May 2000 budget) there would be a linkage of the Medicare number with the PBS. This commenced from 1 January 2001 but, due to a transition period, supplying a Medicare number to obtain PBS prescriptions was not compulsory. Therefore linkage was not made for all PBS prescriptions.

Under-identification of Aboriginal and Torres Strait Islander people is the chief problem in the collection of data related to health expenditure. In service records under-identification may be reduced by better placement of the Indigenous status

questions on the next BEACH (Bettering the Evaluation and Care of Health) survey form. In addition, greater emphasis of its importance needs to be conveyed to participating doctors.

The Department of Veterans' Affairs also does not identify Aboriginal and Torres Strait Islander status on its records. This should be rectified so that reliable information pertaining to the health of Aboriginal and Torres Strait Islander veterans can be obtained.

Hospital data

Other measures to improve data quality might include improved education of staff working on administrative records in hospitals on the need for accurate and informative data and the importance of cultural sensitivity. The joint AIHW and ABS assessment of identification of Aboriginal and Torres Strait Islander people in hospital records (AHMAC, AIHW & ABS 1999:19) found the accuracy of identification in hospital records varied from 55% to 100%. The report stated that 'the proportion of Aboriginal and/or Torres Strait Islander people living in a hospital's catchment area appeared to be a major factor influencing the accuracy of recording of Indigenous status' (AHMAC, AIHW & ABS 1999:19). The pilot project in the report compared the results of interviews with hospital patients (conducted mostly by Aboriginal and or Torres Strait Islander people) with information obtained from hospital records. In order to improve the accuracy of recording Indigenous status in hospital records it would be advisable to follow the methodological procedures outlined in the publication above in all hospitals around Australia, every two or three years.

Community and public health

Community and public health boundaries are difficult to delineate. This makes the funding delineation for Aboriginal and Torres Strait Islander health programs rather unclear. It is important to collect this data by region and particularly for the mainstream community and public health programs. Collection methods need to be developed which separate out the different types of services, so as to identify whether they are of a community health nature, a preventive nature or a welfare nature.

Mortality data

Many jurisdictions do not have adequate identification to allow for national reporting of Aboriginal and Torres Strait Islander births and deaths data. For example, the Australian Bureau of Statistics currently publishes detailed death statistics for Aboriginal and Torres Strait Islander people for only Western Australia, South Australia and the Northern Territory. Furthermore, most survey-based information about Aboriginal and Torres Strait Islander people; for example, the

Australian Bureau of Statistics (ABS) National Aboriginal and Torres Strait Islander Survey, has been collected on only one occasion and no assessment of trends is possible until such surveys are repeated (McLennan & Madden 1999).

It is crucial to improve the collection and reporting of mortality data as limitations in the quality and availability of data also compromise our ability to assess changes in Indigenous mortality over time, both in absolute terms, and relative to the rest of the Australian population.

The use of data (in particular mortality data) from Western Australia, South Australia and the Northern Territory as proxies for making generalisations about Aboriginal and Torres Strait Islander health across the country is thought to no longer be an appropriate practice. Our analysis of regional mortality trends was restricted to these States and the Northern Territory, with the variation in regional residential patterns between these Western States and Australia shown in Appendix 2. *The Aboriginal and Torres Strait Islander Health Information Plan* (AIHW 1997) suggests that this practice increases the potential for masking differing population characteristics, needs or service utilisation patterns across Aboriginal and Torres Strait Islander people living in different regions in Australia.

Extent of data needs and implementation

The *Health is Life: Report on the Inquiry into Indigenous Health* (Standing Committee on Family and Community Affairs 2000) noted that additional resources should be allocated if necessary to support data collection (Recommendation 33). The report recognised that this additional support from the Commonwealth must be sufficient to encourage the States and Territories to improve existing data or establish new data collections; however, ultimately data collection is a State or jurisdictional matter.

The Aboriginal and Torres Strait Islander Health Information Plan…This time, let's make it happen (AIHW 1997) takes the discussion of comprehensive data collection to another level. The report reveals gaps in information about Aboriginal and Torres Strait Islander health, including a wide range of diseases and conditions which are difficult or impossible to measure on a national scale, and many of which have a particular public health implication on Aboriginal and Torres Strait Islander communities. Interestingly, the report also notes that there are no accurate national data on issues such as emotional and social well-being or, for that matter, reliable data on patterns and levels of nutritional intake, or the prevalence of different types of disability among Aboriginal and Torres Strait Islander people. The report asserts that while many of these diseases and conditions are often not life-threatening in themselves, taken together they can be responsible for very high levels of 'low-grade' chronic morbidity and social disadvantage.

The Aboriginal and Torres Strait Islander Health Information Plan also makes note of a publication by Smith in 1978 which advocated twenty-two years ago the routine collection nationally of Aboriginal and Torres Strait Islander health statistics. Since then insufficient progress has been made to have accurate data collections on Aboriginal and Torres Strait Islander people and comprehensive feedback to health

providers, Aboriginal and Torres Strait Islander communities and the population as a whole. The report asserts that a common thread amongst many of the earlier initiatives and reports on Aboriginal and Torres Strait Islander health information 'is the apparent inattention to implementing recommendations—at all, let alone in a planned, cohesive and nationally coordinated way' (AIHW 1997: 2). *The Aboriginal and Torres Strait Islander Health Information Plan* blames inadequate collection and/or breakdowns in the system for the lack of recording or reporting of Aboriginal and Torres Strait Islander status. It identifies several goals to facilitate the collection of quality health information, including:

- all health-related collections to separately identify Aboriginal and Torres Strait Islander persons and have appropriate quality control checks in place;
- all major collections to use common identification classifications and collection protocols (i.e. common classification standard as in the *National Health Data Dictionary* (AIHW 2000c) and the mandatory Indigenous status questions);
- to review the suitability of definitions used and estimates for deriving Aboriginal and Torres Strait Islander statistics;
- to make regular assessments of the quality of population estimates; and
- to develop a national survey collection system which provides all essential national and State Aboriginal and Torres Strait Islander statistics at sufficient frequency to allow jurisdictions to adequately report on nationally agreed performance indicators and to make comparisons between Aboriginal and Torres Strait Islander and non-Indigenous persons and between jurisdictions.

Summary and conclusion

The recommendations outlined in this section should improve the methodology used when collecting data as well as enhance the quality of the data.

Recommendations relating to the introduction of a voluntary identifier of Indigenous status on the Medicare enrolment records are progressing. Simplified Medicare enrolment forms for Indigenous customers have been introduced. It is anticipated that a hotline for Indigenous customer enquires will be introduced in the next financial year.

From 1 January 2002 all PBS pharmaceuticals dispensed will be linked to a Medicare number in accordance with the Improved Monitoring of Entitlements to Pharmaceutical Benefits legislation.

- If the BEACH survey is to be used to estimate Aboriginal and Torres Strait Islander Medicare and pharmaceutical benefits, changes to it need to be made. The recommendations relating to the BEACH survey are to adjust the survey form for better placement of the Indigenous status questions and emphasise to participating doctors the importance of reporting Indigenous status. General practitioners participating in the survey should use the approved ABS questions to identify Aboriginal and Torres Strait Islander patients.

- In relation to hospital data, improvements should be made in the training of staff working on administrative records in hospitals, emphasising the importance of cultural sensitivity and the need for accurate and informative data. Every hospital in Australia should make comparisons every two to three years between the results of interviews with hospital patients and the information obtained from hospital records.
- Collecting data as a by-product of routine administrative collections, collecting adequate births and deaths data from all jurisdictions and collecting more survey-based information about Aboriginal and Torres Strait Islander people would enable trends to be assessed over time. More detail regarding these recommendations is provided in *The Aboriginal and Torres Strait Islander Health Information Plan* (AIHW 1997).

In considering these recommendations, one must remember that health is also determined by social and cultural factors such as employment levels, cultural cohesion and family history, and by the availability of infrastructure such as clean water and adequate housing. But the level of health services available and provided does have an impact on health as well. For instance, a systematic risk factor treatment program in the Tiwi Islands in the Northern Territory led to marked improvements in blood pressure, stabilisation of renal function and reduction in new cases of end-stage renal disease.

While interventions of this nature require time to show their full effects, some short-term improvements can be expected. So, in addition to improving data at the front end of collection, an ongoing assessment of the impact of service delivery in a few case studies would assist in filling the gaps between identification of needs and the extent to which those needs have been met after intervention—that is, linking the input and outcome data. A combination of statistical collections and evaluation of the impact of interventions would, we believe, alleviate some of the perennial shortcomings in documenting the health status of Aboriginal and Torres Strait Islander people and their use of health services.

Appendix 1: Scope of report

The meaning of 'health'

Words in different contexts and in different communities can have quite different meanings, and this is to be expected. There is, for example, no one correct meaning of the word 'health'. Dictionaries reflect this and provide several meanings for 'health'.

In order to aid communication, it is helpful to agree on the meaning of the word 'health' when used in a particular context. In the case of this report, a narrow understanding of the words 'health' and 'health services' has been taken so that the expenditure data contained in the report is as comparable as possible. This report's definition used is different from 'health' as defined by the National Aboriginal Health Strategy Working Party (NAHSWP 1989)—

> Health is not just the physical well-being of the individual, but the social, emotional, and cultural well-being of the whole community. This is a whole-of-life view and it also includes the cyclical concept of life-death-life.

The NAHSWP definition of health is quite rightly used in setting policy with regard to Aboriginal and Torres Strait Islander health. A more narrow definition has been used in this report to attempt to describe the expenditure on health services for Aboriginal and Torres Strait Islander people in comparison with that for non-Indigenous people. In order to explain more fully the definition of 'health services' used in this report, three possible understandings of 'health services' are described below—health services 1, health services 2 and health services 3.

Health services 1 is the definition used in this report.

Health services 1 refers to services where the primary purpose is to diagnose, or treat pathological conditions, or restore the function of the human body that has been affected by disease or injury, or to prevent injury or disease.

Health services 2 refers to services where the primary purpose is to enhance the participation of people in society who have activity limitations that have been, or are due to disease or injury. The primary purpose is not to change the physical or psychological functioning of the body, though these services may have some impact on physical or psychological functioning. Health services 1 is excluded from this category.

Health services 3 refers to services where the primary purpose is to bring about 'a state of complete physical, mental and social well-being'. This is the 1946 World Health Organization (WHO) definition of health (and very similar to the NAHSWP definition of health). This definition emphasises that the health achieved here is not merely the absence of disease or infirmity. This concept of health is a broad concept and closely corresponds to what others call 'well-being' or 'life satisfaction' and to

what economists call 'utility'. Health services 3 is defined here to be exclusive of health services 1 and health services 2.

These definitions of 'health services' can be related to the WHO classification ICIDH Beta 2 draft International Classification of Functioning and Disability (WHO 1999).

Health services 1 relates to the impairment dimension of the ICIDH. Impairments are problems in significant losses in body function or structure. They can involve an anomaly, defect, loss or other significant deviation in body structures. They represent a deviation from certain generally accepted population standards in the biomedical status of the body and its functions.

If the primary purpose of the activity is to remedy impairment, then the activity is health services 1. This is often referred to as activities that change functioning 'within the skin'.

Health services 2 relates to the limitation dimension of the ICIDH, e.g. services such as wheelchairs and taxi services for people with paraplegia to enable mobility.

Health services 3 relates partly to the participation restriction dimension of the ICIDH. In the ICIDH, participation restrictions are defined to be limitations due to disease or injury. But the domains of participation can be applied to limitations due to other causes.

It would have been possible to define the above health service categories as overlapping, e.g. health services 1 could have been defined to be a subset of health services 2, and health services 2 could have been defined to be a subset of health services 3. However, the use of the words 'primary purpose' and other exclusion clauses in the definitions above make the categories mutually exclusive, and this was done so these definitions can be related to the Government Purpose Classification (GPC).

An employment creation program would be classified as health services 3 because the primary purpose of the program is to enhance social and economic well-being. A consequence of the program (and hence a secondary purpose) is an improvement in the physical and mental health (narrowly defined) of the participants, but the primary purpose is broader.

Child protection activities could be classified as health services 2 or health services 3. It would be health services 2 if it was considered the children have activity limitations due to injury or threat of injury and the primary purpose of the child protection is to remove the activity limitations. But it could be considered that the primary purpose of removing the threat of injury was to bring about a state of complete physical, mental and social well-being in which case the child protection would be health services 3.

The GPC is a means of classifying all government expenditure according to the principal purpose of the expenditure. It is a mutually exclusive classification so that an expenditure classified to one category cannot also be classified to another category. These Government Purpose categories can be distributed according to the below schema of 'health services'. The major categories are listed in Table A1.1 below.

Table A1.1: Government Purpose Classification in relationship to health services

Government Purpose Classification (GPC) code	Name of GPC category	Type of health services
25	Health	Health services 1
2622	Welfare services for the aged	Health services 2
2623	Welfare services for people with a disability	Health services 2
2621	Child protection part of family and child welfare services	Health services 2
2621	Child care and family support part of family and child welfare services	Health services 3
2629	Welfare services not elsewhere classified	Health services 3
231	Police and fire protection services	Health services 3
232	Law courts and legal services	Health services 3
233	Prisons and corrective services	Health services 3
24	Education	Health services 3
261	Social security	Health services 3
271	Housing and community development	Health services 3
272	Water supply	Health services 3
273	Sanitation and protection of the environment	Health services 3
279	Other community amenities	Health services 3
281	Recreation facilities and services	Health services 3
282	Cultural facilities and services	Health services 3
283	Broadcasting and film production	Health services 3
333	Labour and employment affairs	Health services 3
343	Natural disaster relief	Health services 3
21	General public services	
22	Defence	
29	Fuel and energy	
30	Agriculture, forestry, fishing and hunting	
31	Mining and mineral resources other than fuels, manufacturing, and construction	
32	Transport and communications	
331	Storage, saleyards and markets	
332	Tourism and area promotion	
341	Public debt transactions	
342	General purpose inter-government transactions	
349	Other purposes n.e.c.	

Source: GPC from Australian Bureau of Statistics.

n.e.c.: not elsewhere classified

Most of these expenditure categories fit in one or other of health services 1, health services 2 or health services 3.

This illustrates how central considerations of health are to many government activities, and emphasises that improving health status should be an inter-sectoral effort.

In the Service Activity Report (SAR) completed by ACCHSs, agencies provided a list of the activities they undertook. Many of these activities would be classified to the GPC health category 25, i.e. they would fit under the health services 1 definition. However, some of these activities would be classified to other GPC categories such as 'Housing and community development' or 'Law courts and legal services', so would fit under health services 3.

Table A1.2 sets out some of the activities in the SAR along with the GPC codes to which they would be classified.

Table A1.2: Service Activity Report health-related activity and the Government Purpose Classification

GPC Code	SAR health-related activity	GPC category
25	Clinical health services	Health
25	Access to specialist and ancillary health services at your service	Health
25	Preventive care programs	Health
25	Screening programs	Health
25	Pharmaceutical services	Health
	Health-related and Community Support Services	
25	Group activities	Health
24	School-based activities	Education
25	Transport (e.g. to medical appointments)	Health
25	Attending medical appointments with patients to provide support	Health
25	Meeting patients who have travelled long distances	Health
25	Accommodation for visiting patients	Health
25	Medical evacuation services	Health
2629	Funeral assistance and arrangements	Welfare services not elsewhere classified (n.e.c.)
2629	Deceased transportation	Welfare services n.e.c.
2712	Community development work	Aboriginal community development
282	Cultural promotion activities	Cultural facilities and services
273	Environmental health	Sanitation and protection of the environment
2711	Support for public housing issues	Housing
232	Legal/police/prison advocacy services	Law courts and legal services
2629	Homelessness support and temporary shelter services	Welfare services n.e.c.
2629	Welfare services and food provision	Welfare services n.e.c.
2623	Services for people with disability	Welfare services for people with a disability
25	Men's health groups	Health
25	Women's health groups	Health

(continued)

Table A1.2 (continued): Service Activity Report health-related activity and the Government Purpose Classification

GPC Code	SAR health-related activity	GPC category
25	Detoxification	Health
2622	Services for older people	Welfare services for the aged
261	Centrelink	Social Security
25	Bush medicine/bush tucker	Health
	Emotional and Social Well-being	
26	Emotional and social well-being services	Welfare services
26	Grief and loss counselling	Welfare services
26	Family counselling	Welfare services
26	Family violence counselling	Welfare services
26	Youth activities and youth counselling	Welfare services
25	Substance misuse counselling and promotions	Health

Source: GPC from the Australian Bureau of Statistics.

There are many social determinants of health such as unemployment, low income, poor working conditions, limited educational skills, fractured family relationships and oppressive social conditions and attitudes. Where should activities to ameliorate such factors be classified? Most of these activities—such as actions to reduce unemployment, income support to reduce poverty, and education to improve skills and functioning—are part of health services 3. They are not part of health services 1 or 2. It is true that changes to these social determinants of health will lead to improvements in the physical and mental functioning of people, but the primary purpose of these activities is not to change physical and mental functioning, but to change the social factors themselves. Changing the social factors will improve health, even in the narrow sense of 'health', but the primary purpose of the activity is not concerned with improving narrow health. It is concerned with improving social, emotional, physical and cultural well-being.

The GPC is a means of monitoring Government expenditure in all areas that affect Aboriginal and Torres Strait Islander health, and because of its structure it is comprehensive and enables valid comparisons to be made. This Aboriginal and Torres Strait Islander health services expenditure report focuses on health services 1—which is defined by GPC category 25. Comparisons of health services for the Aboriginal and Torres Strait Islander population and the non-Indigenous population are made. The definitions for GPC category 25 are applied regardless of whether the expenditure is carried out by a health sector or welfare sector or other organisation. It is only the nature and primary purpose of the activity that is relevant to determining where a particular activity is allocated.

Ideally comparisons would also be made for the other GPC categories which are relevant to Aboriginal and Torres Strait Islander health, such as education, community development and welfare services, but this report is not able to

undertake that task. This work has partially been done in the Commonwealth Grants Commission draft inquiry into Indigenous funding.

Primary and secondary/tertiary care

For the purposes of this analysis, those health practitioners who have first contact with people provide primary health care. Included in primary health care are general practitioners (GPs) and all community and public health services. Secondary/tertiary health care is provided by those to whom primary health care workers refer people—i.e. they are a secondary or tertiary point of contact for health services. These include admitted patient care, specialist care and diagnostic services. The allocation of expenditures to primary and secondary/tertiary care is displayed in Table 1.7.

Expenditure for Aboriginal and Torres Strait Islander people

Primary expenditures included all allocations to community health and public health, all Medicare outlays on GP services and GP pathology, 90% of the cost of PBS drugs and appliances, and 50% of the costs for non-admitted patients and patient transport.

Secondary/tertiary expenditures include all allocations to acute-care institutions for admitted patients, mental health institutions, high-care residential aged care and all Medicare expenditures on specialists and diagnostic imaging. It also includes 50% of the cost for non-admitted patients and patient transport and 10% of the cost of Pharmaceutical Benefits Scheme (PBS) drugs.

Expenditure for non-Indigenous people

Non-Indigenous primary and secondary expenditure is split in a similar way to that of Aboriginal and Torres Strait Islander people.

Primary expenditure includes all allocations to community and public health and all outlays for GP services and GP pathology. Also included in primary expenditures are 90% of PBS drug outlays, 50% of the allocations to acute-care institutions for non-admitted patient services and 20% of the cost of patient transport.

Secondary expenditures on non-Indigenous people include all expenditures on admitted patient services in acute-care institutions, mental health institutions, high-care residential aged care and all outlays on specialist consultations and diagnostic imaging. The remaining 80%, 50% and 10% of patient transport, non-admitted patients and PBS drugs respectively are also defined as secondary health care for non-Indigenous people.

Table A1.3: Composition of areas of expenditure, by sector, 1998–99

Expenditure category by program	Composition
State/Territory Government	
Acute-care institutions	
Admitted patient services	Includes designated psychiatric units, nursing home type patient care and other admitted patient services. (Includes DVA-funded patients)
Non-admitted patient services	Accident and emergency services, outpatient services and other non-admitted patient services
Mental health institutions	Public psychiatric hospitals and psycho-geriatric nursing homes
High-care residential aged care	The high-intensity care component of residential aged care homes which are owned and operated by State Governments
Patient transport	
Community and public health	Community health, community mental health, dental services and public health
Health research	Health research in acute-care institutions and other health research
Administration	Central administrative costs of health authorities
Local government	
High-care residential aged care	The high-intensity care component of residential aged care services which are operated by local governments
Community health	Community health, community mental health and dental services provided by local governments
Public health	Public health services such as environmental health inspection provided by local governments
Commonwealth Government	
Public acute-care institutions—blood fractionation products	Provision of blood fractionation products, mainly for admitted patient services in acute-care institutions. The Commonwealth Serum Laboratory (CSL) is paid to do this by the Commonwealth Government.
High-care residential aged care	The high-intensity care component of residential aged care services. These services are operated by non-government agencies but most of the expenses are met by Commonwealth Government subsidies. The residential aged care services operated by State and local governments and partly funded by Commonwealth Government subsidies are included in State and local government programs
Medicare—medical	Medical services subsidised by Medicare
Medicare—optometrical	Optometrical services subsidised by Medicare
Medicare—dental	Dental services subsidised by Medicare
Other medical services	Medical services (non-Medicare) supported by the Commonwealth such as Practice grants for GPs and financial assistance for life-saving medical treatment
Pharmaceutical Benefits Scheme (PBS)	Pharmaceuticals subsidised by the PBS
Patient transport	Funding for the Royal Flying Doctor Service (RFDS)
Community health—Indigenous specific	Funding for Aboriginal Community Controlled Health Services (ACCHSs) and Aboriginal Coordinated Care Trials
Community health—other	Programs including health care access for survivors of torture and trauma, and services to rural, remote and other special needs groups

(continued)

Table A1.3 (continued): Composition of areas of expenditure, by sector, 1998–99

Expenditure category by sector	Composition
Public health	
Health research	National Health and Medical Research Council funding for health research, payments to CSL for antivenom production and influenza research, international search for unrelated bone marrow, social and economic microsimulation modelling, and funding for the Australian Institute of Health and Welfare
Administration	
Private sector	
Private hospitals	
Dental and other professional services	Includes private dental, physiotherapy, naturopathic, chiropractic and other health professional services
Non-PBS medicines and appliances	Non-PBS medicines include the non-subsidised PBS drugs ('under $20 drugs'), private scripts, over-the-counter pharmaceuticals, vitamins and minerals and herbal preparations. Appliances include devices such as spectacles, hearing aids, wheelchairs, bandaids, etc.
Medical (compensable, etc.)	Medical services for workers compensation and third-party insurance patients
Administration	Administration costs of private health insurance funds

Expenditure estimates

The expenditure estimates in this report for the total population are based on recurrent health data from the AIHW Health Expenditure Database, but differ in some respects to the data published the Health Expenditure Bulletins. For example, the expenditures in this report do not include that portion of health research which is funded by the universities from their own internal resources. Also the data in *Health Expenditure Bulletin 17* is based on more up-to-date data than the estimates in this report, and uses more accrual data than this report which for government expenditure is largely on a cash basis. In addition the presentation of the data in this report is different, as much of the data here are based on expenditure by Commonwealth, State, local government or private sector program, whereas the Health Expenditure Bulletin presents data by area of expenditure and source of funds. The relationship between expenditure described by program as compared to by area of expenditure is detailed in Table A1.3.

Appendix 2: Methodology for the calculation of regional and non-regional population estimates

Aboriginal and Torres Strait Islander population estimates

Population estimates used in this report are the low-projection series from the Australian Bureau of Statistics (ABS) experimental projections of the Aboriginal and Torres Strait Islander population (ABS 1998). These projections (1996–2006) are an extension of the 1991–96 estimates, which assumed the same propensity of people to identify as Aboriginal and/or Torres Strait Islanders as applied in the 1996 Census. This propensity to identify was substantially higher than for the 1991 Census, and consequently the 1996 Census-based estimates are higher than the 1991 Census-based estimates.

The low-projection series assumes that the 1996 Census propensity to identify as an Aboriginal and/or Torres Strait Islander person does not change for the projection period. The high series assumes that the change in propensity to identify as an Aboriginal and/or Torres Strait Islander person increases in line with the change in the propensity between the 1991 Census and the 1996 Census. The low series is recommended because it is consistent with the 1991–96 experimental estimates. The high series is more an illustrative series to show what would happen to the Aboriginal and Torres Strait Islander population if the change in propensity to identify between the 1991 and 1996 Censuses continued through to 2006. If this high series was used, the population in 1998-99 would be higher, leading to a decline in estimating 1998–99 Aboriginal and Torres Strait Islander mortality and morbidity rates. For 1998–99, the difference between the low projections and high projections is 8%.

Population estimates for non-regional analyses

A population estimate for Aboriginal and Torres Strait Islander people was obtained using an average of the population as at 30 June 1998 and 30 June 1999. For the total population, the mean resident population estimate was based on the ABS formula that uses estimates from five quarters of data. In this case, the four quarters of the 1998–99 financial year plus the March quarter of 1998 were used and each quarter weighted using the mathematical technique recommended by the ABS. The accuracy of estimates depends on the quality of source data. The major sources of potential error are considered to be the census date estimates of interstate migration based on Medicare transfer data (ABS 1995:29).

It is important to note that this total Australian population excludes Other Territories, which comprise approximately 2,000 persons that reside in Christmas Island, the Cocos Islands and the Jervis Bay Territory. These territories comprise a pseudo 'ninth State/Territory' of Australia.

Table A2.1: Population estimates for Aboriginal and Torres Strait Islander people and the total Australian population, 1998–99

	Total population		Indigenous population		
State/Territory	No.	% of total population	No.	% of Indigenous population	% of State population
NSW	6,367,287	33.8	115,532	28.43	1.81
Vic	4,682,951	24.	23,602	5.81	0.50
Qld	3,480,317	18.48	111,718	27.50	3.21
WA	1,844,559	9.79	58,852	14.48	3.19
SA	1,489,571	7.91	23,179	5.70	1.56
Tas	471,363	2.50	15,974	3.93	3.39
ACT	308,484	1.64	3,319	0.82	1.08
NT	191,354	1.02	54,137	13.32	28.29
Total	**18,835,884**	**100**	**406,311**	**100**	**2.16**
Total[(a)]	**18,839,060**	. .	. .	. .	. .

(a) Includes Other Territories.

Source: Aboriginal and Torres Strait Islander data is adjusted ABS census data from ABS Cat. No. 3231.0. Population for the total population is Estimated Resident Population calculated by weighting quarterly data from ABS 3101.0 March Quarter 2000 according to the method described in ABS 3101.0 June Quarter 1995.

Regional population estimates and classification scheme

The Accessibility/Remoteness Index of Australia (ARIA) classification has been used within this report as a framework for the analysis of regional information. Information on the development of the ARIA classification is presented below, followed by the regional population estimates used within this report.

Accessibility and remoteness—the ARIA classification

The ARIA classification, developed by the National Key Centre for Social Applications of Geographic Information Systems (GISCA), has been used in this report as the framework for assessing regional differences in health expenditure. This represents a departure from the Rural, Remote and Metropolitan Areas classification (RRMA) that has conventionally been used for such analysis.

More information regarding the development, aims and assumptions of the ARIA classification is available in the joint publication of the Department of Health and Aged Care and GISCA, Measuring Remoteness: Accessibility/Remoteness Index of Australia (ARIA) (DHAC 1999b).

Since remoteness has largely come to be identified with lack of accessibility to services, ARIA focuses on disadvantage in terms of accessible services, especially those routinely available to those living in metropolitan areas.

ARIA is a geographic approach to defining remoteness that interprets it as a lack of accessibility to service centres and excludes socioeconomic, urban/rural and population size factors. It reflects the actual distance needed to travel by road from population localities to service centres of various sizes.

ARIA scores used in this report were calculated by measuring distances by road from 11,340 populated localities to one of four different size service centres. The distances are converted to ratios to the mean, a threshold of 3 is applied (removing the effect of extreme values) and then the four component index values are summed. This produces a continuous variable with values ranging from 0 to 12, where 0 indicates areas of high accessibility and 12 indicates areas of highest possible remoteness. Index values for each of the 11,340 populated localities are then interpolated to produce an index value for 1-km grids and averages calculated for larger areas, such as postcodes or Statistical Local Areas (SLAs) (DHAC 1999b). The ARIA score used here is defined in terms of distance from different size service centres, but it is possible to define an ARIA score in terms of distance from particular types of service, for example, a hospital ARIA could be defined in terms of distance from certain sizes and types of hospitals.

ARIA scores have also been grouped by GISCA into five categories—highly accessible, accessible, moderately accessible, remote and very remote. These groupings were devised with consideration to natural breaks in the data, balance across categories, and broad compatibility with RRMA categories. The scores comprising each category, together with a description of each category, are presented in Box A2.1 below.

Box A2.1: Structure of the Accessibility/Remoteness Index of Australia (ARIA) classification

Category	*ARIA score*	*Description*
Highly accessible	*0–1.840*	*Relatively unrestricted access to a wide range of goods and services and opportunities for social interaction.*
Accessible	*1.841–3.510*	*Some restrictions to accessibility of some goods, services and opportunities for social interaction.*
Moderately accessible	*3.511–5.800*	*Significantly restricted accessibility of goods, services and opportunities for social interaction.*
Remote	*5.801–9.080*	*Very restricted accessibility of goods, services and opportunities for social interaction.*
Very remote	*9.081–12*	*Locationally disadvantaged—very little accessibility of goods, services and opportunities for social interaction.*

Source: DHAC 1999b.

This report uses the ARIA categories in its analysis of regional variations in health expenditure. It is important to note that ARIA has not previously been used by AIHW to undertake regional analyses. Consequently there have been some issues regarding data concordance. An important issue is that for many datasets produced by the States and Territories, the only spatial detail available is the postcode. This necessitates that postcode data be converted to SLA if it is to be mapped on a common basis with data coded to SLA. Furthermore, ARIA concordance information was only available for 1996 SLAs and postcodes. Data provided using later Australian standard geographic classifications (ASGCs) was converted to the 1996 ASGC prior to concordance.

The conversion of postcode to SLA involves the allocation of a whole postcode (or more than one postcode) area to an SLA, together with part of another postcode (or parts of more than one postcode). The conversion is undertaken using approximate allocations of postcode populations to SLAs. In many instances this conversion represents a somewhat crude allocation of the population to SLAs.

In this analysis of ARIA, SLA population data was obtained from the 1996 census counts for each state including all Other Territories, and adjusted to reflect a projected average of the ABS 1998–99 populations. Demographics collected include age and gender for both the Aboriginal and Torres Strait Islander population and the total Australian population. These census data containing SLAs were concorded to ARIA categories. The small number of SLAs that did not have a valid SLA to ARIA concordance such as the off-shore and migratory areas for each State, and all of the Other Territories of Australia, were allocated into the 'very remote' ARIA category. A growth factor was applied to this ARIA-concorded data to ensure that the age and gender figures reflect that of the projected ABS 1998–99 population figures.

Population estimates for regional analysis

Population estimates for Aboriginal and Torres Strait Islander people were not available by SLA for 1998–99. This is because they are a relatively small population who move a substantial amount, and projected data at the SLA level could be quite erroneous. For the regional analysis total population Census counts were obtained for each SLA then concorded to ARIA categories (description below). A growth factor was applied so that accurate projections could be made for the 1998–99 total Australian population. The 'Other Territories' were not able to be isolated at the regional level and so are included in the regional population estimates below.

Table A2.2: Population distribution in Australia by ARIA, 1998–99

	Total population		Indigenous population	
ARIA category	**No.**	**%**	**No.**	**%**
Highly accessible	15,349,960	81.50	173,746	42.74
Accessible	2,225,248	11.82	80,171	19.72
Moderately accessible	772,544	4.10	40,653	10.00
Remote	243,834	1.29	26,028	6.40
Very remote	242,176	1.29	85,912	21.13
Total	**18,833,763**	**100**	**406,510**	**100**

Note: The populations in this table include Other Territories.

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

Regional mortality estimates—population distribution of area analysed

The populations used to calculate mortality figures in Chapter 7 include deaths from South Australia, Western Australia and the Northern Territory. These three jurisdictions combined contain a different proportion of Aboriginal and Torres Strait Islander population per ARIA category to the Australia-wide population distributions of Aboriginal and Torres Strait Islander people. Australia-wide population proportions show that 21% of Aboriginal and Torres Strait Islander people reside in areas that are very remote (see Table 7.2) but in South Australia, Western Australia and the Northern Territory over 47% of the Aboriginal and Torres Strait Islander population reside in very remote areas (see Table A2.3).

Table A2.3: Population distribution in South Australia, Western Australia and Northern Territory by gender and ARIA, 1996

	Total population (%)			Indigenous population (%)		
ARIA category	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Highly accessible	75.52	77.51	76.51	25.45	26.30	25.88
Accessible	10.27	9.82	10.04	12.28	12.77	12.53
Moderately accessible	5.47	5.06	5.27	5.39	5.28	5.33
Remote	3.18	2.89	3.04	8.68	8.74	8.71
Very remote	5.56	4.71	5.14	48.20	46.92	47.55
Total (number)	**1,712,394**	**1,708,958**	**3,421,352**	**57,733**	**59,633**	**117,366**

Note: Data present the usual residents of Western Australia, South Australia and the Northern Territory combined.

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

Reason for differences in regional population and total population estimates

As a result of different calculation methods, the total Australian population (including Other Territories) in Table A2.1 derived using the ABS formula is 18,839,060. The estimated total population used in the regional analysis (includes Other Territories) was 18,833,763. This is a difference of 5,297 people.

1995–96 population methodology

The 1995–96 report used population estimates of Aboriginal and Torres Strait Islander people of 367,808 or 2.0% of the total population of Australia. The ABS has since revised these estimates to 381,402 or 2.1% of the total population. This represents an overall change of 3.7% in the estimate of the number of Aboriginal and Torres Strait Islander persons in 1995–96.

Table A2.4: Original and revised estimates of State populations, 1995–96 (%)

	Proportion of population		
State	**Original estimate**	**Revised estimate**	**Percentage change**
New South Wales	1.7	1.8	2.8
Victoria	0.5	0.5	–0.3
Queensland	3.0	3.1	3.1
Western Australia	3.1	3.2	3.0
South Australia	1.4	1.5	3.5
Tasmania	3.1	3.2	4.7
Australian Capital Territory	1.0	1.0	–3.0
Northern Territory	27.3	28.1	3.0
Australia	**2.0**	**2.1**	**3.7**

Source: Original estimate—Table 1.1 in *Expenditures on Health Services for Aboriginal and Torres Strait Islander People*, AIHW and NCEPH, May 1998; Revised estimate—*Experimental Estimates of the Indigenous Population 1991–1*996 ABS Cat. No. 3230.0, March 1998; *Australian Demographic Statistics*, ABS Cat. No. 3101.0 September quarter 1999.

Appendix 3: Estimation of Commonwealth outlays on Aboriginal and Torres Strait Islander peoples

Estimation of Medicare and Pharmaceutical Benefits Scheme outlays

Methodology

A national, continuing survey of general practitioner activity titled 'Bettering the Evaluation and Care of Health', or BEACH, has been used to estimate the Aboriginal and Torres Strait Islander share of Medicare and PBS benefits. The BEACH survey managed by the General Practice Statistics and Classification Unit is a collaborative study between the Australian Institute of Health and Welfare and the Family Medicine Research Centre at the University of Sydney. A comprehensive description of the methods adopted in the BEACH survey are within the annual report of the program (AIHW: Britt et al. 1999; AIHW: Britt et al. 2000).

Estimates of Medicare and PBS for the 1995–96 report came from a study undertaken in 1998. Full details of the study method are provided in the first report on health expenditures for Aboriginal and Torres Strait Islander people (Deeble et al. 1998). Subsequent references to this survey refer to it as the '1995–96 survey'.

Two years of BEACH data, collected between April 1998 and March 2000, have been used in this analysis. General practitioners participating in the survey were randomly selected from the population of all recognised GPs who had billed Medicare for more than 375 services in the preceding quarter. The sample of doctors was 984 in 1998–99 and 1,047 doctors in 1999–2000. Each GP recorded details of their activity in 100 consecutive encounters with patients. There were 98,400 encounters in 1998 and 104,700 in 1999 providing an overall total of 203,100 encounters.

The BEACH survey collects a range of patient characteristics for each patient episode including date of birth, gender, postcode of residence and health care card status. Self-identification as an Aboriginal person and/or Torres Strait Islander person was also ascertained, in principle, by the GP asking each patient directly. Information on the type of encounter, location of encounter, payment source and whether it was direct or indirect was also collected. Details of the management of patient problems were recorded as well, including medications prescribed, supplied and/or recommended, pathology and imaging services ordered, and referrals to specialists or hospitals (AIHW: Britt et al. 1999).

All estimates of Aboriginal and Torres Strait Islander service use were based on these data. However, the BEACH data needed several adjustments before analysis. The first related to the likelihood of general under-identification through the interpretation of encounter records where the question on Aboriginal and Torres Strait Islander status was not answered. The data collection form from the first year of the BEACH survey required a definite yes or no response to the questions on Aboriginal and Torres Strait Islander status but in over 6% of cases neither response was given. In the published BEACH report, this was interpreted as a 'no' response in every case. In this report, however, a more orthodox course of distributing the missing values was taken, according to the composition of the 'known' responses. A concession was made for the 1% of GPs found to have only ever recorded affirmative responses to the questions regarding Indigenous status; non-responses from these GPs were interpreted as 'no' responses. These adjustments increased the estimated Aboriginal and Torres Strait Islander numbers by 5.71%.

In the second year of the BEACH survey the proportion of encounters initially identified as Aboriginal and Torres Strait Islander dropped considerably—by over 30%, which was well outside the likely range of sampling error. Although there was an even distribution of Aboriginal and Torres Strait Islander encounters among GPs in this sample, it was particularly evident that there were much greater numbers of GPs who apparently saw no Aboriginal and/or Torres Strait Islander patients at all. The result was by no means clear. Although the method of identifying Aboriginal and Torres Strait Islander use of GP services was less subjective in the 1998–2000 survey than in the survey for the 1995–96 report, this reduction in identification was associated with a change in the reporting form. While the 1998 form asked, prominently, for a yes or no answer on Aboriginal identification, the 1999 required only the ticking of a single 'positive' response in a much smaller box. Copies of the forms are appended. This issue of the effect of recording form format on response rates is discussed in the 1999–2000 BEACH report (AIHW: Britt et al. 2000).

For results reported in 1998, BEACH interpreted missing answers as negative; these were subsequently amended to reflect the distribution of completed responses in that year. Changed recording made this impossible for 1999 so an alternative adjustment was made. Encounters of GPs who recorded between 1 and 19 encounters with Aboriginal and Torres Strait Islanders were re-weighted to reflect a similar total number of Aboriginal patients as those GPs recording the same proportion of Aboriginal and Torres Strait Islanders in 1998. The resulting Aboriginal and Torres Strait Islander numbers for 1999 BEACH data reflect the same distribution, by practice size, as in the earlier year.

The effect of the application of the BEACH encounter weights on the number of Aboriginal and Torres Strait Islander patients was significant—reducing the Aboriginal sample in 1999 by 18%. The effects of the weights were most notable among GPs with the highest proportion of Aboriginal and Torres Strait Islander encounters. These differences in the weighted sample of Aboriginal and Torres Strait Islander encounters in the second year contributed to the decision to use unweighted BEACH data in this study. An analysis of BEACH data within metropolitan, rural and remote regions by Britt et al. (AIHW: Britt et al. 2001) supports this approach.

Britt et al. state that the use of post-stratification weights for annual reports of national GP activity ensures the total sample is representative of general practice overall, but when sub-samples are being viewed independently, as in this report, national weighting is inappropriate.

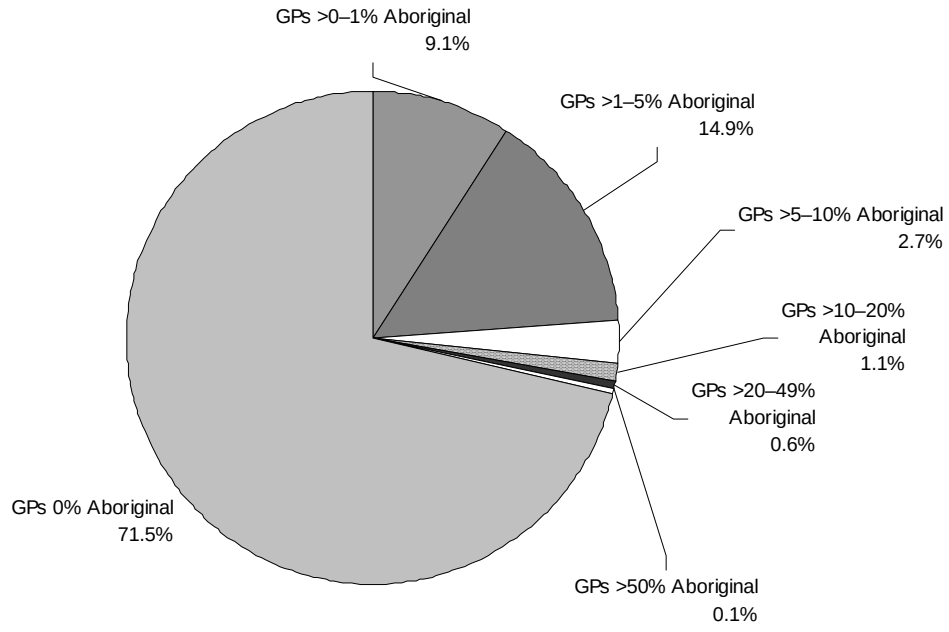
The overall outcome of these methodological changes was a level of Aboriginal and Torres Strait Islander identification and a composition of services in 1999 BEACH data almost identical to those in the published report of the 1998 survey (AIHW: Britt et al. 1999). The 1998 estimate of under-identification (5.71%) was then applied to the combined results. The total number of encounters after adjustments is 203,097 from 2,031 GPs. All of the data used below are based on these conventions.

Data

Medicare use

(i) Survey data

The methodology and data drawn from BEACH and used to estimate the total Medicare and PBS benefits are provided in the following section. The proportion of GPs in the BEACH survey and the corresponding proportion of total encounters with Aboriginal and Torres Strait Islander patients are represented in Figure A3.1.



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

Figure A3.1: Proportions of Aboriginal and Torres Strait Islander encounters per GP, weighted BEACH data, 1998 and 1999

The proportion of Medicare-paid encounters for Aboriginal and Torres Strait Islander patients and non-Indigenous patients is shown in Table A3.1.

Table A3.1: Combined BEACH results for GP encounters—adjusted, 1998 and 1999

	Non-Indigenous number	Per cent	Indigenous number	Per cent	Total number
GP encounters	200,660	100.0	2,437	100.0	203,097
less					
Indirect	7,560	3.8	65	2.7	7,625
No charge	3,108	1.5	43	1.8	3,151
Compensation and hospital paid	9,511	4.7	102	4.2	9,614
Medicare paid	**180,481**	**89.94**	**2,226**	**91.4**	**182,707**

Note: Indirect encounters are encounters for prescriptions, referrals etc. that did not involve a patient contact.

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

BEACH service data (medications prescribed, pathology tests and imaging investigations ordered, referrals to specialists and hospitals, etc.) are shown in Table A3.2. The data covers all encounters, including indirect encounters and those not paid by Medicare.

Table A3.2: BEACH services provided, 1998 and 1999

	Non-Indigenous number	Indigenous number	Total number
Pathology tests	54,815	749	55,564
Imaging exams	15,280	177	15,457
Referrals			
Specialist	16,573	165	16,738
Hospital	1,689	34	1,722

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

Estimates of Aboriginal and Torres Strait Islander Medicare and PBS benefits were made on the basis of the numbers of GP encounters, services provided and prescriptions written for Aboriginal and Torres Strait Islander people. Calculating Medicare benefits involved the removal of non-Medicare-paid services and the distribution of missing data in the BEACH data. The results presented in Table A3.2 required adjustment; firstly, services ineligible for Medicare were excluded. We assumed these paralleled the distribution of GP encounters. Secondly, in the specialist area BEACH (as primarily a GP survey) recorded 'referrals', not the individual services (consultations) on which Medicare payments are based. Overall the Medicare data suggested that, for each referral, on average 2.5 consultations are generated. The 1995–96 report estimated the number of specialist visits per referral to be 2.1. This estimate may have been too low and may also have included non-medical referrals.

A more fundamental difficulty arose upon inspection of the BEACH data, which was coded using ICPC-2 PLUS (an extension of the International Classification of Primary Care—2nd edition). There were difficulties distinguishing between referrals to paramedical practitioners and medical specialists. Examples of this were GP encounters where a referral to a breast clinic was recorded on the BEACH survey form. Furthermore, referrals were not limited to private specialists (as were the data in the survey used in the 1995–96 report) but included referrals to specialists in public hospitals and public clinics as well. The paramedical component could be identified and excluded from the basic data but the private and public referrals could not be separated.

The guidelines in the 1995–96 report suggested that, taken together, the rates of referral to private specialists and hospitals were very similar for Aboriginal and Torres Strait Islander patients and non-Indigenous people but that their composition was different. For Aboriginal and Torres Strait Islander people only 36% of referrals were to private specialists, and 64% to public hospitals, whereas about 87% of all the non-Indigenous referrals were to private doctors. In the absence of better information, the same split was applied to the 1998–99 data. Table A3.3 shows the data used to estimate Medicare-paid services after these adjustments had been made. The number of specialist visits shown incorporates adjustment for repeat services by specialists, as outlined above.

Table A3.3: BEACH services—estimated Medicare-paid

	Non-Indigenous number	Indigenous number	Total number
Pathology tests	49,303	684	49,986
Imaging exams	13,743	162	13,905
Specialist visits	35,385	162	35,547

Note: Numbers of specialist visits include repeat consultations, estimated at 2.5 per referral.

Source: AIHW – GPSCU BEACH data, 1998 and 1999 (unpublished); DHAC, *Medicare Statistics*, various.

(ii) National data

National data for Medicare and the PBS were needed for two purposes. The first was to determine the expansion factor to be applied to the overall BEACH results and so standardise them to the known Medicare service totals based on the ratio of Medicare-paid GP consultations in BEACH to total GP consultations under Medicare.

The second purpose was to estimate the benefits paid for services to Aboriginal and Torres Strait Islander patients. As the usage surveys provided no financial information, benefits were therefore estimated as the product of use (derived by expanding the BEACH figures) and the average benefit paid per unit of service. In the 1995–96 report the latter were based on all Medicare-paid services. More accurate calculations were possible for 1998–99 through the availability of national benefit figures for both GP services and the specific diagnostic services they ordered, as well as the PBS items they prescribed (DHAC 2000b). In this case, the process involved dividing the official figures for GP-related benefits nationally by the expanded

service estimates based on BEACH. The effect was to standardise to the national expenditure figures by varying the implicit average benefits per service (see Table A3.4). Benefits for private specialist services were derived through an estimation of the procedures they would have performed. These were based on national average costs per service only although some independent data were available from the benefits actually paid for Aboriginal and Torres Strait Islander patients of ACCHSs and State-service doctors under Section 19(2) provisions. That information was useful in checking the accuracy of our volume estimates generally, since any errors in the BEACH extension would have been reflected in the average benefit figures. The fact they were very close suggests that the volumes have been estimated quite accurately.

Table A3.4: Medicare services and benefits, 1998–99

Service type	Number of services (million)	Benefits paid for GP-related services ($million)	Benefits paid–other ($million)	Total benefits paid ($million)
GP	101.4	2,353		2,353
Pathology tests	37.2	685	323	1,008
Imaging	11.4	613	452	1,065
Specialist visits	19.7	n.a.	984	984
Other medical	14.2	n.a.	1,113	1,113
Total	**184.0**	**3,651**	**2,872**	**6,523**

Note: Services exclude optometry, dental and pathology Patient Episode Initiation Fees (PEIs). Benefits exclude optometry and dental.

Source: DHAC), *Medicare Statistics*, various; DHAC2000b:263.

Calculations

The calculations from these data were as follows. The overall expansion factor was 555.23 (101.4 million GP services nationally divided by the 0.1827 million services in BEACH). The steps are outlined in Tables A3.5–10.

Table A3.5: Step 1—Expand all Medicare-paid BEACH data, 1998–99

Service type	BEACH services no.	Multiplier	Estimated national (millions)
GP	182,700	555.23	101.44
Pathology tests	49,986	555.23	27.75
Imaging	13,905	555.23	7.72
Specialist visits	35,547	555.23	19.74

Table A3.6: Step 2—Standardise to national data for GP-related and specialist outlays, with implicit benefits per service calculated, 1998–99

Service type	BEACH-estimated services (millions)	GP-benefits ($m)	Av. per GP-related ($)	Service-other ($)
GP	101.44	2,353	23.19	—
Pathology tests	27.75	685	24.68	34.15
Imaging	7.72	613	79.40	123.50
Specialist visits	19.74	n.a.	49.84	49.84

Note: Benefits per specialist visits are the national average. There are no separate data for specifically GP-referred visits.

Table A3.7: Step 3—Estimate direct Aboriginal and Torres Strait Islander use, 1998–99

Service type	Aboriginal and Torres Strait Islander in BEACH no.	Multiplier	Estimated national (millions)
GP	2,226	555.23	1.236
Pathology tests	684	555.23	0.380
Imaging	162	555.23	0.090
Specialist visits	162	555.23	0.090

Table A3.8: Step 4—Cost the estimated Aboriginal and Torres Strait Islander direct use, 1998–99

Service type	Estimated number of services (millions)	Average benefit ($)	Estimated total benefits ($ million)
GP	1.236	23.19	28.67
Pathology tests	0.380	24.68	9.37
Imaging	0.090	79.40	7.13
Specialist visits	0.090	49.84	4.48
Total	**1.795**	. .	**49.65**

Source: Table 6, Table 7.

Table A3.9: Step 5—Add the estimated value of specialist-generated services, assuming the same ratio of outlays as for specialist visits, 1998–99 ($ million)

Service	Est. generated services
Pathology	1.5
Imaging	2.1
Other (procedures)	5.1

Table A3.10: Step 6—Estimate medical benefits paid for Aboriginal and Torres Strait Islander people, 1998–99 ($ million)

Service type	Direct	Indirect	Total
GP	28.7	—	28.7
Pathology tests	9.4	1.5	10.8
Imaging	7.1	2.1	9.2
Specialist visits	4.5	—	4.5
Other medical	—	5.1	5.1
Total	**49.7**	**8.6**	**58.3**

Pharmaceutical benefits

Data from the BEACH survey were considered to be unreliable for the purposes of separately identifying PBS and Repatriation Pharmaceutical Benefits Scheme (RPBS) scripts. There was variation in the collection of data between the two years of the survey, and the sample size of Veterans' Affairs patients was small and therefore limited the ability to draw conclusions regarding RPBS outlays. Furthermore, the information could not be obtained from the survey of doctors used in the 1995–96 report, where again scripts covered by the RPBS were not separately identified to PBS scripts. For these reasons, scripts covered by the RPBS are assumed to have been captured within the script numbers estimated through expansion of GP encounters recorded in BEACH.

Methodology

The survey of doctors used in the 1995–96 report, specifically asked about PBS prescriptions written for Aboriginal and Torres Strait Islander people. Although the survey of pharmacies sought information on all prescriptions dispensed for the same group, PBS items were separately identified. With some assumptions about the average number of items per prescription, it was therefore possible to compare prescribing rates for Aboriginal and Torres Strait Islander people with wider data (particularly that from the predecessor of BEACH). It was possible to compare the number of items prescribed with those dispensed by private pharmacies through the PBS.

The BEACH data were less precise. Being GP-based they covered prescribing only (not dispensing) and included all prescribed medications, including those outside the PBS. It was therefore necessary to use some of the information presented in the 1995–96 report in the analysis of BEACH prescribing data. The relevant conclusions were:

(a) The number of prescriptions per GP consultation were very similar for Aboriginal and Torres Strait Islander and non-Indigenous patients, although the survey periods were not identical (Bridges-Webb survey in 1991 compared with 1997 when the survey for the 1995–96 report was undertaken).

(b) Approximately 97% of all items dispensed by private pharmacies for Aboriginal and Torres Strait Islander people was covered by the PBS. Of these, 80% was in the concessional category with less than 12% 'general'.

(c) If the item content of Aboriginal and Torres Strait Islander prescriptions was the same as for the population generally (about 1.7 items per script in 1997), only 71.4% of all the medications prescribed for them was dispensed under the PBS. This does not imply they were never supplied, only that they were not provided by private pharmacies through the PBS.

The BEACH surveys confirmed the first result. For the others, in the absence of any direct measures of dispensing, the same conditions were applied to the 1998–99 data. That is, 97% of all Aboriginal and Torres Strait Islander prescriptions was eligible for PBS cover; overwhelmingly they were 'concessional' but only 71.4% of them was privately dispensed. It would require another pharmacist survey to demonstrate otherwise.

Data

(i) Survey data

The combined BEACH surveys gave the following data on GP prescribing.

Table A3.11: Available data on GP prescriptions, 1998–1999

	Non-Indigenous number	Indigenous number	Total number
Items prescribed	186,014	2,351	188,365
Est. PBS eligible items[(a)]	[(b)]173,395	2,144	175,539

(a) PBS eligible items include prescriptions obtained through an indirect consultation.

(b) PBS eligible items for non-Indigenous people have not been adjusted for private scripts.

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

The estimate of PBS eligible items excludes prescriptions at visits covered by workers compensation and hospital and/or state authority payment (6.3% and 6% for non-Indigenous and Aboriginal and Torres Strait Islander people respectively). However, strictly speaking it is accurate only for the Aboriginal and Torres Strait Islander component where the 1997 survey showed a very low proportion of 'private' scripts. The proportion would have been much higher for the non-Indigenous people in the BEACH surveys but the relevant split was not available. The analysis therefore concentrated on Aboriginal and Torres Strait Islander outlays directly. No overall reconciliation with national PBS information was possible.

(ii) National data

PBS statistics for 1998–99 were as follows (Table A3.12):

Table A3.12: Pharmaceutical Benefit Scheme statistics for 1998–99

	Total items (millions)	Total benefits ($m)	Average per item ($)
General	15.04	469.0	31.18
Concessional	88.10	1,739.5	19.74
Safety net	24.59	573.7	23.33
Total	**127.74**	**2,782.3**	**21.40**

Note: Excludes doctor's bag supplies. Safety net includes both general and concessional components. Average cost is weighted for dispensing patterns of general, concessional and safety net to Aboriginal and Torres Strait Islander (informed from first report).

Source: Health Insurance Commission, *Annual Report, 1998–99.*

Calculation

Estimated PBS eligible items and benefits for Aboriginal and Torres Strait Islander people, 1998–99.

Table A3.13: Estimated PBS eligible items and benefits for Aboriginal and Torres Strait Islander people, 1998–99

	No. of items	Multiplier	Estimated total items (millions)	Average benefit per item ($)	Estimated total benefits ($m)
PBS eligible items	2,144	555.23	1.19	. .	. .
Est. dispensed items	1,531	555.23	0.85	21.40	18.19

Note: Estimated average benefit per item is slightly lower than the national figure because of the high 'concessional' use by Aboriginal and Torres Strait Islander people.

PBS outlays for prescriptions written by specialists were estimated by applying the Aboriginal and Torres Strait Islander proportion of Medicare outlays on specialist consultations to the specialist-related component of pharmaceutical benefit payments (i.e. 0.456% of $453 million = $2.066 million in 1998–99).

Methodological issues

There are a variety of sources where survey error may have been introduced; hence the accuracy of Aboriginal and Torres Strait Islander service use estimates may be affected. The majority of Medicare and PBS estimates were made on the basis of information from the BEACH survey. These data may introduce errors through sampling variance, or simply through inaccurate recording of information. For instance, GPs participating in BEACH recorded patients as Aboriginal and/or Torres Strait Islander people after asking whether they identified as such. Despite this method of identification, the figures are still subject to under-identification, introduced through the possible failure of some GPs to ask their patients, non-recording of responses or non-identification by patients. As discussed in the opening methodology section of this chapter, the change to the layout of the form during the 1999 collection may have had a significant impact on the response to Indigenous

status questions. Adjustment was made to compensate for under-identification of Aboriginal and Torres Strait Islander patients.

Confidence limits have been calculated for the number of Medicare-paid GP encounters, which was the primary unit for expansion of the BEACH survey and resultant estimations of Medicare and pharmaceutical benefits to Aboriginal and Torres Strait Islander people. Medicare-paid encounters for Indigenous people were expanded by the ratio of all GP encounters in BEACH to the number of GP services reported nationally in HIC Medicare statistics for 1998–99. Specialist and pharmaceutical items were expanded by the same factor, which implies a constant relationship between them and GP visits. However, they must also have been subject to independent sampling variation so that the combined error must have been somewhat greater than the 34% (+/– 17%) estimated for the GP component alone.

The problem is larger for regional estimates where the number of encounter clusters (i.e. participating GPs) was low, in some cases less than 30. For these only the estimated error around the number of GP encounters for each region is shown. Because two years of BEACH survey data were used the confidence limits are considerably smaller than those published in the annual reports of BEACH (AIHW: Britt et al. 1999 and AIHW: Britt et al. 2000).

Based on the simplifying assumption that generated services had a constant relationship to GP visits, Table A3.14 provides 95% confidence intervals for service numbers derived from BEACH data. Analysis was conducted through SAS version 8.1. A procedure named 'Surveymeans' was used for estimates of survey population means, totals and confidence limits from the sample survey data. The procedure takes into account the cluster sample design of the BEACH survey.

Table A3.14: BEACH encounters, summary of management with confidence intervals, 1998 and 1999

Variable	Non-Indigenous	Rate per 100 non-Indigenous encounters	95% CI	Indigenous	Rate per 100 Indigenous encounters	95% CI
Encounters	200,660	n.a.	n.a.	2,437	n.a.	n.a.
Medications						
Prescribed	186,014	92.70	91.14–94.26	2,351	96.49	81.54–111.43
Referrals						
Specialist	16,573	8.26	8.03–8.49	165	6.79	5.76–7.81
Hospital and Emergency department	1,689	0.84	0.77–0.91	34	1.38	1.03–1.64
Pathology	54,815	27.32	26.51–28.13	749	30.72	23.66–37.78
Imaging	15,280	7.61	7.37–7.86	177	7.27	6.03–8.50

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

On the same assumptions, the confidence limits of expenditures per person for the various services are as follows (Table A3.15).

Table A3.15: Ranges of error around Aboriginal and Torres Strait Islander estimates of Medicare and PBS benefits per person, 1998–99

	Indigenous benefits per person ($)			
	Mean	Low 95% CI	High 95% CI	Ratio range
Medicare				
GP	71	59	82	0.47–0.65
Pathology	27	20	33	0.38–0.61
Imaging	23	18	27	0.32–0.47
Specialist	24	19	28	0.17–0.24
Total	143	117	169	0.34–0.49
PBS	57	49	66	0.30–0.40
All benefits	**201**	**166**	**235**	0.32–0.46

Source: AIHW – GPSCU BEACH data, 1998 and 1999 (unpublished); DHAC, *Medicare Statistics*, various; Health Insurance Commission; *Annual Report, 1998–99*.

Estimates of the impact of survey error on the Medicare and PBS estimates of benefits reported in 1995–96 were not available. However, the specific-purpose survey used to estimate Medicare and PBS benefits for Aboriginal and Torres Strait Islander people in the 1995–96 report produced a similar sample size to the BEACH survey, and the survey design had similarities with the BEACH survey in that responses were highly clustered. As an approximation, estimates of sampling error for the 1995–96 survey were based on the same proportional error as for the BEACH survey (see Figure 3.1, Chapter 3). However, this takes no account of the arbitrary assumption of 20% under-identification in the 1995–96 survey.

Supplementary information

Despite the possibility of sampling error, as discussed above, information from Aboriginal Community Controlled Health Services (ACCHSs) supports the conclusions drawn regarding outlays to Aboriginal and Torres Strait Islander people through Medicare.

Although some ACCHSs have billed Medicare for years, the process has accelerated considerably since 1995–96 and, in particular, since 1997 when State-salaried doctors in 51 locations in Queensland and Western Australia were provided site-specific Medicare registration. No service data were available before 1998–99. Table A3.16 shows services provided and benefits paid for patients treated by them or referred from them in that year. Table A3.17 compares the average benefits per service paid under these arrangements with the implicit benefits we have calculated for all GP-related services in Table A3.6. As can be seen, the correspondence is very close. Since they came from entirely different sources, one of which involved expansion of the BEACH data, it suggests that our estimates of service volume are also accurate. The only category in which our overall expenditure figure might be a little high is 'specialist procedures' (for which there was no GP-related benchmark) but it was a relatively small component. Also, ACCHS practice might not have been the same as for GPs generally, but there was no way of estimating the size of any likely error.

Table A3.16: Services billed to Medicare from Aboriginal Community Controlled Health Services and State service providers, 1998–99

	ACCHSs			State services		
	Services ('000)	Benefits ($'000)	Average benefit ($)	Services ('000)	Benefits ($'000)	Average benefit ($)
GP	194.1	4,599	23.7	84.4	1,937	23.0
Specialist	13.0	697	53.6	3.9	207	53.2
Pathology tests	46.1	1,158	25.1	5.1	133	26.1
Imaging	13.2	974	73.8	4.8	247	51.5
Other	5.8	185	31.9	4.0	138	34.5
Total	**272.2**	**7,613**	**28.0**	**102.2**	**2,662**	**26.0**

Note: Pathology benefits include Patient Episode Initiation Fees but service numbers are for tests only.

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

Table A3.17: Average benefits per GP-related service through ACCHSs and State providers, and as implied from a standardised expansion of BEACH ($)

	ACCHS/State	Estimated from BEACH
GP	23.5	23.2
Specialist	53.5	49.8
Pathology tests	25.2	24.7
Imaging	67.8	79.4
Other	33.0	n.a.

Source: Commonwealth Department of Health and Aged Care unpublished data, AIHW – GPSCU BEACH data, 1998 and 1999.

Change in ACCHS medical services between 1995–96 and 1998–99

As discussed in Chapter 3, one-half of the change in volume of **Medicare-billed** GP services provided to Aboriginal and Torres Strait Islander people by ACCHSs may be attributed to new services. Decomposition of available information on service provision (Table A3.18) estimates the number of extra services in 1998–99 at 51,000 relative to the change in Medicare-billed GP services of 99,000. The number of non-Medicare-funded services in 1998–99 has been estimated to be 40,000, but whether this is 20,000, 40,000 or 50,000 has little impact on our estimate of the volume of new service provision. The overall growth in the number of GP services delivered by ACCHSs is estimated from work force data which indicates that the number of full-time equivalent GPs rose by 28.2% over the period from 1995–96 to 1998–99.

Table A3.18: GP services delivered by ACCHSs, 1995–96 and 1998–99

Service type	1995–96	1998–99	Change
Medicare-funded GP services	95,000	194,000	99,000
Other GP services (not Medicare-funded)	88,000	40,000	–48,000
Total GP services delivered by ACCHSs	**183,000**	**234,000**	**51,000**

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

Estimates of Commonwealth recurrent expenditure

Estimates of the Commonwealth's recurrent expenditure on health services are presented in detail in Table A3.19. This information expands on that presented in Chapter 3, Tables 3.7 and 3.8.

Table A3.19: Estimates of Commonwealth recurrent expenditure (excluding grants to the States) on health services for the total population and Aboriginal and Torres Strait Islander people, by type of service, 1998–99

Area of expenditure	Total ($'000)	Indigenous ($'000)	% Indigenous	Per person non-Indigenous	Per person Indigenous	Indigenous/ non-Indigenous per person expenditure
Acute-care institutions—public	**185,500**	**4,271**	**2.3**	**$9.83**	**$10.51**	**1.07**
Blood fractionation products	122,500	4,082	3.3	$6.43	$10.05	1.56
Private health insurance subsidies	63,000	189	0.3	$3.41	$0.47	0.14
Acute-care institutions—private	**550,000**	**1,650**	**0.3**	**$29.75**	**$4.06**	**0.14**
Private health insurance subsidies	550,000	1,650	0.3	$29.75	$4.06	0.14
Aged care	**2,447,158**	**27,247**	**1.1**	**$131.31**	**$67.06**	**0.51**
High-care residential aged care—non State Government	2,441,676	22,023	0.9	$131.29	$54.20	0.41
Indigenous flexible care service models (high-care)	3,721	3,721	100.0	$0.00	$9.16	
Total high-care residential aged care[(a)]	*2,445,397*	*25,744*	*1.1*	*$131.29*	*$63.36*	*0.48*
Best practice for dementia specific facilities	260	2	1.0	$0.01	$0.01	0.44
Aboriginal and Torres Strait Islander assistance	1,501	1,501	100.0	$0.00	$3.69	
Medical services	**6,900,612**	**64,527**	**0.9**	**$370.93**	**$158.81**	**0.43**
Alternative general practice funding arrangements	167,743	2,043	1.2	$8.99	$5.03	0.56
Coordinated care trials for people with ongoing and complex health needs	18,024	108	0.6	$0.97	$0.27	0.27

(continued)

Table A3.19 (continued): Estimates of Commonwealth recurrent expenditure (excluding grants to the States) on health services for the total population and Aboriginal and Torres Strait Islander people, by type of service, 1998–99

Area of expenditure	Total ($'000)	Indigenous ($'000)	% Indigenous	Per person non-Indigenous	Per person Indigenous	Indigenous/ non-Indigenous per person expenditure
General practice infrastructure training	145,411	1,789	1.2	$7.79	$4.36	0.56
Medicare benefits—GP services	2,330,216	28,665	1.2	$124.88	$70.55	0.56
Medicare benefits—other medical services	4,120,098	29,588	0.7	$224.44	$72.82	0.33
Medicare benefits—total	*6,459,314*	*58,253*	*0.9*	*$350.78*	*$143.37*	*0.41*
Medical workforce assistance for areas with a shortage	8,269	165	2.0	$0.44	$0.41	0.93
Rural and remote health support services	9,399	188	2.0	$0.50	$0.46	0.93
Other medical	36,452	1,792	4.9	$1.88	$4.41	2.35
Private health insurance subsidies	56,000	168	0.3	$3.03	$0.41	0.14
Dental	**137,242**	**438**	**0.3**	**$7.42**	**$1.08**	**0.14**
Medicare benefits	6,242	45	0.7	$0.34	$0.11	0.33
Private health insurance	131,000	393	0.3	$7.09	$0.97	0.14
Other health professional	**197.185**	**1,223**	**0.6**	**$10.63**	**$3.01**	**0.28**
Optometrical	146,050	1,067	0.7	$7.87	$2.63	0.33
Visiting Optom. Scheme	135	3	2.2	$0.01	$0.01	1.00
Private health insurance	51,000	153	0.3	$2.76	$0.38	0.14
Community health	**405,397**	**113,164**	**27.9**	**$15.86**	**$278.52**	**17.56**
Aboriginal And Torres Strait Islander Health Services Program—Health Services Program (health component)	85,655	77,374	90.3	$0.45	$190.43	. .
Aboriginal And Torres Strait Islander Health Services Program—Substance misuse Services	17,225	17,225	100.0	$0.00	$42.39	. .
Domiciliary Nursing Care Benefit	95,745	686	0.7	$5.16	$1.69	0.33
Indigenous coordinated care trials for people with ongoing and complex health needs	8,814	8,813	100.0	$0.00	$21.69	. .
Community-based support programs for the aged	37,055	413	1.1	$1.99	$1.02	0.51

(continued)

Table A3.19 (continued): Estimates of Commonwealth recurrent expenditure (excluding grants to the States) on health services for the total population and Aboriginal and Torres Strait Islander people, by type of service, 1998–99

Area of expenditure	Total ($'000)	Indigenous ($'000)	% Indigenous	Per person non-Indigenous	Per person Indigenous	Indigenous/ non-Indigenous per person expenditure
Family planning	12,384	267	2.2	$0.66	$0.66	1.00
Hearing services	132,378	8,037	6.1	$6.75	$19.78	2.93
Other community health	16,140	348	2.2	$0.86	$0.86	1.00
Pharmaceuticals	**2,804,645**	**20,446**	**0.7**	**$151.07**	**$50.32**	**0.33**
Pharmaceutical Benefits Scheme	2,795,645	20,419	0.7	$150.59	$50.25	0.33
Private health insurance subsidies	9,000	27	0.3	$0.49	$0.07	0.14
Aids and appliances	**41,003**	**123**	**0.3**	**$2.22**	**$0.30**	**0.14**
Private health insurance subsidies	41,003	123	0.3	$2.22	$0.30	0.14
Public health	**129,115**	**8,487**	**6.6**	**$6.55**	**$20.89**	**3.19**
National Public Health	113,335	2,445	2.2	$6.02	$6.02	1.00
National Youth Suicide Prevention Strategy	7,056	152	2.2	$0.37	$0.37	1.00
National Mental Health	2,897	62	2.2	$0.15	$0.15	1.00
Combating infectious diseases of Indigenous people (OATSIH)	4,832	4,832	100.0	$0.00	$11.89	. .
Indigenous specific projects	995	995	100.0	$0.00	$2.45	. .
Patient transport	**43,560**	**7,781**	**17.9**	**$1.94**	**$19.15**	**9.86**
Royal Flying Doctor Service	16,560	7,700	46.5	$0.48	$18.95	39.42
Private health insurance	27,000	81	0.3	$1.46	$0.20	0.14
Health research	**174,333**	**2,796**	**1.6**	**$9.31**	**$6.88**	**0.74**
Health research including Medical Research Endowment Fund payments	166,764	2,675	1.6	$8.90	$6.58	0.74
Other	7,568	121	1.6	$0.40	$0.30	0.74
Administration	**736,586**	**15,125**	**2.1**	**$39.15**	**$37.23**	**0.95**
OATSIH	10,410	8,207	78.8	$0.12	$20.20	169.02
General	597,176	6,531	1.1	$32.05	$16.07	0.50
Subsidy for health insurance funds administration through private health insurance subsidies	129,000	387	0.3	$6.98	$0.95	0.14

(continued)

Table A3.19 (continued): Estimates of Commonwealth recurrent expenditure (excluding grants to the States) on health services for the total population and Aboriginal and Torres Strait Islander people, by type of service, 1998–99

Area of expenditure	Total ($'000)	Indigenous ($'000)	% Indigenous	Per person non-Indigenous	Per person Indigenous	Indigenous/ non-Indigenous per person expenditure
Medicare[(b)]	6,611,607	59,364	0.9	$355.53	$146.11	0.41
Pharmaceutical Benefits Scheme (PBS)	2,795,645	20,419	0.7	$150.59	$50.25	0.33
Medicare plus PBS	**9,407,252**	**79,783**	**0.8**	**$506.11**	**$196.36**	**0.39**
Indigenous specific health[(c)]	131,652	121,169	92.0	$0.57	$298.22	. .
Other Commonwealth programs	4,487,257	59,408	1.3	$240.26	$146.21	0.61
General administration	726,176	6,918	1.0	$39.03	$17.03	0.44
Total program costs plus administration	**14,752,337**	**267,278**	**1.8**	**$785.97**	**$657.82**	**0.84**

(a) Excludes Commonwealth subsidy for high care in State Government residential aged care homes.

(b) Includes optometrical and dental benefits.

(c) Includes: Indigenous flexible service models for aged care, some Indigenous public health programs, OATSIH health programs and OATSIH administration.

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Appendix 4: Aged care services for Aboriginal and Torres Strait Islander people

Nursing homes and hostels have been integrated into a single residential aged care system. In order to maintain valid comparison with the 1995–96 nursing home data, the 'nursing home' portion of residential aged care services expenditure was estimated. Residential aged care services delivered to residents with high levels of dependency are approximately equivalent to the services delivered by nursing homes in the past.

Payments made to residential aged care homes in respect of a particular resident are based on an assessment of the level of dependency of that resident. Under the current arrangements, a combination of 'health' and 'personal care' factors is used to determine a person's dependency. Using those factors, each resident is allocated to a specific dependency category under an eight-level Residential Classification Scale (RCS). However, it is not possible to determine whether individual residents have been allocated to specific dependency levels because of 'health' or 'personal care' factors. For the purpose of determining which expenditures are health and, as such, fall within the scope of this report, it has been assumed that the majority of those residents with higher levels of dependency (that is, in RCS levels 1 to 4) are receiving health care services of a type that would previously have been mostly provided in a nursing home. Residents with dependency levels that place them in RCS levels 5 to 8, on the other hand, are assumed to be receiving predominantly 'personal care' services and other non-health services such as food and accommodation and, as such, would fall outside the scope of this report. Expenditure on residents in RCS levels 1 to 4 is labelled 'high-care residential aged care' expenditure.

Information from the Commonwealth Department of Health and Aged Care has been used to estimate total Commonwealth recurrent funding for residential aged care homes. The number of occupied place-days over the financial year for each resident is calculated and daily costs are applied to occupied place-days. The calculation takes into account the type and level of care. Commonwealth recurrent expenditure is comprised of the basic subsidy plus primary and other supplements, less reductions and income tested fees. Where a resident's status as an Aboriginal and Torres Strait Islander or non-Indigenous person was not recorded (15.4%), their aggregated funding has been distributed according to the proportions for identified Aboriginal and Torres Strait Islander and non-Indigenous residents in the particular State or Territory.

The total Commonwealth recurrent expenditure for the high-care component of residential aged care homes in the 1998–99 financial year is estimated to be $2,642 million with the Aboriginal and Torres Strait Islander share of this money comprising $23.8 million (Table A4.1). This total includes Aboriginal and Torres Strait Islander Flexible Care. The Flexible Care Services operate mainly in regional

and remote areas and are targeted to Aboriginal and Torres Strait Islander people. A small percentage of service recipients may include non-Indigenous persons, for instance non-Indigenous persons that marry into Indigenous communities and/or have poor access to other non-Indigenous services where they reside. Flexible Care Services currently service approximately 20% of all Indigenous aged care clients providing a range of high, low and aged care packages.

Of the total combined Flexible Care Services aged care packages expenditure ($5,872,000) it is estimated that 63% ($3,720,899) was allocated to high-care places. This figure was calculated using an average daily rate of $79.95. The rate was multiplied by the number of high-care places and a proportion (66%) of central office expenditure was included. 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.

Table A4.1: Commonwealth recurrent health funding for high care in residential aged care homes[(a)], 1998–99

	Indigenous		Non-Indigenous	
State	**$ '000**	**Per cent total**	**$ '000**	**Per cent total**
New South Wales	5,530	0.54	1,014,218	99.46
Victoria	1,628	0.25	642,049	99.75
Queensland	5,849	1.38	418,816	98.62
Western Australia	4,178	2.11	193,890	97.89
South Australia	2,156	0.89	240,074	99.11
Tasmania	285	0.36	79,205	99.64
Aust. Capital Territory	181	0.72	24,760	99.28
Northern Territory	4,020	45.57	4,802	54.43
Australia	**[(b)]23,827**	**0.90**	**2,617,814**	**99.10**

(a) Relates to the 'health' component of residential aged care homes, residential classification scales 1 to 4.

(b) Includes $3,720,899 estimated expenditure by Flexible Care Services on high-care places.

Source: AIHW analysis of DHAC unpublished residential care data.

It is important to note the impact of both the population structure and the poor health status of the Aboriginal and Torres Strait Islander community on aged care service utilisation.

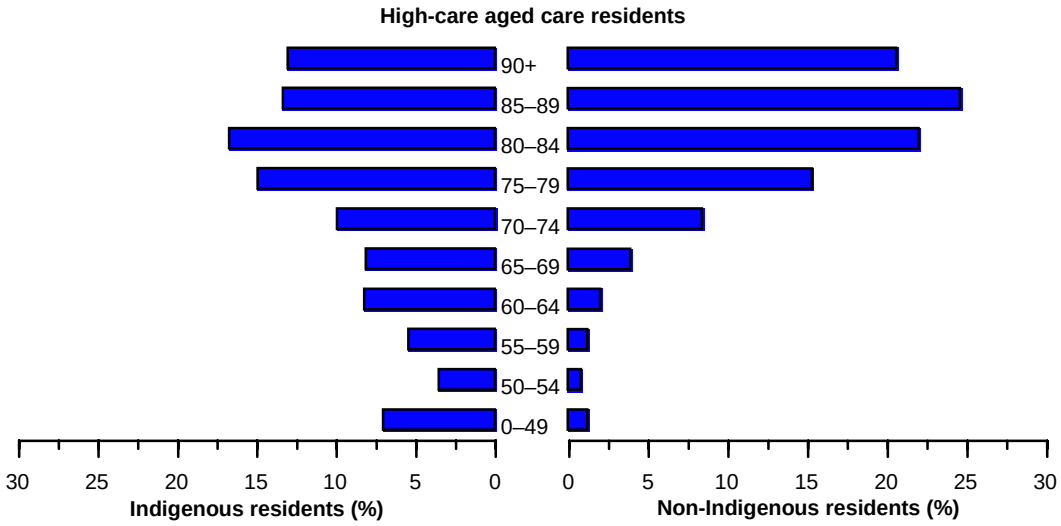
The Aboriginal and Torres Strait Islander community have a much younger age structure than the rest of the population due to higher fertility and high mortality rates. If Aboriginal and Torres Strait Islander people used aged care services at the same ages, and at the same rate as non-Indigenous people then the young age structure means that there would be a lower overall per person usage of aged care. The number of Indigenous high-care recipients per 1,000 Indigenous persons would be 0.8 compared with the rate per 1,000 non-Indigenous persons of 4.2—that is, one-fifth of the non-Indigenous rate. However, Aboriginal health status is generally poorer than that of the non-Indigenous population at corresponding ages, causing a greater demand for aged care services at younger ages.

This trend is illustrated in Figure A4.1, where the age structure of Aboriginal and Torres Strait Islander residents compared with non-Indigenous aged care residents is

shown. Use of high-care residential aged care services at younger ages in the Aboriginal and Torres Strait Islander community contrasts with the non-Indigenous population, where the majority of high-care residential aged care services are provided to persons over the age of 75 (Figure A4.1).

Table A4.3 shows that in each of the specific age groups there is a greater rate of aged care usage per 1,000 population by Aboriginal and Torres Strait Islander people than by the non-Indigenous population. For example, among people aged 65–74 years there are 14.4 Aboriginal and Torres Strait Islander people per 1,000 receiving high-care residential aged care, compared with 7.4 non-Indigenous people per 1,000 population.

However, overall, because of age structure differences, utilisation of high-care residential aged care per 1,000 people for Aboriginal and Torres Strait Islander people is lower at 1.4 than the 4.2 per 1,000 non-Indigenous persons.



(a) Relates to the 'health' component of residential aged care homes, residential classification scales 1 to 4.

Notes

1. Utilisation numbers are based on resident numbers at December 1998.
2. Utilisation of Flexible Care Services has not been included, as demographic information about these residents is not known.

Source: AIHW analysis of DHAC unpublished residential care data.

Figure A4.1: High-care residential aged care[(a)] utilisation, age profiles of Aboriginal and Torres Strait Islander and non-Indigenous persons, Australia, December 1998 (%)

The total number of residents in aged care homes at December 1998 was 79,867, with Aboriginal and Torres Strait Islander people comprising 0.7%—597 people (Table A4.2). The proportion of Aboriginal and Torres Strait Islander persons varies greatly by jurisdiction. In the Northern Territory around 37% of residents in aged care are Aboriginal and Torres Strait Islander persons.

Table A4.2: Residents in high care in residential aged care homes[(a)], by State, December 1998

	Aboriginal and Torres Strait Islander people		Non-Indigenous people	
State	**Number of residents**	**Per cent total**	**Number of residents**	**Per cent total**
New South Wales	149	0.5	30,104	99.5
Victoria	41	0.2	18,490	99.8
Queensland	155	1.1	14,442	98.9
Western Australia	128	2.1	6,096	97.9
South Australia	30	0.4	7,592	99.6
Tasmania	9	0.4	2,250	99.6
Aust. Capital Territory	3	0.4	754	99.6
Northern Territory	83	37.3	139	62.7
Australia	**597**	**0.7**	**79,867**	**99.3**

(a) Relates to the 'health component' of residential aged care homes, residential classification scales 1 to 4.

Note: Utilisation of Flexible Care Services has not been included.

Source: AIHW analysis of DHAC unpublished residential care data.

Table A4.3: Rates of usage of high-care residential aged care[(a)] by Aboriginal and Torres Strait Islander people and non-Indigenous Australians, by age group, as at 30 June 1999

Age group	Number of Indigenous high-care recipients per 1,000 Indigenous persons	Number of non-Indigenous high-care recipients per 1,000 non-Indigenous persons	Ratio
1–49	0.11	0.07	1.60
50–64	3.65	1.11	3.30
65–74	14.44	7.41	1.95
75+	103.13	63.91	1.61
All ages	**1.42**	**4.20**	**0.34**

(a) Relates to the 'health component' of residential aged care homes, residential classification scales 1 to 4.

Notes

1. Utilisation of Flexible Care Services has not been included.
2. Number of records omitted due to missing data: 7,718.

Source: AIHW analysis of Department of Health and Aged Care unpublished residential care data.

The lower utilisation by Aboriginal and Torres Strait Islander people, as outlined above, is reflected in the lower average expenditure per person on residential aged facilities for Aboriginal and Torres Strait Islander people compared with non-Indigenous people (Table A4.4).

The per person health component of Commonwealth recurrent expenditure on residential aged care homes for Aboriginal and Torres Strait Islander and non-Indigenous people is illustrated below in Table A4.4. Total populations have been used to determine the rates per person and the ratio. The per person expenditure for

Indigenous persons is represented both with the inclusion of Flexible Care Services ($3,720,899), and without. The difference due to Flexible Care Services in some States is marked; for example, in South Australia the per person expenditure increased from $37 to $115 per person. Overall the per person expenditure for Aboriginal and Torres Strait Islander people rose from $49 to an average of $64 per person.

The ratio of 2.25 for Northern Territory is indicative of the different population structure in this Territory—that is, a higher concentration of Aboriginal and Torres Strait Islander people in the Northern Territory and the younger age structure of the non-Indigenous population. All other States show a lower ratio of expenditure on high-care residential aged care for Aboriginal and Torres Strait Islander people relative to non-Indigenous people.

An Australia-wide ratio of 0.45 for recurrent health expenditure on residential aged care homes is greater than the Australia-wide ratio of 0.34 for use of high-care services in residential aged care homes for Aboriginal and Torres Strait Islander people relative to non-Indigenous people.

Table A4.4: Commonwealth recurrent health funding for high care in residential aged care homes[(a)] per person, 1998–99

State	Indigenous $	Indigenous (including Flexible Care Services) $	Non-Indigenous $	Ratio Aboriginal and Torres Strait Islander/Other
New South Wales	47	53	162	0.33
Victoria	44	73	138	0.53
Queensland	42	57	124	0.46
Western Australia	71	71	108	0.65
South Australia	37	115	164	0.70
Tasmania	18	29	174	0.17
Aust. Capital Territory	54	54	81	0.67
Northern Territory	63	79	35	2.25
Australia	**49**	**64**	**142**	**0.45**

(a) Relates to the 'health' component of residential aged care homes, residential classification scales 1 to 4.

Source: AIHW analysis of Department of Health and Aged Care unpublished residential care data.

Appendix 5: Hospital morbidity costing method and under-identification studies

Hospital morbidity costing method

In the first report on expenditure on health services for Aboriginal and Torres Strait Islander people, hospital costs were estimated using a methodology developed for the Disease Costs and Impact Study, a joint project of the Australian Institute of Health and Welfare (AIHW) and the Centre for Health Program Evaluation. (See sections A1.11 to A1.20 in the first report for a detailed description of this methodology.) The second report uses a modified version of this methodology, which more fully takes account of differences in costs between hospitals.

The proportions of total public acute hospital expenditure which relate to admitted patients are given by the admitted patient fractions estimated by each State and Territory and published in *Australian Hospital Statistics*.

The hospital morbidity costing method estimates acute hospital admitted patient costs by apportioning the total admitted patient expenditure to individual episodes of hospitalisation with an adjustment for resource intensity of treatment for the specific episode (using Diagnostic Related Groups (DRGs)) and length of stay.

Length of stay adjustment within DRGs

All episode costs are adjusted for length of stay. The method estimates the cost of days for a hospital episode as proportional to the DRG weight for that episode. An additional adjustment is made for length of stay to reflect the fact that some components of the cost of the episode (for example, ward nursing care and meals) are proportional to length of stay, whereas other costs are more or less independent of length of stay (for example, theatre costs for a surgical DRG) (see Box A5.1). On average, around 75% of the episode cost varies with the length of stay across all DRGs. For particular DRGs, such as surgical DRGs, the proportion that varies with length of stay will be lower.

Box A5.1: Assumed variation of DRG cost components by length of stay within DRG

Assumption	*Component*
Independent of length of stay	*Prostheses* *Emergency Departments* *Critical Care* *Operating Rooms* *Specialised Procedure Suites*
Proportional to length of stay	*Ward Medical* *Ward Nursing* *Pathology* *Imaging* *Allied Health* *Pharmacy* *Medial and Surgical Supplies* *On Costs* *Hotel* *Depreciation*

Scaling to adjust for actual admitted patient costs of each hospital

The total expenditure for each hospital in which patients are treated is known. The overall admitted patient expenditures of the hospital are sometimes greater than the DRG State weights would imply. In these cases the costs for all patients using these hospitals is adjusted upwards. For those hospitals which are cheaper than the DRG State weights would imply, the costs for all patients using these hospitals is adjusted downwards.

This last adjustment is particularly important in ensuring that the costs of patients by region are estimated accurately. The size of these scaling factors varies by a substantial amount with the per episode model. The adjustment varied from 58 to 0.09 but the 5th percentile was 0.39 and the 95th percentile was 2.07. The third quartile was 1.17, the median 0.97 and the first quartile 0.78.

Treatment of sub- and non-acute patients

For sub- and non-acute patients, where there are no DRG weights, the most recent data on costs is the July to December 1996 Sub- and Non-Acute Patient (SNAP) Study. Per diem costs are applied and inflated to 1998–99 estimates using the implicit price deflator for final government consumption expenditure on hospital and nursing home care (AIHW 2000b).

Overnight per diem costs after scaling are as follows:

- overnight per diem costs for rehabilitation—$315.10
- overnight per diem costs for palliative care—$272.18
- overnight per diem costs for maintenance care—$199.95.

Table A5.1: Cost per sub- and non-acute patient episode by sub- and non-acute episode type, scaled to 1998–99 ($)

	Ambulatory				Ambulatory total	Ambulatory per diem
	Overnight	Same day	Outpatient	Community		
Palliative care	4935.33	812.89	448.61	807.88	573.67	99.45
Rehabilitation	6386.21	1910.36	939.34	669.01	922.27	103.64
Psychogeriatric	9159.07	7099.78	157.98	296.16	216.7	55.48
Geriatric evaluation and management	5092.04	1546.43	324.07	326.98	338.13	86.89
Maintenance care	6353.87	979.59	363.73	597.91	553.78	51.3

Investigations of reporting accuracy

Estimations of under-identification of Aboriginal and Torres Strait Islander people in 1998–99 hospital records were informed by a variety of evidence. Details of main studies to emerge since the 1995–96 report are outlined below. Final estimates of under-identification are outlined in Chapter 4 of this report.

The ABS & AIHW study of 1998

This is the only study specifically designed to measure the accuracy of Aboriginal and Torres Strait Islander identification in hospital data beyond a single state and one with a clear-cut methodology. It sampled admissions to 12 hospitals in 1998—three in the Northern Territory, five in South Australia, two in the Australian Capital Territory and one each in Victoria and Queensland. New South Wales and Western Australia were not represented. The results were not intended for use in estimating under-identification generally and they have not been used for that purpose. However, they are relevant to a number of identification issues.

Accuracy of identification was measured by comparing the data held in the hospitals' records with information re-collected by independent interviewers (Aboriginal and Torres Strait Islander and non-Indigenous) while the patients were still in hospital. Hospital record numbers or unit record numbers were used for matching. The interviewer was passive in the sense that the project was presented as a check on data quality only, with the patient being effectively asked the same question which they had been asked (or should have been asked) on admission. To put the accuracy of Aboriginal and Torres Strait Islander identification into context, the questionnaire also collected details of gender, country of birth, date of birth and place of residence, which had also been recorded on admission.

The results were as follows:

- Of 8,269 patients involved, Indigenous status was recorded in 8,157 cases. In 110 cases Indigenous status was recorded as 'unknown' in the hospital records and there were two patients who were not recorded at all.

- Of the 8,157 patients for which the hospital records included Indigenous status, 564 (6.9%) were recorded as Aboriginal and Torres Strait Islander. Only seven of these were shown not to be Indigenous at interview. Coding error was responsible.
- At interview, 635 of the patients with complete hospital records identified themselves as Aboriginal and Torres Strait Islander (7.8%). A further 13 were identified within the 'unknown' group (11.7%).
- There were therefore only 85 errors in the hospital records—78 false negatives and 7 false positives. Of those identified as Aboriginal and Torres Strait Islander by the hospitals, 98.8% were correctly classified; and of all those subsequently identified at interview, the hospitals had already identified 88.8%. Overall identification (including the unknown category) was a little lower, but if the common practice of allocating unknowns according to the 'known' proportions had been followed, the reported hospital data would have understated the 'real' number of Aboriginal and Torres Strait Islander admissions by only 11.6%.
- Even within this relatively high identification rate, there were significant differences by area. For hospitals in whose catchment area around 15% or more of the population were Aboriginal and Torres Strait Islander, the rate of correct identification was 94.4%. In hospitals serving lower proportions of Aboriginal and Torres Strait Islander people it was only 66.4%.

As might be expected from a sample with well over the average proportion of Aboriginal and Torres Strait Islander admissions and dominated by hospitals from two States for which our original estimates of under-identification were low (zero in the Northern Territory and 10% in South Australia), these are much higher levels of identification than is commonly presumed elsewhere. They also imply extraordinary levels of reliability in hospital record keeping. Just over 1% of all patients was inaccurately identified and then quite probably because some of the patients' answers changed. How this compares with other hospital recording is unknown. However, there are some indicators of underlying error in that, to check the accuracy of data recording generally in these hospitals, the ABS & AIHW study verified some additional patient information as well. Of those items, the one most comparable with race was country of birth. People born overseas are a minority—though a much larger one than Aboriginal and Torres Strait Islander people. There is a similar likelihood of error in records completed by staff rather than patients and there might also be some unwillingness to reveal it under certain circumstances.

In fact, the results for country of birth were quite different:

- In the hospital records 1,898 patients were recorded as overseas born, 23% of the 8,247 people for whom this information was recorded (only 22 unknowns);
- At interview, 1,906 were so identified (plus 7 of the unknowns).
- At the aggregate level, birthplace recording in hospital records was therefore 99.6% correct. However, there were 106 individual mistakes in the birthplace data at a rate which, relative to the majority population, was not much different from that by Aboriginality (1.6% and 1.1% respectively). The difference was that the errors in birthplace recording were unbiased, whereas those for Indigenous status were almost entirely on the false negative side.

In effect, this study of Aboriginal and Torres Strait Islander identification measured the different results obtained when the same question was asked of the same patients by different staff, at different times and in different settings—that is, before admission and in a specific survey while in hospital. There might be several reasons for this—for example, recording error, patients not having been asked before, lowered apprehension, different perceptions of consequences. Recording error *per se* seems to have been very low in these hospitals but the evidence elsewhere is different and the extent to which the results can be generalised depends on the relative importance of each factor. However, if the later identification is always believed to be correct, the net effect is all that matters. In this case it was, on average, an increase of about 13% over the initially recorded number of Aboriginal and Torres Strait Islander patients (equivalent to 11.6% under-identification).

Victorian Department of Human Services surveys of Aboriginal and Torres Strait Islander identification in high hospital users

The Koori Health Unit in the Victorian Department of Human Services has recently carried out several surveys of the accuracy of identification amongst people who have been hospitalised several times and recorded by the hospitals as Aboriginal and/or Torres Strait Islander on at least one occasion. The initial study, covering over 18,000 admissions over 5 years in hospitals, showed very low levels of consistency. However, it included hospitals which were known to have made gross errors in coding. For example, one major hospital had coded all admissions as Aboriginal and/or Torres Strait Islander for a month. A more limited subset drawn from hospitals, which did not make such gross errors, has since been analysed. (The published morbidity data for the years up to but excluding 1998–99 included these gross errors. Thus Victorian morbidity data on Indigenous status prior to 1998–99 must be treated with particular caution.)

The data in the more limited subset came from 4,342 admissions between 1994 and 1998 for 571 people who were:

(a) admitted at least twice during that period, and

(b) recorded as Aboriginal and/or Torres Strait Islander at least once.

Patients were linked through individual hospital records in the Victorian Inpatient Morbidity Data (VIMD) system and such additional information as date of birth and Medicare numbers. The accuracy of identification was assessed from hospital records, not patient inquiry, using whatever information was available in the hospital files (including the consistency of identification over multiple episodes). Patients were grouped into the five categories of:

- definitely Aboriginal, where sufficient evidence allowed that conclusion;
- probably Aboriginal, where the balance of probabilities supported it;
- uncertain, because of insufficient or conflicting evidence;

- probably not Aboriginal, again on the balance of evidence; and
- not Aboriginal.

Hospital admissions for each group were then analysed according to whether they were recorded by the hospitals as Aboriginal and/or Torres Strait Islander or non-Indigenous on each occasion. The results are shown in Table A5.2.

Table A5.2: Hospital admissions and identification by Aboriginal groupings, 1994–98

		Number of admissions		
		Hospital identification		
Indigenous status	**No. of persons**	**Indigenous**	**Non-Indigenous**	**Total**
Aboriginal	51	212	38	250
Probably Aboriginal	76	169	161	330
Uncertain	196	415	1,264	1,679
Probably not Aboriginal	144	187	1,223	1,410
Not Aboriginal	104	147	526	673
Total	**571**	**1,130**	**3,212**	**4,342**

Source: Victorian Department of Human Services, Koori Health Unit.

If these classifications were correct, the inferences are that:

- for people classified as definitely or probably Aboriginal, 381 admissions were correctly identified as Aboriginal, with 199 incorrectly identified as non-Aboriginal (false negatives) or 34.4% of the correct figure;
- for people classified as definitely or probably not Aboriginal, 1,749 admissions were correctly identified as such, with 334 wrongly recorded as Aboriginal (false positives) or 16% of the correct figure; and
- taken together, the net result was 135 false positives, 18.8% of the 715 Aboriginal admissions recorded for these categories.

The 'uncertain' group, covering nearly 39% of all admissions, could be interpreted in several ways. It presumably included a mixture of people with characteristics of both the other groups, in which case the reported Aboriginal and Torres Strait Islander figures might actually be correct; or, alternatively, the same proportion of net over-identification could be assumed for it. In the first case the 'correct' number for all Aboriginal and Torres Strait Islander admissions would be 995 (580+415) or 88% of the reported figure, in the second case 917 (580+337) or 81% of the number identified by hospitals.

Because this was far from a 'gold standard' methodology, the differences in estimated over-reporting are probably irrelevant. The classification was to some degree subjective. Hospitals were assessed for accuracy of reporting using other sources of information, and identification at a hospital with a high rating was used to judge the accuracy of identification of the same patient at other hospitals. One of the hospitals was rated very highly because it participated in the ABS & AIHW study and was judged to have 100% accuracy. The accuracy of patient record linkage must also be uncertain, given the absence of a unique and universal identifying number,

particularly when linkage is attempted over 4–5 years (see discussion of some New South Wales results below). However the survey raises some very important issues, namely that the extreme accuracy of hospital recording implicit in the ABS & AIHW study may not be true in all conditions and that the widely held assumption that all identification errors must lead to under-statement in the reported figures is not necessarily correct. Over-statement must be possible in large States with very low proportions of Aboriginal and Torres Strait Islander people in their populations where even very low rates of random recording error for non-Indigenous people can swamp any systematic understatement on the Aboriginal and Torres Strait Islander side. Victoria, where only about 1% of admissions might be expected to be Aboriginal, must be particularly vulnerable to such error. Even in New South Wales, where only 1.8% of the population are estimated to be Aboriginal, any record-based assessment of accuracy must also be suspect. Only direct and patient-centred sample surveys of the ABS & AIHW kind would give reliable results.

Despite these reservations, the Koori Unit surveys are the only available indicators of possible under-identification in Victoria and we have used some aspects of them in the estimation of under-enumeration reported later.

New South Wales Health Department patient linkage studies

As part of a broader estimation of possible under-identification, the New South Wales Department has used a technique for linking individuals within the Hospital Morbidity Data Collection. Like the Victorian study, it selects admissions for individuals who have been identified as an Aboriginal and/or Torres Strait Islander person on at least one admission in a year. Other linked admissions not identified as Aboriginal are then used as a measure of under-identification. The results for 1997–98 suggested that, for multiple admissions in a year, 12% of Aboriginal and Torres Strait Islander admissions were not identified. It implied an upward adjustment (for this category) of about 13% to the reported figures. As in the ABS & AIHW study, under-identification was much higher in the metropolitan hospitals—where the proportion of Aboriginal and Torres Strait Islander patients was very low—than in the remote areas where it was high. It was also higher for patients treated outside their local area.

The New South Wales estimate is likely to have some upward bias because, overall, the linkage technique overstates the total number of individuals using the public hospital system by about 35%. It therefore fails to correctly match some admissions with people. Because records are linked for one year only, there should be less random error than in the Victorian survey where linkage over a number of years is more likely to accumulate matching mistakes. However, the methodology assumes that every identification of an admission as Aboriginal and Torres Strait Islander must automatically be correct, and it adjusts all of the other data for that person accordingly. In other words, no false positives are contemplated, although the Victorian survey shows that it is possible and there is no clear evidence of the extreme accuracy in record keeping which was demonstrated in the ABS & AIHW study.

Future plans to assess identification

During 2001–02, a project funded by the Australian Health Ministers' Advisory Council (AHMAC) will be conducted in States and Territories to monitor the completeness and coverage of Indigenous identification in hospital separations records. The work plan is designed to include a data quality audit and an assessment of data collection practices. The audit will use a methodology which has been tested and evaluated for this purpose. The data will be collected through a sampling frame that will cover the breadth of hospital service delivery in all States and Territories, and will be in line with the established method. In addition to the audit, an assessment of hospitals data collection practices will be undertaken on the extent to which non-threatening recording methods are being used.

The work will be coordinated as an independent exercise by the Aboriginal and Torres Strait Islander Health and Welfare Information Unit, a joint work program of the Australian Bureau of Statistics and the AIHW. The project builds on work undertaken since 1999, promoting best practice and providing central health authorities and hospitals with promotional material, training and ongoing support in the collection of Aboriginal and Torres Strait Islander status information in patient records.

Appendix 6: Methodology for estimating Aboriginal and Torres Strait Islander expenditure through State and Territory programs

New South Wales

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

Data for New South Wales were compiled at the area health service level and can be split into metropolitan, rural and remote regions. Three sets of estimates of recurrent expenditure for Aboriginal and Torres Strait Islander people were derived by New South Wales based on alternate assumptions of under-identification. The 'medium' estimates of expenditure are presented in this report, and this gives a total of $211.3m. The 'high' assumptions give an estimate 9% higher of $230m and the 'low' assumptions gave an estimate 7% lower of $196m.

The New South Wales Health Department provided detailed data for this project. A number of adjustments were made by AIHW; the methodology is described below.

Acute-care admitted patient services

Separations for Aboriginal and Torres Strait Islander patients were adjusted firstly for under-identification. Based on estimates from linked data analysis for each of the Area Health Services, the identified separations were first increased by 13% (State average). Then in addition to this under-identification it was clear there was additional under-identification that the linked data analysis was not picking up. This was modelled using low, medium and high expansion factors of 15%, 20% and 25%. For the medium estimate this led to a 36% expansion factor which is 27% under-identification. In addition the data linkage estimated that cases not being identified tended to have a higher cost weight, so the under-identification was increased to 30%. The low and high under-identification estimates used in the sensitivity analysis described above were based on the 15% and 25% expansion factors.

Further adjustment was made based on an assumption of 5% higher costs for Aboriginal and Torres Strait Islander patients across all Diagnostic Related Groups after adjusting for casemix.

A similar methodology was applied to nursing home type patients although based on bed days rather than cost-weighted separations. The assumption of additional costs for Aboriginal and Torres Strait Islander patients was not applied in this case.

Acute-care non-admitted patient services

For outpatient services, this was based on the Aboriginal and Torres Strait Islander share of total separations adjusted for under-identification, i.e. 3.2%. For emergency department services, a 1998 survey which indicated that 1.65% of weighted presentations were for Aboriginal and Torres Strait Islander people was used. This was then adjusted for under-identification to give a proportion of 2.3%.

Mental health institutions

This was based on recorded bed day usage by Aboriginal and Torres Strait Islander patients and adjusted for under-identification. This gave an estimated 4.1% of mental health institution bed days for Aboriginal and Torres Strait Islander people.

High-care residential aged care

It was assumed that the utilisation rate for Aboriginal and Torres Strait Islander residents in State Government high-care residential aged care was the same rate (1.9%) as for the New South Wales residential aged care sector as a whole.

Patient transport

The proportion of total patient transport expenditure accruing to Aboriginal and Torres Strait Islander people was assumed to be similar to that for cost-weighted hospital separations after adjusting for under-identification.

Costs for Aboriginal and Torres Strait Islander people under the Isolated Patients Travel Assistance and Accommodation Scheme (IPTAAS) were based on the proportion of payments accruing to Aboriginal and Torres Strait Islander people derived from a 1998 survey of IPTAAS claims.

Community and public health services

Community health services (not elsewhere classified) includes a combination of expenditure on Aboriginal and Torres Strait Islander specific community health programs (under the State's Aboriginal health services program); and also includes mainstream funding apportioned on the basis of population at the area health service level. Expenditure on the Red Cross Blood Transfusion Service was based on cost-weighted separations with an adjustment only for under-identification, not additional cost.

Dental services expenditure was calculated based on Aboriginal and Torres Strait Islander people as a proportion of the local population for each area health service multiplied by area health service expenditure.

Community mental health was calculated as a combination of spending targeted specifically at Aboriginal and Torres Strait Islander people plus mainstream funding apportioned on the basis of population at the area health service level.

Public health covered a combination of funding targeted specifically at Aboriginal and Torres Strait Islander people plus a component of mainstream expenditure apportioned on the basis of population at the area health service level. The

Aboriginal and Torres Strait Islander specific expenditures were grants for HIV/AIDS programs and alcohol and drug treatment services.

Health research

This was based on the Aboriginal and Torres Strait Islander proportion of the State's total population.

Health administration

Health administration expenditure was estimated based on an average of an allocation according to population and an allocation according to programs. The overall proportion across all programs (excluding administration) is 2.9%, while the population proportion is 1.8%. These were averaged and applied to total administration costs.

Other explanatory notes

Three alternative figures for State-level expenditure were provided by New South Wales. The AIHW decided to use a gross expenditure approach in accord with Australian Bureau of Statistics Government Finance Statistics conventions. This is different from the Commonwealth Grants Commission approach (which was used by New South Wales Health) whereby all revenues other than patient fees are netted off against gross expenses.

Apportioning expenditure by area (ABS Government Purpose Classification) has been based on the 1998–99 New South Wales unaudited annual returns (UAR) for each area health service.

Victoria

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

The Victorian Department of Human Services (DHS) provided the data on which the figures in Table 5.2 are based, with a number of adjustments made by AIHW. The DHS identified expenditures accruing to Aboriginal and Torres Strait Islander people via key word searches (e.g. Koori, Aboriginal, Indigenous) of the Department's grants database. This was in addition to expenditure on acute-care admitted patient services and a number of specific Aboriginal and Torres Strait Islander programs run by the Koori Health Unit and other areas of the Department.

There are five Aboriginal and Torres Strait Islander specific health activities in Victoria, some of which are managed by the Koori Health Unit. These activities are as follows:

- Koori maternity enhancement
- Koori community resource centres
- Koori community alcohol and drug worker

- Koori Health Unit
- Aboriginal hospital liaison officers program.

Depreciation expenses are not included in the data below.

Acute-care admitted patient services

An adjustment by AIHW was made for under-identification of 25% based on an analysis of the Department's study of the correctness of identification in the Victorian in-patient minimum database (VIMD). The AIHW estimate of expenditure on admitted patient services in acute-care hospitals for Aboriginal and Torres Strait Islander people based on the hospital morbidity costing model with a 5% cost loading was $19 million.

Within the hospital sector there have been significant data developments more recently. One such example—surveys undertaken by the Koori Health Unit to assess the accuracy of identification amongst people who have been hospitalised several times—is documented in Appendix 5, in the section entitled 'Investigations of reporting accuracy' (p.150).

Acute-care non-admitted patient services

Expenditures for 'accident and emergency' and 'non-admitted patients' have been allocated to Aboriginal and Torres Strait Islander people in proportion to the expenditure on admitted patient services.

Mental health institutions

Victorian expenditure on institutional mental health care is included in admitted patient services for acute-care institutions.

High-care residential aged care

The Aboriginal and Torres Strait Islander share of State Government high-care residential aged care facility expenditure was estimated from the Koori proportion of high-intensity aged care service for all Victorian aged care residential facilities.

Community health services

Detailed information about specific Koori community health service expenditure was available, and this was estimated to be $1.9m. In addition, it was assumed that 0.5% (the Koori population proportion) of mainstream community health services were for Koori people ($1.5m).

Dental services

It was assumed that 0.5% of dental services were for Koori people ($0.3m).

Community mental health

This was estimated in the same way as 'community health services'. Specific Koori community mental health service expenditure was estimated to be $1.4m. The expenditure for Koori use of mainstream services was assumed to be $1.1m.

Patient transport

This expenditure was allocated according to the share of admitted patient expenditure estimated for Aboriginal and Torres Strait Islander people (0.77%).

Public health

This was based on data about specific Aboriginal and Torres Strait Islander programs with a public health focus.

Health research

Research expenditure was allocated to Koori people in proportion to the Koori population (0.5%).

Health administration

Administration is included with program costs and cannot be separately identified. There is therefore no health administration category in the tables. DHS estimated administration for Aboriginal and Torres Strait Islander people to be 3% of recurrent funding. The Koori-specific activities (except for Koori maternity enhancement) were an exception as recurrent costs were already included in the administration, so the 3% corporate services allocation was not applied.

Queensland

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

The figures in Table 5.3 are based on data provided by the Queensland Health Department with a number of adjustments made by AIHW in some areas of expenditure. The methods are described below.

Acute-care admitted patient services

Queensland estimated the proportion of cost-weighted separations for Aboriginal and Torres Strait Islander patients to all cost-weighted separations, with an adjustment for under-identification based on the assumption that 80% of Aboriginal and Torres Strait Islander patients are correctly identified in the Queensland hospital admitted patient data collection. This was based on surveys from selected Queensland hospitals and small area analysis of recording of Indigenous status for hospital separations.

The AIHW estimate of expenditure on admitted patient services in acute-care hospitals for Aboriginal and Torres Strait Islander people based on the hospital morbidity costing model with a 5% cost loading was $119 million.

(Note that the assumed level of identification of Aboriginal and Torres Strait Islander people for 1995–96 was 85%, which was based on an average of 70% identification in urban areas of the State and complete identification in rural and remote areas.)

Acute-care non-admitted patient services

This figure was derived from the sum of expenditure on non-admitted patient services in acute-care hospitals servicing specific Aboriginal and Torres Strait Islander communities, in addition to 4.9% of the expenditure on acute-care non-admitted patient services in all other hospitals, which gives a proportion overall of 8.9%. The proportion of cases identified as Aboriginal and Torres Strait Islander in emergency departments within sentinel sites across metropolitan, rural and remote areas in 1999 was 4.9%.

Mental health institutions

This was based on expenditure on specific programs for Aboriginal and Torres Strait Islander people and the estimated expenditure of Aboriginal and Torres Strait Islander people accessing mainstream services.

High-care residential aged care

Expenditure was allocated according to the proportion of high-care residential aged care facility residents identified as Aboriginal and Torres Strait Islander.

Patient transport

The portion of expenditure funded by Queensland Health was estimated by taking district expenditure multiplied by the proportion of the district population who are Aboriginal and Torres Strait Islander. The balance, which was expenditure funded by Queensland Emergency Services (QES), was estimated by multiplying total QES net expenditure by the overall population proportion of 3.2%.

Community and public health services

Community health services not elsewhere classified were estimated by AIHW by assuming the same proportion as for acute-care non-admitted patient services, i.e. 8.92%.

Dental services were based on the proportion of courses of care for Aboriginal and Torres Strait Islander people in public sector dental clinics during 1997 and 1998, which was 3.1%.

Community mental health was based on expenditure on specific programs for Aboriginal and Torres Strait Islander people and estimated expenditure on Aboriginal and Torres Strait Islander people in mainstream services. The funding proportion applying to Aboriginal and Torres Strait Islander people is the same as for mental health institutions, i.e. 8.67%.

Public health expenditure was derived from a proportion of 9.62% applied to part of public health services expenditure and the Aboriginal and Torres Strait Islander population proportion applied to all other public health funding.

Health research

This was based on the Aboriginal and Torres Strait Islander proportion of the State's population.

Health administration

This was calculated according to an Institute estimate based on an average of an allocation according to population and an allocation according to programs. The overall proportion across all programs (excluding administration) is 7.6%, while the population proportion is 3.2%. These have been averaged and then applied to total administration costs.

Other explanatory notes

As funding is allocated according to districts and not specifically to Aboriginal and Torres Strait Islander people, there is some degree of inaccuracy in the attribution of health expenditures to Aboriginal and Torres Strait Islander people.

Revenue excludes administered revenue, Commonwealth specific purpose payments and grants from industry bodies.

Western Australia

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

Most data, except for the allocation of health administration expenses and admitted patient expenses, are as reported by the Health Department of Western Australia (HDWA), but with an adjustment for accrual costs.

Recurrent expenditure represents the total gross operating expenditure, and as such may include some capital expenditure.

The Institute made an adjustment for accrual costs so that the 1998–99 numbers are more comparable with the 1995–96 cash numbers. This adjustment reduces the original Western Australia 1998–99 expenditures by 8%.

The general methodology adopted by HDWA to estimate the Aboriginal and Torres Strait Islander cost component was as follows:

- a definition of health outlays was formulated which would allow for an acceptable fit with the ABS GPC categories;
- a description of utilisation in terms of population, morbidity and outpatient activity was formulated; and
- a relevant unit costing used for the output measures.

The first phase involved generating expenditure by program (and by area, for example acute-care institutions, high-care residential aged care homes) using information provided by each health service for 1998–99 and an analysis of expenses from the HDWA annual report.

The second phase relied on HDWA utilisation studies. The data was sourced from databases such as the hospital morbidity database to assist with the dissection of expenses defined in phase one.

For most areas of expenditure the allocation of costs to Aboriginal and Torres Strait Islander people was based on population (as expenditure could not be allocated to

individuals), utilisation factors and information sourced from the hospital morbidity database. The proportion of Aboriginal and Torres Strait Islander people to the total population in each health service location was then applied to the total expenditure.

Acute-care admitted patient services

The Western Australia health department allocation of costs to Aboriginal and Torres Strait Islander patients was based on the proportion of Aboriginal and Torres Strait Islander cost-weighted separations to total cost-weighted separations, with a length of stay adjustment. This gave a result very similar to the AIHW estimate of expenditure on acute-care admitted patient services for Aboriginal and Torres Strait Islander people based on the AIHW hospital morbidity costing model. In addition a cost loading of 5% was added to allow for the higher cost intensity of treating Aboriginal and Torres Strait Islander patients.

Acute-care non-admitted patient services

These were estimated using a recent outpatients survey which indicated the proportion of clients who were Aboriginal and Torres Strait Islander. This survey was used in conjunction with hospital morbidity cost data and other sources of unit cost data for outpatients to calculate non-admitted patient expenditure.

Mental health institutions

This was based on the results from the 1998–99 HDWA mental health survey after separating funding for mental health institutions from community mental health spending. The proportion of expenditure apportioned to Aboriginal and Torres Strait Islander people was calculated according to the applicable population and utilisation factors.

High-care residential aged care

This was calculated according to the population share and adjusted for specific utilisation factors applying to Aboriginal and Torres Strait Islander residents.

Patient transport

This was based on the population share and adjusted for utilisation factors applying to Aboriginal and Torres Strait Islander people. Total expenditure was obtained from rural health services, metropolitan hospitals and HDWA funding of ambulance services.

Community and public health services

Community health services not elsewhere classified were based on the proportion of Aboriginal and Torres Strait Islander people to the total population in each health service, applied to total community health services expenditure. It is unclear exactly what utilisation factors have been used.

Dental services was based on the proportion of Aboriginal and Torres Strait Islander people to the total population in each health service, applied to total dental expenditure.

Community mental health was based on the results from the HDWA 1998–99 mental health survey after separating funding for mental health institutions from community mental health spending. The proportion of expenditure apportioned to Aboriginal and Torres Strait Islander people was done according to population and utilisation factors applying to Aboriginal and Torres Strait Islander people.

Public health expenditure was based on the proportion of Aboriginal and Torres Strait Islander people to the total population in each health service, applied to total public health expenditure.

Health research

Total expenditure was sourced from the records of major metropolitan teaching hospitals with the estimated component accruing to Aboriginal and Torres Strait Islander people based on population and utilisation factors.

Health administration

Health administration expenditure was derived from an Institute estimate based on an average of an allocation according to population and an allocation according to programs. The overall proportion across all programs (excluding administration) is 9.3%, while the population proportion is 3.2%. These were averaged and applied to total administration costs.

South Australia

Data quality

The data available in respect of health expenditures by the State Government on services provided to Aboriginal and Torres Strait Islander people is poor. Detailed data with regard to specific Indigenous expenditures were provided but, except for admitted and non-admitted patient services, there were no estimates of expenditure on mainstream health services used by Aboriginal and Torres Strait Islander people. There were also very little data on State Government expenditure on health services by GPC category for the population as a whole.

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

A combination of data sourced from the South Australian Department of Human Services and from the Australian Institute of Health and Welfare (AIHW) Health Expenditure Database was used to derive the estimates of expenditure through the State Government's programs.

The methods used in the estimations are described below.

Acute-care admitted patient services

Expenditure on acute-care hospital admitted patient services for the total State population was estimated by applying an admitted patient fraction of 0.8 to the gross

operating costs of non-psychiatric hospitals in South Australia reported in *Australian Hospital Statistics 1998–99* (excluding depreciation) (AIHW 2000a).

Separations for Aboriginal and Torres Strait Islander patients recorded in the hospital morbidity database were adjusted for under-identification, which was assumed to be 10% (this was the under-identification factor used in the first report). The proportion of admitted patient expenditure that related to Aboriginal and Torres Strait Islander patients was then estimated using the AIHW hospital morbidity-costing model, with a 5% cost loading for the higher cost intensity of treating Aboriginal and Torres Strait Islander people.

Acute-care non-admitted patient services

Expenditure on non-admitted patient services for the total population was estimated by the Institute by subtracting the estimated expenditure on admitted patient services (see above) from gross operating costs of non-psychiatric hospitals in South Australia reported in *Australian Hospital Statistics 1998–99* (excluding depreciation) (AIHW 2000a).

The South Australian Department provided specified Aboriginal and Torres Strait Islander expenditure on non-admitted services, but were not able to provide information on use of mainstream non-admitted services. It was assumed that there was the same expenditure on mainstream services as on specified services.

Table A6.1: Specific non-admitted acute-care services for Aboriginal and Torres Strait Islander people included in South Australia data

Service name	Service name
Mid North—Health Worker	Riverland—Aboriginal Women's Health
Mid North—Cervix Screening	Murray Bridge—Aboriginal Health Worker
Sth East—Cervix Screening	Murray Bridge—Dom. Midwife
Sth East—Health Workers	Aboriginal Immunisation Program
Sth East—Diabetes & Asthma	Inner Southern—Nunga Diabetes
Pt. Augusta—Aboriginal Health Unit	SHINE—Northern Metro Clinics
Pt. Augusta—Aboriginal Health Worker	Ceduna—Cervix Screening
Whyalla—Aboriginal Diabetes Program	Child & Youth Health—Aboriginal Health Workers
Whyalla—Aboriginal Paediatrician Program	Northern Metro—Cervix screening
Riverland—Aboriginal Health Workers	Northern Metro—Young Nunga Mums

Mental health institutions

Estimated expenditure on mental health institutions for the total population of South Australia was taken from the data used in *Australian Hospital Statistics 1998–99* (AIHW 2000a). The number used was the gross operating costs of public psychiatric hospitals, less depreciation.

Expenditure on mental health institution services in respect of Aboriginal and Torres Strait Islander patients was estimated by the Institute by applying the identified mental health institution separation proportion with an adjustment for under-identification of 10%.

High-care residential aged care

Expenditure on government high-care residential aged care in respect of the total population was provided by the State. Aboriginal and Torres Strait Islander expenditure was estimated using the proportion of benefits paid for South Australia high-intensity aged care provided to Aboriginal and Torres Strait Islander people, which was 0.4%.

Patient transport

The Institute estimated expenditure on patient transport for the total population. The figure for 1998–99 was based on the 1997–98 expenditure obtained from the AIHW Health Expenditure Database multiplied by a growth factor of 1% between 1997–98 and 1998–99. The 1% growth factor was the Commonwealth Grants Commission's (CGC's) figure for growth in total health funding for South Australia between the two years (*Source:* Commonwealth Grants Commission, Report on General Revenue Grant Relativities, 2000 update).

Costs for Aboriginal and Torres Strait Islander patients were estimated by applying the admitted patient proportion to total patient transport costs.

Community and public health services

Expenditure on the total population was estimated by the Institute with the figure for 1998–99 based on the 1997–98 expenditure obtained from the AIHW Health Expenditure Database then scaled up by the CGC growth factor.

An estimate of expenditure on community and public health services for Aboriginal and Torres Strait Islander patients was provided by the State. These were only services that were specifically targeted at Aboriginal and Torres Strait Islander populations (Table A6.2).

Table A6.2: Specific community and public health services for Aboriginal and Torres Strait Islander people included in South Australia data

Service name	Service name
Ceduna-Koonibba AHS	Murray Bridge—Community Health
Nganampa Health	Adelaide Central—Aboriginal Health Team
Kalparrin Clinic	Inner Southern—Community Drop In
Pika Wiya Health Service	Inner Southern—Referral Service
Mid-North Social & Emotional Well-Being	Northern Metro—Regional Health Team
Southern Fleurieu—Community Health	Noarlunga Health services—Aboriginal Comm
Murray Bridge—Social Work Support	

Health research

The Institute estimated expenditure on the total population by scaling up the 1997–98 expenditure obtained from the AIHW Health Expenditure Database by the CGC growth factor. Health research for the Aboriginal and Torres Strait Islander population was assumed to be in proportion to the Indigenous population proportion (1.6%).

Health administration

Health administration expenditure was estimated based on an average of an allocation according to population and an allocation according to programs. The overall proportion across all programs (excluding administration) is 3.2%, while the population proportion is 1.6%. These have been averaged and then applied to total administration costs.

Tasmania

Data quality

A major deficiency occurred in relation to expenditure on State Government high-care residential aged care. Advice received indicated that the data provided by the State for 'Aged, rural and community health care' included high-care residential aged care. However, discussions with the Tasmanian department specified that the Tasmanian Government's high-care residential aged care homes are co-located with acute-care institutions and the State's accounting practices make it no longer possible to accurately split expenditure between the different types of care and facilities.

For the purposes of estimating gross expenditure on government high-care residential aged care homes, the establishments data provided for *Australian Hospital Statistics 1998–99* (AIHW 2000a) were used. The only institution whose data appeared to resemble that of a high-care residential aged care facility was Woodhouse in New Town. Therefore, the change in occupied bed-days for Woodhouse between 1997–98 and 1998–99 was used to project forward the 1997–98 expenditure on high-care residential aged care for Tasmania, which was provided by the State department in 1999.

The amount calculated as relating to government high-care residential aged care was deducted from the data provided by the State for 'Aged, rural and community health care'. The balance was assumed to be community health care plus home and community care. The part that would have related to HACC was assumed to be equivalent to the Commonwealth Government's grants to Tasmania for HACC, as reported in the Commonwealth Treasury document *Final Budget Outcome 1998–99*.

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

The figures in Table 5.6 are based on data provided by the Tasmanian Department of Health and Human Services (DHHS). After DHHS consultation a number of adjustments were made by AIHW. The methodology is described below.

Acute-care admitted patient services

The *Australian Hospital Statistics 1998–99* (AHS) data provided information on utilisation by both Aboriginals and Torres Strait Islander populations. It indicated that there were a total of 252 separations in respect of patients who were identified as Aboriginal and/or Torres Strait Islander people. There were a total of 80,517

separations from public hospitals in Tasmania in 1998–99. Almost two-thirds of these separations did not report Aboriginal status. If it was assumed that Aboriginals and Torres Strait Islander people made up the same proportion of the 53,391 separations not reporting Aboriginal status as they did of those reporting Aboriginality, the total number of separations attributable to Aboriginal and Torres Strait Islander people in 1998–99 would have been 750. This represents 0.9% of all separations from public hospitals in Tasmania during 1998–99 and was far lower than would be expected, given that Aboriginal and Torres Strait Islander people make up 3.4% of the Tasmanian population.

In relation to the quality of Aboriginal and Torres Strait Islander status data for hospital morbidity, *Australian Hospital Statistics 1998–99* (AIHW 2000a) noted that 'The Tasmanian Department of Human Services reports that its 1998–99 data were in need of improvement.' For 66% of separations, Indigenous status was not recorded. Therefore, after discussion between AIHW and DHHS it was decided not to use the Aboriginal and Torres Strait Islander data from *Australian Hospital Statistics 1998–99* (AIHW 2000a). Instead, admitted patient services costs were allocated using a distribution formula calculated from a 1997 survey of outpatient services in Tasmanian hospitals. According to that study, 7.1% of outpatient services related to Aboriginal and Torres Strait Islander people.

Acute-care non-admitted patient services

The attribution of expenditure on acute-care non-admitted patient services to Aboriginal and Torres Strait Islander patients was based on the proportion of 7.1%.

Mental health institutions

Neither DHHS nor *Australian Hospital Statistics 1998–99* (AIHW 2000a) identified expenditure on mental health institutions. The costs associated with publicly provided institution-based mental health services have been incorporated in the costs of acute-care institutions.

High-care residential aged care

There are no recent data that identify the Aboriginal status of residents in high-care residential aged care homes. Therefore, the estimation of costs attributable to Aboriginal and Torres Strait Islander people in high-care residential aged care homes operated by or on behalf of the State Government was based on two surveys of similar types of services that were conducted in 1994. These were:

- a Home and Community Care (HACC) survey, conducted over a four-week period; and
- a two-week community options survey.

These surveys indicated that 3.3% of expenditure on aged care services were associated with services provided to Aboriginal and Torres Strait Islander people. That proportion was applied to total government high-care residential aged care facility costs.

Patient transport

Expenditure on patient transport services provided to Aboriginal and Torres Strait Islander people was calculated at 7.1% of total expenditure on patient transport services. This was based on the proportion identified in the 1997 hospital outpatient survey (see 'Acute-care non-admitted patient services' above).

Community and public health services

Community health services not elsewhere classified were calculated by applying the ratio of 5.25% (see below) to the total expenditure on family, child and youth health services plus the balance of expenditure on 'Aged, rural and community health' after estimates of expenditure on high-care residential aged care and HACC (including the Social Security and Welfare components) were deducted.

The formula used to derive the proportional split was:

$$\frac{CHS_{ab}}{1} = \frac{CHS_{tp}}{1} \times \left\{ \frac{\frac{pop_{ab}}{pop_{tp}} + \frac{OpSC_{ab}}{OpSC_{tp}}}{2} \right\}$$

Where:
CHS_{ab} represents total admitted patient costs related to Aboriginal and Torres Strait Islander people,
CHS_{tp} is total admitted patient costs for the total population of Tasmania,
pop_{ab} is the Aboriginal and Torres Strait Islander population of Tasmania,
pop_{tp} is the total population of Tasmania.
$OpSC_{ab}$ is the estimation of costs for outpatient services attributable to Aboriginal and Torres Strait Islander people resulting from a 1997 survey carried out by DHHS in the outpatient departments of three major public hospitals—Royal Hobart, Launceston General and North-West Regional.
$OpSC_{tp}$ is the estimation of total costs for all outpatient services resulting from a 1997 survey carried out by DHHS in the outpatient departments of three major public hospitals—Royal Hobart, Launceston General and North-West Regional.

By adopting that formula, it was recognised that Aboriginal and Torres Strait Islander people used outpatient services at a greater rate than the general population. However, their rate of utilisation of Government-provided community health services, while higher than that of the general community, was lower than their rate of use of public hospital outpatient services.

The Aboriginal and Torres Strait Islander proportion of outpatient services costs from the 1997 Tasmanian non-admitted patient services survey was 7.5%. Adoption of the formula resulted in 5.25% of total admitted patient costs being allocated to Aboriginal and Torres Strait Islander patients in Tasmania.

Dental services estimated expenditure provided to Aboriginal and Torres Strait Islander people was based on the proportion (0.2%) of adult dental clients identified in the Department's state-wide dental services database in 1995–96 as Aboriginals and/or Torres Strait Islander people.

Community mental health expenditure was hampered by a lack of suitable Aboriginality indicators for community-based mental health services. As a consequence, estimated expenditure was calculated using a similar proportion (5.25%) to that applied in respect of general community health services.

Public health expenditure was calculated using several different methods to determine the Aboriginal and Torres Strait Islander proportion of estimated expenditure on public health services according to the particular program involved.

The attribution of costs in respect of public and environmental health services, scientific services and the health and well-being program was calculated using the same proportions as those applied in respect of community health services (5.25%).

In the case of cancer screening, the share of costs related to Aboriginal and Torres Strait Islander clients were assumed to be similar to the proportion of Aboriginal and Torres Strait Islander people in the general population (3.4%).

Finally, the allocation of costs of alcohol and drug services provided to Aboriginal and Torres Strait Islander people was based on the percentage of clients identified as Aboriginal and Torres Strait Islander in the southern region during 1995–96 (3.8%).

Health research

No research activities specifically targeted to Aboriginal and Torres Strait Islander population were identified. Therefore, it was assumed that the benefit from health research would accrue to Aboriginal and Torres Strait Islander people in proportion to their utilisation of mainstream community-based health services. Consequently, the estimates for expenditure on health research activities related to Aboriginal and Torres Strait Islander people were based on the similar proportion (5.25%) to that used in relation to community health services and community mental health services.

Health administration

An Institute estimate based on the average allocation according to population (3.4%) and across all programs excluding administration programs (7.3%) was applied to the total administration costs.

Australian Capital Territory

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

The Australian Capital Territory Department of Health and Community Care provided the data for the figures in Table 5.7 with a number of adjustments made by AIHW. The methodology is described below.

Per person Aboriginal and Torres Strait Islander expenditures and per person non-Aboriginal and Torres Strait Islander expenditures, which have been estimated on the basis of Australian Capital Territory population, are somewhat over-stated as the Australian Capital Territory Government services a larger population than simply the Australian Capital Territory population. An adjustment has been made to admitted patient expenditure data on the basis of morbidity data on State of

residence of patients, but data are not available to make adjustment for other areas of expenditure.

Acute-care admitted patient services

Hospital expenditure pertaining to Aboriginal and Torres Strait Islander patients has been derived on the basis of cost-weighted separations with an Institute adjustment for under-identification of 44%, which is based on the ABS report *Assessing the Quality of Identification of Aboriginal and Torres Strait Islander People in Hospital Data*. Both major Canberra hospitals were included in this survey so the Australian Capital Territory estimate is reasonably reliable. The allocation of other admitted patient services expenditure for the alcohol and drug treatment centre and the postnatal facility is based on population share and then adjusted by the Institute for under-identification. The proportion of Aboriginal and Torres Strait Islander cost-weighted separations to all cost-weighted separations was 2.7% compared with the proportion generated by the AIHW hospital morbidity costing model, which was 0.1%.

The AIHW estimate of expenditure on acute-care admitted patient services for Aboriginal and Torres Strait Islander people was the same as the number provided by the Territory ($4 million).

Acute-care non-admitted patient services

This allocation was based on the number of Aboriginal and Torres Strait Islander outpatient occasions of service for one hospital and on the proportion of cost-weighted separations for another hospital. AIHW has then adjusted for under-identification.

Mental health institutions

The Australian Capital Territory does not have any such institutions.

High-care residential aged care

The Australian Capital Territory does not have any Territory Government-funded residential aged care homes.

Patient transport

This was allocated according to the proportion of the Australian Capital Territory population that identifies as Aboriginal and/or Torres Strait Islander. AIHW estimated total expenditure on patient transport based on previous year's data sourced from the Institute's health expenditure database, as actual figures regarding 1998–99 ambulance expenditure were not available.

Community and public health services

Community health services not elsewhere classified expenditure for mainstream programs has been estimated on the basis of population. There are also several Aboriginal health services, which deliver community health services.

Dental services expenditure was based on the proportion of the Australian Capital Territory population that identifies as Aboriginal and/or Torres Strait Islander

(*AIHW note:* It is considered this will underestimate dental expenditure for Aboriginal and Torres Strait Islander people.)

Community mental health expenditure was estimated by AIHW as the community mental health component of total funding for one of the Aboriginal health services. The mainstream community mental health expenditure was included in non-admitted patient services expenditure.

Public health expenditure for Aboriginal and Torres Strait Islander people was a combination of mainstream funding apportioned on the basis of population and expenditure on Aboriginal and Torres Strait Islander-specific health promotion programs.

Health research

No expenditure in this area was identified.

Health administration

This was estimated by AIHW based on an average of an allocation according to population and an allocation according to programs. The overall proportion across programs is 2.4%, while the population proportion is 1.1%. These have been averaged and then applied to total administration expenses.

Northern Territory

Methodology for estimating Aboriginal and Torres Strait Islander expenditure

For some areas, expenditure for Aboriginal and Torres Strait Islander people has been estimated by the Northern Territory on the basis of a survey of cost centres carried out in 1996. Each departmental sub-program was broken down by cost centre, and then Aboriginal and Torres Strait Islander usage of service for each cost centre was estimated through discussion with either the cost centre manager or the manager of the sub-program. These 1996 proportions were applied to 1998–99 cost centre expenditure data. Although still relying to some extent on 1996 survey results, expenditure on dental services also used 1998–99 utilisation statistics for Aboriginal and Torres Strait Islander people.

It would have been ideal if a new set of proportions could have been obtained for each cost centre but the above method is unlikely to be much in error. For example, if a health centre had 90% Aboriginal and Torres Strait Islander usage in 1996, that proportion is unlikely to have changed significantly since.

Territory Health Services provided the data for the figures in Table 5.8 with a number of adjustments made by AIHW. The methodology is described below.

Acute-care admitted patient services

The AIHW estimate of expenditure on admitted patient services in acute-care institutions for Aboriginal and Torres Strait Islander people was $66 million, based

on the national morbidity costing method. For non admitted patient services it was $13.8 million, giving a total for acute-care institutions of $79.8 million.

Acute-care non-admitted patient services

This was based on the number of Aboriginal and Torres Strait Islander patients attending outpatient clinics and using non-admitted patient services.

Total expenditure and therefore the Aboriginal and Torres Strait Islander component are understated as many of the services provided by outpatient clinics are not costed directly to the clinics, for example doctor's salaries.

Mental health institutions

The Northern Territory does not have any such institutions.

High-care residential aged care facility for the aged

This was based on the 1996 survey.

Community and public health services

Community health services not elsewhere classified were based on the 1996 survey, except for the Red Cross Blood Transfusion Services, which is based on the number of major surgery cases by Aboriginality in 1996, and the coordinated care trials, which is an Aboriginal and Torres Strait Islander specific program. It should be noted that revenue for coordinated care trials includes payment for services provided to trials not individually identified as coordinated care trials in the expenditure statistics. *Note:* AIHW re-coded women's health from public health to community health.

Dental services expenditure for the community and school dental programs was based on the 1996 survey. There is also an Aboriginal and Torres Strait Islander specific dental services program.

Community mental health expenditure was based on the 1996 survey.

Public health expenditure was based on the 1996 survey except for an Aboriginal and Torres Strait Islander specific hearing program.

Health research

This was based on the 1996 survey.

Health administration

This was estimated by the Institute as an average of an allocation according to population and an allocation according to programs. The overall proportion for programs (excluding administration) is 56%, while the population proportion is 28%. These have been averaged and then applied to total administration expenses.

Other explanatory notes

Northern Territory data have been prepared on a cash basis.

Appendix 7: 1995–96 results

The following tables summarise the results of the 1995–96 report on expenditures on health services for Aboriginal and Torres Strait Islander people. Per person estimates have been adjusted to reflect revised population estimates for 1995–96. These revised estimates record 381,402 Aboriginal and Torres Strait Islander people. The 1995–96 report used an estimate of 367,808 Aboriginal and Torres Strait Islander people.

Table A7.1: New South Wales Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

	Indigenous		Total		Indigenous share	Expenditure per person		Ratio Indigenous/ other
Area of expenditure	Expenditure $m	Composition %	Expenditure $m	Composition %	%	Indigenous $	Other $	
Acute-care institutions	109.5	78.2	3,968.7	77.3	2.8	1,008	633	1.59
admitted patient services	*91.8*	*65.6*	*3,368.0*	*65.6*	*2.7*	*845*	*537*	*1.57*
non-admitted patient services	*17.6*	*12.6*	*600.8*	*11.7*	*2.9*	*162*	*96*	*1.70*
Mental health institutions	2.1	1.5	152.5	3.0	1.4	19	25	0.78
Nursing homes	1.7	1.2	85.7	1.7	2.0	16	14	1.13
Community health services	18.2	13.0	553.1	10.8	3.3	168	88	1.92
Patient transport	3.6	2.6	170.8	3.3	2.1	34	27	1.22
Public health services	1.5	1.1	56.9	1.1	2.7	14	9	1.56
Administration & research	3.4	2.4	149.2	2.9	2.2	31	24	1.29
Total	**140.0**	**100.0**	**5,136.9**	**100.0**	**2.7**	**1,289**	**820**	**1.57**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.2: Victorian Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

Area of expenditure	Indigenous		Total		Indigenous share	Expenditure per person		Ratio Indigenous/ other
	Expenditure $m	Composition %	Expenditure $m	Composition %	%	Indigenous $	Other $	
Acute-care institutions	24.8	83.9	2,534.8	74.5	1.0	1,110	553	2.01
admitted patient services	*18.0*	*60.8*	*1,901.1*	*55.9*	*0.9*	*805*	*415*	*1.94*
non-admitted patient services	*6.4*	*21.8*	*633.7*	*18.6*	*1.0*	*288*	*138*	*2.08*
Mental health institutions	0.0	0.0	82.0	2.4	0.0	0	18	0.00
Nursing homes	1.5	5.2	197.4	5.8	0.8	69	43	1.61
Community health services	0.7	2.3	200.5	5.9	0.3	31	44	0.70
Patient transport	1.1	3.7	116.1	3.4	1.0	50	25	1.95
Public health services	1.0	3.5	150.9	4.4	0.7	46	33	1.39
Administration & research	0.8	2.6	119.7	3.5	0.7	35	26	1.34
Total	**29.6**	**100.0**	**3,401.4**	**100.0**	**0.9**	**1,324**	**743**	**1.78**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.3: Queensland Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

Area of expenditure	Indigenous		Total		Indigenous share %	Expenditure per person		Ratio Indigenous/ other
	Expenditure $m	Composition %	Expenditure $m	Composition %		Indigenous $	Other $	
Acute-care institutions	111.3	73.8	1,849.5	75.7	6.0	1,075	537	2.00
admitted patient services	*83.1*	*55.1*	*1,442.6*	*59.1*	*5.8*	*803*	*420*	*1.91*
non-admitted patient services	*28.1*	*18.7*	*406.9*	*16.7*	*6.9*	*272*	*117*	*2.32*
Mental health institutions	2.9	1.9	81.6	3.3	3.6	28	24	1.16
Nursing homes	4.1	2.7	82.8	3.4	4.9	39	24	1.62
Community health services	24.1	16.0	265.7	10.9	9.1	233	75	3.12
Patient transport	4.4	2.9	74.0	3.0	6.0	43	22	1.99
Public health services	2.2	1.5	52.6	2.2	4.3	22	16	1.39
Administration & research	1.7	1.1	35.8	1.5	4.7	16	11	1.54
Total	**150.8**	**100.0**	**2,441.9**	**100.0**	**6.2**	**1,456**	**708**	**2.06**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.4: Western Australia Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

Area of expenditure	Indigenous		Total		Indigenous share	Expenditure per person		Ratio
	Expenditure $m	Composition %	Expenditure $m	Composition %	%	Indigenous $	Other $	Indigenous/ other
Acute-care institutions	79.5	69.1	1,094.9	73.8	7.3	1,430	594	2.41
admitted patient services	*61.4*	*53.3*	*859.4*	*57.9*	*7.1*	*1,104*	*467*	*2.36*
non-admitted patient services	*18.1*	*15.8*	*235.5*	*15.9*	*7.7*	*326*	*127*	*2.57*
Mental health institutions	3.2	2.8	80.0	5.4	4.0	58	45	1.29
Nursing homes	3.1	2.7	64.5	4.3	4.8	55	36	1.54
Community health services	23.0	20.0	154.8	10.4	14.9	414	77	5.37
Patient transport	4.2	3.6	31.7	2.1	13.1	75	16	4.64
Public health services	1.1	1.0	39.9	2.7	2.8	20	23	0.88
Administration & research	1.0	0.9	18.2	1.2	5.5	18	10	1.80
Total	**115.1**	**100.0**	**1,483.9**	**100.0**	**7.8**	**2,070**	**801**	**2.59**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.5: South Australian Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

Area of expenditure	Indigenous		Total		Indigenous share	Expenditure per person		Ratio Indigenous/ other
	Expenditure $m	Composition %	Expenditure $m	Composition %	%	Indigenous $	Other $	
Acute-care institutions	20.3	64.3	863.7	70.1	2.3	930	581	1.60
admitted patient services	*16.0*	*50.7*	*691.0*	*56.1*	*2.3*	*734*	*465*	*1.58*
non-admitted patient services	*4.3*	*13.6*	*172.7*	*14.0*	*2.5*	*197*	*116*	*1.70*
Mental health institutions	1.2	3.7	81.0	6.6	1.4	53	55	0.97
Nursing homes	0.0	0.0	0.0	0.0	0.0	0	0	0.00
Community health services	6.3	20.1	173.6	14.1	3.6	290	115	2.52
Patient transport	0.3	1.0	13.1	1.1	2.4	15	9	1.64
Public health services	0.7	2.4	43.6	3.5	1.7	34	30	1.16
Administration & research	2.7	8.6	56.8	4.6	4.8	124	37	3.34
Total	**31.5**	**100.0**	**1,231.8**	**100.0**	**2.6**	**1,447**	**827**	**1.75**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.6: Tasmanian Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

Area of expenditure	Indigenous		Total		Indigenous share	Expenditure per person		Ratio Indigenous/ other
	Expenditure $m	Composition %	Expenditure $m	Composition %	%	Indigenous $	Other $	
Acute-care institutions	12.6	70.7	244.9	64.5	5.1	829	506	1.64
admitted patient services	*7.6*	*42.7*	*178.8*	*47.1*	*4.2*	*501*	*373*	*1.34*
non-admitted patient services	*5.0*	*28.0*	*66.1*	*17.4*	*7.5*	*328*	*133*	*2.46*
Mental health institutions	0.9	4.8	32.6	8.6	2.6	56	69	0.82
Nursing homes	1.4	8.0	38.9	10.2	3.6	93	82	1.14
Community health services	1.4	7.8	20.7	5.4	6.7	91	42	2.17
Patient transport	0.5	2.7	10.7	2.8	4.4	31	22	1.40
Public health services	0.8	4.3	24.1	6.4	3.1	50	51	0.98
Administration & research	0.3	1.8	8.0	2.1	3.9	21	17	1.24
Total	**17.8**	**100.0**	**379.9**	**100.0**	**4.7**	**1,172**	**789**	**1.49**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.7: Australian Capital Territory Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

Area of expenditure	Indigenous		Total		Indigenous share	Expenditure per person		Ratio Indigenous/ other
	Expenditure $m	Composition %	Expenditure $m	Composition %	%	Indigenous $	Other $	
Acute-care institutions	1.5	76.9	221.0	83.2	0.7	505	720	0.70
admitted patient services	*1.1*	*56.3*	*163.1*	*61.5*	*0.7*	*370*	*531*	*0.70*
non-admitted patient services	*0.4*	*20.6*	*57.8*	*21.8*	*0.7*	*135*	*188*	*0.72*
Mental health institutions	—	—	—	—	—	—	—	—
Nursing homes	—	—	—	—	—	—	—	—
Community health services	0.2	11.9	12.7	4.8	1.8	78	41	1.90
Patient transport	0.0	0.0	4.7	1.8	0.0	0	16	0.00
Public health services	0.0	0.3	2.5	0.9	0.2	2	8	0.21
Administration & research	0.2	11.0	24.5	9.2	0.9	72	80	0.90
Total	**2.0**	**100.0**	**265.5**	**100.0**	**0.7**	**657**	**864**	**0.76**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.8: Northern Territory Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

Area of expenditure	Indigenous		Total		Indigenous share	Expenditure per person		Ratio Indigenous/ other
	Expenditure $m	Composition %	Expenditure $m	Composition %	%	Indigenous $	Other $	
Acute-care institutions	78.9	49.9	148.0	52.1	53.3	1,537	526	2.92
admitted patient services	*60.7*	*38.4*	*115.5*	*40.6*	*52.6*	*1,182*	*417*	*2.83*
non-admitted patient services	*18.2*	*11.5*	*32.5*	*11.4*	*56.0*	*355*	*109*	*3.25*
Mental health institutions	—	—	—	—	—	—	—	—
Nursing homes	0.2	0.1	0.4	0.2	41.0	3	2	1.78
Community health services	32.8	20.8	52.2	18.4	62.9	639	147	4.34
Patient transport	15.5	9.8	22.1	7.8	70.2	302	50	6.03
Public health services	13.4	8.4	24.6	8.7	54.3	260	86	3.04
Administration & research	17.3	11.0	36.8	13.0	47.1	337	149	2.27
Total	**158.1**	**100.0**	**284.1**	**100.0**	**55.7**	**3,079**	**960**	**3.21**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.9: Total Australian Government health expenditure by program for Indigenous and non-Indigenous people, 1995–96

Area of expenditure	Indigenous		Total		Indigenous share	Expenditure per person		Ratio Indigenous/ other
	Expenditure $m	Composition %	Expenditure $m	Composition %	%	Indigenous $	Other $	
Acute-care institutions	437.9	67.9	10,925.5	74.7	4.0	1,148	585	1.96
admitted patient services	*339.7*	*52.7*	*8,719.4*	*59.6*	*3.9*	*891*	*467*	*1.91*
non-admitted patient services	*98.2*	*15.2*	*2,206.1*	*15.1*	*4.5*	*258*	*118*	*2.19*
Mental health institutions	10.2	1.6	509.7	3.5	2.0	27	28	0.96
Nursing homes	12.0	1.9	469.7	3.2	2.6	31	26	1.23
Community health services	106.9	16.6	1,433.2	9.8	7.5	280	74	3.79
Patient transport	29.6	4.6	443.2	3.0	6.7	78	23	3.37
Public health services	20.8	3.2	395.2	2.7	5.3	54	21	2.61
Administration & research	27.4	4.2	449.1	3.1	6.1	72	24	3.05
Total	**644.9**	**100.0**	**14,625.4**	**100.0**	**4.4**	**1,691**	**780**	**2.17**

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.10: Gross expenditures on services to Aboriginal and Torres Strait Islander people by State/Territory and Commonwealth Governments, total and per person, revised populations, 1995–96

	Total ($m)				Per person ($)			
		Commonwealth				Commonwealth		
State/Territory	State[(a)]	AMS	Other	Total	State[(a)]	AMS	Other	Total
New South Wales	140	15	24	179	1,289	138	221	1,648
Victoria	30	7	5	42	1,324	313	224	1,861
Queensland	151	15	22	188	1,456	145	212	1,813
Western Australia	115	20	12	147	2,070	360	216	2,645
South Australia	32	10	5	47	1,447	459	229	2,135
Tasmania	18	2	3	23	1,172	132	198	1,502
Australian Capital Territory	2		1	3	657		332	989
Northern Territory	158	21	11	190	3,079	409	214	3,703
Australia	**645**	**90**	**83**	**818**	**1,691**	**236**	**218**	**2,144**

(a) Excludes local government.

Source: Deeble et al. 1998, adjusted for revised population.

Table A7.11: Estimated government and private expenditures for and by Indigenous and non-Indigenous people, total and per person, revised populations, 1995–96

	Indigenous				Non-Indigenous				
Source	Govt $m	Private $m	Total $m	Per person $	Govt $m	Private $m	Total $m	Per person $	Ratio Indigenous/ Other
Subsidised services									
Public hospitals									
admitted patient services	340	4	344	902	8,222	948	9,170	512	1.76
non-admitted patient services	98	. .	98	257	2,129	. .	2,129	119	2.16
Mental institutions	10	. .	10	26	399	. .	399	22	1.18
Nursing homes	16	4	20	52	2,065	672	2,737	153	0.34
Community health	199	. .	199	522	1,438	5	1,443	80	6.48
Patient transport	35	1	36	94	295	264	559	31	3.03
Public health	26	. .	26	68	489	. .	489	27	2.50
Medicare and other medical	32	2	34	89	6,523	1,374	7,897	441	0.20
PBS drugs & appliances	10	3	13	34	2,366	483	2,849	159	0.21
Administration & research	43	1	44	115	1,295	620	1,915	107	1.08
Other services									
Private hospitals	. .	5	5	13	258	2,858	3,116	174	0.08
Dental & other professional	1	11	12	31	296	3,108	3,404	190	0.17
Non-prescribed medicines	. .	12	12	31	. .	2,440	2,440	136	0.23
Total	**810**	**43**	**853**	**2,236**	**25,775**	**12,772**	**38,547**	**2,150**	**1.04**

Source: Deeble et al. 1998, adjusted for revised population.

Appendix 8: BEACH survey forms (1998 and 1999)

Appendix 9: List of tables

Appendix 10: List of figures

Appendix 11: Abbreviations, glossary and symbols

Abbreviations

ABS	Australian Bureau of Statistics
ACCHSs	Aboriginal Community Controlled Health Services
AHMAC	Australian Health Ministers' Advisory Council
AHS	Australian Hospital Statistics
AIHW	Australian Institute of Health and Welfare
AMS	Aboriginal Medical Service
AR-DRG	Australian refined diagnosis-related group
ARIA	Accessibility/Remoteness Index of Australia
ASDR	age standardised death rate
ASGC	Australian Standard Geographic Classifications
ATSIC	Aboriginal and Torres Strait Islander Commission
BEACH	Bettering the Evaluation and Care of Health
CAEPR	Centre for Aboriginal Economic Policy Research
CCT	Coordinated Care Trial
CGC	Commonwealth Grants Commission
CSL	Commonwealth Serum Laboratory
DAA	Department of Aboriginal Affairs
DHAC	(Commonwealth) Department of Health and Aged Care
DHHS	(Tasmanian) Department of Health and Human Services
DHS	(Victorian) Department of Human Services
DRG	diagnosis-related group
DVA	Department of Veterans' Affairs
FaCS	(Commonwealth Department of) Family and Community Services
GISCA	National Key Centre for Social Applications of Geographic Information Systems
GP	general practitioner
GPC	Government Purpose Classification
GPSCU	General Practice Statistics and Classification Unit

HACC	Home and Community Care (Program)
HCP	Hospital casemix protocol
HDWA	Health Department of Western Australia
HIC	Health Insurance Commission
ICD	International Classification of Diseases
ICIDH	International Classification of Impairments, Disabilities and Handicaps
ICPC-2	International Classification of Primary Care (Version 2)
IPTAAS	Isolated Patients Travel Assistance and Accommodation Scheme
MBS	Medicare Benefits Schedule
NACCHO	National Aboriginal Community Controlled Health Organisation
NHS	National Health Survey
OATSIH	Office for Aboriginal and Torres Strait Islander Health
PBS	Pharmaceutical Benefits Scheme
PEI	Patient Episode Initiation (Fees)
PHIIS	Private Health Insurance Incentives Scheme
QES	Queensland Emergency Services
RCS	Residential Classification Scale
RFDS	Royal Flying Doctor Service
RPBS	Repatriation Pharmaceutical Benefits Scheme
RRMA	Rural Remote and Metropolitan Areas Classification
SAR	Service Activity Report
SLA	statistical local area
SMR	Standardised mortality rates
SNAP	Sub- and Non-Acute Patient (Study)
THS	Territory Health Services
VIMD	Victorian Inpatient Morbidity Data
VOS	Visiting Optometrical Scheme
WIES	Weighted Inlier Equivalent Separation
WHO	World Health Organization

Glossary

External Territories	Norfolk Island and minor islands such as Heard Island and McDonald Island remain outside the scope of the 1996 Census.
Koori	A term often preferred by Aboriginal people of south-east Australia when referring to themselves.
Other Territories	Christmas Island, the Cocos (Keeling) Islands and Jervis Bay now comprise a pseudo 'ninth State/Territory' of Australia. These islands are within the scope of the 1996 Census but are not part of the population of the States or the Australian Capital Territory or the Northern Territory.

Symbols

$	Australian dollars, unless otherwise specified
—	nil or rounded to zero
%	per cent
'000	thousands
'00,000	hundred thousands
CI	confidence interval
est.	estimated
km	kilometre
m	million
n.a.	not available
. .	not applicable
n.e.c.	not elsewhere classified

A note on rounding: **Figures in tables and the text have sometimes been rounded. Discrepancies between totals and sums of components are due to rounding.**

Appendix 12: Steering Committee

The Aboriginal and Torres Strait Islander Health Expenditure Project was guided by a steering committee consisting of representatives of the following organisations:

NSW Department of Health	Tim Agius Jim Pearce
Territory Health Services, Northern Territory	Carol Beaver
Health Department of Western Australia	Shane Houston Colin Xanthis
South Australian Health Commission	Brian Dixon
Department of Human Services, Victoria	Mary Sullivan
Queensland Department of Health	Bryan Kennedy
Department of Community and Health Services, Tasmania	Shane Nichols
Department of Health, Housing and Community Affairs, Australian Capital Territory	Gary Kennedy Margaret Summers
National Aboriginal Community Controlled Health Organisation	John Daniels Naomi Mayers Craig Ritchie
National Centre for Aboriginal and Torres Strait Islander Statistics	Tony Barnes Janis Shaw
Aboriginal and Torres Strait Islander Commission	Noel Baxendell Commissioner Preston Thomas Commissioner Eric Wynne
Torres Strait Regional Authority	Phillip Bowie Terry Waia
Health Insurance Commission	Geoff Gillett
Commonwealth Department of Health and Aged Care	Mark Allenby David Hennessy Marian Kroon Mary McDonald (Chair) David Pearson Peter Woodley

We would also like to acknowledge the substantial contribution made by the following people to the steering committee, many of whom attended meetings as alternate delegates:

Helen Evans (Commonwealth Department of Health and Aged Care), who was called on to chair a number of meetings, Enrico Sondalini, Claire Croumbie-Brown and Mike Taylor (NSW Department of Health), Claire Runciman (Qld Health), Kathy Bell (NACCHO), Helen Morton and Heather Moyle (THS), Ann Podzuweit and Kas Hilton (HIC), Sarah Berg (Vic DHS), Alison Killen, Ruth Ragless and Anna Clippingdale (Department of Health and Aged Care).

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