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# Expenditures on Health Services for Aboriginal and Torres Strait Islander People

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May 1998

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## Executive summary

### The context

The health of Aboriginal and Torres Strait Islander people is much worse than any other demographic group in Australia. On average, Aboriginal and Torres Strait Islander people die at three times the rate of other Australians. For some age groups the rate is as much as seven times that of the rest of the population for some conditions, such as diabetes, it is 12–17 times higher. Life expectancy for Aboriginal and Torres Strait Islander men is about 17 years less than for other Australian males and the difference is slightly more for women. Although infant mortality has improved, there are few signs that the gap in life expectancies is diminishing.

To date, there has been no concrete information on the amounts spent on health services for Aboriginal and Torres Strait Islander people. They are widely believed to be very much higher than for the rest of the population, but the debate has been largely speculative. The study reported here was commissioned by the Commonwealth Department of Health and Family Services, with the support and cooperation of all the State and Territory health authorities. It was undertaken by the National Centre for Epidemiology and Population Health (Australian National University) and the Australian Institute of Health and Welfare.

### Results

The main results were as follows, using 1995–96 as the base year:

- for all services and all sources of funds, recurrent expenditures for and by Aboriginal and Torres Strait Islander people were estimated at \$853 million. This was 2.19 per cent of all recurrent health expenditure in 1995–96. Per person, total spending for and by Aboriginal and Torres Strait Islander people was \$2,320, only about 8 per cent higher than that for or by other Australians,

- for government expenditures alone, the ratio of Indigenous to non-Indigenous spending per person was over 1.5: 1 (in all, \$810 million for Indigenous people). The Commonwealth and State/Territory Governments contributed nearly equally—\$390 million from the Commonwealth and \$417 million from the States and Territories. However most of the Commonwealth contribution was indirect. Its only significant direct payments specifically for Aboriginal and Torres Strait Islander health were to Aboriginal Medical Services. At \$90 million, they were only 11 per cent of the total government figure. Nearly 80 per cent of all the services to Aboriginal and Torres Strait Islander people were managed by the States and Territories,
- the ratio of Indigenous to non-Indigenous expenditure per person varied considerably across the States and Territories. In general, it was highest where the proportion of the Aboriginal and Torres Strait Islander population living in remote areas was highest, especially in Western Australia and the Northern Territory. At least some of the difference may thus be explained by the costs of isolation,
- only a small proportion of these expenditures were through services aimed specifically at Aboriginal and Torres Strait Islander people. Most expenditure was through the mainstream services of acute hospital (55.3 per cent) and community health care (nearly 25 per cent),
- the largest single source of the Commonwealth's expenditure was through OATSIHS grants to community-controlled Aboriginal Health Services. Aboriginal and Torres Strait Islander people received very little from the two largest Commonwealth programs of Medicare and the Pharmaceutical Benefits Scheme. Per person, their benefits under Medicare were only 27 per cent of the average for non-Indigenous people and the proportion was only 22 per cent for prescribed drugs. OATSIHS programs offset much of the difference. However the total of Aboriginal Health Service grants, Medicare benefits and Pharmaceutical Benefits was still about \$100 per person less than other Australians received from Medicare and Pharmaceutical Benefits alone,
- in total, hospital expenditures dominated spending on both Indigenous and non-Indigenous people. However, the ratio of Indigenous to non-Indigenous expenditures per person was higher for primary health care than for the secondary/tertiary element, much of which was provided through hospitals. For secondary/tertiary services the ratio was about 1.3:1. On the other hand, for such primary care elements as community health services and patient transport, the ratios were as high as 6.5:1 and

11.0:1 respectively. Outside of hospitals, Aboriginal and Torres Strait Islander people used very few of the specialist medical services and specialist-prescribed drugs which represented nearly 20 per cent of all non-Indigenous outlays,

- the pattern of service use by Aboriginal and Torres Strait Islander people was thus quite different to the average for other Australians. They relied much more on publicly-provided hospital and community health services than the typical non-Indigenous person and spent much less on private doctors, private hospital care, dentistry, medicines and ancillary services. Cultural differences, isolation and the structure of services in areas where many Aboriginal and Torres Strait Islander people live may all have contributed to the outcome. But it was not unique. In fact, public expenditures on the health of Aboriginal and Torres Strait Islander people appear to have been very similar to those for other Australians in the same income category. However their health status was almost certainly much worse.

The results thus vary with the question being asked—for example, whether only government expenditures or all expenditures, including private payments, are the subject of concern. The study's main task was to estimate government expenditures but it is impossible to understand the structure of government outlays without some reference to the socio-economic circumstances in which they are made. All of the Indigenous to non-Indigenous expenditure ratios were less than had previously been assumed.

## Allocation issues

The study was not required to recommend on funding criteria or policy. However comparing expenditure on Aboriginal and Torres Strait Islander people with indicators of their health status raised some unavoidable questions of resource allocation. Are mortality rates a valid indicator of relative need? If so, then how can relative expenditure ratios of 1:1 to 1.5: 1 be reconciled with death rates for Aboriginal and Torres Strait Islander people of about three times the national average? If they can't, then what alternative criteria are possible? Is the present distribution of spending between primary and secondary health care the most effective one? To what extent should the cost of providing services in remote areas be built into expenditure allocations?

The analysis was not intended as definitive. Its main conclusions were that:

- although efficiency (maximising health gains per dollar expended) and equity (treating people in similar circumstances in the same way) are

alternative objectives of policy, in health care matters the two are inextricably mixed,

- mortality rates are general indicators of health status but they are not of themselves sufficient indicators of resource need,
- allocating resources according to 'capacity to gain' (based on the prevalence of illness and its consequences plus the efficacy of treatment and people's access to it) would clearly maximise the nation's health improvement overall. As a group, Aboriginal and Torres Strait Islander people must benefit on this criterion. All of the data needed to apply it do not as yet exist but it would in principle be possible to estimate what expenditures would be needed to ensure that, for any given health problem, Aboriginal and Torres Strait Islander people had the same resources available to them as other Australians,
- however the result would be a sufficient basis for government funding only if all services were provided to all people publicly and without charge. In a mixed system, equity requires that more public resources be devoted to disadvantaged people than to those with more capacity and opportunity to purchase services themselves. The relevant expenditure comparison is therefore between Indigenous and non-Indigenous people in the same income group and this was the division we applied,

### Problems of estimation

- The main problem in estimating expenditures on Indigenous people is under-identification in the records of mainstream health services. Aboriginality is formally recorded only for inpatients in acute care hospitals and even there many of the statistics are questionable. Staff are often unwilling to ask the question of all patients in a semi-public situation. Non-Indigenous people often raise the most objections,
- identification is generally best in areas where the proportion of Aboriginal and Torres Strait Islander people in the population is highest. It is better in the western States than in the eastern ones, but there are deficiencies everywhere. Based on the Census populations, our best estimate was that, nationally, about 20 per cent of Aboriginal and Torres Strait Islander admissions to hospital were not identified as such in 1995–96, ranging from effectively zero in the Northern Territory and Western Australia to 33 per cent in New South Wales, 25 per cent in Victoria and 15 per cent and 10 per cent respectively for Queensland and South Australia,

- these proportions were built into all of our calculations, including those for the Commonwealth's Medicare and Pharmaceutical Benefits programs where there is no provision for Aboriginal and Torres Strait Islander identification. There was therefore some uncertainty in the final figures but not all of the components depended on identifying individual users and there were a number of checks and balances in the process. For all government expenditures, we have estimated the probable error at less than plus or minus 5 per cent. Given the nature of identification as an Aboriginal or Torres Strait Islander person, it is difficult to see, even conceptually, how any estimates of 'under-identification' in health services records could be verified objectively. However experience has shown that internal consistency can be much improved by better procedures (in Western Australia, for example) and that systematic recording can produce results much more consistent with the Census data than those at present,
- the main problems are in services which are not as well documented as inpatient care—such as visits to outpatient departments or casual attendances at community health centres—or where the volume is so great that repetitive identification is not feasible. It would be almost impossible, for example, to identify Indigenous status for each of the 196 million medical services and 133 million prescription items for which Medicare and PBS benefits were paid in 1995–96, particularly since most of the information came from providers, not patients. Some form of permanent recording would be necessary but the logistic and privacy issues would be substantial. The continuous survey of GP activity (BEACH) which commenced 1 April 1998, will provide useful information on Indigenous use of GP services by disease.
- in the meantime, efforts to extend the current standards of best practice should continue. The Australian Health Ministers' Advisory Council has appointed a working party to monitor the identification of Aboriginal and Torres Strait Islander users of health services and a pilot study is being undertaken of its recording in the hospital morbidity statistics. Under present practices, there would appear to be no alternative to a repetition of the kind of Medicare and Pharmaceutical Benefits Scheme surveys undertaken in this study, though as part of the routine administration of these programs rather than ad hoc. Improving access to them has been the subject of a separate project.

## Chapter 1

# Introduction

### Terms of reference

1.1 The main purposes of the Consultancy were to;

- (a) identify baseline data on the allocation and expenditure of funds on Aboriginal and Torres Strait Islander health by Commonwealth, State and Territory Governments and
- (b) develop a mechanism for the continuing collection and reporting of such data to inform the planning, monitoring and evaluation of allocation and expenditure.

Within this framework, the Revised Consultancy Brief of October 1996 also referred to the subdivision of expenditures between;

- (a) primary, secondary and tertiary health care and
- (b) within the primary care sector, between the clinical and population health components.

1.2 The study thus had two major purposes. The first was to produce a 'snapshot' of current expenditure levels and patterns (for which we chose the 1995-96 financial year): the second, to establish a framework within which consistent information on allocation and expenditure could be generated routinely by both spending and funding authorities. The emphasis was on public expenditures. We were not required to estimate total expenditures on health services to Aboriginal and Torres Strait Islander people, including those funded by non-government organisations from their own monies or those met from direct payments by individuals.

1.3 Work began in January 1997. An interim report outlining the methodology and results of State/Territory visits was provided to the Steering Committee in March. Collection of data from State and Territory authorities began in April, although it was, in some cases, August before

results were received. Sample surveys of doctors and pharmacies providing services to Aboriginal and Torres Strait Islander people through the Medicare and Pharmaceutical Benefit Schemes were conducted in July and August 1997. A draft Final Report was submitted in late September.

### Some limitations

- 1.4 In the course of this work several limitations became clear. The first was that only a very small proportion of health service expenditures for Aboriginal and Torres Strait Islander people came from funds specifically allocated for the purpose. By far the largest allocated amount comes from the Commonwealth to community-based Aboriginal Health Services via the Office for Aboriginal and Torres Strait Islander Health Services (OATSIHS). Beyond that, all State/Territory health authorities maintain Aboriginal health sections or units but the funding which they control directly is limited and the overwhelming majority of expenditures are through the mainstream services of hospitals, community health services, public health and so on. A comparatively small amount also flows through the Commonwealth-funded mainstream programs of Medicare and the Pharmaceutical Benefits Scheme (PBS). Estimating the Indigenous component of these services was thus the most important task.
- 1.5 Similar considerations apply to the broader funding mechanisms for health. The Commonwealth Grants Commission includes an Aboriginality factor in its 'needs' calculation of the distribution of Commonwealth general-purpose financial grants to States and Territories and in their regional resource allocation several State health departments have taken similar factors into account. However these are, at best, pragmatic adjustments for observed or assumed differences in spending, not allocations in the sense that they are reserved for or attached to any identified services for Aboriginal and Torres Strait Islander people. Although some work was done on the Commonwealth Grants Commission formula and included in the draft Final Report, the Steering Committee agreed that they should not figure in this document.
- 1.6 The second limitation relates to the scope of factors and activities included. As discussed in early meetings with the Steering Committee, our definition of health services is relatively narrow. In accordance with the Australian (and international) conventions of National Accounting, it

covers only those formal activities directed *primarily* towards improving health or reducing the effects of illness and injury. It does not include many aspects of the living conditions which bear on health (housing, sanitation, water supply, economic standing etc.) and which may have as large an influence on final outcomes as the results of any personal health services. Nor does it include any estimate of the indirect costs of illness most of which, if identified at all, are commonly treated as 'welfare' issues.

- 1.7 Because our methodology involved allocating the costs of specific services between the Indigenous and non-Indigenous populations; and because the relationship most likely to be raised in policy debate is that between spending for or by these two groups of people, a common and accepted set of service definitions was unavoidable. However many people would argue, correctly, that this is at best a partial comparison and that its conceptual limitations are in practice both more significant and more restrictive for Aboriginal and Torres Strait Islander people than they are for the non-Indigenous group.
- 1.8 Finally, some technical issues must be mentioned. The data collection organised for this study asked the State and Territory authorities to allocate total expenditures on each type of service between Indigenous and non-Indigenous users according to whatever differential measures of their usage were available. Where the State or Territory was unable to do so, we have estimated the relevant proportions from other data. For simplicity, the expenditure allocations have generally adhered to the accounting convention of 'average cost' pricing. But for a group which represents only 2 per cent of the Australian population (and in most areas much less than that) allocation on a full 'average cost' basis is questionable. Outside the Northern Territory—where Aboriginal and Torres Strait Islander people are 27 per cent of the population—Indigenous use is a marginal addition only for most types of service and the additional costs which it imposes are really unknown. How much, for example, would the general administrative cost of the Victorian health system fall if the 0.5 per cent of the population who are of Indigenous origin lived in New South Wales instead? Average cost pricing is arithmetically easy but the resulting figures are more likely to overstate the true cost of treating Aboriginal and Torres Strait Islander people than the reverse.

- 1.9 However all of these technical problems are far overshadowed by the fundamental problem of whether, and by how much, Aboriginal and Torres Strait Islander people are under-identified in mainstream service records. There is no definitive answer to this question and it is difficult to see how there could be while the criteria for Aboriginality rest on a combination of self-identification and community acceptance and there is a widespread reluctance to single out Aboriginal and Torres Strait Islander people as the only group to be asked about their racial background in a semi-public situation. The only mainstream service in which there is routine provision for identification is the inpatient segment of public general hospitals. Methods of collection and verification differ and none of the State or Territory authorities are certain that their identification of Aboriginal and Torres Strait Islander patients is complete. However only two States (NSW and Queensland) tried to estimate the possible extent of under-estimation. For some services there were no State/Territory data at all. In fact, only four States were able to provide any relevant information for their mainstream services beyond that available from the morbidity statistics for hospital inpatients. Reliance on State and Territory estimates alone would thus have provided little new information of value.
- 1.10 We have therefore attempted to estimate the degree of under-identification in the records on which estimation has been based. This used a combination of administrative information and self-reported survey data, knowledge of the characteristics of service provision in each State and, for services covered by the Medicare and Pharmaceutical Benefits schemes, some direct surveying of doctors and pharmacies in areas where the proportion of Aboriginal and Torres Strait Islander people in the population was above the average. Details are in Chapters 2 and 3 and in Appendixes 2 and 3. While the possibility of error in the individual estimates is still significant, we can make some assessment of its likely magnitude overall. In general, the data are better for the western states than for the eastern half of the country and are best for those areas where the proportion of Aboriginal and Torres Strait Islander people in the population is highest. For the remainder, the figures are less certain, although at the State/Territory level the broad relativities should be correct.

## Some additional issues

- 1.11 Compared with the original Consultancy Brief, one aspect of the study has been downgraded for reasons already explained: such a small proportion of Aboriginal and Torres Strait Islander health expenditure is specifically *allocated* for that purpose that documenting allocated spending would provide little information which is new. On the other hand we have, with the approval of the Steering Committee, explored some aspects of Indigenous health status and the implied need for services which were not included in the first specification (Chapter 4). We have also included some broad indicators of an aggregate not included in the original brief, namely, *total health expenditures* for or by Aboriginal and Torres Strait Islander people, including all private out-of-pocket payments. The two additional issues are not unrelated. Health expenditures are generally linked to health status; by and large, sicker people generate more. However public expenditures are only part of the total and their distribution is intended to reflect socio-economic factors as well. One cannot interpret data on the expenditure of public funds without considering the volume of private spending, although the data on which the estimates are based are generally limited.

## The Aboriginal and Torres Strait Islander population

- 1.12 Table 1.1 shows the most recent Australian Bureau of Statistics estimates of the Aboriginal and Torres Strait Islander population in 1995–96, by States and Territories, based on the results of the 1996 Census. In responses to our questionnaire, most of the health authorities used numbers derived from the 1991 Census figures but all of the results have been standardised to the 1995–96 populations shown below. They imply a very much higher level of Aboriginal and Torres Strait Islander identification than in 1991 (a intercensal growth of over 30 per cent compared with around 8 per cent for the population generally) with well above average increases for New South Wales, Tasmania and Victoria. Less change occurred in the more rural and remote areas of Western Australia and the Northern Territory.

**Table 1.1: Estimated Indigenous and non-Indigenous populations, 1995–96, by States and Territories**

State/Territory	Indigenous (000)	non-Indigenous (000)	Total (000)	% Indigenous
New South Wales	105.0	6,058	6,163	1.70
Victoria	22.3	4,516	4,538	0.49
Queensland	99.3	3,202	3,301	3.01
Western Australia	53.5	1,696	1,750	3.06
South Australia	21.0	1,451	1,472	1.43
Tasmania	14.5	460	474	3.05
ACT	3.1	303	306	1.01
Northern Territory	49.1	131	180	27.29
<b>Australia</b>	<b>367.8</b>	<b>17,817</b>	<b>18,184</b>	<b>2.02</b>

Source: ABS unpublished data. Figures are the average of estimated July 1995 and July 1996 populations.

- 1.13 The demographic and economic characteristics of Aboriginal and Torres Strait Islander people are well known. The Indigenous population is much younger than the non-Indigenous one, partly because infant mortality rates, though still relatively high, have been falling more rapidly than birth rates but mainly because it contains many less old people. In the States and Territories where it could be reliably measured, life expectancy at birth in 1993–94 was about 57 years for Aboriginal males and around 63 years for females; whereas for the non-Indigenous population it was 75 years for men and nearly 81 years for women. As a result, only 2.6 per cent of Aboriginal and Torres Strait Islander people were aged over 65 years at that time, compared with over 11 per cent of other Australians; and only 6.2 per cent were aged 55 years and over. Their life expectancies at these ages were much less than for non-Indigenous people.
- 1.14 Indigenous Australians are also much poorer, on average, than their non-Indigenous counterparts. Table 1.2 shows the income distribution of Indigenous and non-Indigenous families in the 1991 Census. Forty-three percent of Indigenous families received incomes of \$20,000 per year or less, compared with 25 per cent of non-Indigenous people and the proportion of Indigenous families in the two highest income categories was only about one third of that for other people.

**Table 1.2: Income distribution of Indigenous and non-Indigenous families 1991.**

	Indigenous		non-Indigenous	
	number	percent	number	percent
Under \$5,000	1,780	2.6	33,519	1.0
\$5,001–20,000	27,806	40.4	819,420	24.3
\$20,001–30,000	15,980	23.2	580,492	17.2
\$30,001–40,000	9,589	13.9	502,024	14.9
\$40,001–50,000	6,585	9.6	496,062	14.7
\$50,001–60,000	3,447	5.0	350,334	10.4
Over \$60,000	3,569	5.2	593,364	17.6
<b>Total</b>	<b>68,756</b>	<b>100.0</b>	<b>3,375,215</b>	<b>100.0</b>

Source: 1991 Census, Indigenous sub sample: Cited in Altman, J C and Hunter, B E, Centre for Aboriginal Economic Policy Research, Australian National University 1997

The median income for Indigenous families was \$22,000; for the non-Indigenous group it was about \$35,000 per year. But these statistics understate the effective differences. Indigenous families are, on average, twice as large as for non-Indigenous people and the analysis in Chapter 4 of this study shows that, adjusted for family size, the average income per person of Indigenous people was actually in the lowest 20 per cent of income distribution for all Australians in 1994. It is with the health expenditures of this low income group of people that spending on the Indigenous population should logically be compared.

## Chapter 2

# Results

2.1 The tables and figures in this chapter summarise our best estimates of expenditures on publicly provided or publicly subsidised health services to Aboriginal and Torres Strait Islander people. They present two aggregates, namely:

- (a) The total amounts estimated to be spent on those health services to Aboriginal and Torres Strait Islander people for which government funding is available; ie. gross expenditure including user payments, insurance payments and other private sources of funds for services which are provided or subsidised by governments.
- (b) The amounts estimated to be spent directly by governments on health services to Aboriginal and Torres Strait Islander people; that is, net government expenditure.

Again, the first aggregate was not specifically requested in the Consultancy Brief but it is a useful addition to the data on government expenditures alone and its compilation was a necessary part of the estimation process.

2.2 For each classification of programs and services, estimates are presented in the general order of:

- Gross expenditures,
- Gross expenditures per person,
- Net government expenditures, and
- Net government expenditures per person.

Expenditures are subdivided according to the levels of government and types of program involved. Programs are classified by the levels of government which manage them; funding is attributed to the ultimate sources of finance. The main classes of service not covered are private

hospitals, dentistry, optometry, private 'ancillary' services (physiotherapy, chiropractic, etc.) and over-the-counter drugs. For the whole population, these represent about 27 per cent of all health expenditures but they are the categories which most reflect purchasing power and given the income levels of Aboriginal and Torres Strait Islander people, they are a much lower proportion of Aboriginal and Torres Strait Islander expenditures. Overall we believe that the estimates presented here cover about 95 per cent of all Aboriginal and Torres Strait Islander health care costs.

### Gross expenditures, by program

2.3 Tables 2.1 to 2.4 show estimated total expenditures by program and sources of funds at the broadest levels of aggregation. As can be seen, at the gross expenditure level spending on or by Indigenous people was 44 per cent higher than the average for non-Indigenous Australians. However because Aboriginal and Torres Strait Islander people are rarely treated as private patients in hospital and use the private services covered by Medicare and the Pharmaceutical Benefits Scheme much less than their non-Indigenous counterparts, the ratio is somewhat higher if only government outlays are considered. Note that although the ultimate share of the Commonwealth Government appears to have been quite high, about two-thirds of it was only a notional allocation of hospital costs shared through the Medicare Agreements and so of no real policy significance, whereas the Aboriginal and Torres Strait Islander drawings on mainstream Commonwealth programs were very small indeed. Nearly 80 per cent of all expenditures on the health of Aboriginal and Torres Strait Islander people were managed by the States and Territories.

**Table 2.1: Gross expenditures on services to Indigenous people, through publicly subsidised programs, by program 1995-96**

Program	\$m
through State and local government authorities	649
through the Medicare and PBS programs	47
through Aboriginal health organisations and other Commonwealth programs	126
<b>Total</b>	<b>822</b>

- 2.4 Out of pocket payments are estimated at about \$12 million, \$5 million of which were for Medicare and Pharmaceutical Benefits Scheme items, \$4 million for acute hospital care and \$3 million for other services. *Net public expenditures* are therefore estimated at about \$810 million. Note that the gross expenditure figures relate to the authorities administering the various programs, not to the final sources of the funds, which are shown in Table 2.3. Note also that none of the expenditure data have been standardised for the age structures of the Indigenous and non-Indigenous populations or for the differences in health status discussed in Chapter 4.
- 2.5 Table 2.2 and Figure 2.1 show gross expenditures per person for Indigenous and non-Indigenous people. As can be seen, the ratio of Indigenous to non-Indigenous expenditures was much higher for services provided through State and local government authorities than through Commonwealth programs, few of which were aimed specifically at Indigenous people.

**Table 2.2: Gross expenditures per person, Indigenous and non-Indigenous people, through publicly subsidised programs 1995-96, by program**

	Indigenous	non-Indigenous	Ratio Indigenous/ other
Delivery	\$	\$	
through State and local government	1,763	806	2.20: 1
through Medicare/PBS	128	535	0.24: 1
through Aboriginal health organisations & other Commonwealth programs	344	213	1.62: 1
<b>Total</b>	<b>2,235</b>	<b>1,554</b>	<b>1.44: 1</b>

- 2.6 Tables 2.3 and 2.4 show the final sources of funds for net public expenditures on services to Aboriginal and Torres Strait Islander people, by level of government. In total, the Commonwealth Government and the other levels of government shared almost equally in the funding of services to Aboriginal and Torres Strait Islander people. But because most of its major programs were universal, the Commonwealth spent much more on non-Indigenous people than the States.

Figure 2.1: Gross expenditures per person on services to Indigenous people; through publicly subsidised programs, 1995–96, by program

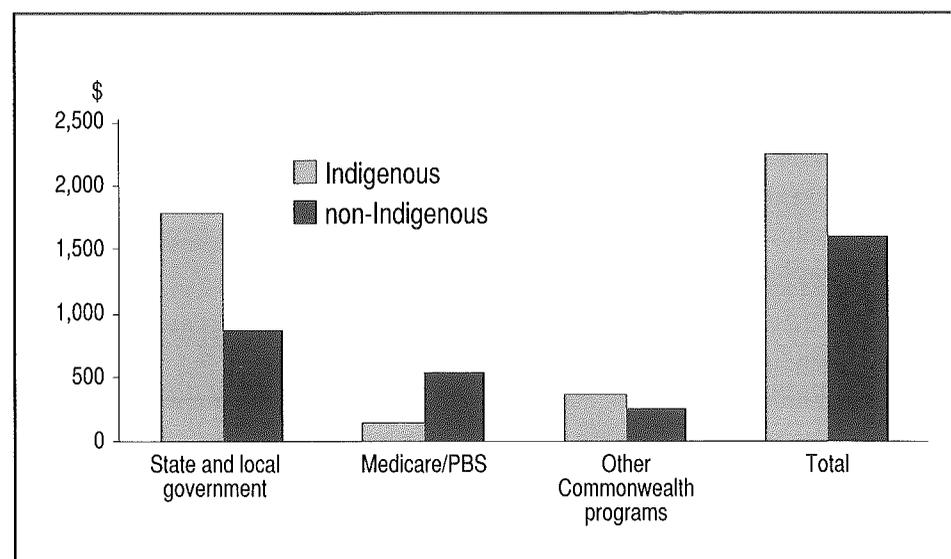


Table 2.3: Net government expenditures on services to Indigenous people, by source of funds, by level of government, 1995–96

Source of funds	\$m	%
State/local	421	51.9
Commonwealth		
-direct through Aboriginal health organisations	90	11.1
-indirect to States:		
through Medicare Agreements & other grants	222	27.4
through Medicare/PBS benefits	42	5.1
through other programs	36	4.5
All Commonwealth	390	48.1
<b>Total</b>	<b>810</b>	<b>100.0</b>

Table 2.4: Net government expenditures per person, by source of funds, by level of government, 1995–96

Source of funds	Indigenous	non-Indigenous	Ratio
	\$	\$	Indigenous/ Other
State/local	1,144	423	2.71: 1
Commonwealth			
-direct	244	-	-
-indirect	816	1,025	-
-total	1,059	1,025	1.03: 1
<b>Total</b>	<b>2,204</b>	<b>1,448</b>	<b>1.52: 1</b>

### Net public expenditures, by type of service

2.7 Tables 2.5 and 2.6 show the composition of net public expenditures, by type of service for Indigenous and non-Indigenous people, in total (Table 2.5) and per person (Table 2.6). The patterns were quite different. On average, Aboriginal and Torres Strait Islander people used hospital services at about twice the rate of the rest of the population and very little of this use was in private hospitals. They were major users of publicly provided community health services and expenditures on their transport to, from and between these facilities was also high—over six times the average level per person of the larger population. Because a number of public health programs are directed towards conditions to which Aboriginal and Torres Strait Islander people are particularly prone, the allocation of public health expenditures to them was relatively large.

2.8 Conversely, they benefited very little from such mainstream services as Medicare and the Pharmaceutical Benefits Scheme (PBS). Estimated payments for Aboriginal and Torres Strait Islander people represented only 0.55 per cent of all Medicare benefits for medical services in 1995–96 and their share of PBS outlays was even lower (see Tables 2.11 and 2.12 below). Indigenous people used State government nursing homes rather more than the rest of the population but they were less often admitted to the privately-run homes which provide the overwhelming majority of services to non-Indigenous patients and which absorb most of the Commonwealth funds for long term care.

Table 2.5: Net public expenditures, by type of service, 1995-96

	Indigenous		non-Indigenous	
	\$m	% total	\$m	% total
Hospitals (a)	448	4.0	10,751	96.0
Nursing homes	16	0.8	2,065	99.2
Community health	199	12.1	1,438	87.9
Patient transport	35	10.6	295	89.4
Public health	26	5.0	489	95.0
Medicare & other medical	34	0.5	6,523	99.5
PBS drugs and appliances	10	0.4	2,366	99.6
Other	42	3.2	1,295	96.8
<b>Total</b>	<b>810</b>	<b>3.1</b>	<b>25,222</b>	<b>96.9</b>
% population		2.0		98.0

(a) technically these are separated between 'acute care institutions' and 'mental health institutions' but all but a few are hospitals.

Table 2.6: Net public expenditures per person, by type of service, 1995-96

	Indigenous		non-Indigenous		Ratio Indigenous/Other
	\$	%	\$	%	
Hospitals	1,218	55.3	604	42.6	2.02: 1
Nursing homes	43	2.0	116	8.2	0.38: 1
Community health	543	24.6	81	5.7	6.71: 1
Patient transport	95	4.4	17	1.2	5.82: 1
Public health	71	3.2	27	1.9	2.57: 1
Medicare & other medical	91	4.1	366	25.8	0.24: 1
PBS drugs and appliances	27	1.1	133	9.5	0.20: 1
Other	115	5.2	73	5.1	1.58: 1
<b>Total</b>	<b>2,201</b>	<b>100.0</b>	<b>1,417</b>	<b>100.0</b>	<b>1.55: 1</b>

## Gross expenditures by State and Territory governments, by type of service, 1995-96

2.9 Tables 2.7-2.9 concentrate on expenditures by and through the State and Territory Governments. Transfers from the Commonwealth have not been netted out and because it was impossible to accurately separate fee receipts between the different services in every State, expenditures are gross of all receipts and transfers. As pointed out earlier, nearly 80 per cent of all expenditures on services to Aboriginal and Torres Strait Islander people are managed by the States and Territories. Table 2.7 shows their composition by services in more detail than in the aggregated tables, distinguishing between inpatient and outpatient services, between general hospitals and mental institutions and including an allocation of administration and research costs.

2.10 At the national level the main refinement is to reinforce the importance of public institutions in caring for Aboriginal and Torres Strait Islander people, particularly at the hospital outpatient, community health service and patient transport levels. The ratio of Indigenous to non-Indigenous spending per person was highest in the community health area and in transport, although in absolute terms by far the largest outlays were for inpatient care. As is discussed later, this pattern is very much influenced by the geographic distribution of the Indigenous population and it is not at all surprising. Nearly two-thirds of Aboriginal and Torres Strait Islander people live in rural and remote areas where private facilities and other providers are scarce, admission to hospital is often the only affordable way of delivering specialist services and transport is a significant problem. Non-Indigenous people in the same geographic and socio-economic position use services in a very similar way (see Chapter 4).

2.11 Tables 2.8 and 2.9 show, respectively, gross expenditures on Indigenous people by State and Territory authorities by service; and expenditures per person for Indigenous and non-Indigenous people, by jurisdiction. Figures 2.2 and 2.3 show the same information visually. As can be seen, there were substantial differences between the States/Territories in both expenditures per Indigenous person and in the ratio of spending on Indigenous people to that on the non-Indigenous population. Estimation involved some complex problems of under-identification, the approaches to which are discussed in a later section of this Chapter and in Appendix 4. However the pattern is relatively clear. By far the highest expenditures per Indigenous person and by far the highest ratio of Indigenous to non-Indigenous

expenditure per head occurred in the Northern Territory. On both measures, the next highest figures were in Western Australia, followed by Queensland and South Australia although in the latter case not entirely consistently. In contrast, estimated spending per Indigenous person in New South Wales, Victoria and Tasmania was substantially lower, both absolutely and in relation to the non-Indigenous level. The ACT is a very special case with less than 1 per cent of the total Indigenous population.

- 2.12 Since the proportion of Aboriginal and Torres Strait Islander people living in 'remote' areas is much higher in the Northern Territory, Western Australia and Queensland than in the south eastern states, the costs of isolation could largely explain the spending differences. But not entirely. While the Northern Territory also incurred high costs for its non-Indigenous people, Queensland showed the lowest non-Indigenous cost of all and the distribution across other jurisdictions was erratic. Scale may have had some influence; the largest States (New South Wales and Victoria) were at the lower end of the cost scale for both Indigenous and non-Indigenous people, but there are so many unaccountable differences in both service use and cost structure generally that any explanation of the Indigenous component alone is largely speculative.

**Table 2.7: Gross expenditures through State and Territory authorities, by type of service; in total and per person, 1995-96**

Service	Total		Per person		Ratio
	Indigenous	Other	Indigenous	Other	
	\$m	\$m	\$	\$	
Hospitals - inpatients	340	8,441	924	474	1.95: 1
- outpatients	98	2,128	267	119	2.24: 1
Mental health institutions	10	417	28	23	1.19: 1
Nursing homes	12	458	33	26	1.27: 1
Community health	107	1,326	291	74	3.90: 1
Patient transport	30	414	81	23	3.48: 1
Public health	21	374	57	21	2.69: 1
Administration and research	27	422	74	24	3.15: 1
<b>Total</b>	<b>645</b>	<b>13,981</b>	<b>1,753</b>	<b>785</b>	<b>2.23: 1</b>

**Table 2.8 Gross expenditure on Aboriginal and Torres Strait Islander people by State and Territory authorities, 1995-96**

State/Territory	Indigenous Expenditure (\$m)	Proportion of total expenditure (%)
New South Wales	140.0	2.7
Victoria	29.6	0.9
Queensland	150.8	6.2
Western Australia	115.1	7.8
South Australia	31.5	2.6
Tasmania	17.8	4.7
ACT	2.0	0.8
Northern Territory	158.1	55.7
<b>Australia</b>	<b>644.9</b>	<b>4.4</b>

**Figure 2.2: Gross expenditure on Aboriginal and Torres Strait Islander people by State and Territory authorities, 1995-96**

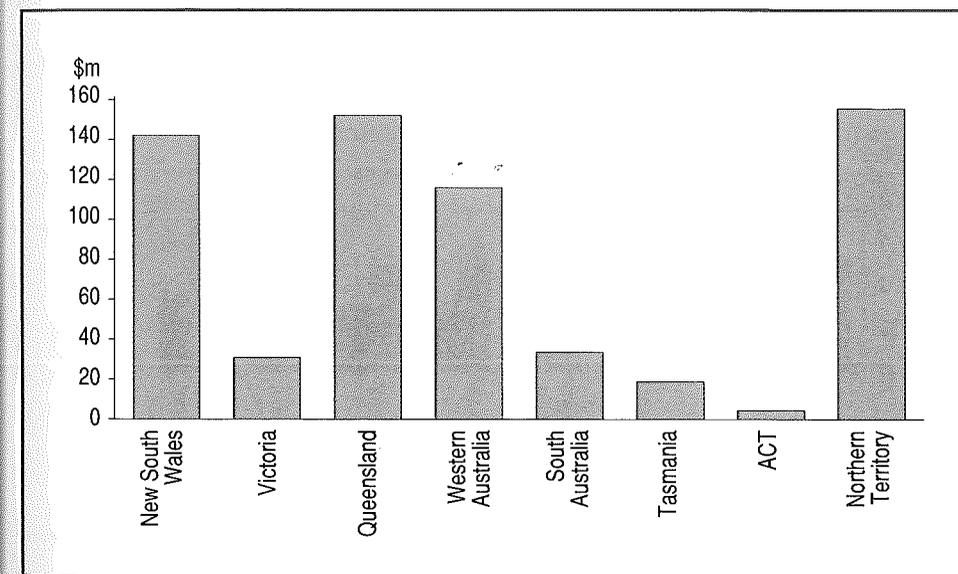
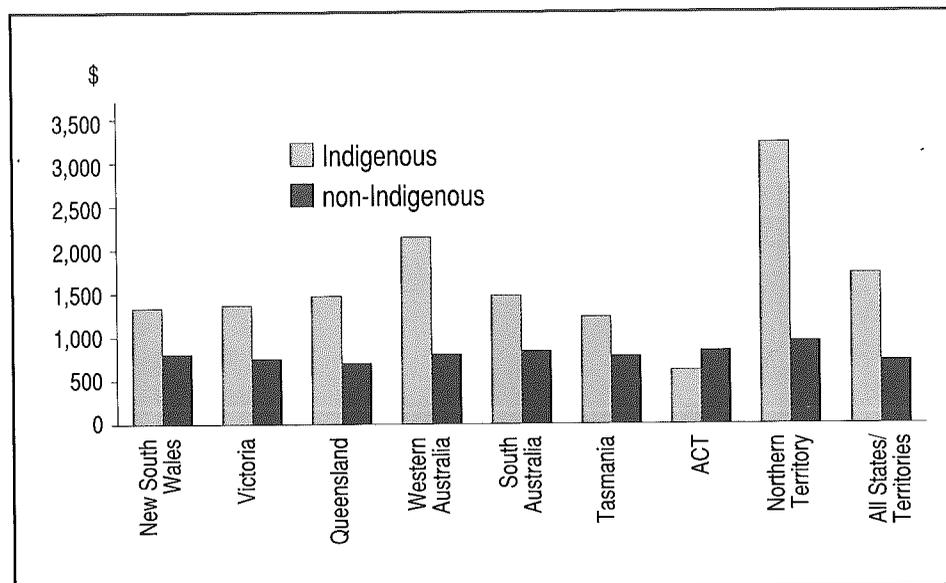


Table 2.9: Gross expenditures per person through State and Territory authorities, by States/ Territories, 1995-96

State/Territory	Indigenous \$	non-Indigenous \$	Ratio
New South Wales	1,334	825	1.62: 1
Victoria	1,326	747	1.78: 1
Queensland	1,518	716	2.12: 1
Western Australia	2,152	807	2.67: 1
South Australia	1,500	827	1.81: 1
Tasmania	1,227	788	1.56: 1
ACT	659	869	0.76: 1
Northern Territory	3,221	963	3.34: 1
<b>Australia</b>	<b>1,753</b>	<b>785</b>	<b>2.23: 1</b>

Figure 2.3: Gross expenditures per person through State and Territory authorities, 1995-96



## Commonwealth expenditures, by program

2.13 As in all such services, the Commonwealth's contribution to expenditures on health services for Aboriginal and Torres Strait Islander people is mainly indirect. The only Commonwealth monies which flow directly into service provision are the grants which it makes to community-controlled Aboriginal Health and Substance Abuse programs, some of which are, by the conventional classification, for 'welfare' activities rather than for health. Otherwise, estimating the central government's share involved (a) the allocation to Indigenous people of spending on a number of minor programs where payments went directly to providers rather than through the States, and (b) estimating the flow of funds through the Medicare and Pharmaceutical Benefit schemes. Neither of these mainstream programs includes any provision for Aboriginal identification in its records. Previous attempts at estimation have relied entirely on the self-reported data in the ABS Aboriginal and Torres Strait Islander Health Survey of 1995 for which there were no corroborative data and a number of problems in interpretation (see Chapter 3). Special surveys were undertaken for this study, based on sampling, for a limited time, the services of one in three general practitioners and one in two pharmacies in 25 Divisions of General Practice within which over 52 per cent of the Indigenous population lived.

2.14 The results are therefore shown separately. Table 2.10 shows Commonwealth expenditures other than those through Medicare and the PBS. For direct grants through OATSIHS, the estimated welfare services component has been removed. Details are in Appendix 3. As can be seen, the amounts provided through other Commonwealth programs were small.

**Table 2.10: Estimated expenditures on services to Aboriginal and Torres Strait Islander people through Commonwealth government authorities and programs, 1995–96**

	\$m
<b>Direct</b>	
Office for Aboriginal and Torres Strait Islander Health Services	90
<b>Indirect through:</b>	
Acute hospitals	4
Nursing home subsidies	4
Community health and General Practitioner programs	2
Patient transport (RFDS)	7
Public health programs	4
Administration & research	15
<b>Total</b>	<b>126</b>

**Table 2.11: Estimated service use by Aboriginal and Torres Strait Islander people through Medicare and the Pharmaceutical Benefits Scheme, 1995–96**

Medicare	Services (000)	Per person
GP consultations	716.7	1.95
Specialist consultations	39.6	0.10
Pathology episodes	94.6	0.26
Radiology episodes	43.2	0.12
Other diagnostic services	12.5	0.03
Hospital referrals	31.3	0.08
Pharmaceutical benefits	Items (000)	Per person
PBS items dispensed:		
General	61.6	0.17
Concessional	240.4	0.65
Pensioner	199.8	0.54
Safety net	38.7	0.10
Other	9.9	0.03
All PBS	550.4	1.50
Non-PBS	14.4	0.04
<b>Total</b>	<b>564.4</b>	<b>1.54</b>

2.15 The methodology of the Medicare and PBS surveys is described in the next section of this chapter and their detailed results are reported in Appendix 2. Tables 2.11 to 2.13 summarise the estimates of service usage and expenditures which they provided. Payments for Indigenous people represented only 0.55 per cent of all Medicare benefits in 1995–96 and only 0.42 per cent of PBS prescription outlays. Medicare and PBS benefits essentially cover privately-provided medical and pharmaceutical services, although some Aboriginal Medical Services are entitled to bulk bill Medicare and the sample base included them. However the overall use of all such services was low—on average, only about one quarter of the rate by non-Indigenous Australians for medical services and about one fifth for drugs. It was not uniform though. The ratios for GP consultations and the diagnostic services they ordered were much higher at about one third of the non-Indigenous figures. What most distinguished Aboriginal usage was the very low use of private specialists and the correspondingly high rate of referral to hospitals. However, specialist referrals apart, the pattern of general practitioner care for those Aboriginal people who saw a private doctor appears to have been remarkably similar to that reported for the whole Australian population in the largest national survey (see Appendix 2).

**Table 2.12: Estimated benefits paid for Aboriginal and Torres Strait Islander people through the Medicare and Pharmaceutical Benefits Schemes: 1995–96**

Medicare	Total (\$m)	Per person (\$)
<b>Direct costs</b>		
GP consultations	16.3	44.3
Specialist consultations	2.7	7.3
Pathology	4.6	12.5
Imaging	5.0	13.6
Other diagnostic	0.6	1.6
<b>Derived costs</b>		
Specialist pathology and imaging	1.4	3.8
In-hospital specialist (private)	1.7	4.6
<b>All Medicare</b>	<b>32.3</b>	<b>87.8</b>
<b>Pharmaceutical benefits</b>	<b>9.8</b>	<b>26.6</b>
<b>Total</b>	<b>42.1</b>	<b>114.4</b>
<b>Estimated patient payments</b>		
Medicare	2.4	6.5
PBS	2.7	7.3

**Table 2.13: Estimated benefit payments for Indigenous and non-Indigenous people through Medicare and the Pharmaceutical Benefits Scheme, per person, 1995–96**

	Indigenous \$	non-Indigenous \$	Ratio
<b>Medicare</b>			
GP consultations	44	130	0.35: 1
Specialist consultations	7	50	0.12: 1
Pathology	15	48	0.31: 1
Imaging	16	49	0.33: 1
Other medical	6	54	0.11: 1
<b>Total Medicare</b>	<b>88</b>	<b>331</b>	<b>0.27: 1</b>
<b>Pharmaceutical benefits</b>			
General	3	19	0.16: 1
Concessional/pensioner	19	77	0.25: 1
Other (safety net, etc)	5	27	0.18: 1
<b>Total PBS</b>	<b>27</b>	<b>123</b>	<b>0.22: 1</b>
<b>All Medicare and PBS</b>	<b>115</b>	<b>450</b>	<b>0.26: 1</b>

## All Government expenditures

- 2.16 As shown earlier, State and Territory expenditure for Indigenous people varied considerably—from \$659 per Indigenous person in the ACT to \$3,221 in the Northern Territory. A natural question is whether the distribution of Commonwealth funding, particularly that through OATSIHS to the Aboriginal Medical Services, offset these differences. Table 2.14 combines the State/Territory and Commonwealth expenditure in 1995–96. Appendix 3 shows the supporting data for Commonwealth outlays. The sampling framework for the Medicare and Pharmaceutical Benefits Scheme surveys did not allow a State/ Territory breakdown and the geographic distribution of non-OATSIHS outlays was unknown. Uniform expenditure per person were therefore assumed for them.
- 2.17 In some cases, the allocations did complement each other. In South Australia and Victoria for example, relatively low State/Territory expenditures were offset by larger than average AMS grants. However the pattern was not consistent. Western Australia and the Northern Territory had high expenditures per Aboriginal and Torres Strait Islander

person in both categories; whereas in Queensland and South Australia—which showed very similar State expenditure per person—grants to the community-controlled organisations were vastly different. The same applied to New South Wales and Victoria. New South Wales ranked lowest of all the major States in both total government expenditure per person and in the allocation of Commonwealth funded AMS grants.

**Table 2.14: Gross expenditures on services to Aboriginal and Torres Strait Islander people by State, Territory and Commonwealth governments: total and per person, 1995–96**

State/Territory	Total (\$m)			Per Person			
	State(a)	C'wealth AMS	Total Other(b)	State(a)	C'wealth AMS	Total Other	
New South Wales	140	15	24	1,334	139	226	1,699
Victoria	30	7	5	1,326	318	226	1,870
Queensland	151	15	22	1,518	147	226	1,891
Western Australia	115	20	12	2,152	370	226	2,748
South Australia	32	10	5	1,500	500	226	2,226
Tasmania	18	2	3	1,227	121	226	1,574
ACT	2	-	1	659	94	226	979
Northern Territory	158	21	11	3,221	435	226	3,882
<b>Australia</b>	<b>645</b>	<b>90</b>	<b>83</b>	<b>1,753</b>	<b>246</b>	<b>226</b>	<b>2,232</b>

(a) excludes local government

(b) The division of Medicare, PBS and other Commonwealth expenditures was not available. State totals were estimated from population data

## Ranges of error

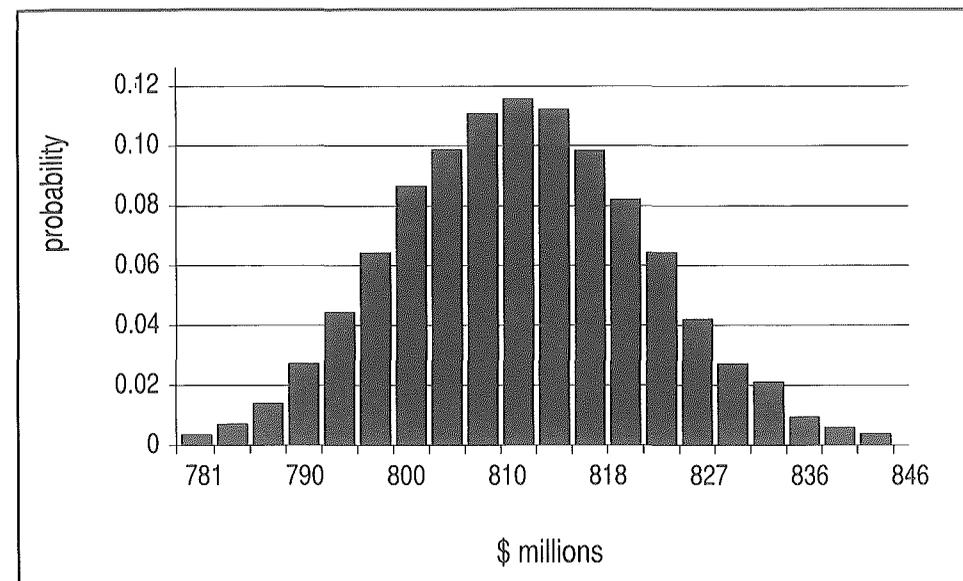
- 2.18 All estimates are subject to error, sometimes from sampling variance, in other cases from inadequate data or uncertain methods of estimation. In this case the estimates based on sample surveys were relatively minor—about 5 per cent of the total—and because the samples of doctors and pharmacies were relatively large, the overall effects of sampling error were technically quite small. However all of the figures are subject to the basic problem of under-identification. It should have been rather less pervasive in the Medicare/PBS surveys in which GPs and pharmacists were specifically contacted several times, fully understood the nature of the surveys, agreed to participate and were asked to take particular care

to identify Aboriginal and Torres Strait Islander patients for a two-week period only. But for the mainstream hospital, community health and other State/Territory services which rely on routine record keeping, the errors—though unquantified—have always been regarded as substantial.

2.19 Chapter 3 describes the methods used to estimate State/Territory expenditures and, in the process, to estimate the likely degree of under-identification in each State. Only New South Wales attempted to do so formally, although Queensland adjusted its reported figures for a section of the state (the south-east corner). The procedures we used were complex and involved reference not only to the State/Territory data but also to our knowledge of the delivery systems of each State and Territory and to the possible use of self-reported usage and expenditure data as either an alternative to or a check upon the information collected from providers (see Appendix 1). Each jurisdiction and each type of service was examined separately. The expenditure estimates presented earlier were, for each State/Territory, the *mid-range figures* for which alternative high/low figures are available (see Appendix 4). Uncertainty over Aboriginal identification was the major variable.

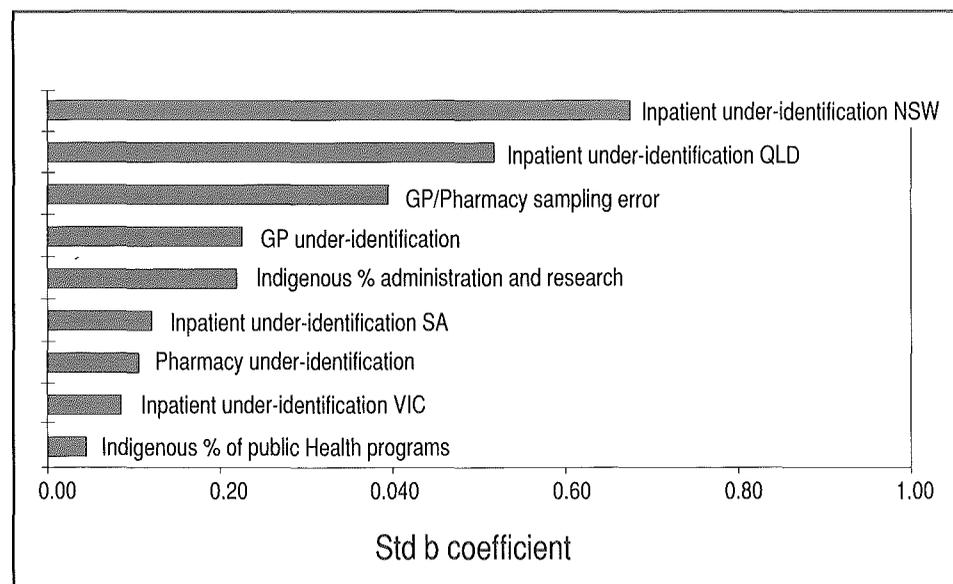
2.20 On a national basis, the weighted average estimate of under-identification was just under 20 per cent, which implies an average expansion of 25 per cent in the recorded State and Territory information and the same proportion was used, conservatively, in expanding the Medicare/PBS survey data. The range of possible under-counting was quite large—from 25 per cent to 40 per cent in New South Wales, for example—but it was both smaller and more varied in the other States. In all services, not only hospitals, we were able to place some upper and lower limits on the likely range of error. The most probable error is not, however, the sum of the extremes—in some cases we will have over-estimated, in other cases the reverse. Figure 2.4 shows the estimates for net government expenditure, based on a procedure from investment analysis which takes account of both the range of possible variation assumed and the size of the expenditures involved. Large errors in small items thus have little weight.

Figure 2.4: Distribution of estimates of net government expenditure on Indigenous people; 1995–96, with probability of occurrence



The greatest likely variation from our best estimate of \$810 million in net government expenditures is plus or minus \$33 million, with, technically, a 95 per cent confidence level of about \$22 million. However this assumes that the estimates of variance were independent across the various services, which was not entirely true in our case—some items were estimated by reference to others. It would therefore be prudent to accept the higher figure. But this was still quite small. Figure 2.5 shows the relative importance of selected items. The 'b coefficient' is similar to a regression coefficient, standardised within a range of zero to one, the larger numbers reflecting a larger contribution to probable variance. As can be seen, identification in the States with the greatest number of Indigenous people contributed most to the likely variance, with the effects of Victorian and South Australian identification being relatively small.

Figure 2.5: Contribution to probable variance in expenditure estimates; selected factors



## Chapter 3 Methodology

3.1 Except for the data on Medicare and Pharmaceutical Benefit use—which were estimated from sample surveys—the basic methodology was to allocate total health expenditures to Indigenous people according to whatever measures of differential usage and service cost were available. There are very few services devoted exclusively to Indigenous people's health and as has been pointed out many times before, the identification of Aboriginal and Torres Strait Islander patients in the records of the mainstream hospital and medical services was known to be highly variable. The task was therefore one of using all of the available indicators to construct expenditure estimates which were consistent with both the internal and external usage data and the general principles of cost allocation. Because over two-thirds of all expenditures originated in the State and Territory authorities, this was the main area of concern.

### State and Territory expenditures

3.2 Four inter-related data sources were used, namely:

- (i) State authority estimates collected by questionnaire.
- (ii) Utilisation data provided routinely by the States, mainly in relation to acute hospital morbidity.
- (iii) Self-reported usage and expenditure data provide by the ABS National Aboriginal and Torres Strait Islander Survey (1995) and the ABS National Health Survey (1991).
- (iv) Costing data derived from the AIHW Disease Costing Model (1997) and the Australian Casemix Clinical Committee study of casemix issues in relation to Aboriginal and Torres Strait Islander patients (1996).

A number of papers and partial studies were also available, most of which are referred to in the references.

## State authority estimates

- 3.3 As reported in earlier papers, a questionnaire was sent to all States and Territories in January 1997, followed by visits to all health departments in January–February to explain the process and the type of information sought. The questionnaire requested data on total health expenditures on each type of service and the State's estimate of the amounts attributed to Aboriginal and Torres Strait Islander patients for each service, together with an explanation of how the allocations were made and the data relied upon.
- 3.4 Only New South Wales was able to both provide estimates across the whole range of services and explain, with supporting data, the way in which the estimates were made. It was also the only State which tried to explore the effects of different assumptions about the level of under-identification in its records. Western Australia and the Northern Territory were also able to provide expenditure estimates for all services and to explain the bases of calculation, although the underlying service data were not provided. Because these authorities represent, in effect, the 'gold standard' in relation to Aboriginal and Torres Strait Islander identification, that particular issue did not arise. The ACT provided estimates in several categories but it represents one city only, less than 1 per cent of the Indigenous population and an environment which is in many ways unique.
- 3.5 The figures actually provided by the States and Territories are in Appendix 4, together with the questionnaire. As can be seen, none of the other States could provide full estimates. Tasmania had no Indigenous identification of any kind for its mainstream services and could therefore report little. Victoria's initial response was limited to \$2 million spent on specific Aboriginal and Torres Strait Islander programs only, although it later provided an allocation of inpatient costs based on the hospital morbidity statistics routinely supplied to the Australian Institute of Health and Welfare (AIHW) by all jurisdictions and which contain an Indigenous identifier. South Australia dissected its admitted patient costs (based on the same morbidity collection) but its other information was similarly limited—to about \$5 million in administrative costs and grants to the Aboriginal Health Council. Apart from acknowledging the probability, the question of under-identifying Indigenous patients was not addressed. Queensland provided some allocated data in two of the eight expenditure categories but could not estimate the quality of identification apart from adjusting upwards (by 50 per cent) the reported Indigenous proportion of acute hospital inpatients in the south east corner of the State.

- 3.6 All States and Territories provided total expenditure figures by type of service, although they often required adjustment to reconcile with those from other sources. New South Wales initially reported accrued expenditures for example, whereas all of the others reported cash. There were also differences in the base for costing services. On the inpatient side, some allocated costs by separations only, some by a mixture of separations and bed days, some by casemix weighted separations and one (New South Wales) by casemix weighted separations adjusted by the public–private mix.
- 3.7 However the greatest problem was under-identification. In Western Australia and the Northern Territory it was believed to be minimal and to be relatively small in South Australia. After analysis, New South Wales had estimated inpatient under-identification at 20 per cent and adjusted its figures accordingly and Queensland had also adjusted its data, though on very limited evidence. But both States were then assessing their likely under-identification from population data based on the 1991 Census, whereas the most recent Census results (published in August 1997) show increases in Aboriginal and Torres Strait Islander populations of 15.3 per cent in New South Wales and 13 per cent in Queensland. In both cases, the original estimates needed review.
- 3.8 But the relative position did not change. It remained one of apparently good identification in the western states where about 34 per cent of the Indigenous people lived, with an unmeasured but potentially large under-identification problem in the remaining States where two-thirds of the Aboriginal and Torres Strait Islander population resided. The Western Australia/South Australia/Northern Territory complex provided some points of reference but its characteristics could not be applied directly because remote area services are much more important in the western half of the country than in the more populous east. In the Northern Territory, nearly 80 per cent of Indigenous people live in 'remote' areas whereas Victoria has none. Some external benchmarks were needed.

## Self-reported and provider-reported data

- 3.9 The obvious reference figures were the self-reported data on hospital separations in the NATSIS survey for 1994. The survey asked respondents whether they had been hospitalised in the last two weeks and whether they had visited an emergency department or outpatient clinic in the same period. Annual admission/visit rates for Indigenous

people could be estimated from these data and compared with the numbers reported by the hospitals.

- 3.10 The process was a complex one. Table 3.1 shows acute hospital separations by Indigenous and non-Indigenous patients in 1995–96, by type of hospital and State/Territory, as identified in the national hospital morbidity statistics. As can be seen, the reported separation rates for Indigenous people varied significantly—from 516 per 1000 Indigenous people in the Northern Territory to 258 in NSW/ACT. The reported rates in Western Australia and South Australia were not as high as in the Northern Territory but they were of the same orders of magnitude and much greater than in New South Wales and Victoria. Queensland held an intermediate position. In all the States and Territories except Victoria and New South Wales, the reported Indigenous rates were well above those for non-Indigenous people, which (apart from the Northern Territory) were very similar across the country. The obvious inference was one of under-identification in all of the three largest States, though possibly somewhat less in Queensland than the others. However there were no indicators of magnitude.
- 3.11 The self-reported data gave little help. Appendix 1 describes the analysis of self-reported data as an alternative or supplement to the information reported by providers. On the inpatient side, Table 3.2 compares, for 1993–94, the Indigenous admissions derived from the self-reported NATSIS data with the numbers of identified admissions reported by hospitals. At face value, the highest levels of under-identification were in the Northern Territory, Victoria and South Australia, with the best performances in Queensland, Western Australia and New South Wales, in that order. But this is not what conventional wisdom or the views of experienced administrators would support. Moreover, the figures themselves are implausible. They would suggest, for example, that at the minimum nearly one in three of all Indigenous admissions in Western Australia were wrongly classified and that in the Northern Territory, South Australia and Victoria the proportion was over fifty percent. These are simply not realistic conclusions. In fact, the number of Indigenous admissions derived from self-reported data in the Northern Territory was about one and one half times the total number of reported admissions for Indigenous and non-Indigenous people combined. All that could be concluded was that while for some States and Territories there was an implausible *over-reporting* in the survey data for some States and Territories, it did not exclude some official *under-reporting* in others and there was no objective way of distinguishing between the two. Alternative criteria had to be used.

**Table 3.1: Reported separations from acute hospitals by Indigenous status and type of hospital, 1995–96**

State/Territory	Indigenous		non-Indigenous	
	Total (000)	per 1,000 pop	Total (000)	per 1,000 pop
New South Wales	27.0	258	1,714.3	283
Victoria	6.0	266	1,290.9	287
Queensland	45.1	413	936.7	292
Western Australia	27.1	506	424.1	250
South Australia	9.7	461	453.0	311
Tasmania	0.3	-	104.5	-
ACT	0.3	106	70.3	230
Northern Territory	25.3	516	20.8	163

**Table 3.2: Indigenous admissions, self-reported and hospital-reported, 1993–94**

	NSW/ACT	VIC	QLD	WA	SA	TAS	NT	Aust
<b>Self reported</b>								
In 2 weeks	1,307	324	1,496	1,402	583	74	228	7,466
Annual rate (000)	416	443	492	783	836	190	1,321	648
Est. total (000)	38.9	9.1	43.0	38.6	16.3	2.3	61.1	209.3
<b>Hospital reported</b>								
Total (000)	24.9	4.4	30.7	27.1	7.9	-	23.8	-
Ratio self report/ hospital report	1.56	2.07	1.40	1.42	2.06	-	2.56	1.74

Note: NT admissions have been adjusted to the post-1994 classification of dialysis patients. The Australian ratio excludes Tasmania.

- 3.12 For non-admitted patients there were no comprehensive hospital figures with which the self-reported data could be compared. The relevant comparators in this case were data from the National Health Survey of the whole population in 1989–90 and from the National Aboriginal and Torres Strait Islander survey for 1994. Appendix 1 describes the methods used. Essentially, the question was whether the under-identification or over-reporting in the inpatient area applied equally to the non-admitted

patient area. There were some indicators of the general relationship between inpatient and outpatient spending in the estimates provided by New South Wales, Western Australia and the Northern Territory, the only States to attempt the admitted/non-admitted split. In all of them the proportion of cost attributed to Indigenous outpatients was slightly higher than in the inpatient case and the final allocation used such internal relationships rather than direct measurement.

## Final methodology

- 3.13 The final methodology was based on three factors. First, although all States and Territories were able to dissect total expenditures by type of service, only two States and one Territory—New South Wales, Western Australia, and the Northern Territory—were able to estimate the Indigenous component across the board. All of the other data had to be constructed in varying degrees.
- 3.14 Second, the reported costing methods were not uniform. This mainly affected inpatient expenditures, which were about 50 per cent of all Indigenous patient costs. There were minor differences in other areas but these were resolved in consultation.
- 3.15 Thirdly, there was the issue of under-identification, a problem quite different from simply filling gaps in a multi-service matrix. Under-identification was likely to affect all of the figures for mainstream services where allocation was based on estimated service use.
- 3.16 The processes adopted were therefore as follows:
- (i) The figures provided by New South Wales, Western Australia and the Northern Territory were used to establish a baseline set of relationships between the use of Indigenous and non-Indigenous people across the different types of service.
  - (ii) Identification was assumed to be effectively complete in Western Australia, the Northern Territory and the ACT. Data provided by the Health authorities in these jurisdictions were therefore accepted with only minor adjustments for consistency.
  - (iii) The data from New South Wales were also accepted, subject to an overall adjustment for estimated under-identification and for consistency with other States/Territories in financial reporting and costing.

- (iv) The identification of inpatients was assumed to be indicative of identification in all services where estimates were based on comparative utilisation data.
  - (v) Estimates of under-identification were based on providing a consistent set of Indigenous and non-Indigenous hospital admission rates across States and Territories, given the known differences in overall admission rates, service availability and the proportion of the Indigenous (and non-Indigenous) population living in rural and remote areas where reliance on hospital-based services was likely to be greatest. The results are shown below, using the admissions reported in the National Hospital Morbidity Statistics as the base. There was, unavoidably, an element of judgment in the figures and expenditures based on a range of alternative assumptions are included in Appendix 4. However the aggregate expenditure figures were not particularly sensitive to plausible changes in these assumptions (less than 5 per cent variation overall) and the process included a number of checks and balances.
  - (vi) Services were then costed on a consistent basis, for inpatient services using the AIHW Disease Costing Model methodology. This is a variant of casemix costing which allows differences in length of stay within a given mix of cases to be handled. Several studies have shown this to be a significant factor in the differential cost of treating Indigenous patients. Because it appeared to explain most of the cost variation between Indigenous and non-Indigenous patients in the same casemix category, no additional allowance for Aboriginality was made (see Appendix 1).
  - (vii) Where States were unable to provide figures, the estimated hospital admission rates for Aboriginal and Torres Strait Islander people (adjusted for under-identification) were used as baseline data and costed as above. Non-institutional expenditures were then allocated to Indigenous and non-Indigenous people on the assumption that, for each type of service, their shares bore the same relationship to the proportionate allocation of institutional expenditures as applied in New South Wales and Western Australia.
- 3.17 The outcome of this process was a set of estimates for those States unable to provide the data themselves, which took account of as much information as was available on the largest item of expenditure (the Hospital Morbidity

collection) and then applied, for all other services, the *relativities* between Indigenous and non-Indigenous expenditures established in the 'baseline' states to the actual expenditure totals in the others. It is difficult to see what other methods could be used.

3.18 Our best estimates of the proportion of Indigenous inpatients not identified were:

New South Wales	33 %
Victoria	25 %
Queensland	15 %
South Australia	10 %

These take into account the revised figures for the Aboriginal and Torres Strait Islander population in the 1995-96 Census and the analysis of self-reported data described in Appendix 1, together with whatever evidence was available of trends in identification practices since the States and Territories committed themselves to better data collection in 1994. In fact, identification does seem to have improved in several places. Reported admissions in Queensland, Victoria and South Australia rose significantly more than the estimated Aboriginal and Torres Strait Islander population between 1993-94 and 1995-96, so that identification in those States has probably increased. However the relative rates of growth were almost the same in the Northern Territory and using the same criterion, identification would have actually declined by 3 per cent to 5 per cent in New South Wales and Western Australia. Nationally the overall change was small. Figures are in Appendix 1.

3.19 Table 3.3 shows the effect of the adjustment factors on estimated admission rates, for both Indigenous and non-Indigenous people; and the ratio of the adjusted Indigenous to non-Indigenous rates. It also shows the ratios of overall expenditures for the two groups, by states (from Table 2.9). As can be seen, the overall expenditure ratios paralleled the estimated admission ratios, which is not surprising given the importance of acute hospital use. However they were all higher because in some non-institutional services the ratios of Indigenous to non-Indigenous use were much higher than in hospitals and the balance between these expenditures varied between the states.

**Table 3.3: Acute hospital admission rates for Indigenous and non-Indigenous people: reported and adjusted for estimated under-identification, 1995-96 (per thousand population)**

State/Territory	Indigenous		non-Indigenous		Ratios	
	reported	adjusted	reported	adjusted	adj. adm.	Cost
New South Wales	258	388	283	277	1.40	1.62
Victoria	266	353	287	286	1.23	1.78
Queensland	413	487	292	289	1.69	2.12
Western Australia	505	505	250	250	2.02	2.67
South Australia	460	510	311	310	1.64	1.81
Tasmania	-	380	265	260	1.46	1.56
ACT	106	106	230	230	0.47	0.76
Northern Territory	517	517	163	163	3.17	3.34

### Composition of the State/Territory estimates

3.20 As outlined, the final estimates of State and Territory expenditures were a combination of documented and constructed figures, where 'documented' means that the allocation between Indigenous and non-Indigenous people was based on some formal measures of use and 'constructed' means that it was based only on population or estimated from relationships in the baseline states. Table 3.4 shows the status of the figures for each type of service in each state. Acute inpatient treatment was the category with the highest level of documentation, although most of the recorded numbers were subsequently adjusted for under-identification. Figures for the other services had varying levels of statistical support. Geographically, Western Australia and the Northern Territory were the only states for which all of the figures were documented and unaltered, although the adjustments for New South Wales were relatively few. At the other extreme, all of the figures for Tasmania were constructed and the only useful data from Victoria and South Australia were limited to hospitals. Too much should not be made of this however, because the sum of the 'documented' expenditures (\$542 million) was far greater than the total of those which were 'constructed' (\$103 million) and the constructed figures were themselves bound by the limitations of allocating *actual* expenditures on each service and by the improbability of the proportions differing very greatly from those in the baseline states.

Table 3.4: Composition of State and Territory estimates

Service	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Hospitals								
-inpatient	D	D	D	D	D	c	D	D
-outpatient	D	c	D	D	c	c	D	D
Mental health institutions	D	na	c	D	c	c	na	na
Nursing homes	D	c	c	D	c	c	na	D
Community health	D	D	c	D	c	c	D	D
Transport	D	c	c	D	c	c	c	D
Public health	D	c	c	D	c	c	c	D
Administration/research	c	c	c	c	D	c	c	c

*D = documented*

*c = constructed*

*na = not applicable*

## Commonwealth expenditures

### Identified programs

3.21 Grants to community-controlled Aboriginal Health Services through OATSIHS were the largest item of direct Commonwealth expenditure. Of the total \$114 million allocated in 1995–96, an estimated \$24 million (based on staffing data) was spent on services classified under our definitions as ‘welfare’, leaving the \$90 million shown in the earlier estimates. The remaining direct expenditures represent the estimated Indigenous shares of a variety of Commonwealth programs, for personal services allocated according to estimated use and for Public Health services according to population where no personal consumption could be measured.

### Mainstream programs

3.22 Financially, by far the largest indirect expenditure by the Commonwealth was through the Medicare Agreements (an estimated \$196 million in 1995–96) but as pointed out earlier this was only a notional allocation of shared costs generally and has no policy or operational significance.

3.23 The most important unknown has been the extent to which Aboriginal and Torres Strait Islander people use Medicare and the Pharmaceutical Benefits Scheme. There is no Indigenous identifier in any of the Medicare or PBS records and no provision for it. The only previous estimates have been based on inferences from the NATSIS survey which asked whether people had visited a doctor in the 2 week survey period and whether any medications had been taken. They have then been used to estimate the Indigenous share of Medicare and PBS benefits.

3.24 An analysis of this material is in Appendix 1. It was of no direct value for our purposes, mainly because it cannot be validly extended to Medicare and PBS funding. Overall, the data would suggest that, excluding those provided by Aboriginal Medical Services, the number of doctor visits by Indigenous people might be about 60 per cent of that by the larger population and this is the ratio which has commonly been used. But all doctor contacts are not provided under Medicare, especially for Indigenous people, nor are all medications paid for by the PBS. The NATSIS survey did not distinguish between contacts with a GP or a specialist; or between contacts with a doctor in private practice—or otherwise eligible to bill under Medicare—and contacts with doctors working for the State services which are important providers in Western Australia, the Northern Territory and Queensland; or those in a Community Health Centre which might be run by local government or associated with a local hospital. Even contacts in the outpatient department of a hospital could not be excluded with certainty. Patients do not know the implications of these differences, nor should they be expected to. In any case, how would all of the diagnostic services covered by Medicare be recorded; pathology and radiology, for example? On what basis should any comparison of usage rates be made? On the pharmaceuticals side, there was no indication of whether the medicines were prescribed or not, or whether they were eligible for PBS cover. There were, of course, no indications of cost.

3.25 Two sample surveys were therefore undertaken. Our Interim Report outlined the problems in this area. Finding the Indigenous users of atomistic, uncoordinated private services is a major task where they represent only 2 per cent of the total population and in most of the more populous areas, a proportion of 0.5 per cent or less. We did not have the resources to mount a nationwide survey. The survey design had to capture sufficient information for reliability but as efficiently as possible.

3.26 The structure was as follows:

- (i) Samples of Medicare-registered doctors and pharmacies were selected from the same geographic areas, covering services provided in the same periods of time.
- (ii) The populations from which the samples were drawn were:
  - (a) All GPs with Medicare provider numbers in the 25 Divisions of General Practice in which the proportion of Indigenous people in the population was above the national average (1.7 per cent in the 1991 Census on which the selection was based). The areas covered by the survey contained 52.5 per cent of the Indigenous population at the 1991 Census.
  - (b) All pharmacies in the postcodes covered by the above areas.
- (iii) The doctor samples were drawn randomly by the Department of Health and Family Services from its Medicare provider files. The sampling fraction was one in three full-time doctors, using the DHFS definition of full-time and part-time practice. Full-time doctors provided 85 per cent of all the GP services claimed for under Medicare in these areas in 1995–96.
- (iv) The sampling fraction for pharmacies was one in two. They were drawn from the membership list of the Pharmacy Guild of Australia in the relevant postcodes. About 94 per cent of pharmacies were estimated to be Guild members.
- (v) Data were collected through a diary-type questionnaire. The reporting periods were two weeks in July 1997 for GPs and two weeks in August for pharmacists. All of the selected doctors and pharmacies were written to (with supporting letters from the AMA and the Pharmacy Guild) with a copy of the questionnaire and instructions for its completion enclosed. All doctors and pharmacists were then contacted by telephone before the survey period and after the nominated period was over, often several times. At the first contact, data on whether or not they had seen any Indigenous patients in the last year were recorded so that this information was available for all of the providers sampled, except for those who specifically declined to participate. The survey results were then expanded by factors for non-participation/ partial response, the full-time/part-time ratio (for doctors), sampling fractions and the estimated proportion of the Indigenous population covered.

3.27 Details are in Appendix 2 together with copies of the questionnaires. The numbers involved and response rates were as follows:

**Table 3.5: Composition of GP and Pharmacy samples**

<b>GPs:</b>			
Total sample	493		
Not contactable (ex-locums, etc)	20		
Effective sample	473		
Did not participate	118		(24.9 %)
Participants	355		(75.1 %)
No Indigenous patients	53		(11.2 %)
Saw Indigenous patients	302		(63.9 %)
of which: full responses	252		(53.3 %)
partial responses	50		(10.6 %)
<b>Pharmacies:</b>			
Total sample	248		
Not contactable	4		
Effective sample	244		
Did not participate	41		(16.8 %)
Participants	203		(83.2 %)
Indigenous clients	156		(63.9 %)
No Indigenous clients	47		(19.3 %)

3.28 GPs were asked to record, for each Indigenous patient contact, the type of service provided, as well as referrals to specialists, hospitals, diagnostic services (pathology, imaging and other), whether services were bulk billed or patient-billed and whether a PBS prescription was written. Pharmacists were asked to record all prescriptions, including non-PBS prescriptions and to identify the type of PBS script (general, concessional, etc.) as well as the PBS item number and the amounts paid by patients. Expansion of the survey data *assuming a 20 per cent under-identification rate* (the national average rate applied to hospitals) gave the estimates of annual use by Indigenous people shown in Table 2.11 above. Costing at MBS and PBS benefit levels then gave the expenditure estimates in Table 2.12. Appendix 2 shows the processes.

3.29 As reported earlier, the estimated benefit outlay for Aboriginal and Torres Strait Islander people under Medicare was 0.55 per cent of all Medicare medical benefits. The corresponding figure for Pharmaceutical Benefits was about 0.42 per cent. Per person, Indigenous people drew only 27 per cent of the average amounts paid for non-Indigenous people for medical services and about 22 per cent for pharmaceuticals. However for GP services and the Pathology and Radiology tests they ordered, the ratio was much closer at about one third. Compared with other Australians, Aboriginal and Torres Strait Islander people were rarely referred to private specialists and their use of other private services was low. In the overall picture, these mainstream payments must of course be supplemented by the services provided through the Aboriginal Medical Services and through both the specifically Indigenous services and the community health services provided by the States and Territories. However since both the AMSs and community health services have a significant non-medical content, it was impossible to estimate with any precision the overall *medical* content of Indigenous health care.

## Chapter 4

# Health status and the assessment of need

4.1 One issue on which there seems to be both professional and popular agreement is that Aboriginal and Torres Strait Islander people have a greater 'need' for health services than other Australian citizens. The basis for this is usually their demonstrably higher mortality rates and the prevalence in the Indigenous population of infectious diseases and, in some cases, lifestyle disorders at much higher rates than for non-Indigenous people. This chapter provides an overview of the health status of Aboriginal and Torres Strait Islander people and briefly discusses some of the key issues in applying health status information to the assessment of need. It is not a comprehensive review. Much of the relevant information was collected and published by the Australian Bureau of Statistics and the AIHW in early 1997. The most recent health information and trends in health status are summarised below.

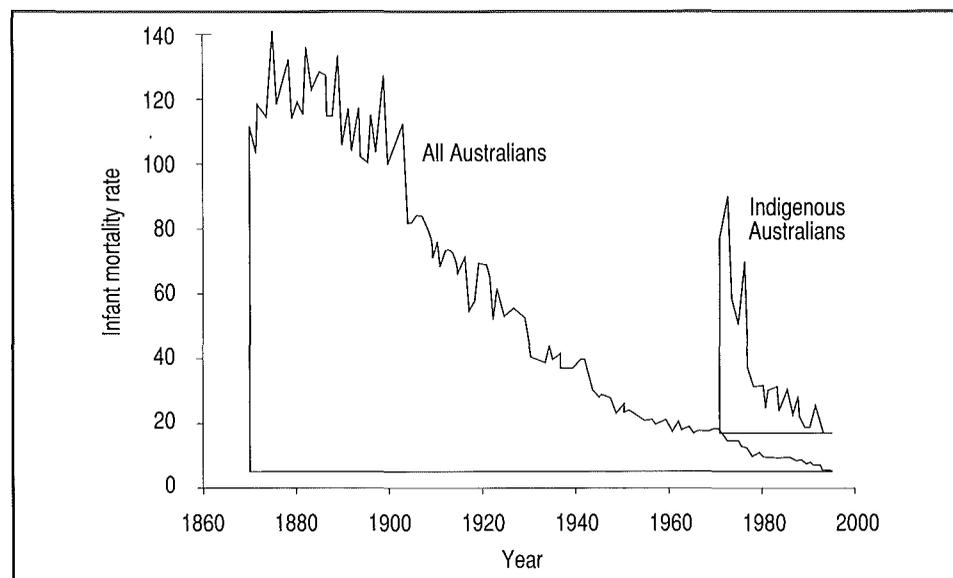
### Infant mortality

- 4.2 The infant mortality rate is used internationally as one of the key indicators of a community's health and is defined as the number of infant deaths (deaths of children less than one year of age) for every 1,000 live births. For Australia in 1995, the infant mortality rate was 5.7 infant deaths per 1,000 live births, very much lower than the rate of 100 per 1,000 live births at the beginning of the twentieth century.
- 4.3 Figure 4.1 shows trends in the total Australian infant mortality rate from 1870 to 1995 together with available data for the Indigenous infant mortality rate from 1972 onwards. Two series are shown for Indigenous infant mortality in the graph: for 1972–1990 for Queensland Indigenous communities, and for 1987–1995 for South Australia, Western Australia and the Northern Territory combined. Indigenous infant mortality rates showed dramatic improvements in the 1970s and the gap between Indigenous and non-Indigenous mortality rates narrowed. The gap

ceased to narrow in the 1980s and there is some suggestion that it may be widening in recent years. Although the Indigenous infant mortality rate is still over 3 times higher than the non-Indigenous rate, at 17.9 deaths per 1,000 births it is comparable to the level experienced by non-Indigenous Australians in the early 1960s.

- 4.4 Babies born to Aboriginal and Torres Strait Islander women average about 200 grams lighter at birth than babies born to other women. In 1991, Aboriginal and Torres Strait Islander babies were twice as likely as other babies to be classified as low birthweight (below 2,500 grams), a state which carries a significantly higher risk of poor perinatal outcome.
- 4.5 Maternal death is an uncommon event, but it is substantially more common among Aboriginal and Torres Strait Islander women than among other women. About 30 per cent of maternal deaths occur in Aboriginal and Torres Strait Islander women, who contribute only about 3 per cent of confinements.

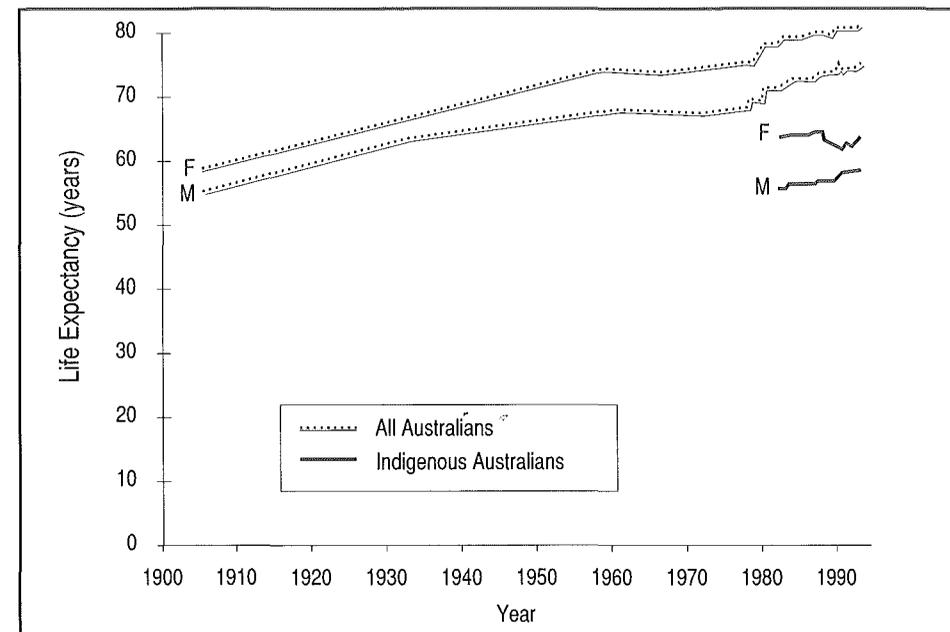
Figure 4.1: Infant mortality trends for all Australians and Indigenous people



### Life expectancy

4.6 National vital statistics were not collected for Aboriginal and Torres Strait Islander people prior to the referendum of 1967 which gave the Commonwealth powers to make laws with respect to them. Although identification of Aboriginal and Torres Strait Islander people in vital statistics collections has been identified as a national priority since 1984, the completeness of identification is currently considered adequate for the calculation of mortality rates and life expectancies only for South Australia, Western Australia and the Northern Territory.

Figure 4.2: Trends in life expectancy for Indigenous Australians and all Australians



Sources: Australian Bureau of Statistics (1996a), Gray (1990) and unpublished analyses by AIHW.

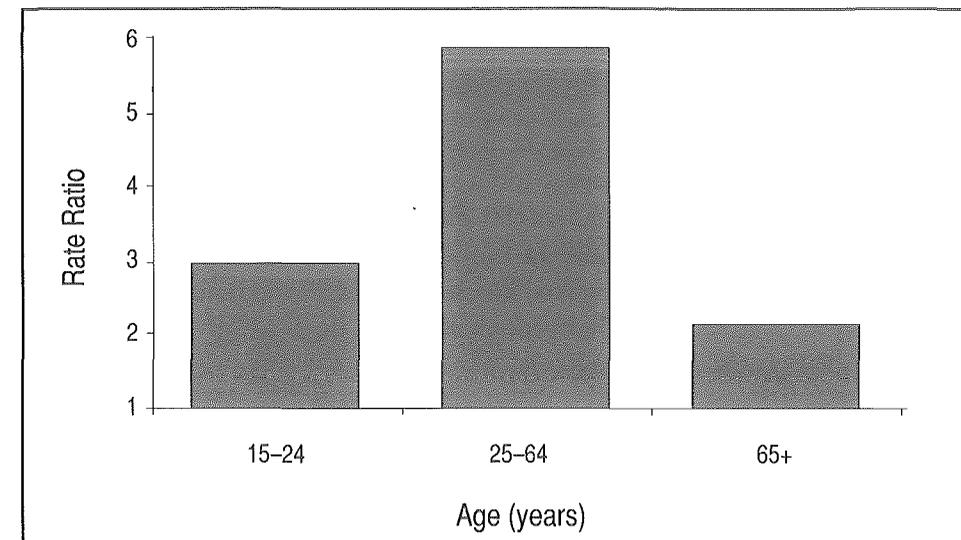
4.7 Figure 4.2 shows available data for Aboriginal and Torres Strait Islander life expectancy for South Australia, Western Australia and the Northern Territory combined based on death registration data for 1987 to 1995 and an analysis of intercensal population changes for 1981–1986 by Gray in 1990. Expectation of life at birth is around 17 years shorter for Aboriginal and Torres Strait Islander males than for all Australian males; the gap is slightly wider for Aboriginal and Torres Strait Islander females. These life

expectancies are comparable to those of Australian males at the beginning of the 20th century and Australian females in the 1920s. They are substantially lower than current life expectancies in many developing countries and in the Indigenous populations of New Zealand and North America. Moreover, the available evidence suggests that Indigenous life expectancies are increasing more slowly than non-Indigenous life expectancies and the gap is widening.

### Mortality, by cause

- 4.8 Although there is provision for Aboriginal and Torres Strait Islander on death certificates in all States and Territories (Queensland only since 1996) mortality rates and life expectancies can only be calculated for South Australia, Western Australia and the Northern Territory. Analysis of the data shows that, in these States, age-specific death rates were higher for Aboriginal and Torres Strait Islander people than for other Australians at virtually every age. However the contrast was most marked for people aged between 25 to 64 years (Figure 4.3). Within this range, Aboriginal and Torres Strait Islander people died at rates 5 to 7 times higher than those experienced by other Australians.
- 4.9 A recent analysis of trends in Aboriginal and Torres Strait Islander mortality found that, from 1988 to 1994, the rate of death from all causes decreased by about 10 per cent among Australians as a whole but it remained steady among Aboriginal men, and increased among Aboriginal women. Rates of death from circulatory disease, infectious disease, injury and poisoning, and mental disorders all declined in Aboriginal and Torres Strait Islander men during this period, but no similar trends were observed for women. Deaths from neoplasms (cancers) appeared to be increasing for both sexes. The death rate from diabetes rose rapidly in men in the late 1980s and by 1992 had reached the same high level as that in women. Aboriginal and Torres Strait Islander death rates from diabetes in 1992–94 were 12 times higher for men and nearly 17 times higher for women than rates for other Australians.
- 4.10 Diseases of the circulatory system, injury and poisoning, respiratory illness, and neoplasms continue to be important causes of death in Aboriginal and Torres Strait Islander people. Deaths from infectious diseases and from genitourinary disorders, although somewhat less common, continue to occur at much higher rates than among other Australians.

Figure 4.3: Mortality rate ratio for Aboriginal and Torres Strait Islander people compared to all Australians, SA, WA and NT, 1992–94



- 4.11 Mathers (1995) carried out an analysis of mortality in Statistical Local Areas in North Australia (WA, Qld and NT) where more than 50 per cent of the population identified as Aboriginal or Torres Strait Islander in the 1991 population census (referred to as remote Aboriginal areas). He found that, compared with the total Australian population, people living in remote Aboriginal areas had substantially higher death rates overall—three times higher for males and 4 times higher for females—and dramatically higher death rates for a wide range of specific causes of death such as:
- Infectious and parasitic diseases—17.8 and 21.7 times higher for males and females respectively.
  - Cancer of the cervix—11.5 times higher.
  - Diabetes—18 and 22 times higher for males and females respectively.
  - Respiratory diseases—7.9 and 12.5 times higher for males and females respectively.
  - Diseases of the genitourinary system—9.1 and 16.8 times higher for males and females respectively.
  - Homicide—15.4 and 7.8 times higher for males and females respectively.

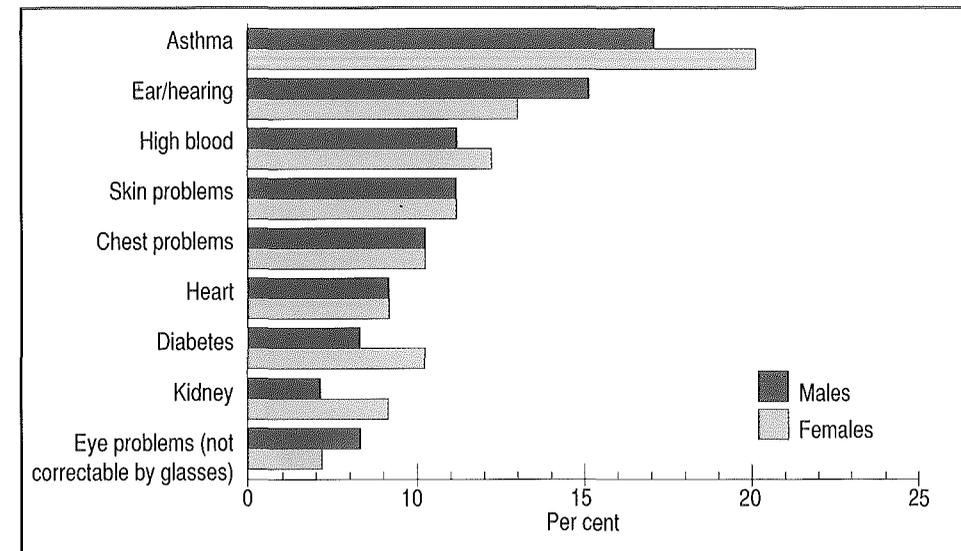
## Morbidity

4.12 Health service usage rates are the most commonly used indicators of morbidity. But they are imperfect measures. High hospitalisation rates, for example, may reflect not only serious morbidity but inadequate primary care services, or a response to the need to provide some specialist care in remote areas or, in some cases, elements of amenity and convenience for both patients and doctors. Low rates may reflect a shortage of bed supply, geographic obstacles or other barriers to access. Analogous factors affect the use of medical services. The alternative is self-reported data on perceived illnesses, injuries and disabilities and these were recorded for Indigenous people in the NATSIS survey of 1994. Selected results were as follows.

## Reported illness

4.13 Four in ten Aboriginal and Torres Strait Islander people surveyed (40 per cent of males and 42 per cent of females) reported that they had experienced an illness, injury, or disability in the two weeks before being interviewed. Frequency ranged from 34 per cent among those ages 5–24 years to 68 per cent among those ages 55 and older. This was much lower than the 73 per cent of all Australians who reported a recent illness in the 1989–90 National Health Survey although the use of different survey instruments and methods means that the figures are not directly comparable. Respiratory illness was reported by 35 per cent of those who said they had a recent illness. It was the most commonly reported illness overall and for all age groups up to 44 years of age. Circulatory diseases were slightly more commonly reported by people aged 45 and over. Reports of recent illness were more common in the southern States (Victoria 54 per cent, Tasmania 48 per cent, South Australia and New South Wales 44 per cent) than in Queensland, Western Australia, or the Northern Territory (all 38 per cent). Whether this was a result of real differences in illness experience or population structures or merely a reflection of differences in perception and reporting is unknown. The most commonly reported long-term conditions were asthma (13 per cent) and ear or hearing problems (9 per cent)—see Figure 4.4. As with recent illness, most long-term conditions were more commonly reported in the southern States than in Queensland, Western Australia, or the Northern Territory. Diabetes was a notable exception, with the highest reported rates in South Australia, Western Australia, the Northern Territory and Queensland.

Figure 4.4: Reported long-term conditions among Aboriginal and Torres Strait Islander people, 1994

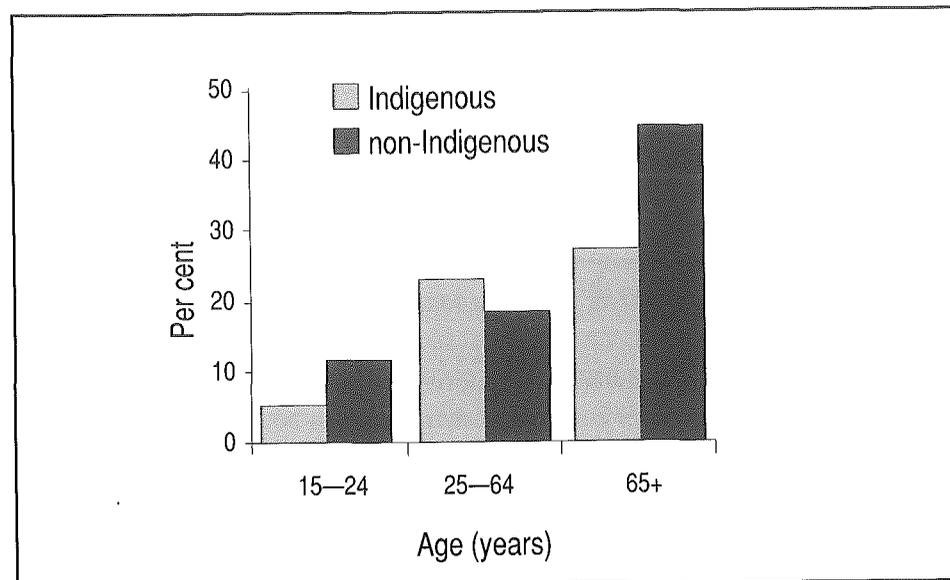


Sources: Australian Bureau of Statistics 1995a.

- 4.14 Despite their well demonstrated poorer health, most survey participants aged 18 years and over considered themselves to be in good, very good, or excellent health (81 per cent). Another 15.8 per cent described their health as fair, and only 3.2 per cent considered themselves to be in poor health (Figure 4.5). This was very similar to the results of the 1989–90 National Health Survey, in which over 1 in 5 Australians in the same age group reported their health as poor (4.5 per cent) or fair (16 per cent).
- 4.15 Self-reported measures of health status are based on perceptions and expectations of health that vary with culture and community and are also likely to vary over time – for example, as public health campaigns alter the community's awareness of and understanding of health problems. Perceptions of health status thus provide only a relative indicator of health status—there is no defined standard for the response categories of excellent, very good, good, fair, poor. There is evidence that the question discriminates well within culturally homogeneous populations and some Australian work by McCallum and others has shown that it is a good predictor of relative mortality risks over time. But there is also evidence that it does not fully reflect health differences between populations with different standards and assumptions about health. This is almost

certainly what is reflected in the self-reported health data for Aboriginal and Torres Strait Islander people. It might also explain why the reported levels of chronic and recent illness were higher among Indigenous people in the southern States (where there is greater contact with non-Indigenous culture among Indigenous people in the towns and cities) than in the more isolated northern areas.

**Figure 4.5: Proportion of people reporting fair or poor health (per cent) by age group, 1994**



Sources: 1989-90 National Health Survey (ABS 1991), National Aboriginal and Torres Strait Islander Survey (ABS 1995).

4.16 Dental health is an area where the morbidity of Aboriginal and Torres Strait Islander people is well documented. While there has been a major decrease in dental caries in other Australian children since the 1970s, its prevalence has significantly increased in Aboriginal children. Aboriginal children have a much greater number of infant and permanent teeth affected by dental caries than other Australian-born children. In fact, there is nearly a threefold difference in the mean number of decayed teeth at 12 years between other Australian-born children and Aboriginal children. But access to treatment facilities is poor. Aboriginal children thus have a double disadvantage—more disease experience and a higher proportion of disease being untreated.

## Health risk factors

- 4.17 For Indigenous adults aged 18 years and over, 60 per cent of men and 58 per cent of women were overweight or obese (using measured height and weight data from the NATSIS). These percentages are substantially higher than the corresponding figures of 44 per cent for Australian men and 30 per cent for Australian women from the 1989-90 National Health Survey.
- 4.18 Smoking was reported by 54 per cent of men and 46 per cent of women aged 13 years and over, and 10 per cent of children aged 13-14 years said that they smoked. The rates of smoking varied considerably across the country from 29 per cent in the Alice Springs ATSI region to 61 per cent in the Jabiru ATSI region, both of which are in the Northern Territory.

## Indigenous health status in perspective

- 4.19 The data summarised above clearly point to the major illness conditions and to some factors affecting mortality in the Indigenous population of Australia. The Aboriginal and Torres Strait Islander people suffer from 'fourth world' health problems of infectious and parasitic diseases, rheumatic heart disease and genitourinary problems, as well as such diseases of 'civilisation' as coronary heart disease and diabetes. Respiratory conditions and circulatory problems are often associated with smoking, which is much more prevalent in the Aboriginal and Torres Strait Islander population than in the population as a whole. Lung cancer mortality rates among Indigenous people are substantially higher than the average. Injury levels are high and the homicide rate in 1994 was 8 to 15 times that for non-Indigenous people. Alcohol consumption plays a role in both of these categories, particularly when resulting from motor vehicle accidents and interpersonal violence.
- 4.20 While there has been considerable improvement in infant mortality rates for Aboriginal and Torres Strait Islander people in Australia, there has been no improvement in the mortality rates of adults in recent decades. Ring and Runciman (1994) have noted that the lack of progress in reducing the mortality rates of Indigenous Australians is unique. There have been dramatic declines in mortality rates in nearly all regions of the world, including the developing countries, since the 1950s. Unlike the indigenous population of Australia, those of New Zealand and North America have experienced significant declines in mortality in recent decades and have substantially higher life expectancies than Indigenous Australians. A history of dispossession and depopulation does not necessarily prevent improvement.

## Need and the allocation of resources

- 4.21 Although health status information gives some general indications of Aboriginal and Torres Strait Islander 'need', it is not at all clear how this need should be defined or measured. The most common approach is to use one of the more accessible and understandable indexes—in particular, the standardised mortality ratio (SMR)—as an indicator of relative need for health services. Resource allocation formulae used by several State health departments in Australia have included a factor based on the Indigenous population proportion and the Indigenous SMR. The Indigenous population alone would not attract additional resources but if its age-standardised mortality was higher than the average it would do so and resources would continue to flow while the SMR remained greater than one. The process is argued to be both equitable in terms of the apparent needs for care and efficient in terms of allocating resources to regions or groups of people where 'excess' mortality can be identified.
- 4.22 However its operation has also been criticised. In an NHMRC-supported study of resource allocation in Aboriginal health care, Mooney and co-workers (1997) have argued that the use of SMRs does not take into account the cost-effectiveness of resources for treating different conditions and have suggested trying to operationalise need for health services in terms of 'capacity to benefit'. They argue that the objective should not be to achieve health equality (since some people may value health more or less than other social goods) but to achieve equity of access to health services. They also suggest that there may be an argument for giving more weight (ie. greater funding) to a unit of health gain for a population with poor average health status than to the same unit of health gain in a population with good average health status. McDermott et al (1997) reviewed approaches to resource allocation based on 'capacity to benefit', a criterion which would combine the prevalence of diseases and disabilities, their consequences and the ability of treatment to improve them. In neither case would mortality be the principal measure.
- 4.23 There is obviously some truth in this. Consider two cases, one of a fatal disease which has an equal incidence amongst Indigenous and non-Indigenous people and a treatment which halves the fatality rate but with very large difference in the access of the two groups to it; and the second, a sometimes fatal disease with no treatment beyond palliation and large differences in incidence between the Indigenous and non-Indigenous groups. In case 1, assume that;

- medical treatment is 50 per cent effective (that is, it halves the case fatality rate);
  - 100 per cent of non-Indigenous people have access to treatment; and
  - 20 per cent of Indigenous people have access to treatment.
- The mortality rate among non-Indigenous people is then  $0.5(i)$  and the mortality rate among Indigenous people is  $0.8(i) + 0.2 \cdot 0.5(i) = 0.9(i)$ , where  $(i)$  is the incidence rate.

- 4.24 The Indigenous SMR in this case is 1.8. However the individual capacity to benefit is equal and the need for treatment is equal (as incidence rates are identical). The most equitable distribution of health resources would therefore be to provide equal per capita funding to both Indigenous and non-Indigenous people, rather than 1.8 times as the SMR would imply.
- 4.25 In case 2 assume;

- an incidence rate of  $(i)$  in non-Indigenous Australians and  $5(i)$  in Indigenous people;
  - palliative treatment only;
  - a fatality rate of 50 per cent.
- The mortality rate among non-Indigenous people is therefore  $0.5(i)$  and that amongst Indigenous people is  $5 \cdot 0.5(i) = 2.5(i)$ .

- 4.26 The Indigenous SMR is now 5.0. But the Indigenous capacity to benefit is also 5 times higher (because the incidence of the disease is that much greater) and the SMR provides a correct indication of the relative resource needs. An allocation formula based solely on reduction in mortality thus not only fails to cope with palliative treatment only—for which there are equally compelling arguments in equity for equal access—but its results depend on a variety of factors, from incidence rates to the impact of treatment in each particular category of disease and on people's access to that treatment. There is evidence from the Northern Territory and South Australia of lower survival rates for Indigenous people in a number of cancers. Access may well have contributed to this.
- 4.27 These simple examples illustrate, quite effectively, how intimately the issues of equity and efficiency are related in health care. The four key elements of equity—the prevalence of disease and its consequences plus the efficacy of treatment and people's access to it—would be the same

items as would be used to judge efficiency. Only the criteria would change. Mortality-based measures clearly fare badly on all of them. They give no guidance as to the total level of resource 'need', only the allocation of a pre-determined quantity and then only in relation to the relatively small proportion of health care services where death is a dominant outcome. They cannot easily be related to caring for the mentally ill, for example. It would be obviously more efficient to allocate resources, by each condition, according to the effectiveness of the health care system in treating that condition; and to groups of people according to the prevalence of each condition in that group. The Indigenous/ non-Indigenous split would then be only one of many divisions.

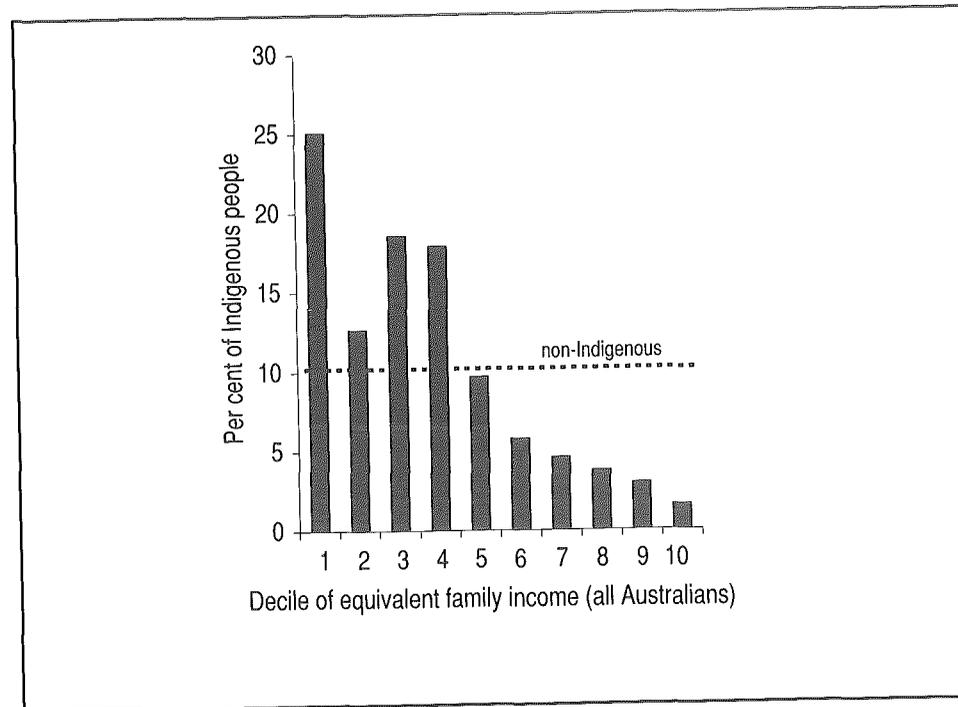
- 4.28 Quantifying capacity to benefit in terms of marginal health gain per intervention or per dollar spent is not yet a feasible proposition. Another question might be answerable though, namely what expenditure would be needed to ensure that, for any given health problem (illness, injury etc), Indigenous people received the same average health expenditure per case as the same problem receives in the non-Indigenous population. This does not necessary imply that the identified resources would be spent in the same way. Indigenous community values and perceived needs may mean that the same monetary resources may be directed to different interventions.
- 4.29 Two sets of information are needed; estimates of total health expenditure by disease or health problem and estimates of the incidence and/or prevalence of health problems in the Indigenous and non-Indigenous populations. For expenditures, the AIHW's Disease Costs and Impact project (Mathers et al 1998) has estimated total health expenditure for specific health problems across all disease/injury categories and this work is continuing. The World Bank has undertaken a similar exercise at a global level, covering estimates for over 100 diseases in eight regions of the world (World Bank 1993, Murray and Lopez 1997). On the incidence side, Australia has considerable, if incomplete, data on the epidemiology of disease in both the Indigenous and non-Indigenous populations. It should therefore be possible to make some broad estimates of Indigenous expenditure needs, based on equal expenditures for the same medical conditions.
- 4.30 However the results of such a calculation would not be the only criterion for allocating government expenditures. Equality by medical need would be sufficient only if all services were publicly provided, to all people

without charge. Otherwise, equity would require that while people in the same socio-economic position should be treated equally, more public funding should go to disadvantaged groups than to those with more capacity to pay for services themselves. The economic position of Aboriginal and Torres Strait Islander people was referred to in Chapter 1—on average their family incomes were about 37 per cent lower than for non-Indigenous Australians in 1991. We have therefore separated the two components. Observed expenditures for Indigenous people are compared with the estimated outlays for other Australians in the same income group. Their relativities can then be related to health status information in assessing whether health care needs were being equally well met.

## Expenditures and incomes

- 4.31 The comparison required some calculation. First, the economic data for Indigenous and non-Indigenous people needed to be standardised. Family income is clearly the most suitable indicator but it needs to be adjusted for different sizes of family. We therefore calculated *Equivalent Family Incomes* for each group, equivalent family income being defined as gross family income adjusted for the number of adults and dependent children in the family, weighted for their estimated living costs. The Indigenous data came from the 1994 NATSIS survey and the non-Indigenous data from the 1990 National Health Survey. The 'real' incomes of Aboriginal families might be slightly understated by this process because the reported figures of income exclude the proceeds of subsistence fishing, hunting and gathering which remain important for some Indigenous people. However the effects are unlikely to be large and there are similar opportunities for understatement in the non-Indigenous sector.
- 4.32 Non-Indigenous people were grouped into deciles—that is, into equivalent family income ranges containing 10 per cent of the non-Indigenous population in each. Indigenous people were also classified into the same equivalent income ranges, so allowing a valid comparison. Figure 4.6 shows the results. As can be seen, 72 per cent of Indigenous people reported equivalent family incomes in the four lowest deciles of the distribution compared with, by definition, 40 per cent of non-Indigenous Australians.

**Figure 4.6: Distribution of Indigenous people by deciles of equivalent family income (defined on the basis of the income distribution of all Australians), 1994**



Source: NATSIS survey (1994)

- 4.33 Estimates were then made of the average *government* expenditure per person on non-Indigenous people in each income decile. This could not be done directly and the figures are approximate only. The main source of information was the self-reported utilisation data from the National Health Survey. This survey gave results very close to those reported by providers and the various administrative systems. It provided information on the use of all hospital services, inpatient and outpatient, medical services, allied health services and prescribed drugs over given periods. Usage data were for individuals; income data for families. The questions provided limited data on the sources of services, but did indicate whether or not the user was privately insured.
- 4.34 Based on these data, total health expenditures per person were estimated for each decile of adjusted family income for all Australians. The government expenditure component was then estimated as follows;

- (i) acute hospital admissions were assumed to be public if the person was not privately insured. Expenditures for public and private patients were costed using data from the AIHW Disease Costing Project. As is well known, private insurance membership varies positively with income. In 1995–96 about 80 per cent of people in the highest earning category (over \$50,000 annually) held private insurance compared with less than 30 per cent in the lowest group and the progression in membership with income—and therefore the reduction in public expenditures on their hospitalisation—was steady. As Schofield (1997) has also shown, government spending on acute hospitals is heavily weighted towards the lowest income groups. She estimated that in 1995, for all hospital services and all Australian citizens, public expenditures per person were \$957 per annum in the lowest income quintile and \$847 per year per person for the second group, compared with only \$191 in the highest income category. The distribution reflects a combination of epidemiological, demographic and economic factors. In 1995–96, nearly half (48.5 per cent) of all bed days in hospital were for people aged 65 years and older. Their use per person was four times the national average. About three quarters of it was in public hospitals and over 90 per cent of these admissions were as public patients. Since over two-thirds of people aged over 65 are pensioners and only a few have incomes higher than the average, public outlays are inevitably concentrated on people in the two lowest deciles of the income distribution.
- (ii) outpatient visits were costed at the average cost per visit for all public hospitals and attributed to individuals as reported in the survey. They were also greater for low income people.
- (iii) PBS usage was estimated by expanding the National Health Survey data of reported prescription drug use over a two week period, supplemented by data on whether or not the user was a pensioner or the holder of a health care concession card. The structure of the Pharmaceutical Benefits Scheme is now concentrated very largely on income-tested beneficiaries—pensioners and concessional health card holders. About 80 per cent of all PBS benefits are for these two groups, by definition amongst the lowest income earners.

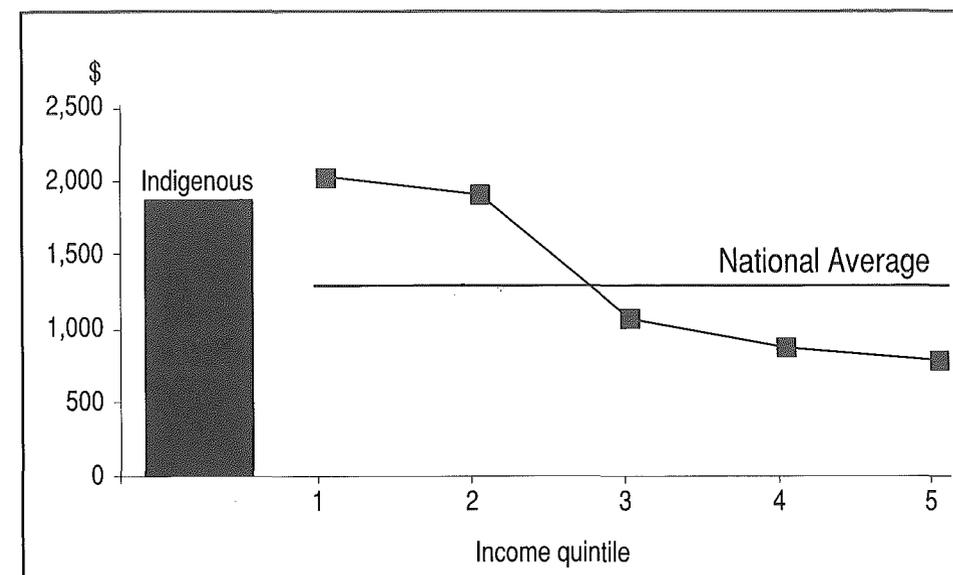
- (iv) for the 25 per cent of State government expenditures which are not hospital based, about 10 per cent are for public health services, administration and research which cannot be related to individuals. The remaining state resources are largely limited to special programs for disadvantaged groups, including Aboriginal people. Most personal services are covered by Medicare.
- (v) the only other major expenditure category was Medicare, representing about 22 per cent of all government spending. For each category of age, sex and income, the self-reported survey data on doctor visits were used to allocate Medicare benefits by income group. The concentration of medical outlays on older people was not quite as great as for hospital care—their use was only about twice the average—but the implicit transfer to lower income people was still substantial. People reporting the lowest equivalent family income reported 30 per cent more doctor visits than those in the highest group.

4.35 Combining these estimates gave a set of relativities from which some estimates of per capita public expenditures by income categories could be made for non-Indigenous people. Table 4.1 shows the results and Figure 4.7 compares them with the estimated average public expenditure per person on Indigenous people. All the expenditures are in 1993–94 values. While the non-Indigenous figures are broad estimates only, their pattern is clear. Public expenditures were much larger for poorer people than for the rich, which is what most notions of equity would require. Public expenditures on the health of Indigenous people were also much higher than the average for non-Indigenous Australians. However when their relative income position is taken into account, it appears to have been very similar to that for non-Indigenous people *in the same income class*. Both of the groups would have had a relatively poor health status; the Indigenous people for all the reasons outlined earlier, the non-Indigenous group because it would have been much older. However the health of the Aboriginal population was almost certainly worse and, in principle at least, the chances of improving it were greater.

Table 4.1: Estimated total health expenditures per person, by quintile of equivalent family income, Australia, 1993–94

Income quintile	Health expenditures per person		
	Total	Government	% Government
1	2,598	2,079	77
2	2,613	1,971	72
3	1,633	1,062	62
4	1,433	870	58
5	1,551	792	49
<b>All incomes</b>	<b>1,918</b>	<b>1,301</b>	<b>68</b>

Figure 4.7: Estimated government health expenditure per person for Indigenous people and for all Australians (by quintile of equivalent family income), 1993–94



## Chapter 5

# Summary and conclusions

5.1 The main results of the project have been reported in several places and the major purpose of this chapter is to put them into context. We also consider how the identification and reporting could be improved. This was included in our Terms of Reference. However two other items need to be addressed. First our Terms of Reference sought a division between expenditures on primary and secondary/tertiary care for Aboriginal and Torres Strait Islander people and, if possible, some further dissection within primary care between personal services and population health activities. Second, we have also estimated an aggregate which was not included in the original request, namely total expenditures by or for Aboriginal and Torres Strait Islander people, *including those on privately-provided services for which no general public funding is provided*. As pointed out in Chapter 1, the data for public expenditures cannot be fully interpreted without this information, mainly because (in common with other low income people and those living in remote areas) spending on private hospitals, dentistry, optometry and over the counter medicines was much lower for Aboriginal and Torres Strait Islander people than for Australians as a whole.

### **Expenditures on primary and secondary/tertiary care**

5.2 The distinctions between primary, secondary and tertiary services are not always easy to make and when they are, the expenditure data do not always follow them. We have taken primary care to mean all of the public health services plus the services of general practitioners and other health care workers who provide first-contact care to people. Under secondary services we would include specialist care on referral plus most of the diagnostic services which first-contact workers use, particularly GPs. Hospital services all fall into the tertiary category. However these are the broadest of definitions only. The health services also provide

preventive measures in the form of vaccines, etc., and treatment through drugs and appliances. They may also provide transport to, from and between both primary care centres and tertiary institutions, a particularly important need for many Aboriginal and Torres Strait Islander people. It should of course be clear that all of these definitions relate to primary medical care, not to the much broader concept of primary care used in the public health literature and which encompasses a range of social and economic conditions relevant to health.

5.3 Unfortunately the data do not allow a precise division of spending on even these broad lines. The allocations we made were therefore as follows;

**For Indigenous people,**

- primary care expenditures included all allocated spending on public health services, all of the services of community-controlled AMSs, all payments for GP services provided under Medicare (and the Pathology ordered by them), all of the expenditures allocated to Indigenous people under the community health services provided by the States and Territories, 90 per cent of the cost of PBS drugs, 50 per cent of the allocated cost of hospital outpatient services and one half of the estimated cost of transport services for Indigenous people.
- secondary/tertiary expenditures included all expenditures on inpatient hospital treatment, nursing home care and care in mental institutions, 50 per cent of outpatient costs, all Medicare outlays for diagnostic imaging services and specialist consultations and the remaining 10 per cent, 50 per cent and 50 per cent of the costs of PBS drugs, outpatient services and patient transport respectively. Because so much of the specialist treatment of Aboriginal and Torres Strait Islander people is provided through hospitals, it was impossible to split the secondary and tertiary components.

**For non-Indigenous people,** the same basic divisions were applied, except that the proportional splits were generally different. Medicare and Pharmaceutical benefit outlays were allocated according the proportion of services provided or initiated by GPs and the analogous division of prescriptions (50 per cent and 70 per cent of Medicare and PBS benefits respectively). For other services, entitlements vary between the two groups. In transport for example, public expenditures for non-Aboriginal

patients are limited almost entirely to transport to or between hospitals or special units. About 80 per cent fall into the tertiary care sector. Administration and research have not been divided for either group of people.

5.4 Table 5.1 shows the estimated division of gross government expenditures on direct service provision in 1995-96. Despite the high rates of hospitalisation of Indigenous people, the ratio of estimated Indigenous to non-Indigenous expenditures per person was much higher for primary services than for the secondary/tertiary segment—1.73 as against 1.27. This was largely due to the very large difference in the estimated expenditures on Community Health services provided by the States and Territories. For the Commonwealth-funded programs, the sum of AMS expenditures, Medicare benefits and Pharmaceutical Benefit outlays for Indigenous people was, on a per capita basis, only 80 per cent of the amount paid out for similar services to other people under Medicare and the PBS alone.

**Table 5.1: Gross government expenditure on Primary and Secondary/Tertiary health services, direct expenditures, 1995-1996**

Source	Primary				Secondary			
	Total		Per Person		Total		Per Person	
	Indig.	Other	Indig.	Other	Indig.	Other	Indig.	Other
	\$m	\$m	\$	\$	\$m	\$m	\$	\$
Hospital -inpatients					343	8,534	934	479
-outpatients	49	1,064	134	60	49	1,064	134	60
Mental institutions					10	418	28	23
Nursing homes					18	2,739	48	154
Community health	199	1,480	542	83				
Public health	26	507	71	29				
Patient transport	18	80	49	5	18	374	49	21
Medicare & other medical	23	3,393	62	190	13	3,878	36	218
PBS drugs & appliances	9	2,593	25	146	1	288	3	16
<b>Total</b>	<b>325</b>	<b>9,117</b>	<b>883</b>	<b>513</b>	<b>453</b>	<b>17,294</b>	<b>1,231</b>	<b>971</b>
Ratio: Indigenous/ other, per person			<b>1.73:1</b>				<b>1.27:1</b>	

5.5 As far as the division between personal services and population health is concerned, the only firm figure is the \$26 million estimated to be spent on identified public health services to Aboriginal and Torres Strait Islander people in 1995-96. It was a somewhat higher proportion of total public expenditures than was estimated for the non-Indigenous population (3.2 per cent compared with 2.0 per cent) and represented about 8 per cent of the primary care component of Indigenous expenditures alone. However it is almost certainly an understatement of the real figure because some of AMS expenditure which we have attributed to personal medical care, may well have been spent on other community-related health matters. The same may have been true of some mainstream community health services. Our conformity with the national health accounting definition of 'health' activities also limited the expenditures that we measured. If a wider concept of primary care was used, some of the welfare services which we have excluded might return.

### Total expenditures

- 5.6 Table 5.2 shows the estimated total expenditures on all services for or by Indigenous and non-Indigenous people, distinguishing between those for which government funding is generally available and those privately-provided services which are paid for directly or through private insurance. The major unsubsidised categories are private hospital treatment, over-the-counter medicines and other private professional services (dentistry, optometry, physiotherapy, etc.).
- 5.7 Data were available for the Aboriginal and Torres Strait Islander use of private hospitals. There were 2,889 identified Indigenous admissions to private institutions in 1995-96, which with estimated under-identification would equate to some 3,470 patients (only about 0.2 per cent of all private hospital admissions). However their hospital stay was typically less than the average. Costing at the standard rate for private hospital services gave total outlays of about \$5.4 million per annum.
- 5.8 Spending on the other unsubsidised services depends on demand, capacity to pay and their availability. In the general community some of it is supported by private insurance but the level of private insurance amongst Indigenous people was estimated to be less than one tenth of that for non-Indigenous Australians. The very small number of Aboriginal and Torres Strait Islander people admitted to both public and

private hospitals as private patients—only about 6,000 in total for 1995-96—is consistent with this low insurance figure. There was little direct information on out-of-pocket health care spending by Indigenous people, but the 1989 ABS Household Expenditure Survey showed that direct payments for people in the lowest income quintile—which is where the mean for Indigenous households fell—were only about half those of the population as a whole. The estimates in Table 5.2 combined these indicators with other partial information to give the proportionate allocations shown. They were at the lower end of the possible range, but for many Indigenous people the availability of these services is also low. There are relatively few private dentists, optometrists or physiotherapists in the remote areas where an above average proportion of Aboriginal and Torres Strait Islander people live.

**Table 5.2: Estimated government and private expenditures for and by Indigenous and non-Indigenous people, total and per person, 1995-96**

Source	Indigenous			Per Person (\$)	non-Indigenous			Ratio Indg./Person Other	
	Govt. (\$m)	Private (\$m)	Total (\$m)		Govt. (\$m)	Private (\$m)	Total (\$m)		
<b>Subsidised services</b>									
<b>Public Hospitals</b>									
- inpatients	340	4	344	939	8,222	948	9,170	515	1.82
- outpatients	98	-	98	267	2,129	-	2,129	120	2.23
Mental Institutions	10	-	10	27	399	-	399	22	1.23
Nursing Homes	16	4	20	49	2,065	672	2,737	154	0.35
Community Health	199	-	199	543	1,438	5	1,443	81	6.70
Patient transport	35	1	36	98	295	264	559	31	3.16
Public health	26	-	26	71	489	-	489	27	2.63
Medicare and other medical	32	2	34	93	6,523	1,374	7,870	442	0.22
PBS drugs & appliances	10	3	13	35	2,366	483	2,879	162	0.20
Administration & research	43	1	44	120	1,295	620	1,915	107	1.12
<b>Other services</b>									
Private hospitals	-	5	5	13	258	2,858	3,116	175	0.07
Dental & other professional	1	11	12	32	296	3,108	3,404	191	0.17
Non prescribed medicines	-	12	12	33	-	2,440	2,440	137	0.24
<b>Total</b>	<b>810</b>	<b>43</b>	<b>853</b>	<b>2,320</b>	<b>25,775</b>	<b>12,775</b>	<b>38,550</b>	<b>2,163</b>	<b>1.08</b>

## Summary

- 5.6 The main purpose of this project was to provide some firm data in a previously uncertain area. There is still some uncertainty in our figures but as was shown in Chapter 2, the overall range is less than might at first be thought because the greatest uncertainty was in the States with the smallest Indigenous population and hence the lowest expenditures. The main question relates not so much to the possible errors of estimation as between States or between services but as to whether the assumption of effectively complete identification in the baseline States/Territories of Western Australia and the Northern Territory is correct. There is unfortunately no way of checking it.
- 5.7 The major arithmetic results have been explained in each section and will not be repeated here. Essentially, they suggest that;
- (i) for all health services, recurrent expenditures for and by Indigenous people were about \$853 million in 1995–96 or about 2.2 per cent of all recurrent health care spending. Per person, total spending for and by Indigenous people was only about 8 per cent higher than for the non-Indigenous population,
  - (ii) however, the Indigenous share of public sector services was much higher. In those services *eligible for public funding*, total outlays for or by Aboriginal and Torres Strait Islander people were \$822 million. At \$2,235 per person it was about 1.4 times the average for other Australians. *For public expenditures alone*, it was over 1.5 times the average for non-Indigenous people. Although the Commonwealth government ultimately funded nearly half of the public outlays, about 80 per cent of them were managed by the States and Territories,
  - (iii) the main reason for these differences was that the pattern of expenditures for Indigenous people was very different to that for the non-Indigenous population. They were admitted to hospital much more frequently, almost entirely in the public sector, and they relied heavily on the State hospital outpatient departments, community health services and the Commonwealth funded but community-controlled Aboriginal Health Services for ambulatory care. They benefited very little from the Medicare and Pharmaceutical schemes, their drawing rates being only about 27 per cent and 22 per cent of the non-Indigenous level respectively.

However, in common with other Australians receiving similar incomes and living in similar areas, they spent relatively little on private insurance, private hospitals, ancillary services and over-the-counter drugs. Personal outlays represented only about 5 per cent of their total health care costs compared with about 32 per cent for the whole population,

- (iv) the largest problem in estimating expenditures on Indigenous people was identification. Such provider-reported data as existed suggests an under-identification of about 20 per cent overall but the self-reported information appears to have **over-stated** Indigenous use by an even greater proportion,
  - (v) on all the usual indicators, the health status of Aboriginal and Torres Strait Islander people was significantly worse than for other Australians. But it was difficult to quantify their need for additional resources. In time it should be possible to estimate how much would need to be allocated if the Indigenous population were to receive the same volume and type of services that non-Aboriginal people consume for the same conditions as the Aboriginal people now suffer from, but all the necessary data do not exist as yet,
  - (vi) based on a more restricted concept of equity, a comparison of government expenditures on Indigenous and non-Indigenous people in the same economic position (eg, with the same money incomes after adjustment for family size) indicated that they were approximately the same in 1995–96. However the health of the Indigenous population was almost certainly worse. If both of these assessments are correct, the health care needs of Indigenous people could not have been equally well met. Put in another way, Aboriginal and Torres Strait Islander people appear to have been equitably treated in relation to their incomes but not in relation to their health.
- 5.8 The application of this information is beyond the scope of the study. However there are issues relating to its compilation on which we were asked to report, namely those involved in developing 'a mechanism for the continuing collection and reporting of such data to inform the planning, monitoring and evaluation of allocation and expenditure'. That is the subject of the last section of this report.

## Improving the identification and reporting of Aboriginal and Torres Strait Islander health expenditures

- 5.9 This project has been the first of its kind. It was necessary because only a small proportion of the health expenditures for Aboriginal and Torres Strait Islander people come from funds specifically allocated for that purpose and because routine administrative systems do not satisfactorily identify Aboriginal and Torres Strait Islander patients in the mainstream health services. Cost allocation requires reliable indicators of use and the existing systems consistently understate it. Most of the survey data appear to err on the opposite side.
- 5.10 There have been many suggestions for improving the quality of Aboriginal and Torres Strait Islander people's identification in administrative records, including those relating to vital statistics and health services. The Commonwealth and State Health Ministers endorsed a policy as far back as 1973; a high level task force on Aboriginal health statistics was convened in 1984 and there have been at least three Workshops devoted exclusively to the subject—in 1986, 1993 and, most recently, in late 1996, to name but a few developments. The 1996 Workshop, sponsored jointly by the Australian Institute of Health and Welfare and the Australian Bureau of Statistics, reviewed best practice and quality assurance in administrative identification and data collection from the viewpoint of a range of participants.
- 5.11 We do not review here all of the recommendations which arose from these efforts, explicitly or implicitly. Many of them have been adopted, at least in principle, and the Australian Health Ministers have re-affirmed their commitment to better quality statistics on Aboriginal and Torres Strait Islander health in the context of the recently negotiated agreements. Whether identification and collection have improved remains to be seen. However there are several points which should be noted.
- 5.12 First, most of the emphasis has been on identification on birth and death notifications, cause of death certificates, maternal/perinatal collections and the identification of public hospital inpatients. All of these events involve substantial documentation and it is logical to begin with them. The general policy is that Indigenous status must be included in all the relevant records and that a standard question about Indigenous origin should be asked of all patients or relatives or professional attenders, as appropriate. In fact, all but a very few of the admission forms for public

hospitals carry an Indigenous identifier (less than 1 per cent 'not stated'). The problem is with the accuracy of the data, not its quantity.

- 5.13 However there are many encounters with the health services which are not so thoroughly documented routinely or whose volume is such that repetitive identification is very difficult in practice—visits to hospital outpatient departments, for example or casual attendances at health centres. In the data we collected, no State or Territory was able to provide any information for these services from routine collections. The Northern Territory was probably the closest to the mark but only because its scale is such that the informal impressions of management in various health service units were probably reliable. Otherwise, the few States which could provide any firm data relied entirely on the results of ad hoc surveys designed for other purposes.
- 5.14 The problems are therefore different for different services. They relate not only to the setting in which the services are given but also to their volume. One of the criticisms which has been levelled at the Commonwealth government in this area has been that, while urging Indigenous identification on the State and Territories, it has done nothing in its two mainstream programs, Medicare and the Pharmaceutical Benefits Scheme. However the problems are substantial. Medicare paid benefits for 196 million services in 1995–96 and the Pharmaceutical Benefits scheme processed about 133 million separate items. It would be almost impossible to identify Indigenous patient status for every one of them. Moreover the quality would be completely unknown. Medicare and the PBS receive most of their information from providers (entirely for the PBS and over 70 per cent through bulk billing in Medicare) and its administration would have no control over the identification practices of doctors and pharmacists. The only feasible approach would be through an Indigenous identifier on the individual's Medicare registration record but the Medical and Pharmaceutical Benefits systems are not linked and the privacy issue would need to be addressed.
- 5.15 Some form of record linkage would therefore be the most practical answer. But it would take time. The Western Australian experience shows that it can be done and if our assumption of a high level of Indigenous identification in its routine hospital collections is correct, it also shows that the present system can provide acceptable results, at least for inpatient admissions. Moves to widen the use of existing best practice should therefore continue. However it will still be necessary to see how well or badly the present systems are performing and how they

can be improved. At the State level this might be done by each jurisdiction undertaking a one or two week annual survey of Indigenous patients in each service, during which time a special effort would be made to follow the best known practices. An alternative would be a rolling survey in which a different area of the State or Territory was chosen. In both cases the survey would need to be well planned and publicised to gain the maximum co-operation from staff, the Aboriginal community and patients.

- 5.16 The data collected through this process would serve two purposes; first, to give some quantitative evidence of misclassification or misreporting in the routine systems and second, to identify, on the spot, the reasons for them. At the Commonwealth level, there would seem to be no present alternative to a repetition of the doctor and pharmacy surveys conducted for this study, but they should be undertaken as part of the Medicare administration rather than as *ad hoc* exercises. Without the resource constraints which we faced, they could be both larger and more comprehensive.
- 5.17 As we have seen, there are questions about the validity, reliability and consistency of the data from the NATSIS survey. The reasons for these discrepancies need to be investigated, with the aim of developing methods for obtaining improved information in subsequent surveys. In addition, the specific requirements for compiling utilisation and expenditure estimates according to the Government Purpose Classification should be taken into account in the design and planning of future surveys.
- 5.18 A working party from the major stakeholders, including NACCHO and other Indigenous organisations, should consider these options. Some of the issues are already being addressed. The Heads of State and Territory Aboriginal Health Units have established performance indicators of the recording of Aboriginal and Torres Strait Islander health achievement and of continued improvement in the collection of necessary data. The Australian Health Ministers' Advisory Council has appointed a Working Party under the National Health Information Management Group to monitor the implementation of the Aboriginal and Torres Strait Islander Health Plan to improve all aspects of information about the health and health services of Indigenous people (AHMAC 1997). A pilot study of the accuracy of Indigenous identification in hospital morbidity statistics is being undertaken by the ABS National Centre of Aboriginal and Torres Strait Islander Statistics and it is intended that its results be used to recommend appropriate procedures on a larger scale.

## Continuation of these estimates

- 5.19 The estimates presented here should be the starting point for a series. It would not be necessary to compile them every year. Health service patterns are so stable that a three-yearly estimation should be sufficient. The Australian Institute of Health and Welfare is the obvious choice for such a task. It holds more of the necessary data on the epidemiology of both the Indigenous and non-Indigenous populations than any other centre, as well as holding the National Hospital Morbidity collection and other data on health service use. It also holds the financial and economic data needed for cost allocation and its staff have expertise in all these fields. The combination is important, because improving the estimation process will require better financial information of a general kind, as well as better indicators of Indigenous use—for example, in separating the costs of inpatient and outpatient care in hospitals. The Institute already compiles the official estimates of national health expenditure. Measuring the share of Aboriginal and Torres Strait Islander people would complement that work.

Appendix 1

**Self reported hospital,  
medical and  
pharmaceutical data;  
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**Introduction**

A1.1 Chapter 3 described the methods used to estimate expenditures on services for Aboriginal and Torres Strait Islander people from national databases and data provided by the States and Territories. Reference was made to the possible use of self-reported information, particularly for admitted patients in acute general hospitals, and in Table 3.2 the inpatient data reported by hospitals was compared with that derived from the National Aboriginal and Torres Strait Islander Survey. In that case, the self-reported data showed consistently higher Aboriginal and Torres Strait Islander use than the hospital-reported collection, but there were such discrepancies in the data that the veracity of the self-reported information was doubtful. The work was nevertheless useful as an indicator of possible levels of under-identification in hospital records and as a check on the reality of the estimation methods ultimately used. The inpatient analysis is repeated briefly in the first section of this Appendix.

A1.2 However this was not the only aspect of our estimates which needed explanation. Chapter 3 outlined the process used to estimate the Aboriginal and Torres Strait Islander share of total expenditures in the States which could not do so themselves. For admitted patients in general hospitals, it involved applying a standardised costing procedure (the AIHW Disease Costing Model) to the estimated Aboriginal and Torres Strait Islander admissions and bed days in each State. The States which were able to provide a dissection of their hospital costs used a variety of allocation formulae, usually based on casemix adjusted separations but with varying adjustments for differences in lengths of stay and 'Aboriginality'. It was therefore important to outline the properties of the particular method we have used.

A1.3 Finally, self-reported data on the use of hospital outpatient services, doctor visits and medications were the only alternative approach to

estimation from figures which were either provided by the States (for non-admitted hospital services) or were from our own surveys of doctors and pharmacies. In these cases, the chain of inferences was often quite long. All of the data came from the NATSIS survey. Identification of Aboriginal and Torres Strait Islander patients was therefore not a problem but over-reporting was—for hospital admissions the self reported figures were, on average, 76 per cent higher than the hospital statistics. Doctor visits are generally reported more accurately in surveys of this kind, at least over a short period. However the way in which the NATSIS questions on doctor visits and medicine use were framed made an accurate reporting of use equally questionable. Their examination was mainly to see if any useful information could be derived from them.

- A1.4 All of the analyses which follow were based on 1993–94 data, the year on which the Disease Costing Model was based. Since the main objective was to compare the information from different sources, the timing difference was not important. Because of its relatively small scale, the ACT has been combined with New South Wales in all the calculations.

### Admitted patients in acute care hospitals

- A1.5 The National Hospital Morbidity Database held by the AIHW contains unit record data for all separations from public acute care hospitals and private hospitals in 1993–94 and 1995–96, except for the Northern Territory where only public hospital data are recorded. Each inpatient record contains an Indigenous identifier. For all of the States and Territories except Queensland and Tasmania, the relevant field was almost always filled in 1993–94, though not necessarily correctly. Response was complete in Western Australia, South Australia and the Northern Territory and only 1.1 per cent and 0.5 per cent of admissions were in the 'not stated' category for New South Wales and Victoria respectively. In Queensland, 'not stated' applied to nearly one third of all admissions, but these were entirely in the private hospitals where Aboriginal and Torres Strait Islander patients are rare (less than 0.2 per cent) and it was easy to correct for it. All but a tiny fraction were non-Indigenous. About 11 per cent of Tasmanian patients also fell into the 'not stated' group but since Tasmania had no identification of Aboriginal and Torres Strait Islander patients at all, none of the data for that State were useful. Table A1.1 summarises the hospital-reported data.

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**Table A1.1: Separations and bed days in acute hospitals; hospital reported, by Indigenous/ non-Indigenous status and by State and Territory, 1993–94**

	NSW/ACT	Vic	Qld	WA	SA	Tas	NT
<b>Population</b>							
% Indigenous	1.5	0.5	2.8	2.9	1.3	na	26.8
<b>Separations</b>							
No. Indigenous (000)	24.9	4.4	30.7	27.1	7.9	na	23.8
% Indigenous	1.5	0.4	4.2	6.5	1.9	na	44.0
% Other	97.4	99.1	95.8	93.5	98.1	na	56.0
% Not stated	1.1	0.5	-	-	-	na	-
<b>Bed days</b>							
% Indigenous	1.2	0.4	6.3	6.2	1.9	na	56.7
% Other	97.5	99.3	93.7	93.9	98.1	na	43.3
% Not stated	1.3	0.4	-	-	-	na	-
<b>Ratio : Indigenous/Other</b>							
Separations	1.01	0.91	1.50	2.31	1.47	na	2.14
Bed days	0.85	0.82	2.25	2.19	1.44	na	3.57

Note: Queensland adjusted for non-reporting in private hospitals.

- A1.6 The provider-reported statistics were then compared with information derived from self-reported data in the NATSIS survey. The latter asked only whether the respondent had been hospitalised in the last two weeks. It was therefore necessary to convert the responses to this question into estimates of total annual admissions and annual rates of admission for Aboriginal and Torres Strait Islander people. Assuming that the probability of hospitalisation follows a Poisson distribution, the probability of one or more hospital episodes in a 2 week period is given by

$$p = 1 - \exp(-l/26)$$

where  $l$  is the annual average admission rate per person. Hence the estimated annual admission rate per 1,000 population is given by

$$\text{AAR} = -26 * \ln(1-p) * 1000$$

Table A1.2 shows the estimated annual admission rates derived from the numbers of Aboriginal and Torres Strait Islander people reporting being hospitalised in the last two weeks in the 1994 survey.

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**Table A1.2: NATSIS survey; people reporting admission to hospital in last two weeks and estimated annual admission rates, by State and Territory, 1994**

	NSW/ACT	Vic	Qld	WA	SA	Tas	NT	AUS
% admitted to hospital in the last 2 weeks	1.59	1.69	1.87	2.97	3.16	0.73	4.95	2.46
Annual admission rate/000	416	443	492	783	836	190	1,321	648
Estimated annual admissions (000)	38.9	9.1	43.0	38.6	16.3	2.3	61.1	209.3

**Table A1.3: Indigenous admissions, self-reported and hospital-reported, 1993-94**

	NSW/ACT	VIC	QLD	WA	SA	TAS	NT	Aust
<b>Self reported</b>								
In 2 weeks	1,307	324	1,496	1,402	583	74	228	7,466
Annual rate (000)	416	443	492	783	836	190	1,321	648
Est. total (000)	38.9	9.1	43.0	38.6	16.3	2.3	61.1	209.3
<b>Hospital reported</b>								
Total (000)	24.9	4.4	30.7	27.1	7.9	-	23.8	-
Ratio self report/hospital report	1.56	2.08	1.40	1.42	2.06	-	2.56	1.74

Note: NT admissions adjusted to the post-1994 classification of dialysis patients. The Australian ratio excludes Tasmania.

A1.7 Table A1.3 (which is the same as Table 3.2 in Chapter 3) compares the self-reported and hospital-reported results. If the self-reported data were accepted, there would have been a very significant under-identification/under-reporting of Aboriginal and Torres Strait Islander patients by hospitals in every State and Territory. There was certainly a confirmation of it in some States. The hospital-reported data for 1993-94 suggested rates of admission and bed day use for Aboriginal and Torres Strait Islander people in New South Wales which were barely equal to those for the non-Indigenous population; and for Victoria, considerably lower

ones. On all the anecdotal evidence, they were simply not credible figures and any improvement in identification since then could not have eliminated all the difference. Under-identification must still be significant in those areas.

A1.8 However there were equally implausible implications at the other extreme. As pointed out earlier, the annual number of admission for Aboriginal and Torres Strait Islander people in the Northern Territory implicit in the NATSIS results would have exceeded the total of Indigenous and non-Indigenous hospitalisations *combined*, with an admission rate per person of over four times the hospital-reported level. That cannot be correct. Moreover, there is some evidence from other States that under-identification may be much lower than is commonly supposed. In Western Australia, for example, a study of the identification of Aboriginal and Torres Strait Islander babies by midwives showed a high level of accuracy and because the record linkages in that State recorded racial status permanently, it also showed that identification continued to be high for hospital admissions up to the mid-teenage years. Only 7 per cent of Aboriginal and Torres Strait Islander children aged up to 14 years who were admitted to hospital in 1993 were wrongly classified as non-Indigenous. New South Wales data also show a high level of accuracy in midwife identification, although in the absence of equivalent record linkage the trend over time can not be measured.

A1.9 It was thus impossible to calibrate the self-reported data with all of the other information. Apart from the large (but possibly local) discrepancy in the Northern Territory, the pattern was contrary to both the administrative evidence and the beliefs of people experienced in the field. Where identification is generally believed to be best (in Western Australia, South Australia and the Northern Territory) under-identification would seem to have been much higher than in Victoria, New South Wales and Queensland, where the State authorities themselves have less confidence in the accuracy of the hospital figures than their counterparts elsewhere. All that the analysis could do was to indicate some broad orders of possible magnitude. But it was not a trivial contribution. Table A1.4 compares, for the three eastern States;

- the proportions of under-identification implicit in the 1994 analysis above with,
- the adjustments for under-identification used in our expenditure estimates for 1995-96.

**Table A1.4: Separations (%) and separation ratios by Aboriginal status, Eastern states—acute hospital admitted patient data, 1993–94, 1995–96**

	NSW/ACT	Vic	Qld
<b>Separations 1993–94</b>			
% Aboriginal	1.5	0.4	3.6
% Not stated	1.1	0.5	32.8
<b>Separations 1995–96</b>			
% Aboriginal	1.5	0.5	4.2
% Not stated	0.1	0.0	18.4
<b>Estimated under-identification (%)</b>			
1993–94	33	30	19
1995–96	33	25	15

This comparison assumes, of course, that there was no improvement in identification over the two years. In some States there may have been. In Queensland identified admissions rose by 42 per cent between 1993–94 and 1995–96, compared with a rise of only 14 per cent in the estimated Aboriginal and Torres Strait Islander population. If relative admission rates were unchanged, this would equate to a reduction in under-identification of the total from 19 per cent to 15 per cent over the two years. In Victoria, the figures were 36 per cent and 9.4 per cent respectively and in South Australia the comparable increases were 22.8 per cent in identified admissions and 8.8 per cent in population growth. However in the Northern Territory the difference in rates of growth was about 1 per cent only and on the same criteria both New South Wales and Western Australia would have shown falling identification of 3 per cent and nearly 5 per cent respectively. There was only a small net difference nationally.

A1.10 The adjustment factors were therefore crucial. The preferred figures were calculated on a quite different basis from the self-reported data—consistency in admission rates across the States—and they imply no increase in the reported figures for Western Australia and the Northern Territory. They are also rather lower for the three largest States than the self-reported information for 1993–94 would suggest. However they are of similar orders of magnitude if identification in the baseline states—particularly Western Australia and the Northern Territory—is taken as complete. Our estimates of under-identification imply a 25 per cent expansion in the official figures for Australia as a whole. Removing that factor from the observed differences in usage rates leaves an implied over-reporting in the NATSIS data of just under 40 per cent in that year.

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## Costing acute hospital admissions

A1.11 As described in Chapter 3, not all States were able to provide firm estimates of expenditures on Aboriginal and Torres Strait Islander patients admitted to acute hospitals and those which could be used slightly different methods of allocating hospital costs. New South Wales used casemix weighted admissions adjusted for the public-private mix, but with a 10 per cent loading for the 'excess' costs of Aboriginal and Torres Strait Islander admissions. Western Australia used casemix adjusted admissions alone, as did Queensland. The Northern Territory used the formula applied by the Commonwealth Grants Commission, namely admissions and bed days weighted equally. The effects on overall cost allocation were not very large but they were not insignificant and it was important to apply a standard methodology which would, as far as possible, embody all of the factors on which the different approaches were based.

A1.12 The method adopted was developed by the AIHW as part of the Disease Costs and Impact Study, a joint project with the Centre for Health Program Evaluation. Its construction has been documented by Mathers et al (1997). It apportions all inpatient expenditures to individual admissions using Diagnostic Related Groups, or DRGs, but with an adjustment for the resource intensity of treatment. In particular, it differs from other systems in its treatment of differences in length of stay. First, it includes episodes with atypically long lengths of stay, which are generally excluded from casemix costing systems. However the additional days are only costed at the rate for nursing home type care. Second, it allows for differences in lengths of stay within the DRG limit by varying the average cost per day (set by the overall DRG value) according to how the various cost elements are believed to vary with the time in hospital.

A1.13 Table A1.4 shows the assumed association of cost with stay. Some components (eg. the cost of ward nursing, meals, etc.) are proportional to length of stay whereas others are more or less independent of it (eg. theatre costs for a surgical DRG). The DCIS system assumes a relatively high level of cost variation with length of stay—around 70 per cent—which reflects the fact that the cost weights applied to Australian DRGs are closely related to the length of stay. However the assumed proportion is not always critical. It is only important when differences in length of stay are large.

A1.14 This is an important adjustment because several studies have shown that the length of stay of Aboriginal and Torres Strait Islander patients is often longer within each DRG category than the average built into the standard costing. If it represented more severe illness, the differential

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might then extend to all of the cost components for that group of people. The New South Wales response was to load the cost of all casemix-weighted Aboriginal and Torres Strait Islander admissions by 10 per cent; the Northern Territory one, to use the Grants Commission formula which gives equal weight to bed days and admissions. The DCIS model is actually rather more responsive to length of stay differentials than either of these approaches.

**Table A1.5: Assumed variation of DRG cost components by length of stay within DRGs**

Assumption	Component
Independent of length of stay	Theatre
	Critical care
	Obstetrics
	Operations
	Anaesthetics
	Pathology
	Imaging
Proportional to length of stay	Nursing
	Drugs
	Catering
	Depreciation
Proportion varies with length of stay	Allied health
	Medical supplies
	Overhead

### Actual lengths of stay for Aboriginal and Torres Strait Islander patients

A1.15 Aboriginal and Torres Strait Islander people are widely believed to stay in hospital longer than other patients for any given illness and to be more acutely sick when admitted. The latter may well be true and for South Australia and the Northern Territory the first assumption also appeared to be correct. Aboriginal and Torres Strait Islander bed days were a higher proportion of the total than were Aboriginal and Torres Strait Islander separations in 1993-94 and their average length of stay was longer than the overall figure, particularly in the Northern Territory (Table A1.5). However for all the other States and Territories the average stay of Aboriginal and Torres Strait Islander patients was actually shorter than for other patients, in New South Wales by a quite significant amount.

**Table A1.6: Average length of stay by Indigenous status, States and Territories, acute hospitals, 1993-94**

	NSW/ACT	Vic	Qld	WA	SA	NT
<b>ALOS (total separations)</b>						
Indigenous	4.3	4.0	4.1	4.2	5.0	7.1
non-Indigenous	5.1	4.4	4.6	4.3	4.8	4.1
Unknown	5.9	2.9	4.4	-	-	-
<b>ALOS (excluding dialysis)</b>						
Indigenous	4.5	4.3	4.5	4.4	5.4	7.1
non-Indigenous	5.3	4.6	4.8	4.5	5.0	4.1
Unknown	6.0	2.9	4.4	-	-	-

Table A1.5 also shows average lengths of stay excluding same-day admissions for renal dialysis, a procedure for which Aboriginal and Torres Strait Islander admission rates are much higher than the average. In fact, it made very little difference to the length of stay differential. Note that in Victoria the average length of stay for the 'Not stated' group was significantly shorter than for other admitted patients. It is possible that people admitted there for one day only were less likely to have the Aboriginality question completed in admission or discharge documents. However the number was small.

### Cost weights for Aboriginal and Torres Strait Islander patients

A1.16 An analysis of hospital utilisation in the Northern Territory by Beaver et al in 1997 found that costs within DRGs were greater for Indigenous than non-Indigenous patients after controlling for a number of other variables relating to co-morbidity, rurality and the type of admission. However, length of stay was used as a proxy for cost in this analysis and the Northern Territory is unusual in the substantially greater length of stay for Aboriginal and Torres Strait Islander patients. A number of the States and Territories assumed that Indigenous cost intensity is greater than non-Indigenous cost intensity in making their estimates of the Indigenous share of hospital expenditure.

A1.17 The National Aboriginal and Torres Strait Islander Casemix Study attempted to measure DRG cost weights for Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander admitted patients in country hospitals in Cairns, Cunnamulla, Innisfail, Mt Isa and St George in Queensland, Kalgoorlie in Western Australia, Port Augusta in South Australia, and Darwin, Alice Springs and Katherine in the Northern Territory. Based on about 28,000 episodes of care over a three month period in late 1995, the Australian study found that the average cost per episode for Indigenous patients was \$1,627, and for non-Indigenous \$1,545. This 5 per cent difference was not statistically significant.

A1.18 The study also found that the race comparison was substantially affected by the inclusion of numerous readmissions for renal dialysis, each consuming relatively few resources. It was by far the most common diagnostic category and Aboriginal and Torres Strait Islander patients, who were about a third of the sample, accounted for about two-thirds of such admissions. When they were excluded, the cost differential between Indigenous and non-Indigenous patients increased considerably to 39 per cent (\$2,303 for Indigenous patients, \$1,659 for non-Indigenous) which was highly significant statistically.

A1.19 However, the average length of stay for Aboriginal and Torres Strait Islander patients was longer. To estimate whether there was a cost intensity factor for Indigenous patients not accounted for by the length of stay adjustment in the DCIS cost model, the Indigenous episodes studied in the National Aboriginal and Torres Strait Islander Casemix Study were costed using non-Indigenous cost weights with four assumptions about the proportion of the episode cost that varied with length of stay within DRGs. The results are shown in Table A1.6.

**Table A1.7: Estimated ratio of Indigenous/non-Indigenous cost intensity within DRG**

Assumed % of DRG cost that varies with LOS	Indigenous/non-Indigenous cost ratio
0	1.16
50	1.02
60	1.00
75	0.96
100	0.90

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For the plausible range (50–75 per cent) of the proportion of DRG cost that varies with length of stay, the Indigenous cost ratio ranges from 1.02 to 0.96, very close to unity. In effect, any 'Aboriginality' effect was captured by the length of stay adjustment in the DCIS model, an advantage which that model also has with respect to other patients for whom the standard DRG costs are suspect, eg., people over 65 years of age. We have therefore made no additional allowance for racial status in our costing, other than that implicit in the DCIS methods.

### Acute hospital outpatients

A1.20 The NATSIS asked respondents a similar question about outpatient (or non-admitted patient) services as that relating to admissions, namely whether they had visited an emergency/outpatients clinic in the last 2 weeks. The proportion of Aboriginal and Torres Strait Islander people who reported such visits was converted to an estimate of the annual visit rate per 1,000 people using a Poisson model similar to that described above. Results are shown in Table A1.7.

**Table A1.8: Aboriginal and Torres Strait Islander people: reported non-admitted patient visits in last two weeks, and estimated annual visit rates, by State and Territory, 1994**

	NSW/ACT	Vic	Qld	WA	SA	Tas	NT	AUS
% visited emergency/outpatients clinic in the last 2 weeks	4.7	8.7	10.0	8.0	10.8	2.8	9.3	7.8
Annual visit rate/1000(a)	1,244	2,354	2,726	2,167	2,978	738	2,528	2,123
% Confidence Interval(b)	11	25	14	15	15	35	15	5

(a) Estimated from reported admissions in last 2 weeks assuming Poisson distribution of admissions.

(b) 95 per cent relative confidence interval (eg.  $\pm 11$  per cent for NSW).

A1.21 However there were no hospital-reported data with which to compare the NATSIS results on the outpatient side. Administrative statistics for non-inpatient services are based on occasions of service, not the attendances recorded by the NATSIS survey. Because occasions of service are counted separately for each department or service used (emergency procedures or diagnostic X-rays for example), there may be two or three occasions of service for each outpatient visit. At the national level, this might not

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matter but practices differ between States and the ratio of occasions of service to visits may vary. It was therefore impossible to convert the hospital information into a form which would allow a comparison of Indigenous and non-Indigenous use.

A1.22 The only comparator was the 1989–90 National Health Survey (ABS 1991) which also asked about outpatient visits in the two weeks prior to interview. Analysis of this data showed that for *inpatient* treatment the 1991 survey gave results very similar to those from the hospital-reported data for all Australians, whereas the NATSIS analysis discussed above suggested that for Aboriginal and Torres Strait Islander people *alone* admissions were over-reported by somewhere around 40 per cent. The outpatient statistics could not be compared directly. However, if the overstatement of outpatient attendances was of the same order of magnitude as for inpatients, estimates of the proportion of hospital expenditures on Aboriginal and Torres Strait Islander outpatients derived from the self-reported information could be compared with the estimates derived from other information in this study. The level of correspondence would then indicate how much support our estimates of outpatient use might have.

A1.23 Tables A1.8 and A1.9 show the results. Outpatient costs were calculated from formulae agreed upon by States and Territories for identifying the inpatient and outpatient 'fractions' of total hospital expenditures. The estimated 'visit rate ratio' is the ratio of outpatient visits per person for Indigenous people in the 1994 NATSIS survey to the visits per person for *non-Indigenous* people in the National Health Survey of 1989–90, adjusted for the overall decline in outpatient visiting over the four years. As can be seen, the estimated proportions of outpatient costs attributable to Aboriginal and Torres Strait Islander people from the updated survey data were not much higher than our estimates at the national level—5.4 per cent as compared with the 4.3 per cent in this study, which included our adjustments for estimated under-identification. For New South Wales and Victoria the figures were very close. However there were some quite large and unexplainable differences across the other States.

A1.24 The estimates we presented earlier thus seem to have *some* external support. In both the self-reported data and the State/Territory allocations, the ratio of Indigenous to non-Indigenous expenditure was higher for outpatients than for admitted patients and the relatively high ratio of outpatient visiting by Indigenous people relative to non-Indigenous users conforms with other data on use by people in the same socio-economic

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position as Indigenous people (see Chapter 4). However too much weight should not be given to the level of correspondence. Errors in outpatient reporting are so large that only the broadest conclusions can be inferred from it.

**Table A1.9: Aboriginal and Torres Strait Islander people: estimated visit rates for visits to emergency/outpatient clinics and estimated outpatient expenditure fractions, from survey data, 1994 by State and Territory**

	NSW/ACT	Vic	Qld	WA	SA	Tas	NT	AUS
Total outpatient costs (a)	1,082	462	341	226	165	57	27	2,359
non-Indigenous visit rate (per 1000)	379	514	620	702	559	382	1,067	496
Indigenous visit rate (per 1000)	830	1,569	1,817	1,444	1,985	492	1,685	1,415
Visit rate ratio	2.2	3.1	3.1	2.1	3.7	1.3	2.0	2.9
Estimated Indigenous costs (b)	38	7	30	2	14	8	12	128
Indigenous costs as % total	3.6	1.4	8.8	6.2	4.9	3.8	43.2	5.4

(a) \$ millions, estimated using inpatient fractions given in National Health Ministers Benchmarking Group (1996).

(b) \$ millions, estimated assuming all non-admitted patient visits have same average cost.

**Table A1.10: Government outpatient expenditure (per cent) attributable to Aboriginal and Torres Strait Islander people; from survey data and this study**

	NSW	Vic	Qld	WA	SA	Tas	NT	ACT
From self-report data	3.6	1.4	8.8	6.2	4.9	3.8	43.2	5.4
From this study	3.1	1.0	6.8	7.7	2.5	7.5	56.0	4.3

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## Medicare and Pharmaceutical Benefits

A1.25 There is no identification of Aboriginal and Torres Strait Islander people in the Medicare and PBS records and no provision for it. Some previous estimates of Medicare and PBS benefits for Aboriginal and Torres Strait Islander people have been based on the self-reported usage data in the 1995 NATSIS survey and it was important to explore whether that information could be used.

### Medicare Benefits

A1.26 The NATSIS survey asked respondents whether they had visited a doctor in the last two weeks, and whether the visit was at an Aboriginal Medical Service (AMS) or not. Experience elsewhere has shown that, while *individuals* may significantly understate or overstate their use (sometimes systematically) the averages derived from self-reported data for ambulatory care are relatively reliable. In Australia, usage figures from the 1989-90 National Health Survey of the whole population appear to have been quite close to the official ones, depending on how a visit to a doctor was defined.

A1.27 However most of these surveys have been dominated by middle class respondents in quite different situations to the Aboriginal and Torres Strait Islander people of Australia and there is no analogous data with which to compare the NATSIS results. Central to this is the way in which the apparently simple question about visiting a doctor would have been understood by respondents, as opposed to the way in which interpreters of the results might view it. As outlined in Chapter 3, it did not distinguish between visits to GPs or specialists, nor did it specify the place of contact. Because the survey also asked about attendances at hospital emergency departments or outpatient clinics, it might be supposed that the two categories would be mutually exclusive, but that cannot be *assumed*. It would depend upon how clearly the questions were explained and put. Moreover, it said nothing about whether the doctor seen was in private practice or as part of a dedicated State service (an important element in Western Australia, the Northern Territory and Queensland, for example) or in a Community Health Centre which might be associated with a local hospital.

A1.28 The analytical processes were technically similar to those with the hospital data. Annual visit rates per person were estimated from reported visits in the last two weeks assuming that the probability of a

doctor visit follows a Poisson distribution. Table A1.10 shows the annual rates of visiting estimated from the NATSIS together with the 95 per cent confidence intervals for these estimates.

**Table A1.11: Aboriginal and Torres Strait Islander people: reported visits to doctor in last two weeks, and estimated annual visit rates, by State and Territory, 1994**

	NSW	Vic	Qld	WA	SA	TAS	ACT	NT	AUS
<b>Total Indigenous persons</b>									
	80,532	19,185	79,836	47,252	18,426	10,112	1,870	46,038	303,251
<b>No. visited doctor in the last 2 weeks</b>									
At AMS	1,598	1,716	896	1,080	1,210	33	0	2,089	8,621
Not at AMS	13,276	3,999	11,643	6,767	3,092	2,091	443	3,749	45,061
<b>Annual visit rate per capita (a)</b>									
At AMS	0.5	2.4	0.3	0.6	1.8	0.1	0	1.2	0.8
Not at AMS	4.7	6.1	4.1	4.0	4.8	6.0	7.0	2.2	4.2
<b>Relative confidence interval % (b)</b>									
At AMS	13	13	25	17	14	40	-	12	5
Not at AMS	2	5	5	5	5	7	-	8	2

(a) Estimated from reported visits in last 2 weeks assuming Poisson distribution of admissions.

(b) 95 per cent relative confidence interval (eg.  $\pm 13$  per cent for visits to AMS doctors in NSW, 5 per cent for others).

**Table A1.12: Aboriginal and Torres Strait Islander people: estimated annual visits to a doctor as a percentage of total GP and specialist visits for the Australian population and as a ratio of the rate per person for non-Indigenous people, by State and Territory, 1994**

	NSW	Vic	Qld	WA	SA	TAS	ACT	NT	AUS
<b>non-AMS doctor visits</b>									
Indigenous visits as % of total doctor visits	0.96	0.41	1.73	1.98	0.92	2.58	0.89	16.61	1.15
<b>Doctor visits per person</b>									
Indigenous/other ratio	0.63	0.90	0.62	0.68	0.69	1.01	1.17	0.54	0.62

Estimated visits by Aboriginal and Torres Strait Islander people to non-AMS doctors represented just over 1 per cent of total doctor visits for the Australian population in 1994 (Table A1.10). The annual usage rate of 4.2 visits per person was 62 per cent of that for non-Indigenous Australians under Medicare in 1993–94.

A1.29 It is very hard to see this rate of visiting as credible. It was 82 per cent higher than the 2.1 GP and specialist visits per person per annum found in the survey conducted for this study and which already included an upward adjustment of 25 per cent for under-identification. Almost one in two patients would have to be misclassified for such a difference to be real. But of equal importance was the internal inconsistency between the rates of AMS and non-AMS servicing. If the self-reported data were correct, Aboriginal and Torres Strait Islander people would have seen private doctors at over 5 times the rate at which they consulted those employed by the community-controlled medical services. A little arithmetic would then show that for the 125 full-time-equivalent doctors employed in AMS clinical work in 1995 the average consultation rate would have been only 1,470 services per year or less than a quarter of the average workload for GPs. Treating Aboriginal and Torres Strait Islander patients undoubtedly requires more time than that devoted to other people, especially in remote areas, but not to the extent that these figures would imply.

A1.30 The most likely explanation is that respondents could not readily separate AMS doctors from others in the sophisticated way which this type of analysis requires. The data were thus of very little value. The overall consultation rate of 5.0 doctor contacts per person per annum *might* be indicative of Aboriginal and Torres Strait Islander usage from all sources—although even this seems high—but the proportion which were covered by Medicare cannot be established. Our survey data are the only reference point.

### *Pharmaceutical Benefits*

A1.31 The Pharmaceutical Benefits Scheme is much more complex than Medicare. Not only must medications be doctor-prescribed to qualify, but they must also be dispensed by a participating private pharmacy and the rates of benefit vary with the price of the drug, the socio-economic circumstances of patients and the quantity of eligible medications which they use in any year. Provision through hospitals or other institutions does not qualify.

A1.32 Unlike the questions for medical and hospital utilisation, the NATSIS asked only two questions on the use of medications:

1. In the last two weeks have you taken any tablets or medicine or used any ointments? (yes/no)
2. In the last two weeks have you used bush medicine? (yes/no)

The 1989–90 National Health Survey contained a similar question to the first question above, as well as more detailed questions on the type of medicine taken and whether it was prescribed or advised by a doctor. Better pharmaceutical data will be available when the results of the most recent National Health Survey (which deliberately over-sampled Aboriginal and Torres Strait Islander people) become available. At this stage though, it was impossible to derive any valid conclusions about PBS use from the self-reported medication data. The ratio of prescribed to non-prescribed medications was unknown, as were the sources of supply which for Indigenous people are likely to include a much higher proportion of dispensing by hospitals and AMSs than would apply to non-Indigenous users. With some major effort it might be possible to infer some information from a combination of the 1989 and 1994 surveys. However the necessary assumptions would be too broad and too unsupported to rely upon with any credibility.

## Appendix 2

# The Medicare and Pharmaceutical Benefits surveys

### Construction

- A2.1 As pointed out in Chapter 3, the only way to obtain useful data on the use of Medicare and Pharmaceutical benefits by Aboriginal and Torres Strait Islander people was to ask a sample of doctors and pharmacies to document, for a limited period, their services to patients whom they believed to be Aboriginal and Torres Strait Islanders. The design of the surveys was dominated by two factors, namely (a) a very limited budget and (b) the very low proportion of Aboriginal and Torres Strait Islander people in the population in most areas. Looking for Aboriginal and Torres Strait Islander patients in mainstream medicine is like looking for a needle in a haystack. Aboriginal and Torres Strait Islander people represent 2 per cent of the Australian population but in the more populous areas the figure is much lower and in many parts of the capital cities there are almost none.
- A2.2 The objective was therefore to sample in such a way that the doctors and pharmacies selected were in the areas where they were most likely to see Aboriginal and Torres Strait Islander patients or clients. The same framework was used for both samples. The doctors selected must, of course, have been eligible to bill under Medicare, which meant the possession of a Medicare provider number. An early decision was made that only general practitioners would be surveyed and that any use of private specialists would be inferred from the rate of referrals to them by GPs. We first examined selecting doctors by postcodes of practice in local government areas in which the proportion of the population who identified as Aboriginal and Torres Strait Islanders in the 1991 Census was higher than a certain level. Postcodes could be mapped to these areas and the Department of Health and Family Services agreed to select a random sample of doctors with practice addresses in them. A number of alternative groupings were also examined. The major problem was the very scattered distribution of these areas across the country and the lack of any logical links between them. Although it turned out not to be necessary, we were
- concerned with the problem of non-response to any survey we might mount and the need to have some organisational support within the local medical profession. The obvious linkage was with the Divisions of General Practice which were defined regionally, had some community of interest, conformed almost entirely with postcode boundaries (which allowed their Indigenous populations to be counted) and were large enough to smooth out the quite large differences which were apparent in smaller areas. Data provided by the DHFS showed that, from the 1991 Census, the Aboriginal people living in postcodes bounded by the 25 Divisions of General Practice with Indigenous proportions higher than the average (1.7 per cent of the total population) represented over 52 per cent of the total Indigenous population in that year. Nearly 2,000 GPs billed Medicare from practice addresses in these areas in 1995–96 but 85 per cent of all services were provided by about 1,500 full-time doctors, using the Department's revenue-based definition of full-time and part-time practice. If only full-time GPs were surveyed, with an appropriate expansion of the results for part-time practitioners, our resources would allow a one in three sample. It was randomly selected on that basis.
- A2.3 The Divisions included in each State are shown in Figures A2.1 to A2.6. Note that because of the selection criterion—a proportion of Indigenous people greater than 1.7 per cent of the population—only five metropolitan Divisions were selected and no Victorian Division was chosen. Individual postcodes in Victoria exceeded the threshold level but none of the larger groupings qualified. The crude results of the survey were therefore biased towards the rural areas but as shown later, the data were re-weighted to correct for it.
- A2.3 The process of the survey was described in Chapters 2 and 3. Experience showed that the support of a senior medical body was essential and the Council of Australian Medical Association endorsed the survey design without qualification. The Federal President, Dr Woollard, signed a letter of recommendation to all of the selected doctors. This was sent with the questionnaire and a covering letter explaining the nature and purposes of the survey, the data which we were seeking and how we expected the identification of Indigenous patients to be made. But experience also showed that a high response rate required personal contact and a team of people experienced in GP work contacted all doctors by telephone within a few days of their receiving the questionnaire. At this stage they were asked if they had seen any Indigenous patients in the last year, a process which converted many of what would otherwise have been non-responses into useful information. They were also contacted at the end of

the survey period, which was a self-selected two week period within the month of July, 1997. Although the proportion of doctors who specifically declined to participate seems comparable with other studies, the overall response rate was high for surveys of this kind. Most doctors completed the form diligently. For the 50 GPs who reported seeing Indigenous patients but failed to return the survey form, services were estimated at the same rate as for the 252 GPs who provided full information.

### Expansion of the samples

A2.4 The final results were as reported in Chapter 2. However they were the outcome of an expansion process and, in one aspect, a re-weighting of the basic data. The original information was as follows, provided by the 355 GPs (or 75 per cent of the sample) who responded. All figures were for a two week period.

GP consultations	1,982
Private specialist referrals	49
Pathology requests	253
Imaging referrals	116
Other diagnostic referrals	33
Hospital referrals	83
PBS prescriptions	1,241

These were expanded, sequentially, for such factors as non-participation, partial response, sampling fractions, survey period, etc., to give an estimated annual figure for all services to Indigenous people. The process for the basic service—GP consultations—was as follows:

	Survey consultations		1,982
expanded for:	(i) non-participants	(+ 33 %)	2,641
	(ii) partial-response	(+ 20 %)	3,165
	(iii) part-time doctors	(+ 18 %)	3,734
	(iv) sample fraction	(x 3)	11,203
	(v) sample bias	(+ 3 %)	11,607
	(vi) survey period	(x 26)	301,772
	(vii) population covered	(x 1.9)	573,367
	(viii) under-identification	(+ 25 %)	716,709

A2.5 Data for each of the separate services were expanded in the same way. However the relative under-sampling of metropolitan areas needed correction through re-weighting. Table A2.1 shows the proportions of the Indigenous population covered by the selected Divisions under the standard classifications of metropolitan, rural and remote, together with the per capita rates of GP consulting and pharmacy dispensing in the survey. As can be seen, 73 per cent and 70 per cent of the populations in rural and remote areas were covered, whereas the metropolitan coverage was only 24 per cent and the differences in reported use were large enough to warrant re-weighting. The metropolitan data were therefore multiplied by a factor which gave the same coverage to each region. The overall adjustment was not particularly large, a 3.6 per cent increase in usage overall. All of the services generated by GP consultations were similarly adjusted.

A2.6 Benefit payments were then costed at the 1995–96 rates for each category of service. GP consultations were reported in the standard categories and priced accordingly. Specialist referrals were assumed to generate 2.1 visits each. Pathology and Imaging referrals were costed at the average Medicare cost per episode. The cost of additional diagnostic services generated by specialist referral was estimated from Health Insurance Commission data on the requesting practices of GPs and specialists. However, procedures were assumed to be public hospital based.

**Table A2.1 Indigenous population covered by the GP and Pharmacy surveys, by region, with 2 weekly usage rates**

Region	Indigenous population	Indigenous population	Coverage (%)	Use per person	
	1991 census (%)	surveyed (%)		GP Cons	PBS items
Metropolitan	34.3	14.9	24.1	0.10	0.14
Rural	40.4	53.3	73.3	0.14	0.21
Remote	25.3	31.8	69.9	0.06	0.10

A2.7 The most contentious factor was, again, the estimated under-identification of Indigenous patients. It should not have been as large as in the hospital situation. The sample doctors understood the purpose of the survey and, because they were required to complete a diary-type questionnaire covering individual patient details, they could be expected to take some special care. It could also be expected that in the rural areas at least, they would have a better knowledge of their patients than the admitting staff at often distant hospitals. However the difference between the usage data we obtained and that in the self-reported NATSIS survey was just as large as in the hospital component. For GPs and specialists combined, the usage rates reported by our sample doctors were equivalent to 2.05 consultations per Indigenous person per year, whereas at face value the self-reported data suggested about 3.5 visits per year. As discussed earlier, there was doubt about how the term 'visited a doctor' would have been interpreted by the NATSIS respondents, but there was nothing in the available statistics to indicate that identification by the survey doctors was any better than by hospitals. We have therefore used the same expansion factor for under-identification as in both the hospital inpatient and outpatient analyses—plus 25 per cent overall. No other figure had better support.

### Comparison with other information

A2.8 The overall use of GP services by Indigenous people was very much lower than for all Australians in 1995–96—only 31 per cent on average. But it is interesting to examine what followed from that use. Table A2.2 compares the rates of prescribing and referral for Indigenous people in this study with those from the national survey of general practitioners in 1990–91 by Bridges-Webb and colleagues at the University of Sydney. The rates of prescribing and requesting diagnostic services were almost identical; indeed, almost unbelievably so. The only difference was that the rates of referral to private specialists and hospitals were effectively reversed. Indigenous patients were referred to hospitals much more frequently than were the general population, a differential which presumably relates as much to the location of specialist services in the areas where many Aboriginal people live as to the severity of their conditions. Otherwise, the treatment of Indigenous and non-Indigenous patients appears to have been remarkably similar.

**Table A2.2 GP referrals and requests; per 100 consultations, this study and the national survey of General Practitioners, 1991**

	Per 100 GP consultations				
	Prescriptions	Pathology requests	Imaging referrals	Specialist referrals	Hospital referrals
This study	62.6	12.8	5.8	2.5	4.2
GP survey	63.6	12.8	5.7	6.5	1.0

Source: From GP survey, Bridges-Webb et al (1992)

### The pharmacy survey

- A2.9 The methodology of the pharmacy survey was the same as the medical one. Exactly the same areas were covered and the only differences were, naturally, in the type of data sought and the fact that because there were many less pharmacies than GPs, a sampling fraction of one in two was possible. The selection was made from members of the Pharmacy Guild of Australia, which like the AMA provided a letter of support to participants and publicised the survey in its journal. A notice inviting Indigenous clients to identify themselves was also provided to all pharmacies. About 94 per cent of pharmacies in the survey area were believed to be Guild members.
- A2.10 The questionnaire was very thoroughly answered by the respondents, a substantial task for those with a large number of Indigenous clients. The crude results were expanded by factors similar to those in the doctor study, although they were rather less complex because nearly all of the pharmacists who participated at all provided full information and the adjustment for full-time/part-time work was unnecessary. The results are shown below. As in the medical survey, the final figures included a correction for under-representation of the metropolitan areas, but in this case the change was trivial—minus 0.5 per cent overall.

<b>PBS items</b>	
General	391
Concessional	1,524
Pensioner	1,267
Safety net	246
Other PBS	63
<b>All PBS</b>	<b>3,490</b>
Non PBS	96
Total	3,586

The expansion factors were similar to those used in the Medicare survey.

	PBS items dispensed		3,490
expanded for:	(i) non-participants	(+ 20%)	4,188
	(ii) Guild coverage	(+ 6.4%)	4,457
	(iii) sampling fraction	(x 2)	8,912
	(iv) sample bias	(-0.5%)	8,868
	(v) survey period	(x 26)	230,568
	(vi) population covered	(+ 90%)	440,360
	(vii) under-identification	(+ 25%)	550,450

A2.11 There were no similar data with which the results of this survey could be compared. It was undertaken mainly to estimate PBS outlays—which were calculated by applying the average benefit cost per item for each category of script—but it also indicated the amounts actually paid by the clients for each item. The figures for both were reported in Chapter 2.

A2.12 It is nevertheless interesting to examine the composition of dispensing for Aboriginal and Torres Strait Islander people. The most obvious feature is the very low number of dispensed items classified as either PBS 'general' items or non PBS items. Entitlement to general benefit implies payment by the client of an amount up to the threshold price of \$20 per item; the non-PBS category includes those drugs priced below the threshold level as well as items not on the PBS at all. For Aboriginal and Torres Strait

Islander people, 'general' items represented 11.2 per cent of all PBS items, compared with 11.8 per cent for the whole population in 1996–97. Concessional/ pensioner items were 80 per cent of our sample dispensing, compared with only 69 per cent of the larger population. The difference was met through a larger safety-net component for non-Indigenous people, not a surprising result given the complexity of the safety net arrangements. Overall though, the composition of PBS dispensing for Indigenous people was not markedly different to that for Australians as a whole.

A2.13 It is also interesting to compare the number of items reported as being dispensed for Indigenous people with those reported as being written by private doctors, *in exactly the same areas at almost the same time*. The pharmacists reported 3490 items as being dispensed for Aboriginal and Torres Strait Islander clients in a two week period. The GPs reported 1,241 *prescriptions* as being written over the same time scale. Health Insurance Commission data showed that in September 1997 the average number of items per prescription was 1.73 and the basic data also required adjustment for the different sampling fractions for doctors and pharmacies (1 in 3 and 1 in 2 respectively) and for differences in response. The standardised figures were 17,909 items prescribed nationally in a two week period and 20,063 items dispensed. Private pharmacies thus appear to have dispensed about 12 per cent more PBS items than were prescribed by those doctors who billed Medicare for their services to Indigenous people. There need not, of course, be an automatic link between the two. Salaried doctors may well have written the additional prescriptions, and in remote areas the private and public sectors often merge. Some hospital prescriptions might also have been dispensed privately. The result had no significance for this study but it may be a useful contribution to any future examination of medication practices.

## General Practitioner and Pharmacy Questionnaires

### National Survey of Aboriginal and Torres Strait Islander Use of General Practitioner Services.

- A.** Have you provided services billed to Medicare or eligible for rebate under Medicare to any Aboriginal or Torres Strait Islander patients in your practice in the last year?

Please tick one box.

 No

Thank you for your participation. Your 'No' response is important in assisting us to estimate the overall use of General Practitioner services by Aboriginal and Torres Strait Islander people. Please return this form in the pre-paid envelope provided.

 Yes

Please proceed to Section B.

- B.** Thank you for your cooperation and support. We would like you to fill in one line of the following form for each Aboriginal and Torres Strait Islander patient consultation during a period of 2 weeks (14 days) within the period 16 June to 13 July, 1997.

**B.1** Please fill in the date on which you start filling out the form:  /  / 1997

**B.2** Please fill in the last date on which you will fill out the form  /  / 1997 (the date above plus 13 days). Please write this date on the bottom of each of the survey forms now.

During this 2 week period, please fill out one row of the survey form for each patient consultation where you believe that the patient is an Aboriginal or Torres Strait Islander person and where the service is eligible for a Medicare rebate or billed to Medicare. Do not fill in the form for consultations with any patient who is not an Aboriginal or Torres Strait Islander person or for consultations which are not either billed to Medicare or eligible for a Medicare rebate.

This survey relies on your identification of the Aboriginal or Torres Strait Islander status of your patients. In many practices this information is contained in the questionnaire used to obtain information from new patients. If you do not know whether or not a patient is an Aboriginal or Torres Strait Islander person, you may wish to ask some or all of your patients at the time of consultation.

The form of question recommended by the Australian Bureau of Statistics for collection of indigenous status on forms or by interview is:

*Are you of Aboriginal or Torres Strait Islander origin?*

We recognise that this may be a sensitive question to ask, particularly for patients who are not Aboriginal or Torres Strait Islander and recognise that you may not wish to ask this question for all patients.

Please enter the requested information on the form at the end of each consultation with an Aboriginal or Torres Strait Islander patient rather than later in the day. If you expect to fill all the survey forms provided, please make photocopies of the form or contact us on (06) 249 5620 to obtain more forms.

### National Survey of Aboriginal and Torres Strait Islander Use of General Practitioner Services.

- C.** On completion of this survey, please answer the following questions.

**C.1** How did you identify Aboriginal and Torres Strait Islander patients for this survey?

(Tick one box only)

Information collected from all patients

Information collected from some patients, where not certain of indigenous status

From knowledge of patient or patient's family, and/or appearance of patient

**C.2** Do you bulk bill your Aboriginal and Torres Strait Islander patients?

(Tick one box only)

All

Some

None

**C.3** Total number of consultations during 14 day survey period?

(Please ask your receptionist to count the total number of patient consultations eligible for a rebate under Medicare, including Aboriginal and Torres Strait Islander and non-Aboriginal)

Please return these forms, including this cover sheet,  
either by fax to:  
06 2490740

or in the pre-paid envelope to  
The National Centre for Epidemiology and Population Health, Australian  
National University,  
Canberra ACT 0200.

Thank you for your participation in this survey.

Note: No information identifying individual doctors, their practices or patients will be used in the analysis of this survey. The identifying information below is used only for the purpose of following up non-responses. Although the analysis will use information identifying your Division of General Practice, no results will be released at a geographic level smaller than urban, rural or remote area of State or Territory.

OFFICE USE ONLY

Form No

Name of Division of General Practice

### National Survey of Aboriginal and Torres Strait Islander Use of the Pharmaceutical Benefit Scheme.

C. Fill out one row of the survey form for each item dispensed for an Aboriginal or Torres Strait Islander patient only. *Include both PBS and non-PBS prescriptions.*

**Aboriginal and Torres Strait Islander patients only.**

Date Supplied	Patient's sex	Tick if Non-PBS Item	PBS Item - Tick one G = General C = Concession P = Pensioner S = Safety net R = Repat	PBS item No (if applicable)	Amount paid by patient for this item \$
Day Month □□ □□	M F □□	□	G C P S R □□□□□		
Day Month □□ □□	M F □□	□	G C P S R □□□□□		
Day Month □□ □□	M F □□	□	G C P S R □□□□□		
Day Month □□ □□	M F □□	□	G C P S R □□□□□		
Day Month □□ □□	M F □□	□	G C P S R □□□□□		
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Day Month □□ □□	M F □□	□	G C P S R □□□□□		

NOTE: If you can provide this information as a printout from your computer that is even better, especially if you can also give us the information on disk!

**At the end of the last day of the survey, please go to Section D and complete the questions, then return the survey forms to the National Centre for Epidemiology and Population Health.**

### National Survey of Aboriginal and Torres Strait Islander Use of the Pharmaceutical Benefits Scheme.

A. Do you ever dispense any prescriptions for any Aboriginal or Torres Strait Islander patients in this pharmacy?

Please tick one box.

No

Thank you for your participation. Your 'No' response is important in assisting us to estimate the overall use of PBS prescriptions by Aboriginal and Torres Strait Islander people. *Please return this form in the pre-paid envelope provided.*

Yes

*Please proceed to Section B.*

B. Thank you for your cooperation and support. We would like you to fill in one line of the following form for each item dispensed for Aboriginal and Torres Strait Islander patients during the 2 weeks (14 days) 11-25 August 1997.

During this 2 week period, please fill in one row of the survey form for each drug item dispensed for an Aboriginal or Torres Strait Islander patient. Do not fill in the form for items from any patient who is not identified as an Aboriginal or Torres Strait Islander. Include both PBS and non PBS prescriptions. For PBS items please show whether the benefit was payable under the general (G), concessional (C), pensioner (P), safety net (S) provisions or Repatriation prescriptions (R).

This survey relies on your identification of the Aboriginal or Torres Strait Islander status of your patients. In many cases you will know this from your knowledge of the people concerned. If you do not know whether or not a patient is an Aboriginal or Torres Strait Islander person, you may wish to ask at the time of dispensing.

The form of question recommended by the Australian Bureau of Statistics for collection of indigenous status on forms or by interview is:

*Are you of Aboriginal or Torres Strait Islander origin?*

We recognise that this may be a sensitive question to ask, particularly for people who are not Aboriginal or Torres Strait Islander and recognise that you may not wish to ask this question for all patients.

We have provided a notice explaining the purpose of the survey, which invites Aboriginal and Torres Strait Islander people to identify themselves to you. You should feel under no pressure to ask the question if it would cause any embarrassment.

Please enter the requested information on the form at the end of each contact with an Aboriginal or Torres Strait Islander patient rather than later in the day. If you expect to fill all the survey forms provided, please make photocopies of the form or contact us on (06) 249 5620 to obtain more forms.

### National Survey of Aboriginal and Torres Strait Islander Use of General Practitioner Services.

Fill out one row of the survey form for each consultation with an Aboriginal or Torres Strait Islander patient only. Include only consultations billed to Medicare or eligible for a Medicare rebate. **Tick each box** for which an activity was undertaken during the consultation. Leave box blank if the activity was not undertaken in the consultation.

*Aboriginal and Torres Strait Islander patients only.*

Date of Consultation	Sex	Level of consultation	Were any PBS drugs prescribed? (tick if Yes)	Were any tests ordered or undertaken? (tick if Yes)	Was patient referred to (tick if Yes)
Day Month □□ □□	M F □□	A B C D □□□□	<input type="checkbox"/>	Pathology <input type="checkbox"/> Imaging <input type="checkbox"/> Other <input type="checkbox"/>	Private Specialist? <input type="checkbox"/> Hospital? <input type="checkbox"/>
Day Month □□ □□	M F □□	A B C D □□□□	<input type="checkbox"/>	Pathology <input type="checkbox"/> Imaging <input type="checkbox"/> Other <input type="checkbox"/>	Private Specialist? <input type="checkbox"/> Hospital? <input type="checkbox"/>
Day Month □□ □□	M F □□	A B C D □□□□	<input type="checkbox"/>	Pathology <input type="checkbox"/> Imaging <input type="checkbox"/> Other <input type="checkbox"/>	Private Specialist? <input type="checkbox"/> Hospital? <input type="checkbox"/>
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Day Month □□ □□	M F □□	A B C D □□□□	<input type="checkbox"/>	Pathology <input type="checkbox"/> Imaging <input type="checkbox"/> Other <input type="checkbox"/>	Private Specialist? <input type="checkbox"/> Hospital? <input type="checkbox"/>

Completion Date of Survey  /  / 1997 (Enter completion date from Question B.2)

**If this is the last day on which you are filling out this survey, and you have finished seeing patients for the day, please return to Section C, page 2 and complete the questions, then return the survey forms to The National Centre for Epidemiology and Population Health.**

### National Survey of Aboriginal and Torres Strait Islander Use of the Pharmaceutical Benefits Scheme.

**D.** On completion of this survey, please answer the following questions.

D.1 How did you identify Aboriginal and Torres Strait Islander patients for this survey?

- Information collected from all patients
- Information collected from some patients
- Assumed status from knowledge of patient or patient's family, and/or appearance of patient

D.2 Do you ever provide medicines at no charge to Aboriginal and Torres Strait Islander patients? (Tick one box only)

- Frequently
- Sometimes
- Never

D.3 Total number of PBS prescriptions dispensed during 14 day survey period? (i.e. Both Aboriginal and Torres Strait Islander and others.)

**Please return these forms, including this cover sheet, either**

**by fax to:**  
**06 2490740**

**or in the pre-paid envelope to**

**REPLY PAID 851**  
**National Centre for Epidemiology and Population Health, Australian National University,**  
**Canberra ACT 2601.**

**Thank you for your participation in this survey.**

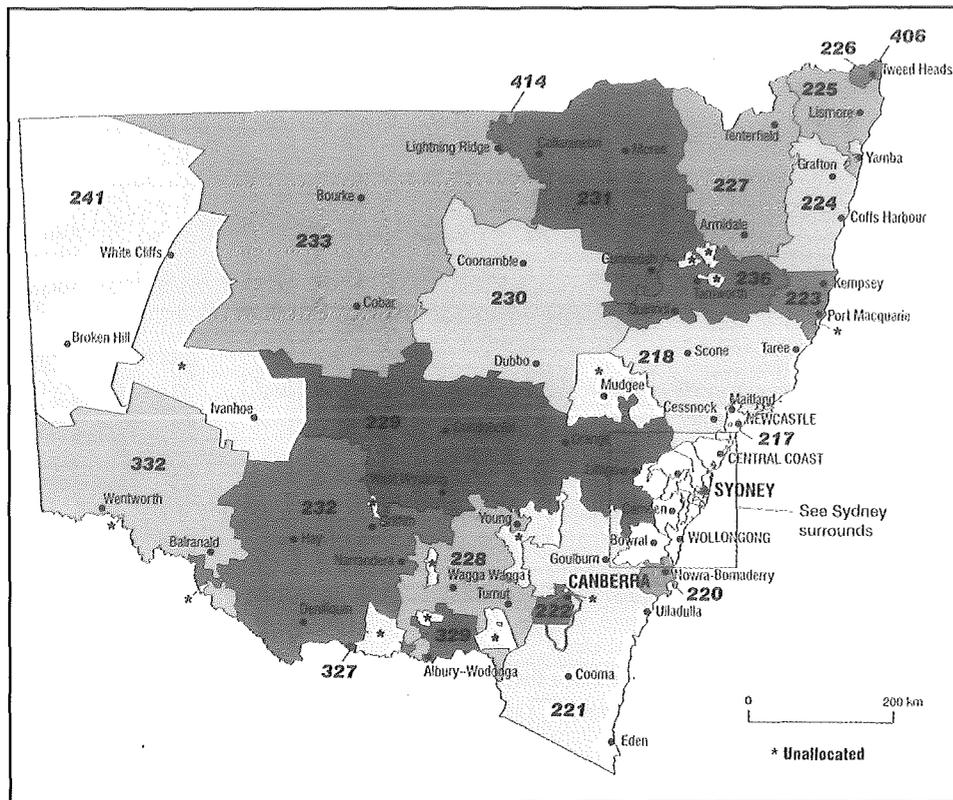
Note: No information identifying individual pharmacists or pharmacies, or customers will be used in the analysis of this survey. The identifying information below is used only for the purpose of following up non-responses. No results will be released at a geographic level smaller than urban, rural or remote area of State or Territory.

**OFFICE USE ONLY** Form No \_\_\_\_\_

Division \_\_\_\_\_

# State and Territory Maps of Divisions of General Practice

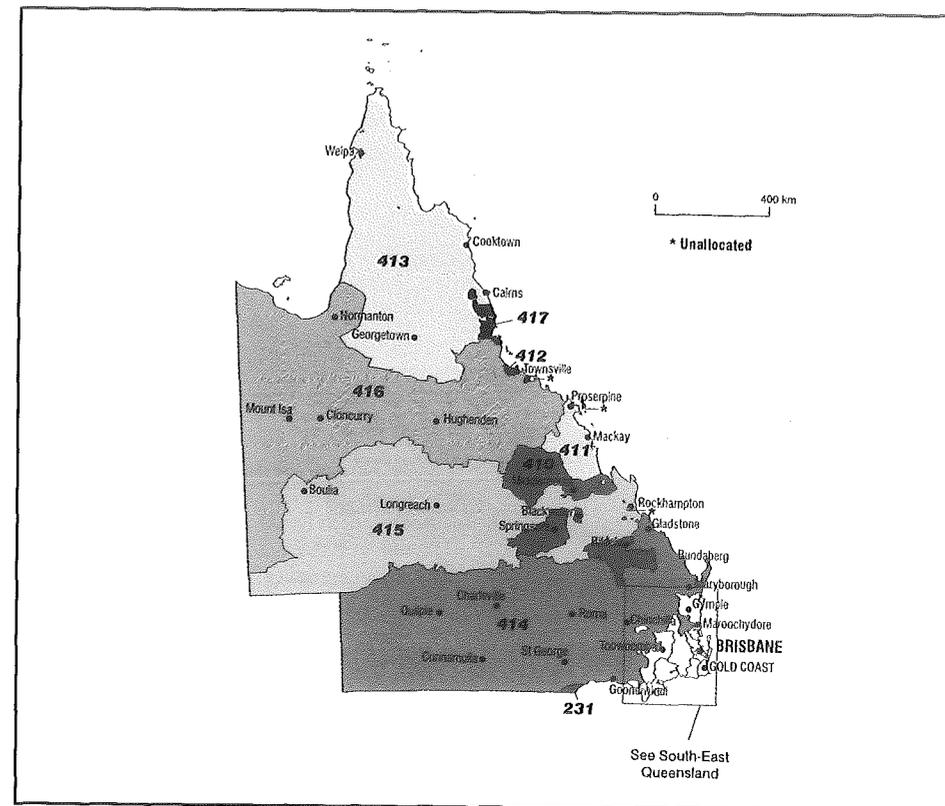
## New South Wales Divisions of General Practice



### Sampled Divisions

- 224 Mid North Coast Division of General Practice
- 225 Division of General Practice Northern Rivers, New South Wales
- 227 New England Division of General Practice
- 230 Dubbo Division of General Practice
- 231 Baron Division of General Practice
- 233 NSW Outback Division of General Practice
- 236 North West Slopes (NSW) Division of General Practice
- 241 Far West Division of General Practice

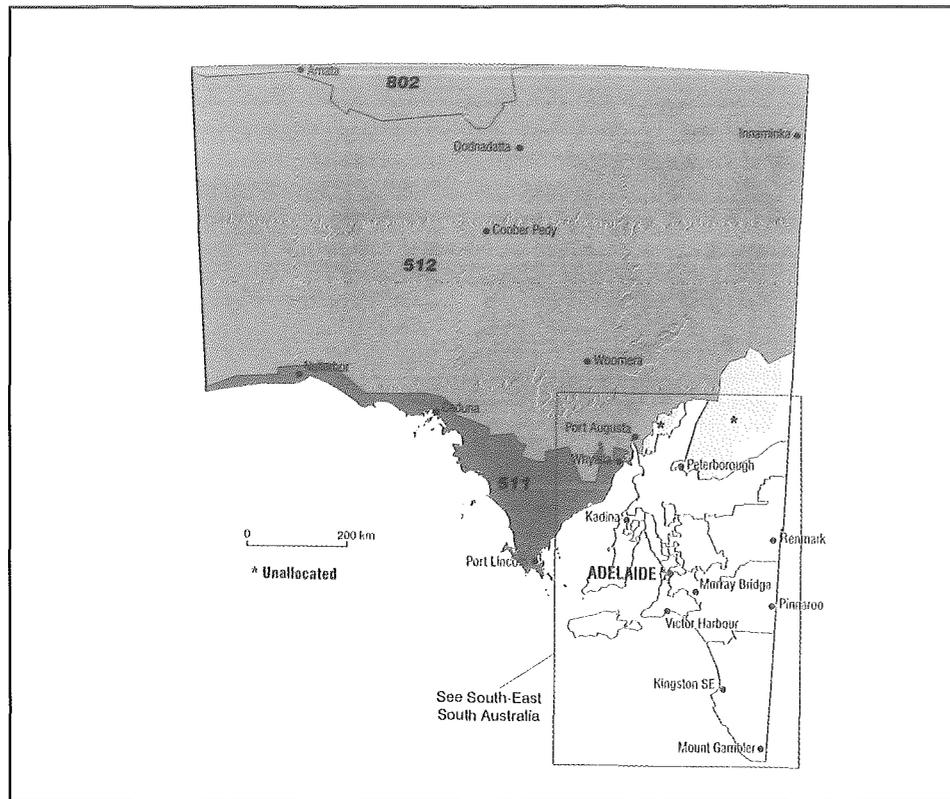
## Queensland Divisions of General Practice



### Sampled Divisions

- 408 Ipswich & District Division of General Practice
- 410 Central Queensland Rural Division of General Practice
- 411 Mackay region Division of General Practice
- 412 Townsville Division of General Practice
- 413 Cairns Division of General Practice
- 414 Southern Queensland Rural Division of General Practice
- 416 North Queensland Rural Division of General Practice
- 417 Far North Queensland Rural Division of General Practice

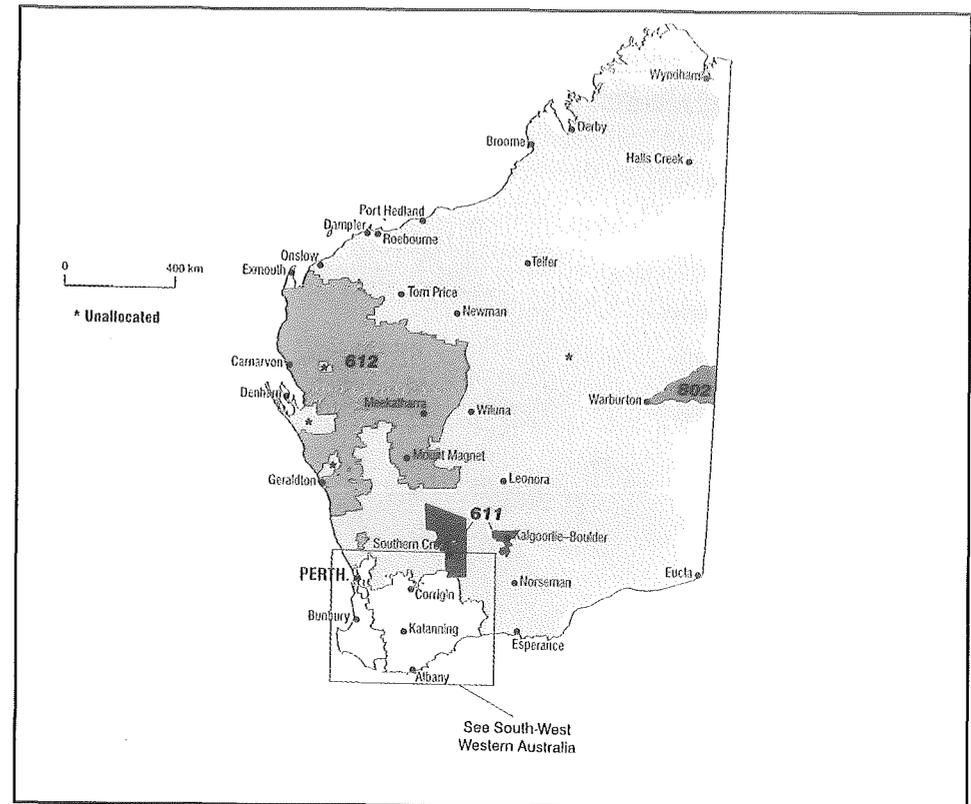
*South Australia Divisions of General Practice*



**Sampled Divisions**

- 502 Adelaide Northern Division of General Practice
- 511 Eyre Peninsula Division of General Practice
- 512 Flinder & Far North Division of General Practice

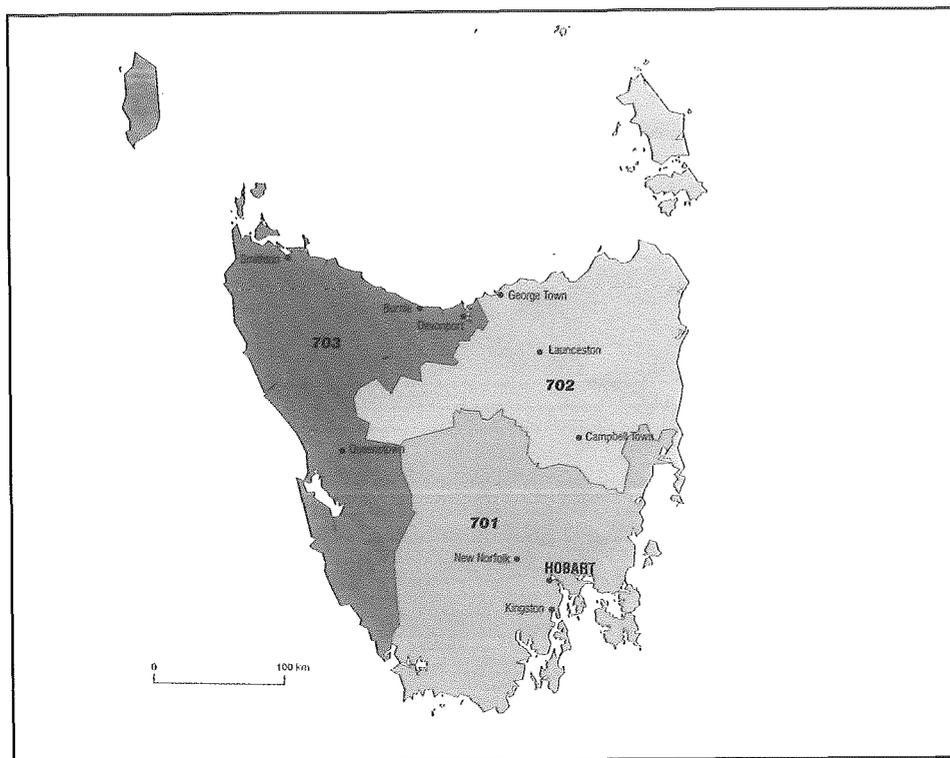
*Western Australia Divisions of General Practice*



**Sampled Divisions**

- 608 Swan Hills Division of General Practice
- 611 Eastern Goldfields Medical Division of General Practice
- 612 Mid West Division of General Practice

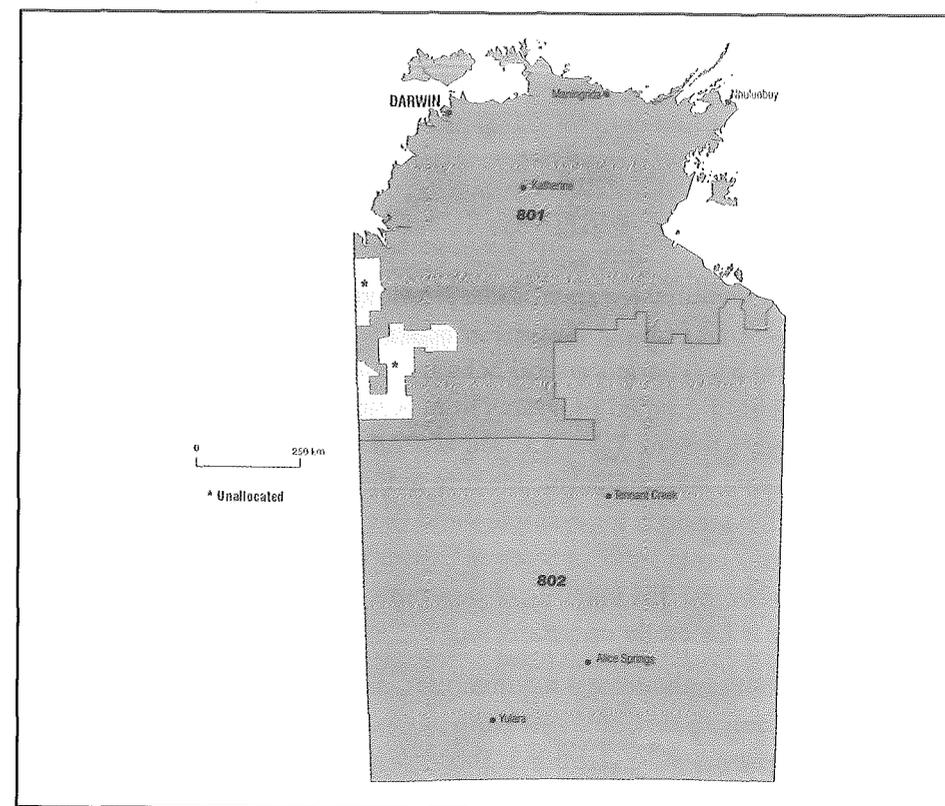
*Tasmania Divisions of General Practice*



**Sampled Divisions**

703 North West Tasmania Division of General Practice

*Northern Territory Divisions of General Practice*



**Sampled Divisions**

801 Top End Division of General Practice

802 Central Australian Division of General Practice

### Appendix 3

## Expenditures through Commonwealth authorities and programs

- A3.1 Apart from identifiable expenditures through the Office of Aboriginal and Torres Strait Islander Health Services and the mainstream programs of Medicare and Pharmaceutical benefits, there are a large number of Commonwealth-funded programs from which Indigenous people could be expected to benefit. Table A3.3 shows 27 such programs and the list is not exhaustive. Although some identify Indigenous users—hearing and rehabilitation services, for example—and there are alternative sources of data for some other services (such as Census data on Indigenous residents of nursing homes), the majority of programs do not do so and the basis for costing is generally uncertain.
- A3.2 However our methodology required that, in the total expenditure estimates, only those Commonwealth payments which were made directly to service providers be identified. Those passing through the States and Territories, the most common form of Commonwealth funding, were accounted for as part of the gross expenditures of State/Territory authorities and would be double counted if also attributed to the central government. They needed to be included as Commonwealth outlays in the sources of funds analysis, of course, but since 1993 an increasing proportion of the Commonwealth's indirect contribution to all State/Territory health services has been administered through expanded Medicare agreements—now to be known as the Australian Health Care Agreements. In the overall sources of funds table (Table 2.4 in Chapter 2) federal transfers to the States and Territories thus covered both Medicare and a number of subsidiary program subsidies. Some of the smaller programs were hard to split between Indigenous and non-Indigenous people but the amounts involved were minor.

Table A3.1: Commonwealth direct expenditure on services to Aboriginal and Torres Strait Islander people 1995–96, by type of service.

	\$m	% of allocation to Indigenous people
<b>Acute hospital</b>		
Blood Transfusion Service	3.75	3.9
<b>Nursing home benefits</b>		
- non government homes	4.28	0.2
<b>Community health services &amp; general practitioner programs</b>		
Office of Aboriginal and Torres Strait Islander Health Services	89.66	100.0
General practitioners	1.19	0.7
Dental	0.11	5.3
Family planning	0.15	1.0
Hearing services	1.00	0.5
Other	0.23	1.0
<b>Patient transport</b>		
RFDS	6.59	40.0
<b>Public health</b>		
Drug programs	0.62	5.3
AIDS programs	1.13	5.3
Public health education and advancement	0.85	5.3
Women's health programs (including cervical screening and breast cancer)	0.54	5.3
Immunisation	0.26	5.3
Food programs	0.37	5.3
Other	0.37	5.3
<b>Research</b>	6.13	3.5
<b>Administration</b>		
OATSIHS	4.56	100.0
General	4.13	1.0
<b>Total</b>	<b>125.9</b>	

A3.2 Table A3.1 shows details of the direct Commonwealth payments reported earlier in Table 2.10. Note that;

- (i) expenditures through OATSIHS include spending on both health and drug abuse services, but exclude estimated expenditures on 'welfare' activities. The figures accord with similar estimates compiled for the 1997 rebasing exercise,
- (ii) the percentage allocation of each program's cost is based on documented expenditures for all services except those in the public health category—where the 5.3 per cent allocation in the components for which data were available was extended to all—and in administration. All of the direct administrative costs of Indigenous health programs are now centralised in OATSIHS and their total was known. Other administrative costs were allocated pro rata with non-OATSIHS spending. Research outlays include those on projects identified as specifically related to Indigenous health issues in the NHMRC, RADGAC and CARG grant systems, plus a population-based allocation of all other spending on health and medical research.

### Distribution of OATSIHS grants, by States and Territories

A3.3 OATSIHS was able to provide data of the overall distribution of grants to community-controlled Aboriginal and Torres Strait Islander services and those to State and Territory governments, by jurisdiction, in 1995–96. Because of some recording difficulties in a year in which responsibility shifted from the Aboriginal and Torres Strait Islander Commission to the Department of Human Services, the figures are estimates rather than accounting data, but they are believed to be broadly accurate. The original data related to all OATSIHS activities including those classified as 'welfare' in our criteria. In reducing the \$114 million in total grants and transfers to the \$90 million allocated to health in both this study and the 1997 rebasing exercise, the health proportion (78.9 per cent) was assumed to be uniform across the States and Territories. The overall figures include capital grants (\$11.1 million) and amounts paid to State governments and those administered centrally for planning, consultancies and program strategies.

**Table A3.2: Estimated distribution of OATSIHS grants, by States and Territories, 1995–96**

State/Territory	Identified grants		Total (\$m)	Estimated State totals (\$m)	Health Allocation (\$m)
	Operating (\$m)	Capital (\$m)			
New South Wales	14.8	2.7	17.5	18.5	14.6
Victoria	8.4		8.4	8.9	7.0
Queensland	16.8	0.7	17.5	18.5	14.6
Western Australia	23.0	1.0	24.0	25.3	19.9
South Australia	14.3	0.8	15.1	13.3	10.5
Tasmania	2.1		2.1	2.2	1.7
ACT	0.3		0.3	0.3	0.3
Northern Territory	17.2	5.9	23.1	26.9	21.2
National			6.0		
<b>Total</b>	<b>102.9</b>	<b>11.1</b>	<b>114.0</b>	<b>114.0</b>	<b>89.7</b>

A3.4 Table A3.2 shows the relevant data. National expenditures were attributed to each State and Territory in proportion to other payments. Grants were allocated to States and Territories according to the administrative domicile of the relevant organisation, except that payments to the Nganampa organisation—which received almost \$5 million (or 30 per cent) of the amount attributable to South Australia—were split equally between South Australia and the Northern Territory in recognition of the wider client area it serves.

**Table A3.3: Commonwealth programs related to health services for Aboriginal and Torres Strait Islander People**

Category	Program	Agency
S	Aboriginal and Torres Strait Islander HIV/AIDS/STD programs	DHFS
E	Drug abuse	DHFS
E	Alternative birthing	DHFS
E	National cervical screening	DHFS
E	Breast screening	DHFS
E	National breast cancer centre	DHFS
E	Other women's health programs	DHFS
E	Health advancement	DHFS
E	Health services for homeless youth	DHFS
E	Food standards	ANZFA
E	Health and medical research	NHMRC
R	Family planning	HIC
R	Childhood immunisation	DHFS
S	Office for Aboriginal and Torres Strait Islander Health Services (a)	DHFS
E	Rural health support, education and training	DHFS
E	Health program grants and specific purpose payments	DHFS
R	Mental health	DHFS
R	Special hospital services	DHFS
R	General practice grants	DHFS/HIC
R	Rural incentives	DHFS
R	Royal Flying Doctor Service	DHFS
R	Domiciliary nursing care	DHFS
R	Rehabilitation	DHFS
R	Hearing services	AHSA
E	Statistics and research	AIHW

*Notes*

*S= Aboriginal and Torres Strait Islander specific*

*E= mainstream with specific Aboriginal and Torres Strait Islander element*

*R= mainstream with relevance to Aboriginal and Torres Strait Islander people*

Appendix 3

Expenditures  
through  
Commonwealth  
authorities and  
programs

## Appendix 4 State and Territory expenditures

### Methodology

- A4.1 As outlined in Chapter 3, State and Territory expenditures were estimated from data collected by questionnaire and visits to each State and Territory health authority in January–February 1997. The questionnaire and a covering letter to all health authorities are attached. Because the approach was to allocate all expenditures, by service, between Indigenous and non-Indigenous people, the questionnaire sought total expenditures on each service according to the Government Purpose Classification used by both the ABS and the AIHW in reporting Australian health expenditures generally. The process thus allowed a reconciliation of the Indigenous/non-Indigenous split with the total expenditure figures published elsewhere. Since not all jurisdictions were able to provide data at that level of disaggregation, some of the GPC sub-categories were combined in the acute care institutions category and in 'health administration and research'. However all of the major divisions were followed.
- A4.2 As also outlined earlier, only New South Wales, Western Australia and the Northern Territory were able to provide estimates of the Indigenous/non-Indigenous split in all of the major expenditure categories and only New South Wales provided the statistical data on which its estimates were based. It was also the only State which attempted to estimate the possible degree of under-identification in its mainstream service records. However Western Australia and the Northern Territory were able to identify the sources used, all of which were discussed in the State/Territory visits. These three States/Territories thus became the *baseline* states from which estimates of the Indigenous/non-Indigenous split were made for those expenditure categories in the other States and Territories where the authorities were unable to provide any supportive evidence. Table A4.1 (which is a repetition of Table 3.4 in Chapter 3) shows the expenditure divisions

which were 'documented'—in the sense of being based on some formal measures of use—and those which were 'constructed', largely from the relationships existing in the baseline jurisdictions. None of the other States or Territories were able to provide estimates for more than *one item* beyond that which was possible using the National Hospital Morbidity Collection for acute hospital in-patients. Although there were differences in accounting and reporting in the baseline States which had to be corrected—and in the case of New South Wales, an upward adjustment for estimated under-identification—the figures for these States/Territories were accepted with only minor changes. The only substantive modifications were in the distribution of administrative costs and state-funded research, neither of which could be attributed to individual use. To reflect the fixed cost/variable cost elements in these expenditures, they were allocated by a formula which gave equal weight to the Indigenous percentage of the population and the Indigenous/non-Indigenous split of all direct outlays.

**Table A4.1: Composition of State and Territory estimates**

Service	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Hospitals								
-inpatient	D	D	D	D	D	c	D	D
-outpatient	D	c	D	D	c	c	D	D
Mental health institutions	D	na	c	D	c	c	na	na
Nursing homes	D	c	c	D	c	c	na	D
Community health	D	D	c	D	c	c	D	D
Patient transport	D	c	c	D	c	c	c	D
Public health	D	c	c	D	c	c	c	D
Administration/research	c	c	c	c	D	c	c	c

*D = documented*

*c = constructed*

*na = not applicable*

A4.3 Table A4.2 shows the data originally supplied by New South Wales, Western Australia and the Northern Territory and the same data after adjustment to a common costing methodology and an expansion for estimated under-identification in New South Wales. As outlined in Chapter 3, identification was assumed to be effectively complete in Western Australia, the Northern Territory and the ACT.

A4.4 The methodology was then to apply the relationships existing in the baseline States/Territories to the total expenditure figures, for each service, in the other jurisdictions. The process was in three steps:

- (i) the basic indicator of relative spending on Indigenous and non-Indigenous people was taken to be that for acute hospital inpatients. This had a common statistical basis in the identified admissions for all States/Territories included in the Hospital Morbidity Collection and one to which a standard costing methodology could be applied. However the reported admissions for Indigenous people needed adjustment for under-identification in all but four States and Territories, so that the final allocations were based on the Indigenous/non-Indigenous admission ratios set out in Table 3.3 of Chapter 3. The derivation of those figures was explained in Chapter 3 and the costing methodology was described in Chapter 4.

**Table A4.2: Original and adjusted expenditure data, baseline States/Territory, 1995-96**

Service	Original						Adjusted					
	NSW		WA		NT		NSW		WA		NT	
	Total Indig.											
	(\$m)	(\$m)										
Hospitals												
-inpatients	3,680	78	859	61	115	61	3,367	92	859	61	115	61
-outpatients	646	16	235	18	33	18	601	18	235	18	33	18
Mental health institutions	169	3	80	3	-	-	152	2	80	3	-	-
Nursing homes	95	2	64	3	-	-	86	2	64	6	-	-
Community health												
-general	388	17	73	20	40	29	553	18	155	23	52	33
-mental	127	2	39	2	7	2	-	-	-	-	-	-
-dental	100		42	1	5	2	-	-	-	-	-	-
Patient transport	190	4	32	4	22	16	171	4	32	4	22	16
Public health services	61	1	40	1	25	13	57	2	40	1	25	13
Admin. & Research	285	8	18	1	37	21	149	3	18	1	37	17
<b>Total</b>	<b>5,742</b>	<b>129</b>	<b>1,484</b>	<b>115</b>	<b>284</b>	<b>162</b>	<b>5,137</b>	<b>140</b>	<b>1,484</b>	<b>115</b>	<b>284</b>	<b>158</b>

- (ii) for the baseline States, the percentage of the costs of each service which were allocated to Indigenous patients were calculated *as a ratio of the percentage allocation for acute hospital inpatient care*. These ratios were averaged across the baseline States/Territories. Columns 1–4 of Table A4.3 show the figures for each jurisdiction and their average.
- (iii) for the other States and Territories, the averaged allocation ratios in the baseline states were then applied to the *independently calculated* percentage allocation for inpatient care in each of the non-baseline States. This gave an estimated percentage division of costs for *each service* in which no documented usage data were available. The structure of each jurisdiction's actual expenditure was thus preserved, as was its overall level and the basic Indigenous/non-Indigenous split inherent in the hospital inpatient allocation. In Queensland, for example, all of the imputed percentage allocations to Indigenous people were about 7 times those in Victoria because the documented cost allocation for inpatients (and the proportion of Indigenous people in the population) varied by that magnitude. Between Queensland and South Australia, the relativities were about 2.5:1, for the same reasons. The allocation of undocumented outlays thus followed the baseline pattern but within the constraints of each State's division of inpatient costs *and* its total expenditure on each type of service. As pointed out in Chapter 3, the 'documented' sector exceeded the 'constructed' one by over 5:1 in value, mainly because the States/Territories with the least documentation were those with the lowest numbers of Indigenous people.

## Results

A4.5 The outcome of this rather complex process is shown in Table A4.3. For each State and Territory, the percentage allocation of hospital inpatient costs attributed to Indigenous users is the base figure (1.00) and the percentage allocation for every other expenditure category is expressed as a ratio of that number. The average ratios in the three baseline states (Column 4) were then the base for the 'constructed' allocations in other States and Territories—which meant, in effect, all non-inpatient outlays except for community health services in Victoria and the ACT and for administration in South Australia, where some State authority estimates were available. As can be seen, the ratios differed somewhat within the baseline states themselves. Not surprisingly, the two with the highest

proportion of their Indigenous population in 'remote' areas—WA and the Northern Territory—reported a much higher allocation of community health service and patient transport costs to Aboriginal and Torres Strait Islanders than did the more urbanised New South Wales.

A4.6 There were also some differences across the other jurisdictions. Most of them reflected organisational and accounting differences. The very low allocation of community health service costs to Indigenous people in Victoria, for example, reflected both the low expenditures attributed to all community health services in that State (5.9 per cent of total expenditures compared with about 11 per cent nationally) and the fact that, administratively, almost no identified Aboriginal health programs were delivered through that mechanism. Most Indigenous people used either the hospital outpatient services or the community-controlled AMSs. Similarly, the relatively high 'administration' ratio in South Australia came more from the accounting treatment of grants to the Aboriginal Health Council than from any real differences in resource use compared with other states. However the amounts involved were relatively small. The overall ratio of non-institutional to institutional expenditure allocations was very similar across the States and Territories and where it varied the underlying pattern appears to have been much the same as in the baseline jurisdictions—that is, the more urbanised the State or Territory the lower the relative importance of non-institutional services in the public care of Indigenous people.

**Table A4.3: Allocation of gross expenditures to Indigenous people, by States and Territories, 1995–96 (inpatient percentage = 1.00)**

Baseline States /Territory Service	NSW WA NT			av.	Other States/ Territory				
	VIC	QLD	SA		TAS	ACT			
Hospitals									
-inpatient	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
-outpatient	1.08	1.08	1.07	1.07	1.07	1.20	1.07	1.77	1.03
Mental health institutions	0.50	0.56	na	0.36	na	0.62	0.62	0.62	na
Nursing homes	0.72	0.67	0.78	0.72	0.86	0.86	na	0.86	na
Community health services	1.21	2.08	1.20	1.50	0.38	1.58	1.58	1.58	2.69
Patient transport	0.78	1.83	1.34	1.32	1.04	1.04	1.04	1.04	1.51
Public health services	0.99	0.39	1.03	0.81	0.74	0.74	0.74	0.74	0.88
Health research & admin.	0.82	0.78	0.89	0.83	0.71	0.81	2.06	0.93	1.30
<b>Total</b>	<b>1.00</b>	<b>1.09</b>	<b>1.06</b>	<b>1.05</b>	<b>0.95</b>	<b>1.07</b>	<b>1.11</b>	<b>1.10</b>	<b>1.12</b>

na = not applicable

A4.7 Tables A4.5–A4.13 show the final estimates of gross expenditures on Indigenous and non-Indigenous people by each State and Territory in 1995-96, and nationally. Tables A4.14–A4.18 show the original data provided by the 'non-baseline' jurisdictions for which estimates had to be made. Note that the total expenditure figures in these tables do not reconcile completely with those published by the National Health Ministers' Benchmarking Working Group, the Commonwealth Grants Commission and the AIHW in its National Health Expenditure reports. A number of definitions differ and the data in tables A4.5–A4.13 has been improved upon in more recent publications.

### Ranges of error

A4.8 As described earlier, the reported hospital admission rates for Indigenous people in all the States and Territories other than Western Australia, the Northern Territory and the ACT were adjusted for estimated under-identification in the light of the self-reported data, overall admission rates and the characteristics of service provision in each State to give a consistent set of Indigenous admission rates across the country. There were some unavoidable elements of estimation in this process and the figures in the tables which follow are based on the mid-range estimates for New South Wales, Victoria, Queensland and South Australia. However figures were also calculated using the following high and low estimates of under-identification.

Estimated under-identification (per cent)			
State	High	Medium	Low
NSW	40	33	25
VIC	33	25	20
Qld	20	15	10
SA	15	10	5

Table A4.4 shows, for Australia as a whole, the estimated total expenditures on State and Territory services to Aboriginal and Torres Strait Islander people based on the highest, lowest and preferred estimates of under identification in the relevant States. As can be seen,

the range was not very large—from about \$24 million below the mid-range figure to some \$28 million above it, or by about plus/minus 4 per cent. These are, of course, approximate figures only and they represent the maximum probable errors, not the most likely ones. More comprehensive error estimates were provided in Chapter 3, using a quite different methodology. They suggested that, for all Indigenous expenditures, the maximum errors probable were no more than plus or minus 5 per cent of the estimated figure and that the most likely variations were of the same order of magnitude as those presented here. Though neither estimate of error has the statistical backing of a random sample, their similarity gives a good indication of the likely size.

**Table A4.4: Alternative estimates of gross expenditures by State and Territory governments on services to Indigenous people, Australia 1995-96**

Source	Low (\$m)	High (\$m)	Preferred (\$m)
<b>Hospitals</b>			
-inpatient	323.4	356.6	339.7
-outpatient	94.2	103.0	98.2
Mental health institutions	9.8	10.7	10.2
Nursing homes	11.5	12.6	12.0
Community health services	105.0	108.9	106.9
Patient transport	29.0	30.5	29.7
Public health services	20.6	21.1	21.0
Administration & Research	27.1	27.7	27.4
<b>Total</b>	<b>620.6</b>	<b>673.3</b>	<b>644.9</b>

## Final estimates of gross expenditures on Indigenous and non-Indigenous people, by States and Territories

**Table A4.5: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, New South Wales(a)**

Area of expenditure	Indigenous expenditure composition		Total expenditure composition		Indigenous share %	Expenditure per person		Ratio Indigenous / Other
	\$m	%	\$m	%		Indigenous \$	Other \$	
Acute care institutions	109.5	78.2	3,968.7	77.3	2.8	1,042	637	1.64
-admitted patients	91.8	65.6	3,368.0	65.6	2.7	874	541	1.62
-non admitted patients	17.6	12.6	600.8	11.7	2.9	168	96	1.75
Mental health institutions	2.1	1.5	152.5	3.0	1.4	20	25	0.80
Nursing homes	1.7	1.2	85.7	1.7	2.0	16	14	1.16
Community health services	18.2	13.0	553.1	10.8	3.3	174	88	1.97
Patient transport	3.6	2.6	170.8	3.3	2.1	35	28	1.26
Public health services	1.5	1.1	56.9	1.1	2.7	15	9	1.61
Administration & research	3.4	2.4	149.2	2.9	2.2	32	24	1.33
<b>Total</b>	<b>140.0</b>	<b>100.0</b>	<b>5.1</b>	<b>100.0</b>	<b>2.7</b>	<b>1,334</b>	<b>825</b>	<b>1.62</b>

(a) Excludes superannuation

**Table A4.6: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, Victoria**

Area of expenditure	Indigenous expenditure composition		Total expenditure composition		Indigenous share %	Expenditure per person		Ratio Indigenous / Other
	\$m	%	\$m	%		Indigenous \$	Other \$	
Acute care institutions	24.4	82.6	2616.7	76.9	0.9	1,095	574	1.91
-admitted patients	18.0	60.8	1962.6	57.7	0.9	806	431	1.87
-non admitted patients	6.4	21.8	654.2	19.2	1.0	288	143	2.01
Mental health institutions	0.0		0.0					
Nursing homes	1.5	5.2	197.4	5.8	0.8	69	43	1.60
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	1.38
Administration & research	0.8	2.6	119.7	3.5	0.7	35	26	1.33
<b>Total</b>	<b>29.6</b>	<b>100.0</b>	<b>3401.4</b>	<b>100.0</b>	<b>0.9</b>	<b>1,326</b>	<b>747</b>	<b>1.78</b>

Appendix 4

State and Territory expenditures

**Table A4.7: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, Queensland**

Area of expenditure	Indigenous expenditure composition		Total expenditure composition		Indigenous share %	Expenditure per person		Ratio Indigenous / Other
	\$m	%	\$m	%		Indigenous \$	Other \$	
Acute care institutions	111.3	73.8	1849.5	75.7	6.0	1,120	543	2.06
-admitted patients	83.1	55.1	1442.6	59.1	5.8	837	425	1.97
-non admitted patients	28.1	18.7	406.9	16.7	6.9	283	118	2.39
Mental health institutions	2.9	1.9	81.6	3.3	3.6	29	25	1.19
Nursing homes	4.1	2.7	82.8	3.4	4.9	41	25	1.67
Community health	24.1	16.0	265.7	10.9	9.1	243	75	3.22
Patient transport	4.4	2.9	74.0	3.0	6.0	45	22	2.06
Public health services	2.2	1.5	52.6	2.2	4.3	23	16	1.43
Administration & research	1.7	1.1	35.8	1.5	4.7	17	11	1.59
<b>Total</b>	<b>150.8</b>	<b>100.0</b>	<b>2441.9</b>	<b>100.0</b>	<b>6.2</b>	<b>1,518</b>	<b>716</b>	<b>2.12</b>

**Table A4.8: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, Western Australia**

Area of expenditure	Indigenous expenditure composition		Total expenditure composition		Indigenous share %	Expenditure per person		Ratio Indigenous / Other
	\$m	%	\$m	%		Indigenous \$	Other \$	
Acute care institutions	79.5	69.1	1094.9	73.8	7.3	1,487	599	2.48
-admitted patients	61.4	53.3	859.4	57.9	7.1	1,147	471	2.44
-non admitted patients	18.1	15.8	235.5	15.9	7.7	339	128	2.65
Mental health institutions	3.2	2.8	80.0	5.4	4.0	60	45	1.33
Nursing homes	3.1	2.7	64.5	4.3	4.8	58	36	1.59
Community health	23.0	20.0	154.8	10.4	14.9	431	78	5.54
Patient transport	4.2	3.6	31.7	2.1	13.1	78	16	4.78
Public health services	1.1	1.0	39.9	2.7	2.8	21	23	0.90
Administration & research	1.0	0.9	18.2	1.2	5.5	19	10	1.86
<b>Total</b>		<b>115.1</b>	<b>100.0</b>	<b>1483.9</b>	<b>100.0</b>	<b>7.8</b>	<b>2,152</b>	<b>807</b>

2.67

Appendix 4

State and Territory expenditures

**Table A4.9: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, South Australia**

Area of expenditure	Indigenous expenditure composition		Total expenditure composition		Indigenous share %	Expenditure per person		Ratio Indigenous / Other
	\$m	%	\$m	%		Indigenous \$	Other \$	
Acute care institutions	20.3	64.3	863.7	70.1	2.3	964	581	1.66
-admitted patients	16.0	50.7	691.0	56.1	2.3	760	465	1.63
-non admitted patients	4.3	13.6	172.7	14.0	2.5	204	116	1.76
Mental health institutions	1.2	3.7	81.0	6.6	1.4	55	55	1.00
Nursing homes	0.0		0.0					
Community health	6.3	20.1	173.6	14.1	3.6	301	115	2.61
Patient transport	0.3	1.0	13.1	1.1	2.4	15	9	1.70
Public health services	0.7	2.4	43.6	3.5	1.7	35	30	1.20
Administration & research	2.7	8.6	56.8	4.6	4.8	129	37	3.46
<b>Total</b>	<b>31.5</b>	<b>100.0</b>	<b>1231.8</b>	<b>100.0</b>	<b>2.6</b>	<b>1,500</b>	<b>827</b>	<b>1.81</b>

**Table A4.10: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, Tasmania**

Area of expenditure	Indigenous expenditure composition		Total expenditure composition		Indigenous share %	Expenditure per person		Ratio Indigenous / Other
	\$m	%	\$m	%		Indigenous \$	Other \$	
Acute care institutions	12.6	70.7	244.9	64.5	5.1	868	505	1.72
-admitted patients	7.6	42.7	178.8	47.1	4.2	524	372	1.41
-non admitted patients	5.0	28.0	66.1	17.4	7.5	343	133	2.58
Mental health institutions	0.9	4.8	32.6	8.6	2.6	59	69	0.86
Nursing homes	1.4	8.0	38.9	10.2	3.6	98	81	1.20
Community health	1.4	7.8	20.7	5.4	6.7	96	42	2.28
Patient transport	0.5	2.7	10.7	2.8	4.4	33	22	1.47
Public health services	0.8	4.3	24.1	6.4	3.1	52	51	1.03
Administration & research	0.3	1.8	8.0	2.1	3.9	22	17	1.30
<b>Total</b>	<b>17.8</b>	<b>100.0</b>	<b>379.9</b>	<b>100.0</b>	<b>4.7</b>	<b>1,227</b>	<b>788</b>	<b>1.56</b>

**Table A4.11: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, ACT**

Area of expenditure	Indigenous expenditure composition		Total expenditure composition		Indigenous share %	Expenditure per person		Ratio Indigenous / Other
	\$m	%	\$m	%		Indigenous \$	Other \$	
Acute care institutions	1.5	74.7	221.0	83.2	0.7	492	724	0.68
-admitted patients	1.1	54.7	163.1	61.5	0.7	361	534	0.67
-non admitted patients	0.4	20.0	57.8	21.8	0.7	132	189	0.70
Mental health institutions	0.0		0.0					
Nursing homes	0.0		0.0					
Community health	0.2	11.5	12.7	4.8	1.8	76	41	1.84
Patient transport	0.0	2.4	4.7	1.8	1.0	16	15	1.03
Public health services	0.0	0.7	2.5	0.9	0.6	5	8	0.59
Administration & research	0.2	10.7	24.5	9.2	0.9	70	80	0.88
<b>Total</b>	<b>2.0</b>	<b>100.0</b>	<b>265.5</b>	<b>100.0</b>	<b>0.8</b>	<b>659</b>	<b>869</b>	<b>0.76</b>

**Table A4.12: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, Northern Territory**

Area of expenditure	Indigenous expenditure composition		Total expenditure composition		Indigenous share %	Expenditure per person		Ratio Indigenous / Other
	\$m	%	\$m	%		Indigenous \$	Other \$	
Acute care institutions	78.9	49.9	148.0	52.1	53.3	1,607	528	3.04
-admitted patients	60.7	38.4	115.5	40.6	52.6	1,237	419	2.95
-non admitted patients	18.2	11.5	32.5	11.4	56.0	371	109	3.39
Mental health institutions	0.0		0.0					
Nursing homes	0.2	0.1	0.4	0.2	41.0	4	2	1.85
Community health	32.8	20.8	52.2	18.4	62.9	669	148	4.52
Patient transport	15.5	9.8	22.1	7.8	70.2	316	50	6.28
Public health services	13.4	8.4	24.6	8.7	54.3	272	86	3.16
Administration & research	17.3	11.0	36.8	13.0	47.1	353	149	2.37
<b>Total</b>	<b>158.1</b>	<b>100.0</b>	<b>284.1</b>	<b>100.0</b>	<b>55.7</b>	<b>3,221</b>	<b>963</b>	<b>3.34</b>

**Table A4.13: Final estimates of gross expenditures on Indigenous and non-Indigenous people, by service, Australia**

Area of expenditure	Indigenous Expenditure Composition		Total Expenditure Composition		Indigenous share		Expenditure per person		Ratio Indigenous/Other
	\$m	%	\$m	%	%	\$	\$		
Acute care institutions	437.9	67.9	11007.4	75.3	4.0	1,191	593	2.01	
-admitted patients	339.7	52.7	8780.9	60.0	3.9	924	474	1.95	
-non admitted patients	98.2	15.2	2226.6	15.2	4.4	267	119	2.24	
Mental health institutions	10.2	1.6	427.7	2.9	2.4	28	23	1.19	
Nursing homes	12.0	1.9	469.7	3.2	2.6	33	26	1.27	
Community health	106.9	16.6	1433.2	9.8	7.5	291	74	3.90	
Patient transport	29.7	4.6	443.2	3.0	6.7	81	23	3.48	
Public health services	20.8	3.2	395.2	2.7	5.3	57	21	2.69	
Administration & research	27.4	4.2	449.1	3.1	6.1	74	24	3.15	
<b>Total</b>	<b>644.9</b>	<b>100.0</b>	<b>14625.4</b>	<b>100.0</b>	<b>4.4</b>	<b>1,753</b>	<b>785</b>	<b>2.23</b>	

**Original data on State and Territory expenditures; Victoria, Queensland, South Australia, Tasmania and the ACT**

**Table 4.14: Gross expenditure on Indigenous and non-Indigenous people, by service, original data, Victoria**

Area of expenditure	Expenditure on Indigenous people		Expenditure on total population		Indigenous expenditure as a proportion of total	
	\$m	Composition %	\$m	Composition %	%	%
Acute care institutions						
-admitted patients	12.3	92.2	2,114.3	98.3	0.6	
-accident and emergency						
-other non admitted patients	0.4	3.1	36.9	1.7	1.1	
Mental health institutions						
Nursing homes						
Community health services	0.6	4.5				
Dental services						
Community mental health						
Patient transport						
Public health services	0.0	0.3				
Research						
Administration						
<b>Total</b>	<b>13.3</b>	<b>100.0</b>	<b>2,151.2</b>	<b>100.0</b>	<b>0.6</b>	

**Table A4.15: Gross expenditure on Indigenous and non-Indigenous people, by service, original data, Queensland**

Area of expenditure	Expenditure on Indigenous people \$m	Composition %	Expenditure on total population \$m	Composition %	Indigenous expenditure as a proportion of total %
Acute care institutions					
-admitted patients	63.0	61.8	1,321.9	58.1	4.8
-accident and emergency					
-other non admitted patients	39.0	38.2	372.8	16.4	10.5
Mental health institutions			81.6		
Nursing homes			100.3		
Community health services			159.1		
Dental services			90.7		
Community mental health			47.5		
Patient transport			60.0		
Public health services					
Research			40.8		
Administration			2,274.8	100.0	4.5
Total	102.0	100.0			

**Table A4.16: Gross expenditure on Indigenous and non-Indigenous people, by service, original data, South Australia**

Area of expenditure	Expenditure on Indigenous people \$m	Composition %	Expenditure on total population \$m	Composition %	Indigenous expenditure as a proportion of total %
Acute care institutions					
-admitted patients	14.4	73.4			
-accident and emergency					
-other non admitted patients					
Mental health institutions					
Nursing homes					
Community health services	2.5	12.8			
Dental services					
Community mental health					
Patient transport					
Public health services					
Research					
Administration	2.7	13.8			
Total	19.6	100.0			

**Table A4.17: Gross expenditure on Indigenous and non-Indigenous people, by service, original data, Tasmania**

Area of expenditure	Expenditure on Indigenous people \$m	Composition %	Expenditure on total population \$m	Composition %	Indigenous expenditure as a proportion of total %
Acute care institutions					
-admitted patients		47.1	270.2		
-accident and emergency		2.8	16.1		
-other non admitted patients		7.5	42.9		
Mental health institutions		0.7	4.1		
Nursing homes		6.3	36.2		
Community health services		12.4	71.1		
Dental services		2.1	11.9		
Community mental health		3.1	18.0		
Patient transport		2.2	12.8		
Public health services		2.3	13.5		
Research		0.2	1.3		
Administration		13.2	75.5		
Total		100.0	573.6		

**Table A4.18: Gross expenditure on Indigenous and non-Indigenous people, by service, original data, ACT**

Area of expenditure	Expenditure on Indigenous people \$m	Composition %	Expenditure on total population \$m	Composition %	Indigenous expenditure as a proportion of total %
Acute care institutions					
-admitted patients	1.1	76.2	163.1	69.1	0.7
-accident and emergency	0.1	7.5	57.8	24.5	0.2
-other non admitted patients					
Mental health institutions					
Nursing homes					
Community health services	0.2	13.3	9.7	4.1	2.0
Dental services	0.0	2.7	3.0	1.3	1.3
Community mental health					
Patient transport					
Public health services	0.0	0.3	2.5	1.1	0.2
Research					
Administration					
Total	1.5	100.0	236.2	100.0	0.6

## State and Territory Questionnaire and Letter

Mr Alan Bansemer  
 Commissioner of Health  
 Health Department of Western Australia  
 PO Box 8172  
 Perth WA 6849

Dear Mr Bansemer

### ABORIGINAL AND TORRES STRAIT ISLANDER HEALTH ALLOCATION AND EXPENDITURE PROJECT

In December 1996, the Commonwealth Office of Aboriginal and Torres Strait Islander Health Services (OATSISHS) wrote to you concerning a project to determine public expenditures on health services for Aboriginal and Torres Strait Islanders.

The project is being undertaken by the National Centre for Epidemiology and Population Health (NCEPH) in conjunction with the Australian Institute of Health and Welfare (AIHW). The project aims to produce a 'snapshot' of allocations and expenditures of government funds on Aboriginal and Torres Strait Islander health in 1995-96, to identify gaps in the data currently available and to make recommendations on mechanisms for ensuring that future information is generated consistently and systematically.

The project is being overseen by a steering committee on which the States and Territories are represented. Shane Houston is your Department's steering committee representative.

I am writing to you now in relation to the collection of data on State and Territory expenditures. These are, of course, only part of the national effort. The Commonwealth contributes directly via grants through OATSISHS (formerly through ATSIC), grants to non-government organisations such as the Royal Flying Doctor Service and indirectly through the Medicare and Pharmaceutical Benefit Schemes. We will obtain data for those areas separately. However States and Territories remain major funders, partly through specific programs for Aboriginal and Torres Strait Islander health and grants to relevant non-government organisations but more through the provision of the mainstream services of public health, community health and hospitals. Estimating the indigenous people's share of these expenditures is a substantial task.

Attached to this letter is a questionnaire which we are asking you to complete as well as instructions for filling it in. The questionnaire has been developed following some pilot testing in the Northern Territory, NSW and Victoria. It sets out the background to the study, definitions of the expenditures covered and the way in which they may best be reported. As

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can be seen, it is primarily directed towards the Finance area of your Department. However the data cannot be interpreted in isolation and in the next few weeks we will be consulting with both your financial officers and those responsible for more specific Aboriginal health programs. Because we have undertaken to provide some preliminary results by the end of April 1997, could you return the completed questionnaire to NCEPH by Friday March 28. There will, however, be opportunities to review and refine the information prior to the release of the final report in June.

The explanatory paper contains contact details of the team members should you wish to raise any queries regarding the questionnaire or the project generally.

Yours sincerely



John Deeble  
 Senior Research Fellow  
 NCEPH

13 February 1997

## INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE

### Background

- 1.1 The Commonwealth Office of Aboriginal and Torres Strait Islander Health Service (OATSIHS) is seeking information on 1995-96 expenditures by State and Territory governments on services relating to the health of Aboriginals and Torres Strait Islanders. As defined by the National Aboriginal Health Organisation (NAHO) - 'Health does not simply mean the physical well being of an individual but refers to the social, emotional and cultural well-being of the whole community'. This is a wide definition of health, though not significantly different to the well known World Health Organization concept. In the context of Aboriginal culture, a wide range of conditions and services would contribute to it and ultimately outcomes need to be assessed in that setting.
- 1.2 However, the NAHO definition is a much wider definition than which is generally used for measuring health expenditure for all Australians. The classification adopted covers the health services items in the Australian Bureau of Statistics' Government Purpose Classification of expenditures.
- 1.3 Table 1 shows the areas of expenditure, the corresponding GPC and project codes which we would like you to use for recording expenditures. Appendix 1 shows the service content of each of the GPC items. Where State/ Territory sub-programs contain a mixture of health and 'welfare' services, the majority rule should apply- the is, if the majority of expenditure is on an identified health service, all of the expenditure should be included (and all excluded for programs which are predominantly welfare). Note that the ABS classification no longer includes any expenditures under the HACC scheme as health.

Table 1: Areas of expenditure, Government Purpose Classification and project codes.

Area of Expenditure	GPC code	Project code
Acute care institutions - admitted patient services	2511, 2512, and 2513	1
Acute care institutions - accident and emergency	Part of 2514	2
Acute care institutions - other non admitted patient services	Part of 2514	3
Mental health institutions	2520	4
Nursing homes for the aged	2530	5
Community health services	Part of 2541	6
Dental services	Part of 2541	7
Community mental health	2542	8
Patient transport	2543	9
Public health services	2550	10
Pharmaceuticals provided outside of hospitals	Part of 2560	11
Medical aids and appliances	Part of 2560	12
Health research	2571 and 2579	13
Health administration	2590	14

Note: data for services funded under the Medical and Pharmaceutical Benefits Schemes will be collected separately by NCEPH/ AIHW.

### Completing the questionnaire

We are asking you to reproduce the attached spreadsheet-style questionnaire on your computer system. Please note that the attached form is an example only

The major requirements of the questionnaire are as follows:

#### Program areas

- 2.1 Because States and Territories may describe their programs differently, the titles in Columns A and B should be those used by each jurisdiction, but with each sub-program assigned a project code from Table 1.

#### Content of expenditures

- 2.2 Both recurrent and capital expenditures (columns D and E) should be gross expenditures, that is, total expenditure before deducting any Commonwealth specific purpose payments, patient fees or other revenue. It would be useful if total revenue was shown (column F), although any attribution to Aboriginal patients is likely to be problematic.
- 2.3 Although a number of States and Territories have converted to accrual accounting, there may be differences in the way in which some items are treated (superannuation, for example). We are therefore seeking only cash expenditures data at this stage.

#### External funding

- 2.4 Column H requires only a yes/ no answer as to whether any of the expenditure in each sub-program was funded in full or in part from a Commonwealth specific purpose grant of grants. The amounts are not needed - we will follow up identified outlays with the Commonwealth. Note that for this purpose, hospital funding grants under the Medicare agreements are not regarded as specific purpose payments. However, some Commonwealth Dental Program payments would be.

#### 'Other' expenditure (column K)

- 2.5 The proportion of total expenditure allocated to 'other' (column K) should include research, teaching costs and the administration costs for the sub-program. central administration costs should not be included here as they will be included in the sub-programs coded to the 'health administration' category (project code 14)

#### Proportion of expenditure spent on Aboriginal and Torres Strait Islander people

- 2.6 It is recognised that most of the figures will be estimates, some based on very limited objective data. One of the objectives of the project is to standardise and improve these estimates as much as possible and we will be discussing the results with you after all of the information has been received. However, there are some general issues to be addressed and some data that we need to assess the comparability of information from different authorities. Broadly, problems arise from:

(a) difficulties in identifying Aboriginal and Torres Strait Islander people.

(b) difficulties in estimating their use of services and its cost.

2.7 In the first case the 'gold standard' would be a direct identification by the person involved in answer to the question set out in the National Health Data Dictionary, namely:

'Are you of Aboriginal or Torres Strait Islander origin?

No

Yes, Aboriginal

Yes Torres Strait Islander'

Such an identification is only possible for personal services where the patient presents directly. It is clearly inapplicable to public health services and effectively irrelevant for services specifically directed towards Aboriginal people and often to services in remote areas where Aboriginal and Torres Strait Islander populations are dominant. Our understanding is that with these exceptions:

(i) specific identification, where it exists and is administratively mandated, generally applies only to hospital inpatients and is based as much on the judgement of admitting staff as on directed enquiries;

(ii) identification of ambulatory patients is less complete but exists to an unknown extent at the local level and in some special purpose collections; and

(iii) in both cases, the quality of the data varies between States /Territories and between areas within them; and is generally higher the larger the proportion of Aboriginal and Torres Strait Islanders in the population served.

2.8 In the second case - the estimation of service costs- most allocation have simply been prorated to hospital admissions or days, ambulatory care visits or other measures of work done, But there is a good deal of anecdotal evidence that the health status of Aboriginal and Torres Strait Islanders, and their social circumstances, are such that for any given conditions both the volumes of services needed and the costs of providing them are likely to be significantly higher than for other Australians. It is an important issue and there is some supportive statistical evidence in relation to in-patient treatment in the Northern Territory. However, more work needs to be done with data from other States.

2.9 It is therefore important for us to know the basis on which estimates of the proportion of expenditures devoted to Aboriginal and Torres Strait Islander people have been made. In some cases the allocation will be based on general collections, some on sample surveys and others on imputation and anecdotal evidence. At this state, all of these methods are acceptable but we will need to know, by expenditure category, the data/ judgements relied upon, their sources and the way in which the calculations have been done.

#### Utilisation data

2.10 In many cases you will be using utilisation data to estimate expenditure. Please indicate what utilisation numbers you are using in making your expenditure estimates.

Could you also provide hospital utilisation data (length of stay and separations), by DRG, for Aboriginal versus non Aboriginal people.

#### Resource Allocation Formulas

2.11 In some cases, States use regional allocation formulas which give special weightings for Aboriginal and Torres Strait Islander people. If your State uses formulas in any distribution of expenditure to regions or districts, please indicate the formulas used and the expenditure affected by these formulas.

#### **Reporting**

3.1 We have undertaken to provide some preliminary estimates to OATSIS by the end of April 1997. To give time for discussion and consultation, the requested return date for the questionnaire has been set at Friday March 28, but there will be opportunities after this time, and indeed after the end of April, to improve and refine the figures. The final report is due by the end of June.

3.2 The preferred form of reporting is by 3.5" Mac-formatted disk, using Microsoft Excel v. Please notify us if there are any problems with this format.

#### **Informants**

Please indicate the staff responsible for completing the questionnaire and their contact details - branch / section, phone number etc.

#### **Queries**

If you have any queries regarding the questionnaire or the project generally, please contact John Goss or John Deeble on the numbers below.

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**EXAMPLE**

State/Territory Program	State/Territory Sub-program	Project code	1995-96 Gross recurrent expenditure \$'000 (D)	1995-96 Gross capital expenditures \$'000 (E)	1995-96 Total revenue (F)	Proportion of recurrent expenditure (both Aboriginal and non Aboriginal) spent on Aboriginal people % (G)	Is part of recurrent expenditure funded by Commonwealth Specific Purpose Payments? (yes/no) (H)	Clinical Services % (I)	Public Health activity % (J)	other % (K)
<b>EXAMPLES (using NSW sub-program categories)</b>										
Overnight acute & same day acute	General hospitals		2,000,000			7.5 (see note 1 below)	Y	80	5	15
	National funded centres		10,000			7.5 (see note 1 below)	Y			
	IPTAAS		25,000			7.5 (see note 1 below)	Y			
	NSW Ambulance		220,000			7.5 (see note 1 below)	Y			
	RFDS		20,000			7.5 (see note 1 below)	Y			
	Red Cross BTS		200,000			7.5 (see note 1 below)	Y			
Primary and Community based	School dental services		50,000							
	Other adult dental		10,000							
	Dental hospitals		20,000							
	Dental teaching & research		2,000							

NOTE 1 (this is an example only)

The morbidity records indicate that 4% of separations from acute care hospitals are for Aboriginal and Torres Strait Islander people and 5% of DRG weighted separations. However it is considered that there is underidentification of Aboriginal and Torres Strait Islander by 30 to 50%, so it is estimated that expenditure for Inpatient admissions for Aboriginal and Torres Strait Islander is between 5\*1.3% = 6.5% and 5\*1.5% = 7.5 of total Inpatient expenditure. This proportion is applied for admission expenditure and for associated expenditure such as NSW Ambulance and the Red Cross BTS

Australian Bureau of Statistics Government Purpose Classification (GPC)  
Revised version of August 1996

- 25 Health
- 251 Acute care institutions
  - This subgroup comprises all activities of acute care hospitals, free-standing hospices, alcohol and drug treatment centres, and same-day establishments except activities involving health research and formal health education.
  - Acute care hospitals are defined in the National Health data Dictionary (NHDD) as 'establishments which provide at least minimal medical, surgical or obstetric services for inpatient treatment and/ or care, and which provide round-the-clock comprehensive qualified nursing services as well as other necessary professional services. They must be licensed by the State health departments, or controlled by government departments. Most of the patients have acute conditions or temporary ailments and the average stay per admission or relatively short. Hospitals specialising in dental, ophthalmic aids and other specialised medical or surgical care are included in the category'.
  - Alcohol and drug treatment centres are free-standing centres for the treatment of drug dependence on an inpatient basis.
  - same day establishments include day centre/ hospitals and free -standing day surgery centres.
- 2511 Designated psychiatric units
  - Includes outlays on:  
Care in designated psychiatric units in acute care institutions.
- 2512 Nursing Home Type Patient (NHTP) care
  - Includes outlays on:  
care of Nursing Home Type Patients in acute care institutions (as defined by the Health Insurance Act).
- 2513 Other admitted patients
  - Includes outlays on:  
All admitted patient services not included in GPC 2511 and GPC 2512 above.
- 2519 Acute care institutions (temporary dump)
  - This category is intended to record expenditures which for reasons of data unavailability at the time of coding, cannot be classified to GPCs 2511 to 2514 above in some jurisdictions. The use of the category should be minimised and amounts recoded to the substantive 4-digit categories when the necessary details are available.
- 252 Mental health institutions
- 2520 Mental health institutions
  - Includes outlays on:  
Psychiatric hospitals and psycho-geriatric nursing homes.
  - The NHDD defines psychiatric hospitals as 'establishments devoted primarily to the treatment and care of in-patients with psychiatric, mental or behavioural disorders'.

253 *Nursing homes for the aged*

## 2530 Nursing homes for the aged

Includes outlays on:  
Nursing homes which provide long-term care involving regular basic nursing care primarily for persons aged 65 and over.

Some young disabled persons are cared for by these nursing homes, but the focus of the nursing home is care for older persons. Some of these institutions are located with acute care institutions.

Excluded are outlays on:  
Hostels for the aged classified to GPC 2622; nursing homes for the young disabled classified to GPC 2623; and, psycho-geriatric nursing homes classified to GPC 2520.

254 *Community health services*

## 2541 Community health services (excluding community mental health)

Includes outlays on:  
Domiciliary nursing services; well baby clinics; dental health services provided by community health centres; health services provided to particular community groups such as Aborigines; family planning services; alcohol and drug rehabilitation programs not involving admission; and, other health services provided in a community setting.

Also include Commonwealth subsidies for services of private medical and private dental practitioners and optometrists through Medicare and other programs.

Excludes outlays on:  
Community health services provided by acute care institutions classified to GPC 2514; and, community mental health services classified to GPC 2542.

## 2542 Community mental health

Outlays on specialised mental health programs for the mentally ill treated in a community setting.

Includes outlays on:  
Mobile acute assessment; treatments and case management services; outreach programs; and, community based residential services.

Excludes outlays on:  
Treatment by psychiatrists in private practice which are classified to GPC 2541; and, psycho-geriatric nursing homes which are classified to GPC 2520.

## 2543 Patient transport

Includes outlays on:  
emergency transport to hospital; inter-hospital transport; non-emergency transport to and from treatment centres; and, travel and accommodation assistance.

255 *Public health services*

## 2550 Public health services

Outlays on public health services consisting of population health service programs and preventive health service programs.

Population health service programs are defined as those programs which aim to protect, promote and /or restore the collective health of whole or specific population as distinct from activities directed at the care of

individuals).

Includes outlays on:  
Health promotion campaigns; occupation health and safety programs; food standards regulation; environmental health; nutrition services; communicable disease surveillance and control; and, epidemiology.

Preventive health service programs are those programs which have the aim of preventing disease.

Includes outlays on:  
Immunisation programs; breast cancer screening; and, for childhood diseases.

256 *Pharmaceuticals, medical aids and appliances*

## 2560 Pharmaceuticals, medical aids and appliances

Includes outlays on:  
Pharmaceuticals provided outside of hospitals, aids and appliances used for health purposes and supplied in an ambulatory setting, glasses, hearing aides, wheel chairs, etc.

Excludes outlays on:  
Prostheses used in operations.

257 *Health research*

## 2571 Health research in acute care institutions

Includes outlays on:  
Research into health, medical and health sciences; and medical instrumentation undertaken to acute care institutions.

## 2579 Other health research

Includes outlays on:  
Research into health, medical and health sciences; and, medical instrumentation undertaken in institutions other than acute care institutions.

Excludes outlays on:  
Research undertaken in acute care institutions classified to GPC 2571.

259 *Health administration n.e.c.*

## 2590 Health administration n.e.c.

Outlays on admission, support, operation etc. of health affairs and services that cannot be assigned to one of the preceding subgroups.

includes outlays on:  
Health insurance schemes designed to cover all or part of the costs of health care; the administration of Medicare by the Health Insurance Commission; and, and subsidies for private health insurance.

## Appendix 5

### Uncertainty analysis of results

A5.1 The uncertainty in the overall estimate of net government expenditure associated with uncertainty in a number of assumptions used in the analysis was estimated using a risk analysis and simulation add-in for Microsoft Excel called @RISK (marketed by the Palisade Corporation).

A5.2 @RISK enables input variable values (such as the estimated level of under-identification of Indigenous people in inpatient episodes) to be replaced by a probability distribution describing the likely range of values that the variable could take. A wide range of probability distributions are available. Two distributions were used in the uncertainty analysis of Indigenous expenditure:

*Uniform Distribution:* the input variable is assumed to have an equal probability of taking any value between a specified minimum and maximum. All of the uncertainties associated with Indigenous under-identification were described by uniform distributions (see Table 5.1).

*Normal Distribution:* the sampling errors in the estimates of per capita Indigenous utilisation of Medicare and PBS (arising from the clustered two part sampling method used) were described by normal distributions.

A5.3 @RISK used Monte Carlo simulation to carry out the uncertainty analysis. The relationships between the input parameters (identification ratios, sampling results, etc.) were specified in the estimation model. @RISK generated a distribution of values of the output variable (net government expenditure of Indigenous people) by recalculating all of the estimates repeatedly, using different randomly selected sets of values from the probability distributions of the input variables. The uncertainty analysis reported here was carried out using 5,000 iterations and Latin Hypercube sampling.

Table A5.1: Assumed distribution of uncertain parameters

Input variables	Assumed Distribution	Median value
Inpatient under identification NSW	Uniform (20%, 40%)	33%
Inpatient under identification Vic	Uniform (20%, 30%)	25%
Inpatient under identification Qld	Uniform (10%, 20%)	15%
Inpatient under identification SA	Uniform (5%, 15%)	10%
GP/Pharmacy sampling error	Normal with SD of 10%	0%
GP under-identification	Uniform (10%, 30%)	20%
Pharmacy under-identification	Uniform (10%, 30%)	20%
Indigenous % Public Health	Uniform (4.3%, 6.3%)	5.3%
Indigenous % administration & research	Uniform (1.0 to 2.2 times population %)	1.51

A5.4 The output probability distributions provided by @RISK do more than determine the possible range of the outcome. While the 'worst-case'—'best-case' range may be quite large, it may be highly improbable because it is associated with simultaneous extreme values for all the input variables (which also may individually be quite unlikely). The output probability distribution was shown in Figure 2.3 of Chapter 2. It shows the likelihood of each possible outcome. In this case, because the distribution was close to normal, the 5 per cent and 95 per cent points define an uncertainty interval (of \$40 million) analogous to a confidence interval.

A5.5 The simulation process also allows estimation of the sensitivity of the output to variations in the input variables. Coefficients summarising the relative importance of each input variable in determining the output variable's value are calculated in two ways by @RISK; by regression analysis and by rank order correlation analysis.

A5.6 The regression analysis regresses the output values against the input values for all the input variables for which uncertainty distributions were specified. The normalised regression coefficients (std b) for this analysis were shown in Figure 2.4. A regression coefficient of 0 indicates that there is no relationship between the input variable and the output variable, while a regression value of 1 or -1 indicates a 1 or -1 standard deviation change in output for a 1 standard deviation change in the input. The input variables with the highest standardised regression coefficient contribute most to the variation in the output measure.

A5.7 Rank order correlation calculates the correlations between the inputs and output by comparing the rank of each value relative to others in the data set. It is useful for non-parametric analysis or when the probability distributions of the input variables are highly skewed. Since neither condition applied here, only the regression results have been reported.

## Appendix 6

### Previous literature on expenditure on health services for Aboriginal and Torres Strait Islander people

#### Introduction

- A6.1 Before this study was undertaken, Kilham (1995) had highlighted, in the context of Federal Government spending, the curious contrast between what he calls the 'illusion of large expenditures'—the widespread public and political perception that very large sums are spent on Aboriginal and Torres Strait Islander health services—and the fact that nobody, either within the Government or outside it, actually knew what the total expenditure was. There is a clear public interest in ensuring that if the amount spent on Aboriginal and Torres Strait Islander health services is to be the subject of political debate, then the debate should be based on facts and not myths. Larkin (1996) pointed out that we need to know what is spent because we need to evaluate whether funds allocated to governments were spent for the purpose identified, what the funds were actually spent on, whether the full amounts were actually spent, and the effectiveness of the expenditure in terms of meeting stated goals and objectives.
- A6.2 In short, there are compelling policy, administrative and technical reasons which make it essential to document all Aboriginal and Torres Strait Islander health program funding allocations. One set of reasons, on which Mooney (1996) has focused, relate to questions of equity: we need to ensure that services are provided according to need.
- A6.3 A second set of reasons relate to the effectiveness of current financial allocations for programs impacting on Aboriginal and Torres Strait Islander health. Determinations of effectiveness involve complex analytical processes; however the fundamental starting point is surely to document what the money is being spent on.
- A6.4 It is all the more astonishing therefore that before this study there was an almost total lack of information on the distribution of resources in

Aboriginal and Torres Strait Islander health. In relation to Aboriginal community controlled health services, we have know the aggregate amount spent but not the purpose of all the expenditure, and for most other Aboriginal and Torres Strait Islander specific health services, particularly those provided by State and Territory Governments, we have not known the total spent. And there have also been large gaps in the information on the extent to which Aboriginal and Torres Strait Islander Australians access mainstream services.

- A6.5 A third set of reasons relate to the arrangements between the Federal, State and Territory governments for the delivery of health services to Aboriginal and Torres Strait Islander people. Bilateral agreements have been signed between the Commonwealth and all States and Territories except Tasmania and the Northern Territory, which include a commitment to data collection and evaluation, and to maintaining expenditure at least at current levels. For this commitment to be meaningful, a baseline must be established which documents what those current levels of expenditure are, and any changes must be monitored and reported on.
- A6.6 Phrased in the most direct way, the question to be answered was: how much is allocated and spent by Australian governments on Aboriginal and Torres Strait Islander health services, and what is it allocated for and spent on? The related questions—the level of spending by individuals and non-Government organisations, how much should be spent, why can no health gains be demonstrated for the funds currently expended, and so on are no less important, but they can only be addressed after we establish the current level of expenditure.
- A6.7 Historically, some information has always been available on the provision of specific services to Aboriginal people in the Northern Territory, from the annual reports of the Territory arms of the Commonwealth agencies responsible for Aboriginal health, and from the Northern Territory Health Department. Since the Commonwealth began providing grants to the States and community organisations for Aboriginal and Torres Strait Islander health programs in the 1970s, financial data has also been available for these programs.
- A6.8 However even for these and other identifiable Aboriginal and Torres Strait Islander health programs, published information has not been available in sufficient detail to permit an analysis of expenditure by

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Previous literature on expenditure on health services for Aboriginal and Torres Strait Islander people

purpose, and virtually no information has been available which would document the expenditure on the provision of mainstream services to Aboriginal and Torres Strait Islander patients. Provision is made for the identification of Aboriginal and (sometimes) Torres Strait Islander patients in most State and Territory hospital admission records, but the adequacy of the identification varies greatly, and only in the Northern Territory and Western Australia has an analysis of expenditure on those patients been undertaken.

- A6.9 There have been a number of significant initiatives in recent times aimed at answering the funding question. These include the work of the Commonwealth Grants Commission in determining relativities for hospital funding, an initiative of the national DRG committee in examining resource consumption differentials between Indigenous and non-Indigenous patients, the work of Mooney and his colleagues on resource allocation in Aboriginal and Torres Strait Islander health, the work of Runciman and her colleagues on expenditure in Queensland, the work of the Social Justice Commission in Western Australia, and the work of Warchivker and the Menzies School and the Northern Territory Department of Health.

## National data sources

### *ATSIC (Australian Aboriginal and Torres Strait Islander Commission)*

- A6.10 From 1989 to 1996 ATSIC was responsible for specific health services for Aboriginal and Torres Strait Islander people, and ATSIC's *Annual Reports* list every Aboriginal Health Service (AHS) funded, and also give details, under the heading Grants, payments and loans for Aboriginal and Torres Strait Islander advancement (health and substance abuse), details of total expenditure. However there is no indication of how much money each AHS receives (ATSIC *Annual Reports* 5.3.90–30.6.90, 1990–91, 1991–92, 1992–93, 1993–94, 1994–95). ATSIC has provided OATSIHS with unpublished information showing some details of its expenditure, and these have been made available for this study. However neither for the changeover year nor for earlier years is it possible to document in full the purposes of Commonwealth expenditure through this program.

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Previous literature on expenditure on health services for Aboriginal and Torres Strait Islander people

### *Commonwealth Department of Health and Family Services*

A6.11 The Department and its predecessors have published a limited range of information about the services funded during the earlier period when it was responsible for funding AMSs and other programs such as the National Trachoma and Eye Health Program through Health Program Grants. Since taking responsibility for funding Aboriginal and Torres Strait Islander health services again in 1995, some details have been published in the *Annual Reports*. Appropriations and expenditure are published in the Commonwealth Budget Papers (Department of Human Services and Health Annual Report 1989-90, 1991-92, 1993-94; *Commonwealth Budget Papers* 1990-91, 1991-92, 1993-94, 1994-95).

A6.12 The other important sources which shed some light on the national level of expenditure on Aboriginal and Torres Strait Islander health services include the reports of the Commonwealth Grants Commission, the National Aboriginal and Torres Strait Islander Casemix Study, and the CHERE investigation of adequacy of resources and the development of a funding formula for Indigenous health services.

### *Commonwealth Grants Commission (CGC)*

A6.13 In establishing the weightings it uses to determine the distribution of the health services component of Commonwealth grants to the States and Territories, the CGC adjusts the relativities on the basis of estimated differences in service use between Indigenous and non-Indigenous patients, on the assumption that the same service has the same cost for Indigenous and non-Indigenous patients. This is done separately for hospital inpatient, outpatient and emergency services, nursing homes, mental health and community health services. There is a separate adjustment for remoteness. The Commission uses its own database, which includes some adjustment for differential adequacy of identification of Indigenous and non-Indigenous patients.

A6.14 In the CGC's 1996 update, inpatient factors are based on national hospital data included in the CGC's Hospitals Special Data Collection (HSDC). Outpatient and emergency services used by Aboriginal and Torres Strait Islander people were estimated by applying to the group the usage rates of the general population in the next age range. (Report: 171). Nursing home factors are based on estimates of the age distribution of Aboriginal patients obtained by shifting the total nursing home age distribution down 10 years. For mental health services, the Commission's

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own data collections were used to estimate Aboriginal use of institutions, and the factor thus obtained (1.43) was also applied to community based services. For community health services, data from a study of the Hunter region of New South Wales were used to estimate Aboriginal relativities.

A6.15 In general, the Commission uses weights which combine the effects of age, sex, race and other factors, so it is not possible to derive specifically Aboriginal estimates from the published reports. Unpublished data showing specifically Aboriginal weights were made available by the CGC.

### *National Aboriginal and Torres Strait Islander Casemix Study*

A6.16 This study (Commonwealth Department of Health and Family Services, 1997), conducted under the auspices of the Australian Casemix Clinical Committee, covered resource use by Aboriginal and non-Aboriginal inpatients in country hospitals in Cairns, Cunnamulla, Innisfail, Mt Isa and St George in Queensland, Kalgoorlie in Western Australia, Port Augusta in South Australia, and Darwin, Alice Springs and Katherine in the Northern Territory. Cost differentials were expressed in terms of the Australian National Diagnosis Related Groups and service type. The design was based on a US study of racial differentials in hospital resource consumption (Munoz and Barrios 1989). It built on the earlier study of Incremental Resource Consumption by Aboriginal Patients in the Alice Springs Hospital which is summarised in the Northern Territory section below.

A6.17 Based on about 28,000 episodes of care over a three month period in late 1995, the Australian study found that Aboriginal and Torres Strait Islander patients accounted for 9,417 separations and 43,570 bed days, with an average length of stay of 4.6 days, while non-Indigenous patients had 18,351 admissions and 71,564 bed days, and an average length of stay of 3.9 days.

A6.18 The total cost of all admissions was \$43,688,220, with an average cost per admission of \$1,573. The cost for Indigenous patients was \$1,627, for non-Indigenous \$1,545. This 5 per cent difference was not statistically significant.

A6.19 Because none of the hospitals included had clinical costing systems, special studies were undertaken to identify the resources involved in the provision of nursing, medical, diagnostic and therapeutic services, as well as overheads. National unit prices were used, removing local cost variations.

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Previous literature on expenditure on health services for Aboriginal and Torres Strait Islander people

- A6.20 The study found that the Indigenous/non-Indigenous comparison was substantially affected by the inclusion of numerous readmissions for renal dialysis, each of which consumes relatively few resources. This was by far the most common diagnostic category recorded, and Aboriginal and Torres Strait Islander patients, who were about a third of the sample, accounted for about two-thirds of these admissions. When this category was excluded, the cost differential between Indigenous and non-Indigenous patients increased dramatically, to 39 per cent, which was highly statistically significant (\$2,303 for Indigenous patients, \$1,659 for non-Indigenous).
- A6.21 Costs for Aboriginal and Torres Strait Islander patients were higher for nursing, boarders, imaging, pharmaceuticals, emergency services, medical and surgical supplies, and overheads (including catering and sterilisation services). When renal dialysis was excluded, critical care and allied health costs were also higher for Aboriginal and Torres Strait Islander patients. Overall, only operating theatre, pathology and critical care costs were less for Aboriginal and Torres Strait Islander patients, partly as a result of low rates of orthopedic procedures in Aboriginal and Torres Strait Islander patients.
- A6.22 The study collected a wealth of additional data which permitted analysis by length of stay, morbidity code, specific cost centres, and so on.
- A6.23 The report makes a number of recommendations, including that the results should be used in determining hospital budgets; that a study should be done of cost differentials in ambulatory services; that the hospitals should upgrade their information systems; and that state health authorities should improve the quality of routine information systems to accurately reflect ethnicity.

### *The CHERE report of adequacy of resources and development of a funding formula*

- A6.24 Mooney, Jan, Palmer and Wiseman from the Centre for Health Economics Research and Evaluation (CHERE) at the University of Sydney, produced an interim report for the NHMRC Aboriginal and Torres Strait Islander Health Standing Committee in September 1995.
- A6.25 The study was carried out over three months in 1995. The authors note that there was little previous work in the area, and that the most revealing aspect of their initial examination was just how under researched it is.

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Previous literature on expenditure on health services for Aboriginal and Torres Strait Islander people

- A6.26 The focus of the report is overwhelmingly on the issue of equity in funding formulas. However under its terms of reference the study was also required to determine the basis of current allocations, to produce as complete a picture as possible of current health service use and expenditure in various categories, and to report on the requirements for improved data. Thus its terms of reference overlapped with those of the present study; however, in the time available it was unable to more than scratch the surface of documenting current use and expenditure.
- A6.27 The first chapters describe the processes used by the CGC and the resource allocation formulas used in New South Wales and Queensland, and examine the various concepts of equity. Then in Chapter 4 the report presents estimates of Commonwealth and State expenditure on health services provided to Aboriginal and Torres Strait Islander people. The estimates are drawn largely from the 1995 Report of the Aboriginal and Torres Strait Islander Social Justice Commissioner, which was based on a survey of each Department.
- A6.28 Mooney et al estimated that in 1993-94 2 per cent of Commonwealth health expenditure and 4.1 per cent of State/Territory expenditure was spent on Aboriginal and Torres Strait Islander people, who comprised about 1.6 per cent of the population.
- A6.29 The results of this preliminary analysis have not been published, but the Northern Territory estimates have been incorporated in a CHERE Discussion Paper and are summarised below.

### State and Territory data sources

#### *New South Wales*

- A6.30 The New South Wales Department of Health Annual Report (New South Wales Department of Health *Annual Report* 1989-90, 1991-92, 1992-93, 1993-94) gives a detailed breakdown of non-Government funding in an Appendix. There it lists all funding under program name and number (35.2.6—Delivery of Health Services specifically for Aborigines (*sic*))
- A6.31 Within the *Annual Reports* Area Health Services are highlighted with the occasional mention of an Aboriginal Service.

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- A6.32 New South Wales Budget papers give detailed breakdown of expenditure using program names and numbers. They also give descriptions of spending in list form (New South Wales Government *Budget Papers* 1990–91, 1991–92, 1992–93, 1993–94).
- A6.33 Using the same method as the State, the Area Health Services also publish details of Aboriginal Health expenditure by program number (eg Central Coast Area Health Service *Annual Report* 1994–95).
- A6.34 In a CHERE Discussion Paper published in July 1997 Wiseman, Jan, Palmer and Mooney produced revised estimates of expenditure in New South Wales and discuss some of the methodological problems—eg underidentification and under-recording of patient race, and differences in resource intensity between Aboriginal and non-Aboriginal inpatient episodes. They note that not a single Region in New South Wales has a comprehensive data set on utilisation of health services by Aboriginal patients, and they outline their proposal for a short survey of Aboriginal health care use across all programs, which is currently being piloted in New South Wales. No expenditure estimates are presented.

### Victoria

- A6.35 The Victorian Department of Health Annual Reports do not give a breakdown of health expenditure for Koori people (Victoria. Department of Health *Annual Report* 1994–95, 1993–94, 1994–95).
- A6.36 The Victorian Budget Papers list the Commonwealth payments for the Aboriginal Health Strategy but give no indication of the State contribution (Victoria. *Budget Papers* 1989–90, 1990–91, 1991–92, 1992–93).

### Queensland

- A6.37 Some work has been done in Queensland to document and estimate the expenditure on Indigenous health services (Hart, Ring and Runciman (1993) and Runciman, Walker and Katz (1996)). The 1993 paper documents actual expenditure in certain remote communities; the other describes an attempt to develop an equitable allocative mechanism.
- A6.38 In the 1993 paper, the authors compared hospital services in some remote Queensland Indigenous communities with those of similarly remote non-Indigenous communities of similar size in about 1990, and found that despite having death rates 2 to 3 times higher, Indigenous communities had lower levels of recurrent hospital expenditure—\$701 per person, compared to \$1,063 per person for non-Indigenous communities. For

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small communities (400–999 people) expenditure was 59 percent higher in non-Indigenous communities. For larger communities (1,000 to 3,499) it was 31 percent higher. Differentials are even higher if account is taken of the fact that purchasing power is lower in Indigenous communities. The authors noted that while inequalities in health are not necessarily due to lower expenditure on hospital services, it was clearly anomalous to spend less on the Indigenous communities, where mortality and morbidity were several times higher.

- A6.39 The Queensland Department of Health Annual Report gives a list of achievements for the year broken down into local health areas. Also included are details of grants and subsidies paid to non-Queensland Government organisations through Aboriginal and Torres Strait Islander Health programs. In some years Aboriginal and Torres Strait Islander Health programs are listed but no expenditure is given (Queensland Department of Health *Annual Report* 1990–91, 1991–92, 1992–93, 1993–94).
- A6.40 Queensland Budget papers show the total expenditure on specifically Aboriginal and Torres Strait Islander health programs, but without any breakdown (Queensland *Budget Papers* 1990–91, 1991–92, 1992–93).

### Western Australia

- A6.41 The *Report* of the Western Australian Task Force on Aboriginal Social Justice (1994) has provided some background information on that State's expenditure on Aboriginal health. This appears to be the only published source, apart from the *Annual Reports* of the Western Australian Department of Health. The information provided in the Task Force *Report* is however extensive. There is a brief description of the sources of funds for the Department's Aboriginal Health programs: \$2.2 million for the Department's own activities, of which 50 per cent is devoted to innovative health programs, \$70,000 for health promotion, and \$16.6 million for other activities, while the Commonwealth provides \$12 million, mostly to support Community controlled health services. The report notes that this Commonwealth contribution represents a 22.3 per cent decline in real terms since 1985–86.
- A6.42 The report also details expenditure on alcohol programs, amounting to some \$6 million a year.
- A6.43 The Western Australian Health Department Annual Report gives details of the total spent on specific Aboriginal health programs (Western Australia. Health Department *Annual Report* 1989–90, 1990–91, 1991–92, 1992–93, 1993–94).

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- A6.44 Healthway, the Western Australian Health promotion Foundation, gives a breakdown of all grants made through the health promotion foundation. Aboriginal Health programs are also listed (Western Australia. Health Promotion Foundation. *Annual Report* 1990–91, 1991–92, 1992–93).
- A6.45 The Western Australian budget papers list achievements for the year in various areas of health but give no monetary figures for these achievements (Western Australia. *Budget Papers* 1991–92, 1993–94).

### *South Australia*

- A6.46 The South Australian Budget Papers contain limited information on Aboriginal health expenditure. Under Program 5—Services for Aboriginal and Torres Strait Islander people are given total amounts spent on health services operating expenses and grants to health agencies (South Australia. *Budget Papers* 1990–91).

### *Tasmania*

- A6.47 Within the Aboriginal health policy section of the Tasmanian Health Department's Annual Reports are mentions of several services but no dollar amounts are given (Tasmania Department of Health *Annual Report* 1989–90, 1990–91, 1991–92).
- A6.48 The budget papers list expenditure for the Aboriginal Advancement Health Account and the Muirhead Commission (*Tasmania Budget Papers* 1989–90, 1990–91, 1991–92).

### *Australian Capital Territory*

- A6.49 The only mention of Aboriginal Health in the ACT Budget papers is in the form of the Aboriginal Health Strategy where estimates of expenditure are given (Australian Capital Territory *Budget Papers* 1994–95).

### *Northern Territory*

- A6.50 The Northern Territory Health Services Annual Report contains a detailed breakdown of Aboriginal Health Services provided, and the amount spent on them. The Annual Report also gives an indication of the percentage of the target population reached by many of its services (Northern Territory Health Services *Annual Report* 1995–96).

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Previous literature on expenditure on health services for Aboriginal and Torres Strait Islander people

- A6.51 Warchivker (1995, 1996) has produced what appears to be the only detailed study of expenditure for an entire region. Based on 1993–94 data, mostly unpublished, for the Alice Springs region of the Northern Territory Department of Health and Community Services, the results showed that \$643 per person was spent by the Department on direct clinical services, \$586 in small communities, \$654 in medium and large communities. It is understood that similar studies have been undertaken of other Territory regions.
- A6.52 McDermott, Warchivker and Beaver have examined the health care expenditure implied by different models of horizontal equity in primary health care for rural Aboriginal communities in the Northern Territory. They examined equity models based on equal expenditure per capita, equal expenditure adjusted for demographic structure, equal expenditure for equal need, equal access for equal need, and equal use for equal need, and found that the models implied expenditure ranging from \$700 to over \$3,000 per capita. The authors note the need for agreement on a single definition, but they observe that in any case spending tends to be at the lowest level (equal per capita), which conforms neither to the general community notion of equity nor the weighting used by the Commonwealth Grants Commission in recommending the level of grants to the States and Territories.
- A6.53 In the context of a proposed move in the Northern Territory to casemix-based hospital funding, Beaver, Zhao, McDermid and Hindle examined the extent of variation in severity and SES not captured by DRG weights, and considered the requirements for an adjustment factor based on available data items. Earlier studies of children's admissions by Ruben had found major differences in length of stay and co-morbidities between Aboriginal and other patients within the same DRG, while Harkin had found that after casemix adjustment the mean cost for Aboriginal inpatients was still 64 per cent higher than for others. On the basis of an analysis of length of stay (as a proxy for cost) of 3 years of admissions from mid 1992 to mid 1995, Beaver et al identified several variables associated with significant within-DRG cost variations, and proposed the use of separate index values for all combinations of race (Aboriginal/non-Aboriginal) residence (rural/urban) and hospital type (teaching/other). Overall Aboriginal patients had an index of 1.4 (40 per cent more severe illness and socioeconomic disadvantage). In the most extreme case, a rural Aboriginal patient in a teaching hospital had an index value of almost 2, while in the most favourable case an urban Aboriginal patient had an index value of 0.8.

#### Appendix 6

Previous literature on expenditure on health services for Aboriginal and Torres Strait Islander people

A6.54 In their 1997 CHERE Discussion Paper, Wiseman, Jan, Palmer and Mooney provide updated estimates of Northern Territory expenditure on Indigenous patients in 1994–95, compiled from estimates for each departmental program, and including both indirect and direct expenditure. They estimated hospital expenditure by dividing total expenditure into Indigenous/non-Indigenous on the basis of both the proportion of admissions and the proportion of bed days attributable to Indigenous patients, and averaging the two estimates. In the absence of direct information on services to Aboriginal clients, Community Health expenditure was estimated by a combination of estimates of proportions by key informants, and per-capita prorating, and a variety of methods were used to estimate expenditure in other programs. The authors estimated that \$135m was spent on Aboriginal patients, roughly 48 per cent of total departmental expenditure. The proportions ranged from 26 per cent of expenditure on dental services to 71 per cent of expenditure on health promotion. Expenditure on hospital services was estimated at \$71m, 51 per cent of the total hospital expenditure. The Aboriginal and Torres Strait Islander population is about 27 per cent of the population of the Territory, indicating that per capita spending on this group was about twice that spent on others. This was considerably lower than our estimate of 3.34 times the expenditure on non-Indigenous people for all services.

## Appendix 6

Previous literature on expenditure on health services for Aboriginal and Torres Strait Islander people

## Appendix 7 Steering Committee

The project was guided by a steering committee consisting of representatives of the following organisations:

NSW Department of Health Territory Health Services, NT	Mr Tim Agius Ms Carol Beaver
Health Department of Western Australia South Australian Health Commission	Mr Shane Houston Mr Brian Dixon
Department of Human Services, Victoria Queensland Department of Health	Mr Ron James Mr Sol Bellear Mr Bruce Picard
Department of Community & Health Services, Tasmania Department of Health & Community Care, ACT	Ms Debra Reid Ms Myree Rawsthorne Ms Debbie Stanford
National Aboriginal Community Controlled Health Organisations	Ms Naomi Mayers Dr John Danials Mr Steve Larkin Mr Tony Barnes
National Centre for Aboriginal & Torres Strait Islander Statistics Aboriginal & Torres Strait Islander Commission	Mr Noel Baxendell Mr John Abednego Mr David Rathman
Torres Strait Regional Authority NHMRC Aboriginal & Torres Strait Islander Health Standing Committee Commonwealth Department of Health & Family Services	Mr Robert Griew Ms Helen Evans Ms Marion Dunlop Mr Warren Talbot Mr Peter Woodley

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