

Summary of Indigenous health

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Introduction

This summary of Australian Indigenous health draws largely on published information, some of which has been re-analysed to provide clearer comparisons between Indigenous and non-Indigenous people (for more details of statistics and methods, readers should refer to the original sources). In addition to information about health status, this summary includes a brief paragraph about health expenditure on Indigenous health. (Some sections of this summary have not been updated from previous versions, because no substantial new information has become available. This summary will be updated as new information becomes available.)

Very little information is available separately for Australian Aborigines and Torres Strait Islanders, so no attempt has been made to provide separate summaries for these two sub-groups of the Indigenous population.

Future versions of this summary will be expanded to include brief information about other health conditions. In the meantime, information about these conditions, the underlying social and economic circumstances of Indigenous people, and health risk factors is available from other sections of the HealthInfoNet's site (www.healthinfonet.ecu.edu.au).

Indigenous population

Based on the estimated resident Indigenous population in 1996 (the census year), the Australian Bureau of Statistics projected the total Indigenous population to between 435,381 (low series projection) and 528,981 (high series projection) at 30 June 2002 (2.2-2.5% of the total Australian population) [1]. Based on the low series projection (which assumes change only as a result of natural increase), New South Wales (NSW) has the largest Indigenous population with 123,405, followed by Queensland 121,601, Western Australia (WA) 62,577, and the Northern Territory (NT) 57,236. The NT has the highest proportion of Indigenous people (29%) among its population, and Victoria the lowest (0.5%) (Table 1).

(Note: The Australian Bureau of Statistics has not yet updated their estimates of the Indigenous population using the numbers of Indigenous people counted in the 2001 Australian Census of Population and Housing. Around 410,000 Indigenous people were counted in the 2001 Census, which is 16% more than counted in the 1996 Census [30]. According to the 2001 Census, the population distribution by jurisdiction was virtually the same as shown in Table 1. It is likely that each of the figures shown in Table 1 will be increased by around 4% after adjustments are made for the undercount that occurs with censuses.)

Table 1: Estimated Indigenous population, Australia, by jurisdiction, 30 June 2002

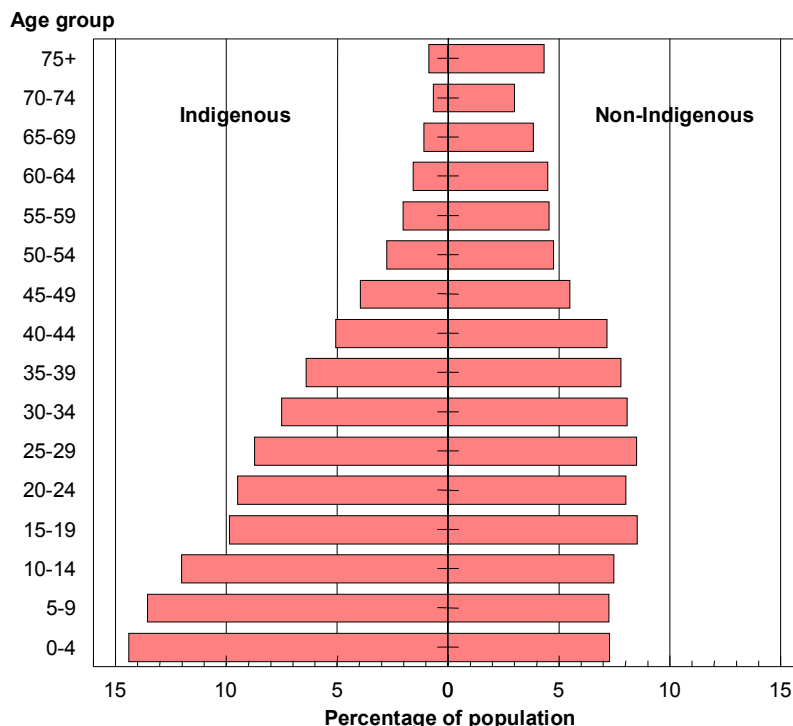
Jurisdiction	Indigenous population	Proportion of Australian Indigenous population (%)	Proportion of jurisdiction population (%)
New South Wales	123,405	28.4	1.8
Victoria	24,974	5.8	0.5
Queensland	121,601	27.7	3.1
Western Australia	62,577	14.4	3.2
South Australia	24,770	5.7	1.5
Tasmania	16,917	3.9	3.2
Australian Capital Territory	3,699	0.8	1.0
Northern Territory	57,236	13.2	28.5
Australia	435,381	100.0	2.2

Source: Australian Bureau of Statistics, 1998 [1]

- Notes: 1 Based on the low series of the experimental projections
2 Australian population includes Jervis Bay Territory

The Indigenous population is markedly younger than the non-Indigenous population - in 2001, 40% of Indigenous people were aged under 15 years, compared with 21% of non-Indigenous people. Only 2.6% of the Indigenous population were aged 65 years or over, compared with 12% of the non-Indigenous population (Figure).

Figure: Population pyramid of Indigenous and non-Indigenous populations, 2002



Births and pregnancy outcome

In 2000, there were 10,900 births registered in Australia with one or both parents identified as Indigenous (4% of all births registered), but this number is only 92% of the number expected from the 1996 Census-based experimental projections [3]. Both parents were identified as Indigenous in 33% of these births, only the mother in 42% and only the father in 26%.

Indigenous women tended to have more babies and to have them at younger ages than did non-Indigenous women. The median age of Indigenous mothers was 24.5 years compared with 29.8 years for all women. More than one-fifth of births to Indigenous women (22.8%) were to women aged less than 20 years, compared with 4.0% of those to non-Indigenous women.

Age of mothers

In 2000, the highest birth rates (known technically as fertility rates) were for the 20-24 year age group for Indigenous women and in the 30-34 year age group for non-Indigenous women (Table 2) [3].

Total fertility rates

In 2000, total fertility rates were 2,207 births per 1,000 Indigenous women and 1,749 per 1,000 for all women [3] (total fertility rate is the number of children born to 1,000 women at the current level and age pattern of fertility) (Table 3). Total fertility rates for Indigenous women were highest in the NT and WA. These two jurisdictions, along with SA, were the only ones with estimated coverage of Indigenous births around 100%. Coverage for the other jurisdictions was lower - NSW (86%), Victoria (67%), Queensland (93%), Tasmania (72%) and the ACT (57%).

Table 2: Age-specific fertility rates for Indigenous women and all women, Australia, 2000

Age group (years)	Mothers	
	Indigenous	Total population
15-19	85	17
20-24	133	57
25-29	114	107
30-34	71	111
35-39	31	49
40-44	7	9

Source: Australian Bureau of Statistics, 2001 [3]

Note: Births to women aged less than 15 years are included in the 15-19 year age group, and those to women aged 45 years or older in the 40-44 year age group.

Table 3: Total fertility rates for Indigenous women and all women, Australia and selected States, 2000

Jurisdiction	Indigenous women	All women
Australia	2,207	1,749
New South Wales	1,985	1,809
Queensland	2,316	1,784
Western Australia	2,580	1,777
South Australia	2,143	1,713
Northern Territory	2,755	2,216

Source: Australian Bureau of Statistics, 2001 [3]

- Notes:
- 1 The total fertility rate is the number of children born to 1,000 women at current level and age pattern of fertility.
 - 2 The identification of Indigenous status in birth registrations is 92% overall. Those jurisdictions for which the estimated coverage was less than 75% have been excluded from this table.

From information collected by the State and Territory maternal/perinatal collections, the mean birthweight of babies born to Indigenous mothers in 1998 was 3,169 grams compared with 3,363 grams for those born to all women [31]. Babies born to Indigenous women were almost twice as likely to be of low birthweight (11.8%) than were babies born to all women (6.6%). (Low birthweight (LBW) is defined as a birthweight of less than 2,500 grams.) Excluding the ACT (for which Territory there were only 63 births to Indigenous women), the low-birthweight proportion for babies born to Indigenous women was highest for SA (15.4%) and the NT (13.1%).

Mortality

Major impediments to producing a complete picture of Indigenous mortality in Australia are the incomplete identification of Aboriginal and Torres Strait Islander status in death records, and the experimental nature of the population estimates [2]. As a result, the 2,100 deaths registered in 2000 where the deceased person was identified as Indigenous is certainly an underestimate of the actual number of Indigenous deaths. The true number is likely to be between 2,374 and 3,634 (depending on whether adjustments are made according to the 1991 or 1996 Census-based experimental estimates and projections). The level of underestimation varies between jurisdictions, and only the data for Western Australia, South Australia and the Northern Territory are deemed complete enough for detailed analysis. (Some caution should be exercised in the interpretation of the data presented here. Some information, such as the

overall number of deaths and the death rates (summarised next), includes all jurisdictions. Other information, such as that about age-specific death rate ratios, relates only to Queensland, Western Australia, South Australia and the Northern Territory.)

Death rates

Based on the number of deaths actually registered, the indirectly standardised rate of 19 deaths per 1,000 population for Indigenous males was 2.7 times that of the total male population (7 per 1,000) in 2000 [4]. The rate of 12 per 1,000 for Indigenous females was 2.4 times that of the total female population (5 per 1,000). It should be borne in mind that, due to underestimation of the actual numbers of Indigenous deaths, these rates are under-estimated by 59-90%.

Expectation of life

After adjustment for the underestimate of the number of deaths identified as Indigenous (using the 1996 Census-based estimates and projections), Indigenous males born in 1998-2000 could be expected to live to 56.0 years, almost 21 years less than the 76.6 years expected for all males (Table 4)[2]. The expectation of life at birth of 62.7 years for Indigenous females was more than 19 years less than the expectation of 82.0 years for all Australian females.

Table 4: Expectation of life at birth for Indigenous people and the total population, Australia and selected States, 1998-2000

Population	Males	Females
Indigenous		
Australia	56.0	62.7
New South Wales	56.3	63.6
Victoria	56.1	63.5
Queensland	56.2	62.7
Western Australia	55.5	62.6
South Australia	55.3	61.2
Northern Territory	55.9	61.6
Total population		
Australia	76.6	82.0

Source: Australian Bureau of Statistics, Australian Institute of Health and Welfare, 2001[2]

Note: The Australian Indigenous estimates are based on the adjusted numbers of deaths for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, and do not include deaths for the Australian Capital Territory and Tasmania.

Age at death

In 2000, the median age of death was 50.8 years for Indigenous males and 75.5 years for non-Indigenous males [2]. (The median age at death is the age below which 50% of people die.) Median ages at death were somewhat higher for females - 57.4 years for Indigenous females and 81.9 years for non-Indigenous females.

Death rates for Indigenous males and females were higher than those for total Australian population males and females for every age-group in 1998-2000 [2]. Detailed data are not available for the most recent three-year period, but the combined data for Queensland, Western Australia, South Australia and the Northern Territory in 1997-1999 reveal that death rates of Indigenous people were 4 to 6 times those of the total Australian population in the 25-54 year age range (Table 5) [2].

Table 5: Indigenous (Qld, WA, SA and the NT):total Australian population age-specific death rate ratios by sex, 1997-1999

Age group (years)	Rate ratios	
	Males	Females
0	2.7	2.6
1-4	2.1	2.3
5-14	2.6	3.2
15-24	2.9	2.9
25-34	3.6	4.5
35-44	5.8	5.5
45-54	5.3	5.0
55-64	3.3	4.4
65-74	2.2	3.0
75+	1.2	1.4

Source: Australian Bureau of Statistics, Australian Institute of Health and Welfare, 2001[2]

Infant mortality

In 2000, the Indigenous infant mortality rate of 13.6 infant deaths per 1,000 live births was 3.0 times the non-Indigenous rate of 4.6 [3,4] (Table 6). For Indigenous infants, the highest mortality rates were for the Northern Territory (22.9) and Western Australia (16.9) and the lowest were for South Australia (11.1) and Queensland (10.7).

Table 6: Infant mortality rates by Indigenous status and Indigenous:non-Indigenous rate ratios, Australia and selected States, 2000

Jurisdiction	Indigenous	Non-Indigenous	Rate ratio
Australia	13.6	4.6	3.0
New South Wales	12.4	4.7	2.6
Victoria	13.3	4.2	3.2
Queensland	10.7	6.0	1.8
Western Australia	16.9	3.3	5.1
South Australia	11.1	4.3	2.6
Northern Territory	22.9	3.7	6.2

Sources: Australian Bureau of Statistics, 2001 [3, 4]

Notes: 1 Infant mortality rate is the number of infant deaths per 1,000 live births.

2 The Indigenous rates are likely to be under-estimated, due to the incomplete identification of Indigenous status on death records.

Causes of death

Disease of the circulatory system (including heart disease and stroke) was the leading cause of death for Indigenous people in 2000, with a rate 2.7 times that of the total population [4]. The next most frequent causes of death for Indigenous people were neoplasms (cancers) (rate 1.5 times that of the total population), injuries (including transport accidents, intentional self-harm and assault) (2.3), endocrine diseases (particularly diabetes) (8.3) and disease of the respiratory system (3.6).

These levels are similar to those for 1997-1999, for which period more detailed information is available [2] (Table 7).

Table 7: Numbers of Indigenous deaths and Indigenous standardised mortality ratios for selected causes of death, by sex, Australia, 1997-1999

Cause of death	Males		Females	
	Number	SMR	Number	SMR
Circulatory	750	3.1	568	2.8
Injuries	496	2.8	205	3.3
Cancer	320	1.4	267	1.4
Respiratory	206	4.1	159	4.0
Endocrine	169	7.2	202	6.2
Digestive	119	4.7	96	4.0
Mental disorders	62	2.4	34	2.3
Genitourinary	58	5.8	85	7.6
Infectious	58	4.2	45	5.4
Nervous system	55	2.3	39	1.8
Ill-defined	76	6.0	43	5.3
All causes	2,515	2.9	1,864	2.9

Source: Australian Bureau of Statistics, Australian Institute of Health and Welfare, 2001 [2]

Note: The standardised mortality ratio (SMR) is the ratio of the number of Indigenous deaths occurring to the number expected if the age, sex and cause-specific rates of the Australian total population applied to the Indigenous population. Due to under-identification of Indigenous deaths, these SMRs under-estimate the true differences between the Indigenous and total populations.

Maternal mortality

In 1994-1996 (the most recent period for which detailed data are available) eight (9.6%) of the 83 maternal deaths where Indigenous status was known were of Indigenous women [5]. An avoidable factor was judged to have been present in three of the Indigenous deaths.

Reflecting the higher rate of confinements among Indigenous women, the maternal mortality ratio for Indigenous women in 1994-1996 was 34.8 per 100,000 confinements, more than three times higher than the ratio of 10.1 per 100,000 for non-Indigenous women (Table 8). For direct maternal deaths, the ratio for Indigenous women was 13.0 compared with 5.1 for non-Indigenous women.

Table 8: Numbers of confinements, maternal deaths and maternal mortality ratios, by Indigenous status, Australia, 1994-1996

Indigenous status	Confinements	Maternal deaths	Maternal mortality ratio
Indigenous	22,996		
All maternal deaths		8	34.8
Direct maternal deaths		3	10.1
Non-Indigenous	744,452		
All maternal deaths		75	10.1
Direct maternal deaths		38	5.1

Source: Ford J, Sullivan E, Walters W, Beischer N, King J, (eds.) [5]

Note: The maternal mortality ratio is the number of maternal deaths divided by the number of confinements (in 100,000s). Due to some uncertainty about the numbers of Indigenous deaths and confinements, some caution must be exercised in the interpretation of the ratios.

Hospitalisation

As with other major health collections, the identification of Indigenous people in hospital records is incomplete - a recent study of 11 hospitals in five jurisdictions found that the level of correct identification of Indigenous people ranged from 55-100% [6]. A separate study found that identification was correct for 93% of Indigenous people admitted to public hospitals in the NT [7] - it is likely that the NT is the only jurisdiction for which the level of identification is very good [8].

Bearing in mind the under-identification of Indigenous people in these data, in 1998-99 Indigenous males were admitted to hospitals across Australia 1.8 times more than other males, and Indigenous females 1.9 times more than other females (Table 9) [2]. As is the case for deaths, it is likely that the most reliable data are for WA, SA and the NT, for which jurisdictions the ratios are much higher.

Apart from renal dialysis (requiring multiple admissions for a relatively small number of people), which was responsible for 26% of Indigenous separations in 1998-99, the main causes of hospitalisation were injuries (13%) and respiratory diseases (12%) for Indigenous males, and pregnancy and childbirth (17%), respiratory disease (9%) and injury (8%) for Indigenous females [2].

Table 9: Indigenous:non-Indigenous hospital separation rate ratios, by sex, selected States, Australia, 1998-99

Jurisdiction	Males	Females
Australia	1.8	1.9
New South Wales	1.2	1.4
Queensland	1.9	1.9
Western Australia	2.7	2.9
South Australia	2.3	2.5
Northern Territory	3.9	3.8

Source: Australian Bureau of Statistics, Australian Institute of Health and Welfare, 2001 [2]

- Notes:
- 1 Data for Victoria, Tasmania and the Australian Capital Territory are considered too incomplete for publication. Public hospitals only for the NT.
 - 2 Rate ratio is the Indigenous standardised separation rate divided by the non-Indigenous rate.

Selected health conditions

Cardiovascular disease

Excluding those living in remote areas, Indigenous people are more likely to suffer from cardiovascular disease than other Australians are across all age groups [9,10]. Heart, stroke and vascular disease is the largest cause of premature death and death overall in Indigenous and non-Indigenous people. Cardiovascular disease accounted for 40% of all deaths in 1998, and its health and economic burden exceeds that of any other disease [2].

Mortality from cardiovascular disease was around 2.7 times higher for Indigenous than non-Indigenous people across Australia in 2000 [4], but, as noted above, the incomplete identification of Indigenous people in death registrations in some jurisdictions means that this is an under-estimate of the true difference. From the more detailed data available for deaths from cardiovascular disease for people living in WA, SA and the NT in 1996-1998, it is likely that rates were 3.3 times higher for Indigenous males and 2.8 times higher for Indigenous females than for their non-Indigenous counterparts [21].

The disparity between Indigenous and non-Indigenous people is even greater in the younger age groups, where the cardiovascular disease death rate among 25-54 year olds is seven to 12 times that of other Australians [2].

In terms of specific categories of cardiovascular disease, the differences in rates between Indigenous and non-Indigenous people in 1996-1998 were:

- coronary heart disease – 3.0 times higher for males and 2.8 times higher for females;
- stroke – 3.3 times higher for males and 2.3 times higher for females;
- rheumatic heart disease – 30 times higher for males and 22 times higher for females; and
- other cardiovascular disease – 3.5 times higher for males and 3.3 times higher for females [21].

Relatively few deaths among Indigenous people in 1996-1998 were attributed to heart failure and peripheral vascular disease.

Based on 1997-99 death registrations, diseases of the circulatory system accounted for the highest proportion of excess deaths among Indigenous people [2]. Diseases of the circulatory system accounted for 30% of both Indigenous male and Indigenous female deaths. Over half (57%) of these deaths were attributable to ischaemic heart disease (heart attack), and a further 18% were due to cerebrovascular disease (stroke).

The major CVD risk factors for the Indigenous population are the same as those for the total population, including smoking, alcohol use, obesity, diabetes and physical inactivity. The prevalence of these risk factors is higher generally among Indigenous people than among other Australians.

Respiratory disease

As noted above, deaths from respiratory disease were five to six times more common for Indigenous people than non-Indigenous Australians in 1997-1999. Death rates were considerably higher for Indigenous people than for other Australians in infancy and from the 25-34 years age group [11]. Infective conditions were responsible for almost half the Indigenous deaths from respiratory disease, and were 9-11 times more common than among non-Indigenous Australians. Deaths from chronic respiratory disease were 3-5 times more common than expected from total Australian rates.

Indigenous hospitalisation rates for respiratory disease were more than twice those of non-Indigenous people [8]. Respiratory disease was the second most frequent cause of hospitalisation for Indigenous men and women (after injuries for men, and after pregnancy-related admissions for women; excluding admissions for renal dialysis).

Injury

Historically, few studies have been undertaken or data gathered specific to injury causation and impact among Indigenous populations Australia-wide. Until a decade ago, there was also little attention directed to the prevention of injuries among Indigenous Australians, despite the fact that injuries contribute disproportionately to many of the health disadvantages they experience [22].

As noted above, injury was the second most common cause of death for Indigenous Australians in 2000, and death from injury was around three times more common for Indigenous than for non-Indigenous people [4, 23]. Motor vehicle traffic accidents are responsible for the majority of deaths, and were around four times more common among Indigenous than other Australians in 1997-1999 [11]. The numbers of deaths occurring among Indigenous people were greater than expected also for 'other accidents' (SMRs: males - 3.5; females - 4.1), suicide and self-inflicted injury (SMRs: males - 1.7; females - 1.4) and homicide (SMRs: males - 7.6; females - 7.0).

Injury was the most common cause of hospitalisation among Indigenous males and the third most frequent cause among Indigenous females (excluding renal dialysis for both males and females) [8] in 1998-99. The greatest differentials between Indigenous and non-Indigenous

people in hospitalisation rates were for injuries resulting from interpersonal violence (estimated to be 17 times higher) and burns and scalds (estimated to be five times higher).

Cancer

Reasonable data on the incidence of cancer are available only for WA, SA and the NT. Between 1987 and 1996, the incidence of cancer overall was lower for Indigenous than non-Indigenous males, but rates for Indigenous and non-Indigenous females were very similar. In marked contrast, the death rates from cancer were generally much higher for Indigenous than for non-Indigenous people. A detailed analysis undertaken by the SA Cancer Registry concluded that the higher death rates among Indigenous people were due to the more advanced stage of the tumours at diagnosis and a lower survival for primary cancers matched by site, age at diagnosis, sex, year of diagnosis and, where possible, histological type [13].

The relative frequencies of lung, cervical and liver cancers were high for Indigenous people, while those for the large bowel, female breast, skin (melanoma) and lip were low.

Diabetes

Non-insulin-dependent diabetes mellitus (NIDDM) is a significant health problem among Indigenous people, but it is not possible to reach a single estimate of the prevalence of NIDDM. A major recent review concluded that the overall prevalence among Indigenous people was between 10-30% (2 to 4 times that among non-Indigenous people) [24]. The onset of diabetes occurs at a much lower age in Indigenous than non-Indigenous people [25].

In 1995-1997, deaths from diabetes were 9 times more common than expected for Indigenous males living in WA, SA and the NT, and 16 times more common for Indigenous females [11]. Australia-wide, Indigenous hospitalisation rates for diabetes were around six times those of non-Indigenous people in 1997-98 [8].

Renal disease

The level of renal failure among Indigenous people in the NT has been described recently as an 'epidemic' [32]. In 1996, the prevalence of people in the NT on treatment for end-stage renal disease (ESRD) was 2,871 per 1,000,000 for Indigenous people and 377 per 1,000,000 for non-Indigenous people.

The prevalence of Indigenous people with ESRD is not known for the states, but information collected by the ANZDATA registry can be used to derive crude incidence rates. Australia-wide, the crude incidence of ESRD among Indigenous people was 322 cases per 1,000,000 in 1994-1998, compared with 74 per 1,000,000 for non-Indigenous people (Table 10). Crude incidence rates for Indigenous people were particularly high for the NT (756 per 1,000,000) and WA (548 per 1,000,000). (Some uncertainty exists about the estimates for the south-eastern States, where the identification of Indigenous people is known to be deficient in health-related collections.)

Table 10: Crude incidence rates for ESRD (end-stage renal disease), by Indigenous status and selected States and Territories, 1994-1998

Indigenous status	Jurisdiction						
	Australia	NSW/ACT	Vic	Qld	WA	SA	NT
Indigenous	322	120	124	298	548	299	756
Non-Indigenous	74	79	78	68	62	66	54

Source: Derived from data provided by ANZDATA

Data from the ANZDATA Registry were used in a recent analysis of regional incidence patterns of ESRD among Indigenous patients who commenced treatment in Australia in 1993-1998 [26]. The rates were high generally across the 36 ATSIC (Aboriginal and Torres Strait

Islander Commission) regions, but there were marked regional variation with a large gradient between urban and remote areas. Standardised ESRD incidence rates among Indigenous people in remote areas were up to 30 times higher than the total national incidence. The remote regions of Tennant Creek, Aputula and Jabiru in the NT, Warburton and Kalgoorlie in WA, and Ceduna in SA had the highest incidence rates (up to 1,300 cases per million per year). In contrast, the more urban areas of Rockhampton and Brisbane in Queensland, Sydney and Queanbeyan in NSW/ACT, Wangaratta in Victoria and Hobart (which includes all of Tasmania) had the lowest rates (less than 100 per million per year). The reasons behind the different regional incidence patterns are not known but may be due to population differences in predisposition or in the prevalence of risk factors [27].

Diseases of the genitourinary system (mainly kidney disease) were responsible for around 2% of Indigenous male deaths and 4% of Indigenous female deaths in WA, SA and the NT in 1995-1997, and were 7-8 times more common than expected from rates for the total Australian population [11]. In 1997-1999, renal failure was identified as the underlying cause of death for 50 Indigenous females and 28 Indigenous males from Queensland, WA and SA and the NT. Renal failure was reported as an associated cause of death in an additional 440 cases, 30% of which had an underlying cause of diabetes. Compared with rates for the total population, five times as many Indigenous males and eight times as many Indigenous females died of renal failure [2].

Australia-wide, disease of the genitourinary system was responsible for 29% of all hospital admissions of Indigenous people in 1997-98, with renal dialysis (requiring multiple admissions for a relatively small number of people) alone being responsible for 25% of Indigenous admissions [8]. In 1998-1999, haemodialysis was recorded as the principal procedure associated with more than 41,000 separations for Indigenous Australians, constituting 44% of all principal hospital procedures performed on Indigenous people [2]. Compared with rates for the total population, age-adjusted rates for haemodialysis procedures were 6 and 11 times greater among Indigenous males and females respectively than expected.

Communicable diseases

General

Information regarding specific communicable diseases comes from a variety of sources, including individual studies and State and Territory based notifiable disease collections. Data from State collections are collected and published by the National Notifiable Disease Surveillance System, but Indigenous status is often not reported for large proportions of notifications.

The following information about tuberculosis is for 2000 [28], but data for the other communicable diseases is for the period 1998-2000 [2] (when known, the proportions for which the question on Indigenous status was not answered is shown in parentheses):

- tuberculosis – the incidence rate of new disease was 15.3 per 100,000 for Indigenous people, compared with 1.2 per 100,000 for Australian-born non-Indigenous people (97%);
- *Haemophilus influenzae* type B - the notification rate for Indigenous people was 2.7 per 100,000, compared with 0.2 per 100,000 for the total Australian population (9%);
- meningococcal infection - the notification rate for Indigenous people was 14.8 per 100,000, almost five times the all-Australian rate of 3.0 (4%);
- salmonellosis - the notification rate for Indigenous people was 196 per 100,000, almost four times the all-Australian rate of 50 (20%);
- syphilis – the notification rate for Indigenous people was 233 per 100,000, compared with 11.5 per 100,000 for the total Australian population (5%); and
- gonococcal infection – the notification rate for Indigenous people was 1,405 per 100,000, compared with 75 per 100,000 for the total Australian population (11%).

HIV/AIDS

Australia has so far successfully prevented an uncontrolled spread of HIV and the overall rates of HIV and AIDS are low in comparison with other countries [14]. However, great concerns have been expressed about the possible impact of HIV/AIDS among Indigenous people, for whom AIDS was seen as having the potential 'to further erode the social and economic fabric of Indigenous communities' [33]. Indigenous people were seen as being at particular risk of HIV infection due to high rates of sexually transmitted infections (STIs) and lack of access to effective services [34].

Reflecting these concerns, the National Centre in HIV Epidemiology and Clinical Research has been commissioned to collate and publish information collected originally by the health authorities each State and Territory¹ [14]. Information provided reveals that the notification rates for HIV infection and AIDS are similar for the Indigenous population and the non-Indigenous population, and appear to have declined at similar rates over the past decade.

For the five-year period 1997-2001, the notification rate for HIV infection was 3.7 cases per 100,000 for the Indigenous population and 3.6 cases per 100,000 in the non-Indigenous population (Table 11). These rates are lower than those reported for 1992-1998: 5.2 per 100,000 for Indigenous people and 5.5 per 100,000 for non-Indigenous people [15]. For 1997-2001, the rates of AIDS diagnoses were 1.3 per 100,000 for the Indigenous population and 1.4 for the non-Indigenous population (Table 12).

Table 11: Numbers and rates of newly diagnosed HIV infection by Indigenous status, and year, 1997-2001

Year	Indigenous		Non-Indigenous	
	No. of cases	Rate	No. of cases	Rate
1997	15	3.8	707	3.9
1998	26	6.5	645	3.5
1999	9	2.2	692	3.7
2000	14	3.3	641	3.4
2001	12	2.8	685	3.6
1997-2001	76	3.7	3,370	3.6

Sources: National Centre in HIV Epidemiology and Clinical Research (2002) [14]; ABS (1998) [1]; ABS (1997-2001) [35]

Note: Rates have been derived from the numbers of cases reported by the National Centre in HIV Epidemiology and Clinical Research [14] and the ABS population figures.

¹ Some jurisdictions have provided for the identification of Indigenous status in HIV and AIDS notifications since 1985, but the information has only been sought nationally from 1995 [14]. Information about Indigenous status has been available for Victoria only since June 1998, and was still not available from the Australian Capital Territory at 31 March 2002 .

Table 12: Numbers and rates of AIDS diagnoses by Indigenous status and year, 1997-2001

Year	Indigenous		Non-Indigenous	
	No. of cases	Rate	No. of cases	Rate
1997	4	1.0	377	2.1
1998	9	2.2	306	1.7
1999	5	1.2	184	1.0
2000	5	1.2	248	1.3
2001	3	0.7	175	0.9
1997-2001	26	1.3	1,290	1.4

Sources: National Centre in HIV Epidemiology and Clinical Research (2002) [14]; ABS (1998) [1]; ABS (1997-2001) [35]

Note: Rates have been derived from the numbers of cases reported by the National Centre in HIV Epidemiology and Clinical Research [14] and the ABS population figures.

For AIDS cases over the ten-year period 1992-2001, there have been some important differences between Indigenous people and the total population, in terms of age at diagnosis and exposure categories² [14]. The median age of diagnosis among Indigenous people was 32 years compared with almost 37 years for those in the total population. In contrast to the total population, for which less than 5% of cases of AIDS have occurred in females, 17% of cases reported among Indigenous people have occurred in females. Among Indigenous people in 29% of cases the infection was acquired by heterosexual contact, compared with less than 7% among the total population. Male homosexual contact was responsible for 82% of cases in the total population and for 50% in the Indigenous population, and male homosexual contact with injecting drug use for 5% and 15% respectively. Injecting drug use without male homosexual contact was responsible for 3% of cases in the total population and for almost 5% in the Indigenous population.

Overall in Australia the cumulative number of HIV diagnoses by the end of 2001 was estimated to be 18,854 with an estimated 12,730 people living with HIV/AIDS infection [14]. For the same period, after adjustment for reporting delay, there were 8,810 AIDS cases and 6,174 deaths following AIDS. In comparison, there were 167 HIV notifications among the Indigenous population in the period 1992- 2001 and 69 AIDS diagnoses.

Skin infections and infestations

Skin infections and infestations in Indigenous communities reflect serious health inequalities, and have attracted much less professional attention than they deserve. The most important skin infections affecting Indigenous people in Australia are scabies and streptococcal pyoderma. Scabies is endemic in many remote Indigenous communities, with prevalence in children up to 50%. The cycles of scabies transmission underlie much of the pyoderma. Up to 70% of children have skin sores, with group A streptococcus (GAS) the major pathogen. Group A streptococcus is responsible for the continuing outbreaks of post-streptococcal glomerulonephritis and acute rheumatic fever (ARF) [16].

Skin diseases cause very few deaths directly, and, generally, are not common causes of hospitalisation. Despite this, for the period 1998-1999, diseases of the skin and subcutaneous

² Note figures have not been adjusted for reporting delay. The figures quoted here are aggregated nationally, and may conceal differences across Australia, particularly between rural/remote and urban areas, for which the patterns may be quite different [36].

tissue accounted for 4% of all admissions for Indigenous males and 2.7% of those for Indigenous females [2]. These levels are around three times higher than those of the total Australian population. Admission rates were higher for Indigenous males and females than for all Australian males and females in every age group.

Health expenditure

Estimated total expenditure by Australian governments and the private sector on health services to Aboriginal and Torres Strait Islander people in the 1998-1999 financial year was \$1,245 million [18]. This is equivalent to \$3,065 per person compared with \$2,518 per person for non-Indigenous people - a ratio of 1.22:1 (this compares with a ratio of 1.08 in 1995-96 [19]). When relative income position is taken into account, public expenditure on the health of Aboriginal and Torres Strait people appeared to be similar to that for non-Indigenous people in low-income groups, despite the much lower health status of Aboriginal and Torres Strait people [18].

The majority of Indigenous health expenditure was allocated through mainstream health programs which generally do not, or only incompletely, document use specifically by Aboriginal and Torres Strait Islander people. Medicare data, for example, do not include an Indigenous identifier.

Indigenous people were, on average, much higher users than non-Indigenous people of publicly funded health services and State-funded health services, particularly admitted patient services in hospitals and community health services. Compared with non-Indigenous people, Indigenous people used fewer private services such as doctors in private practice, private hospitals, dentists and privately funded allied health professionals.

The Commonwealth and State governments contributed very similar amounts to health services for Aboriginal and Torres Strait Islander people. Over 50% of the Commonwealth's contribution was indirect through its contribution to public hospital funding. Expenditures were much lower for Aboriginal and Torres Strait Islander people than for other Australians in the major Commonwealth-funded health programs, Medicare and the Pharmaceutical Benefits Scheme. Per person expenditure on Indigenous people was 37% of that for non-Indigenous people.

The ratio of Indigenous to non-Indigenous service use would be lower than the expenditure ratio of 1.22:1 if the higher costs of providing service in remote areas could be factored in. Access to Medicare funded services and pharmaceutical benefits decreased as remoteness increased, but admitted patient expenditure increased with increasing remoteness.

After controlling for population and inflation, there are areas in which there had been increases in funding and service provision since 1995-96 [18,19].

The inadequacy of these levels of expenditure on Indigenous health were identified by a comprehensive, recent review undertaken by the Commonwealth Grants Commission, which concluded that 'the poorer health status of Indigenous people, and their greater reliance on the public health [care] system, would justify at least a doubling of the average per capita expenditure on non-Indigenous people' [29].

Summary

Indigenous people remain the least healthy sub-population in Australia, and there is evidence that the disparity between Indigenous and non-Indigenous health, at least measured by mortality, has widened in recent years [20].

The lack of real improvement in Indigenous mortality in Australia contrasts markedly with the situation among Indigenous people in New Zealand, Canada and the United States. The success achieved in those countries 'generates considerable confidence that effective action in Australia will produce substantial changes in Indigenous health' [20]. Achievement of these changes will require progress in five areas: infrastructure (including physical environmental and socioeconomic aspects); self-determination of health services; access to a network of

community-controlled primary healthcare services; an adequate level of resources; and a skilled workforce.

Based on the conclusions of the Commonwealth Grants Commission, achievement of an adequate level of funding will require at least a doubling of the current average per capita expenditure [29].

The Australian Indigenous Health*InfoNet* will attempt to contribute to improvements in Indigenous health by making relevant, high quality knowledge and information easily accessible to policy makers, health service providers, program managers, clinicians, researchers and the general community. We welcome your comments and feedback about this summary.

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Glossary

age-specific death rate number of deaths of persons of a specific age group in one year per 1,000 persons of the same age group.

age-specific fertility rate the number of livebirths to women in a specified age group in one year per 1,000 women in the same age group.

age-standardisation a procedure for adjusting rates (such as death rates) to minimise the effects of differences in age composition and facilitate valid comparison of rates for populations with different age compositions. See direct standardisation and indirect standardisation.

direct standardisation the procedure for adjusting rates in which the specific rates for a study population are averaged using as weights the distribution of a standard population

expectation of life predicted number of years of life remaining to a person if the present pattern of mortality does not change. It is a statistical abstraction based on current age-specific death rates.

fertility rate See age-specific fertility rate and total fertility rate.

incidence the number of instances of illness commencing, or of persons falling ill, during a given period in a specified population (see incidence rate).

incidence rate the number of instances of illness commencing, or of persons falling ill, during a given period in a specified population divided by the population at risk

indirect standardisation the procedure for adjusting rates in which the specific rates in a standard population are averaged using as weights the distribution of the study population

International Classification of Disease (ICD) World Health Organization's internationally accepted classification of death and disease

life expectancy See expectation of life.

mortality death

prevalence the number of instances of a given disease or other condition in a given population at a designated time.

risk factor an attribute or exposure that is associated with an increased probability of a specified outcome, such as the occurrence of a disease. Not necessarily a causal factor.

standardisation the process by which adjustments are made to take account of differences in the age structures of populations.

standardised mortality ratio (SMR) the ratio of the observed number of deaths in a study population to the number expected if the study population had the same age-specific rates as a standard population. (The SMR is expressed sometimes as the ratio multiplied by 100.); see age-standardisation and indirect standardisation.

total fertility rate the number of livebirths a woman would have if, throughout her reproductive years, she had children at the rates prevailing in the reference calendar year. It is the sum of the age-specific fertility rates for that calendar year.

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