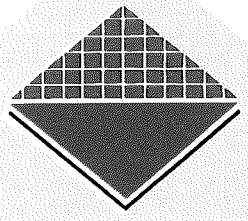
An overview of Aboriginal and Torres Strait Islander health: present status and future trends

Kuldeep Bhatia

Phil Anderson

An information paper



AUSTRALIAN INSTITUTE OF
HEALTH & WELFARE

An overview of Aboriginal and Torres Strait Islander health: present status and future trends

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Canberra

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Foreword

The National Aboriginal Health Strategy is an initiative of the Commonwealth and the States and Territories aimed at improving the health of Aboriginal and Torres Strait Islander peoples. The Strategy was implemented in 1990 following recommendations of the National Aboriginal Health Strategy Working Party and the Aboriginal Health Development Group. A total of $232 million was allocated to improve Aboriginal health particularly the health hardware and infrastructure, health services, housing and environment.

An evaluation of the Strategy was conducted in 1994 jointly by government representatives, both State and Territory and Commonwealth, as well as representatives of various Aboriginal and non-Aboriginal health organisations. The Evaluation Committee sought an assessment of the trends in Aboriginal and Torres Strait Islander health status from the Australian Institute of Health and Welfare. This information paper derives substantially from the report submitted by the Aboriginal and Torres Strait Islander Health Unit of the Institute to inform the Committee on various Aboriginal health-related issues.

We present analysis of ongoing Aboriginal and Torres Strait Islander health collections of the Australian Institute of Health and Welfare to 1992. Aboriginal and non-Aboriginal mortality data used in this report pertain to the years 1990 to 1992 and were derived from registrations in South Australia, Western Australia and the Northern Territory. However, for specific diseases, 1991–92 or 1985–92 data from New South Wales, South Australia, Western Australia and the Northern Territory were used. Trends in age-standardised death rates over 1985–92 were plotted for New South Wales, South Australia, Western Australia and the Northern Territory. The hospital separation data are limited to the year 1991–92 and were extracted from the New South Wales and South Australian collections.

In addition, information was derived from a variety of different data sources to generate a comprehensive picture of the health status of Aboriginal and Torres Strait Islander peoples. Self-assessment of health and self-reported illness information collected by the Australian Bureau of Statistics during its 1989–90 National Health Survey has been included to provide some insight into the diseases which do not require frequent hospitalisation. Similarly, information on birthweight, one of the most useful biological indicators of the maternal environment and of the child's health status, was derived from the perinatal collections of various States and Territories.

These results are being made available to inform community discussion as well as to receive feedback on the analyses undertaken. The authors would be grateful to colleagues, researchers and organisations working in the field of Aboriginal health for any input and comments.

Kuldeep Bhatia and Phil Anderson

Contents

List of tables

List of figures

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Summary

This report presents analysis of ongoing Aboriginal and Torres Strait Islander health-related data collections of the Australian Institute of Health and Welfare to 1992. In addition, information was derived from a variety of different data sources to generate a comprehensive picture of the health status of Aboriginal and Torres Strait Islander peoples. The report was prepared to inform the National Aboriginal Health Strategy Evaluation Committee on the current state of Aboriginal and Torres Strait Islander health and provide it with an analysis of trends in mortality over 1985–92.

Significant differences were found between the mortality, morbidity and disability experiences of Aboriginal and non-Aboriginal populations. Differences exist both in the types of diseases and disabilities as well as in their magnitude. The time-series analysis suggested that health differentials between non-Aboriginal and Aboriginal Australians have increased in recent years.

Aboriginal death rates greatly exceed the corresponding total Australian rates at all ages. While there has been a steady decline in non-Aboriginal age-standardised death rates over 1985–92, limited reduction in these rates was noted for Aboriginal and Torres Strait Islander peoples. These differences are reflected in the expectation of life at birth which for an Aboriginal boy is between 16 and 18 years shorter than his non-Aboriginal counterpart; the gap is slightly wider for an Aboriginal girl.

The growing impact of non-communicable diseases—particularly cardiovascular disease and diabetes—without much decline in infectious-disease mortality is a phenomenon peculiar to Aboriginals. With adult prevalence rates exceeding 30% in some communities and age-standardised mortality more than seven times that of the non-Aboriginal rate, diabetes is now one of the major health concerns among Aboriginal and Torres Strait Islander peoples. Preventable communicable diseases also continue to contribute disproportionately to high Aboriginal and Torres Strait Islander mortality. Although there has been some reduction in mortality from these diseases lately, a clear diminution in the impact of communicable diseases is not yet in sight.

For Aboriginal and Torres Strait Islander males, the hospital admission rate for the year 1991–92 was 60% higher than that expected from the indirectly age-standardised rate for non-Aboriginal males. The hospitalisation rate for Aboriginal and Torres Strait Islander females, which also included admissions for childbirth, was 50% higher than the corresponding indirectly age-standardised rate for non-Aboriginal females. The hospitalisation data included in the analysis were limited to New South Wales and South Australia on account of poor identification of indigenous peoples in hospital separations of other States and Territories.

No national or state-level data are available on disability and handicap in Aboriginal and Torres Strait islander peoples. A recent survey in the Taree area of New South Wales has revealed that one out of every four Aboriginal persons suffers from one or more disabilities. A significant proportion of those surveyed were also found to be handicapped by their disability. Although the results obtained from a localised survey can not be generalised to the whole indigenous community, the rate ratios for the Taree Aboriginals are indicative of the extent of disability and handicap that may be prevalent particularly in view of the high prevalence of debilitating and chronic diseases in Aboriginal and Torres Strait Islander peoples.

Identification of indigenous peoples in health-related collections is poorly validated and almost certainly inadequate. Substantial under-identification of births, deaths and hospitalisation of Aboriginal and Torres Strait Islander peoples is likely, with resulting underestimation of rates of health events. To generate reliable statistics, this problem needs to be addressed by agencies responsible for the collection of vital statistical and health data.

The state of Aboriginal health may be worse than that documented here because of the above-mentioned difficulties. Considerable caution is therefore necessary when interpreting the findings presented in this report.

1.0 Introduction

The Aboriginal and Torres Strait Islander populations of Australia, henceforth referred to as Aboriginals, have much in common with other indigenous peoples of the Fourth World, particularly those living in the United States, Canada and New Zealand. Extensively depopulated following European contact, these populations have demonstrated remarkable resilience to recover numerically. The trajectories of mortality decline which have made these population recoveries possible are also similar (Kunitz 1994).

However, Aboriginal populations are now an anomaly in the Fourth World in that they continue to suffer tragic health inequalities (House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs 1993; Aboriginal and Torres Strait Islander Commission 1994). During recent decades, the indigenous populations of other Westernised nations have made large strides in the improvement of their health. Their infant and maternal mortality rates have declined substantially and there has been a noticeable decrease in adult mortality. In comparison, Aboriginal populations have lagged considerably. Not only has the decline in infant and maternal mortality slowed down in the past few years, but a concomitant increase in young-middle adult mortality, particularly among males, has led to stagnancy in health trends.

The fact that other indigenous populations with similar dispossession and depopulation experiences have been able to raise their health profiles suggests that health outcomes for Aboriginal populations can be improved significantly (Runciman and Ring 1994). Particularly preventable are excess mortality and morbidity resulting from cardiovascular diseases, injuries and diabetes. There is much room for improvement in the rates for infectious and parasitic diseases (National Aboriginal Health Strategy Working Party 1989; National Health Strategy 1992). Perinatal and maternal mortality as well as disability could also be reduced greatly (Australian Institute of Health and Welfare 1994).

The analyses and statistics presented in this report provide a brief overview of the state of Aboriginal health and its future outlook. Recent levels of mortality, fertility, birthweight, morbidity, disability and acute hospitalisation are presented, followed by a discussion of risk factors. Trends in cause- and sex-specific mortality since 1985 are also included to allow future projections. Statistics are reported only for those States and Territories whose data are considered to be of reasonable quality.

1.1 Key health indicators, measures and comparisons

- A variety of different measures and indicators are used to summarise the health status of a population. These include mortality (infant deaths, maternal deaths, premature deaths), morbidity (hospitalisation, disease prevalence) and fertility rates and ratios.

- The most commonly used indicator of a population's health is life expectancy at birth, the number of years a newborn would be expected to live given the prevailing mortality rates. Life expectancies at ages 15 and 45 years provide additional information on mortality regimes current in the adult population.
- Partitioning of mortality by age, sex and cause provides further insights into the health of a population. Cause-specific mortality information is usually presented using the chapter headings of the International Classification of Diseases, Revision 9 (ICD-9).
- This report uses three different forms of death rate, namely age-specific death rates, crude death rates and age-standardised death rates per 100,000 persons. The death rates for particular age brackets are known as age-specific death rates; the annual crude death rate summarises the mortality experience of a population across all the age groups. Both rates are obtained by dividing the number of deaths by the group's mid-year estimated resident population.
- Age-standardisation is a statistical procedure used for controlling the effect of variation in age structures over time or among populations. This involves applying observed age-specific death rates from different time periods or populations to a reference population. The age structure of the total 1991 Australian population has been used as the reference for the estimates provided here.
- The standardised mortality ratio (SMR) reflects sex-specific excess mortality experienced by Aboriginals in comparison to all Australians if the death rates of the latter applied. A ratio of 1.0 indicates no difference between the death rates of the two populations whereas a ratio of 2.0 means that Aboriginal people are dying at twice the rate current in the total population.
- When comparing temporal variation in SMRs, the effect of variation in age-structure over time was controlled for by age-adjusting the sex-specific death rates for various time-periods to the 1991 Aboriginal male and female populations, as applicable.
- The mortality data used in this overview pertain to the years 1990 to 1992 and were derived from death registration collections of South Australia, Western Australia and the Northern Territory. However for specific diseases, data from New South Wales, South Australia, Western Australia and the Northern Territory for the years 1991–92 or 1985–92 have been used.
- Trends in age-standardised death rates were plotted over the period 1985–92 for New South Wales, South Australia, Western Australia and the Northern Territory. Rates for both Aboriginal males and females were standardised against the age-structure of the 1991 total Australian population.
- The convention for describing the infant mortality and perinatal mortality rates per 1,000 live births or per 1,000 total births, respectively, has been

followed in this report. The sources for these data are the State and Territory Departments of Health and Community Services.

- Hospital separation rates (or admission rates) reflect the number of inpatient episodes experienced by a group. Since episodes rather than persons are counted, some individuals may be included more than once.
- The hospitalisation data are limited to the year 1991–92 and were extracted from the collections provided by New South Wales and South Australia. The hospitalisation rates were age-standardised to the 1991 Australian population.
- The sex-specific standardised admission ratio (SAR) describes differences in indirectly age-standardised rates of admission to acute hospitals between Aboriginal and non-Aboriginal populations.
- Self-assessment of health and self-reported illness describe responses to a survey instrument designed to obtain an overall view of health status/impact of illness in a population. The information reported here was collected during the 1989–90 National Health Survey by the Australian Bureau of Statistics.
- Birthweight is one of the most useful biological indicators of the maternal environment and of the child's health status. Low birthweight babies of less than 2,500 grams are known to be more susceptible to infections and to have increased rates of other health problems later in life.
- Most of the population comparisons were made between Aboriginal and total Australian populations. Since Aboriginal people constitute a small proportion of the total population of Australia, the comparisons provided here are for all practical purposes between Aboriginals and non-Aboriginals.

1.2 Aboriginal health-related statistical collections

- Registration of vital events in Australia is the responsibility of State and Territory Registrars of Births, Deaths and Marriages. The information provided by the Registrars is compiled and aggregated by the Australian Bureau of Statistics and supplied to other agencies after rigorous data quality checks.
- Provision now exists for the identification of Aboriginals in all vital statistical collections except in Queensland (Figure 1). Much less progress has been made in providing for this identification in communicable disease notifications where Victoria and Tasmania do not yet collect this information.
- This provision for identification does not guarantee that Aboriginals will always be so identified. Substantial under-identification of deaths of Aboriginal persons—less than 60% completeness—has been estimated in New South Wales and Victoria (Benham and Howe 1994). Considerable under-reporting of Aboriginal hospitalisation also occurs (Rogers et al. 1986).

Collection	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Birth registration	1991	1986		1991	1985	1988	1985	1988
Death notification	1981	1986		1985	1985	1988	1985	1988
Hospital separation					1984	proposed		1977
Maternal perinatal collection	1981		1986					1972
Cancer registration	1992	1982	1992	1982	1977	proposed	1992	1981
Communicable disease notification								

Year Commencement In place No identification

Figure 1: *Identification of Aboriginality in health-related collections, 1994*

- Information has been collected by the Australian Bureau of Statistics on the demographic, social, economic and health characteristics of Aboriginal people through a representative sample of 17,200 individuals. Preliminary results from this survey, termed the National Aboriginal and Torres Strait Islander Survey, have recently become available.
- An additional survey to determine the pattern of drug use by over 3,000 Aboriginal persons, planned by the Department of Human Services and Health as part of its response to the recommendations of the Royal Commission into Aboriginal Deaths in Custody (Johnson 1991) was conducted in 1994. The results of this survey should become available in April 1995.
- The Australian Bureau of Statistics has agreed to increase the Aboriginal sample to 1,500 in its 1995 National Health Survey. The survey will provide estimates of key Aboriginal health indicators, for both urban and rural areas at the national level, comparable to those obtained for the total population, and will include information on self-reported illness conditions, risk factors, health actions, and disability and handicap.
- The Aboriginal and Torres Strait Islander Health Unit (ATSIHU) of the Australian Institute of Health and Welfare (AIHW) is developing databases for vital statistics and hospital morbidity collections. The National Perinatal Statistics Unit (NPSU) of the Institute has established a national perinatal data collection and will address the question of Aboriginal perinatal outcomes. Similarly, the National Injury Surveillance Unit (NISU) and the Dental Statistics and Research Unit (DSRU) of the Institute are being encouraged to pay attention to the special data needs of Aboriginals.

1.3 Population distribution and growth

- A total of 265,459 individuals identified themselves as an Aboriginal or a Torres Strait Islander at the 1991 Census (Table 1). The highest count since 1911, this figure is above Radcliffe-Brown's (1930) most conservative pre-contact estimate of 250,000.

Table 1: *Estimates of the Aboriginal and Torres Strait Islander population by State and Territory: the 1991 Census*

	Aboriginals		Torres Strait Islanders	
State/Territory	Persons	Per cent	Persons	Per cent
NSW	65,133	27.3	4,886	18.2
Vic	13,739	5.8	2,996	11.1
Qld	55,475	23.2	14,649	54.5
SA	14,639	6.1	1,593	5.9
WA	41,002	17.2	777	2.9
Tas	7,620	3.2	1,265	4.7
NT	39,287	16.5	623	2.3
ACT	1,680	0.7	95	0.4
Total Australia	**238,575**	**100.0**	**26,884**	**100.0**

Source: Australian Bureau of Statistics (1993).

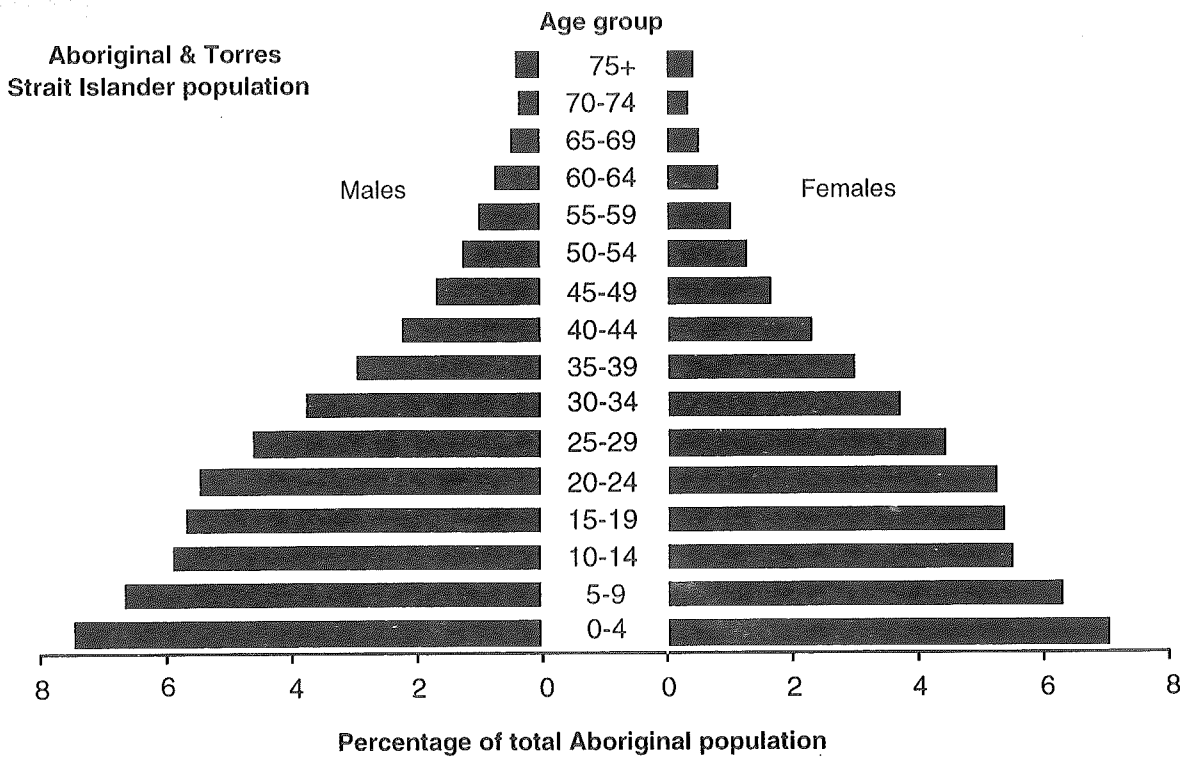
- There was an increase of 16.6% in the Aboriginal count between the 1986 and 1991 Censuses, the growth rate being higher than the estimated rate for the total population. The increase was greater in Torres Strait Islanders (24.8%) than in Aboriginals (15.8%). Interstate variation in growth rates of Aboriginal populations was also noted (Evans et al. 1993).
- Some of this population increase is likely to be due to an increasing willingness on the part of Aboriginals or Torres Strait Islanders to identify themselves as such, as well as a more complete census enumeration.
- Annual estimates of the Aboriginal population by State and Territory for the years 1986 to 1991 have been generated recently by the Australian Bureau of Statistics (Benham and Howe 1994). These estimates take into account annual births and deaths, absenteeism and misclassification. We have extrapolated these estimates to 1985 and 1992 (Table 2).
- Representing almost 1.6% of the total population, Aboriginal people are most numerous in the states of Queensland, New South Wales and Western Australia. However, as a proportion of the general population they are greatest in the Northern Territory where Aboriginals constitute 22.7% of the population.
- Only 28% of Aboriginals live in capital cities with easy access to all mainstream health services. One in five reside in remote rural settings, away from centres with basic health facilities (Australian Bureau of Statistics 1994a).

Table 2: *Estimates of the Aboriginal and Torres Strait Islander population by State and Territory, 1985–92*

	1985	1986	1987	1988	1989	1990	1991	1992
					Males			
NSW	32,317	33,123	33,911	34,757	35,609	36,548	37,495	38,417
Vic	7,603	7,789	7,966	8,175	8,403	8,635	8,863	9,085
Qld	32,638	33,333	34,010	34,731	35,481	36,334	37,197	38,034
SA	7,456	7,646	7,821	8,009	8,197	8,395	8,587	8,788
WA	19,337	19,758	20,207	20,694	21,179	21,696	22,198	22,727
Tas	4,153	4,255	4,367	4,460	4,568	4,680	4,802	4,922
NT	19,285	19,726	20,158	20,606	21,007	21,400	21,750	22,202
ACT	784	807	832	858	880	904	919	943
Australia	**123,572**	**126,437**	**129,243**	**132,275**	**135,305**	**138,586**	**141,809**	**145,119**
					Females			
NSW	31,612	32,430	33,263	34,175	35,082	36,034	36,945	37,900
Vic	7,549	7,747	7,945	8,146	8,360	8,607	8,854	9,084
Qld	31,808	32,556	33,300	34,098	34,928	35,854	36,778	37,680
SA	7,385	7,580	7,765	7,958	8,148	8,357	8,557	8,766
WA	19,038	19,521	20,004	20,513	21,009	21,520	22,002	22,548
Tas	3,917	4,025	4,138	4,246	4,335	4,451	4,570	4,691
NT	18,897	19,376	19,837	20,277	20,704	21,123	21,515	21,989
ACT	754	777	799	821	842	870	902	928
Australia	**120,959**	**124,012**	**127,021**	**130,196**	**133,393**	**136,806**	**140,110**	**143,585**
					Persons			
NSW	63,929	65,553	67,174	68,932	70,691	72,582	74,440	76,317
Vic	15,151	15,536	15,911	16,321	16,763	17,242	17,717	18,169
Qld	64,446	65,889	67,310	68,829	70,409	72,188	73,975	75,714
SA	14,841	15,226	15,586	15,967	16,345	16,752	17,144	17,554
WA	38,375	39,279	40,211	41,207	42,188	43,216	44,200	45,275
Tas	8,069	8,280	8,505	8,706	8,903	9,131	9,372	9,613
NT	38,182	39,102	39,995	40,883	41,711	42,523	43,265	44,191
ACT	1,538	1,584	1,631	1,679	1,722	1,774	1,821	1,871
Australia	**244,531**	**250,449**	**256,264**	**262,471**	**268,698**	**275,392**	**281,919**	**288,704**

Sources: 1986 to 1991, Australian Bureau of Statistics (Benham and Howe 1994). Estimates for 1985 and 1992 were extrapolated by applying the average death rate for single-year age cohorts and the average birth rate for 1992 figures.

- The Aboriginal population is relatively young when compared with the non-Aboriginal population. At the 1991 Census, almost 40% were children aged less than 15 years in comparison with 22% of the total population. Similarly, 15% of Aboriginal children were aged less than five years compared with 7% of the total population (Figure 2).



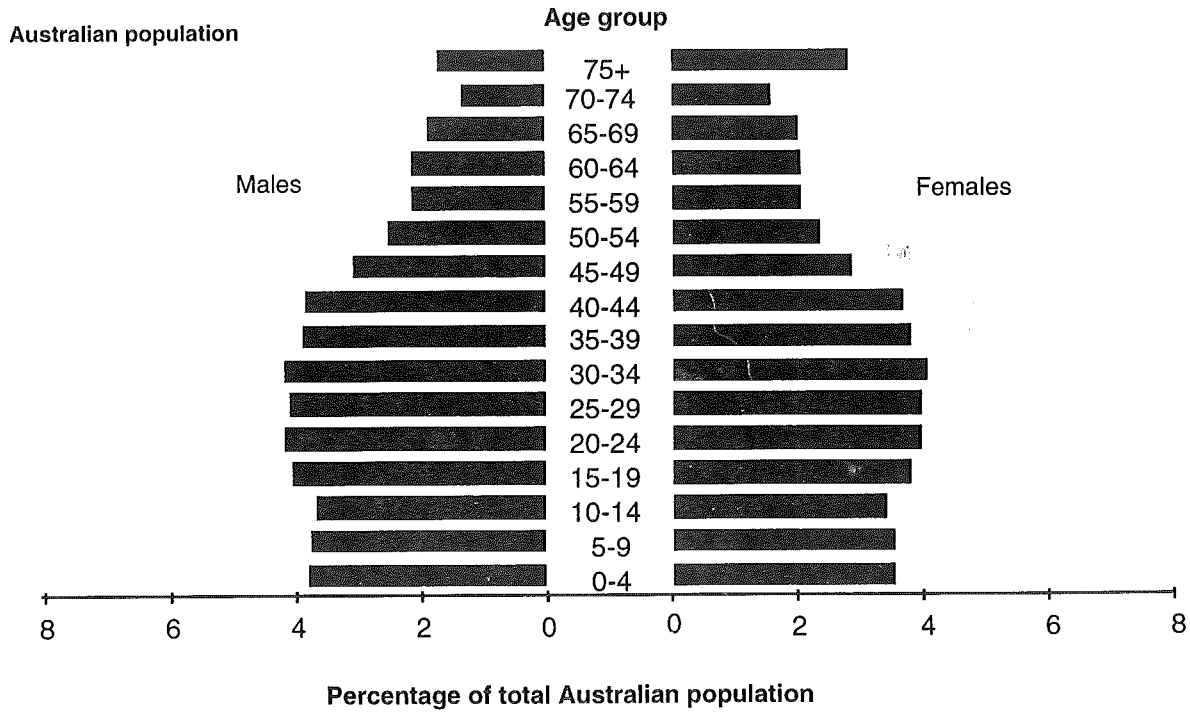


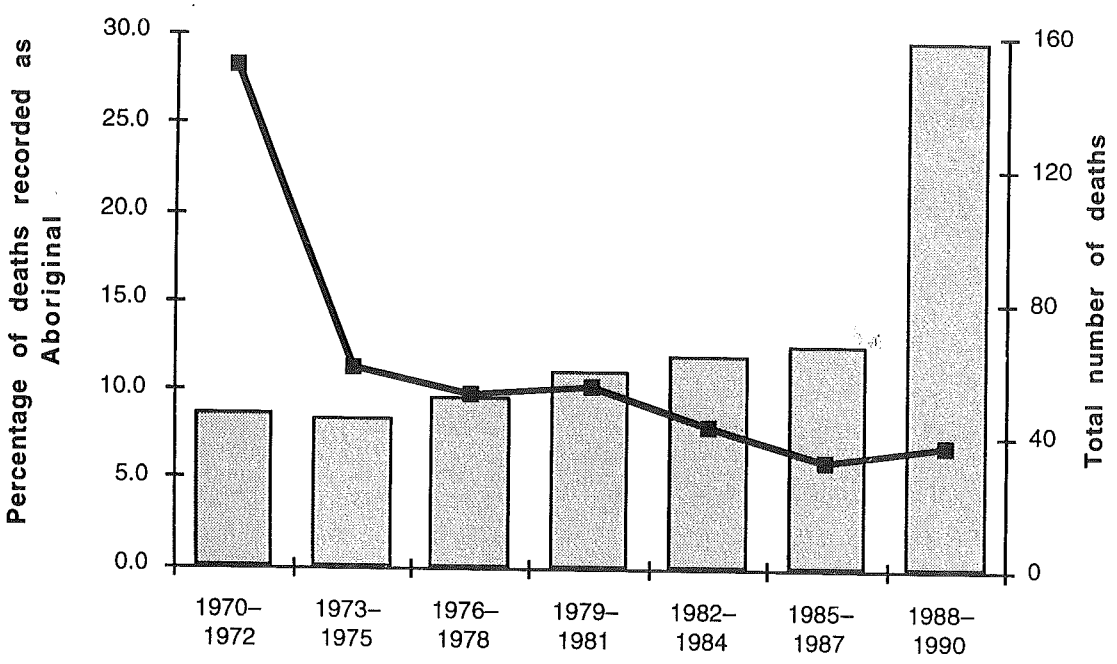
Figure 2: *Age-structures of the Aboriginal and total Australian populations, 1991*

2.0 Health status and risk factors

2.1 Mothers and babies

2.1.1 Pregnancies

- Aboriginal mothers tend to have babies at a younger age than other mothers. In 1991, more than a quarter of Aboriginal mothers were in their teens; the proportion was slightly higher in the Northern Territory (Lancaster et al. 1994). Despite their comparatively young age, higher parity was common in Aboriginal mothers; more than 26% had at least three previous confinements compared with 9.9% of all mothers.
- Deaths directly attributable to obstetric complications were disproportionately high in Aboriginal mothers. The number of maternal deaths in Australia has decreased by almost two-thirds since 1970–72 but the proportion of Aboriginal women has increased (Figure 3).
- In 1988–90, Aboriginal mothers accounted for almost 30% of all maternal deaths but less than 3% of all confinements (National Health and Medical Research Council 1993).

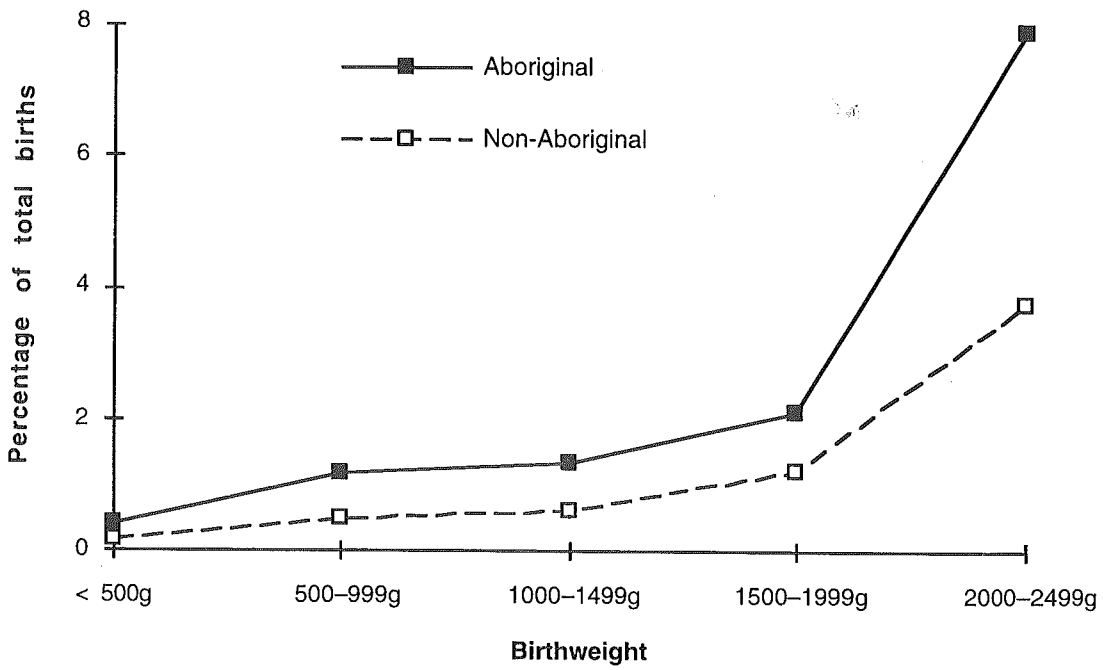


Note: The line indicates the total number of pregnancy-related deaths in Australia; the bars show the percentage of these deaths which were recorded as Aboriginal. Based on data from the National Health and Medical Research Council (1993).

Figure 3: ***Maternal deaths by triennium, Aboriginals and non-Aboriginals, 1970–90***

2.1.2 Births and birthweight

- In 1991, a total of 7,027 babies born to Aboriginal mothers were identified (2.9% of all confinements). Areas with the largest numbers of births were Queensland (2,148), Western Australia (1,460), New South Wales (1,385) and the Northern Territory (1,209).
- Babies born to Aboriginal mothers had an average birthweight of 3,140g which was 209g less than the average for all births. Low birthweight (less than 2,500g) is significantly more common in Aboriginal babies; in 1991, 13% of Aboriginal babies were low birthweight, more than twice the rate for non-Aboriginal babies (Figure 4).
- Increased rates of stillbirth, neonatal death and post-neonatal death accompany low birthweight although weight-for-weight Aboriginal babies survive better than other babies (Kliewer and Stanley 1993).
- The proportion of stillbirths and neonatal deaths was much higher in Aboriginal babies born in Western Australia than in Aboriginal babies born in other States and Territories (Lancaster et al. 1994).
- Preterm birth, maternal nutrition and other factors contribute to the skewed distribution of Aboriginal birthweights. Genetic factors also appear to be involved (Sayers and Powers 1993), with a higher degree of non-Aboriginal ancestry often leading to heavier babies. This factor is considered to be partly responsible for variation in the proportion of low birthweight Aboriginal infants among the various States and Territories (Lancaster et al. 1994).



Source: Lancaster et al. (1994).

Figure 4: ***Distributions of low birthweight among Aboriginal and non-Aboriginal babies, 1991***

2.1.3 Fertility

- During 1986–91, the total fertility rate of Aboriginal women was about 40% higher than the rate for non-Aboriginal women (3.1 vs. 1.9 children). Aboriginal mothers were also younger (mean age 26.7 vs. 28.0 years). One-half of Aboriginal fertility was contributed by women younger than 25 years compared to one-third in non-Aboriginal women (Dugbaza 1994).
- There has been a decline in the fertility of Aboriginal women across all their reproductive years (Jain 1989; Khalidi 1989). Since 1956, this decline has been of the order of 48%. However, the rate of fertility decline has slowed down a little lately (1986–91), and may have even stabilised in parallel with the non-Aboriginal trend (Dugbaza 1994).

2.2 Mortality

2.2.1 Life expectancy

- The expectation of life at birth is much lower for Aboriginals than for other Australians. Life expectancy for Aboriginal males was estimated to be 16 to 18 years shorter than for non-Aboriginal males during 1990–92; the gap was slightly wider for Aboriginal females (Figure 5).
- Only two out of five Aboriginal males could expect to live beyond their 65th birthday compared with three out of four non-Aboriginal males. A slightly larger proportion of Aboriginal females live to their 65th birthday, but only half as many when compared with non-Aboriginal females.
- Improvements in Aboriginal life expectancy over the past two decades have been achieved mainly through reductions in infant mortality; high death rates in older age brackets continue to keep Aboriginal life expectancies substantially lower than those for non-Aboriginals.

2.2.2 Infant mortality

- Despite significant declines over the past two to three decades, Aboriginal infant mortality rates remain typically two to three times those for non-Aboriginal infants (Australian Institute of Health and Welfare 1994).
- In 1993, Aboriginal babies accounted for 73% of all infant deaths, but only 38% of all births, in the Northern Territory (Australian Bureau of Statistics 1994b). A similarly high differential was noted in South Australia, where for 3% of all births in the State, the Aboriginal proportion of infant deaths was 9%.

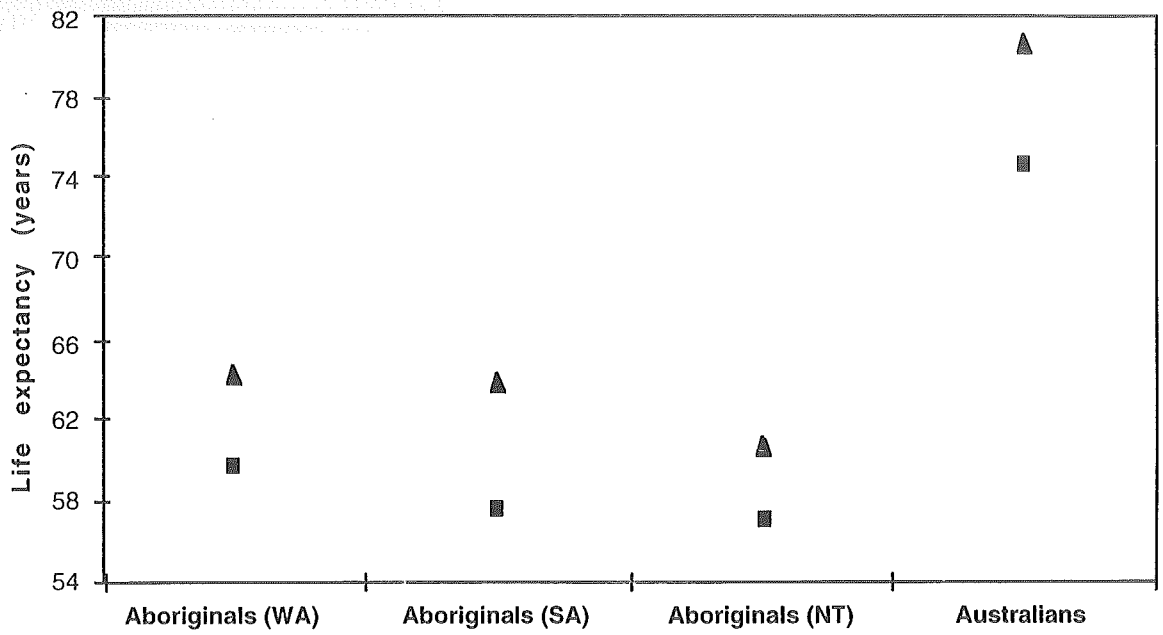


Figure 5: *Life expectancy at birth for Aboriginal males and females in comparison with the total Australian population, 1990–92 (squares, males; triangles, females)*

2.2.3 Age-specific mortality

- There is considerable variation in the quality of data on Aboriginal deaths provided by each of the States and Territories. A recent evaluation of the completeness of death registration data revealed considerable under-recording, particularly in New South Wales and Victoria (Benham and Howe 1994). In view of this relative incompleteness, the analysis presented here has been limited to Western Australia, South Australia and the Northern Territory.
- Lower Aboriginal life expectancy results from consistently higher death rates at all ages, typically two- to eight-fold in comparison with non-Aboriginal rates, with the least favourable ratios in the age bracket 25 to 34 years (Table 3).
- The age-related mortality patterns of Aboriginals and non-Aboriginals are in general the same—a significant decline in death rates post-infancy followed by a continuous increase in later years (Figures 6 and 7). However, Aboriginal death rates start rising early, leading to a high differential by the age of 25 years.
- Differences in Aboriginal sex-specific mortality also parallel the pattern seen in non-Aboriginals. Males have a higher death rate than females at all ages, but particularly in the age bracket 15 to 44 years (Figure 8).
- In 1990–92, the standardised mortality ratio (SMR) for Aboriginal males was 2.8; the ratio for Aboriginal females was slightly higher at 3.3 (Table 4). In the Northern Territory, the respective SMRs were 3.3 and 4.2 (Australian Institute of Health and Welfare 1994).

Table 3: *Age-specific death rates per 100,000 population by sex, Aboriginal and total Australian populations, 1990–92*

	Aboriginal population*		Total Australian population	
Age group (years)	Males	Females	Males	Females
0	2,681	2,485	789	622
1–4	155	129	38	30
5–14	50	46	21	15
15–24	402	156	108	41
25–34	665	367	129	54
35–44	1,115	583	177	93
45–54	2,228	1,465	404	242
55–64	3,601	3,530	1,212	646
65–74	6,187	6,395	3,090	1,689
75+	13,843	10,424	12,386	9,285

* Figures for the Aboriginal population are based on data from Western Australia, South Australia and the Northern Territory.

Source: Australian Institute of Health and Welfare, derived from deaths registration data.

Table 4: *Aboriginal standardised mortality ratios (SMRs), 1990–92*

	No. of deaths		Standardised
State and Territory	Observed	Expected	mortality ratio
Males			
WA	517	211.7	2.4 (2.2–2.6)
SA	211	70.2	3.0 (2.6–3.6)
NT	563	170.7	3.3 (3.0–3.6)
Total	**1,291**	**452.6**	**2.8 (2.7–3.0)**
Females			
WA	409	144.6	2.8 (2.6–3.1)
SA	150	54.0	2.8 (2.3–3.2)
NT	481	113.2	4.2 (3.9–4.6)
Total	**1,040**	**311.8**	**3.3 (3.1–3.5)**

Note: Figures in parentheses indicate 95% confidence limits. The expected deaths were estimated by applying the age-specific death rates for the total Australian population (1990–92) to the Aboriginal population distribution to calculate the number of deaths expected in the Aboriginal population if they experienced the same mortality rate at each age as the total Australian population.

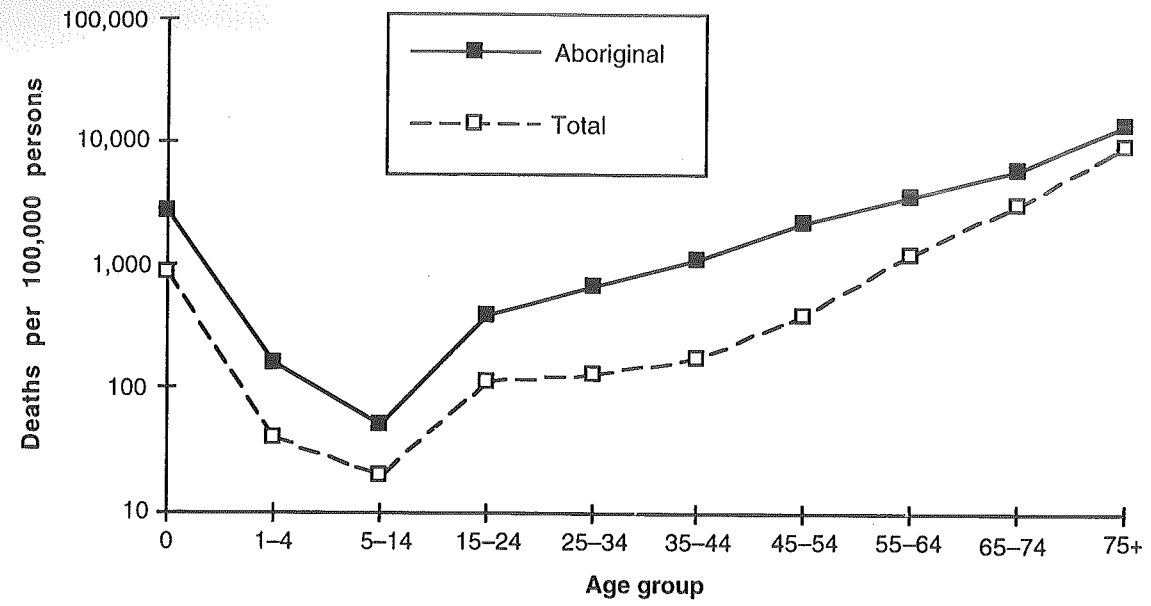


Figure 6: *A comparison of age-specific death rates for Aboriginal and total Australian males, 1990–92*

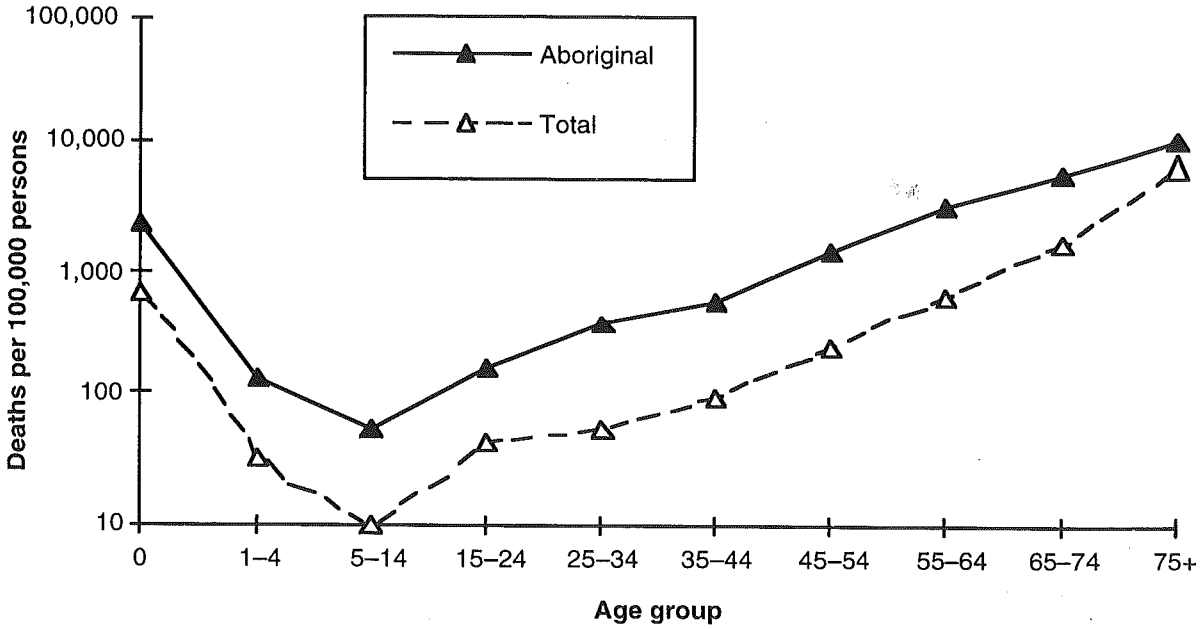


Figure 7: *A comparison of age-specific death rates for Aboriginal and total Australian females, 1990–92*

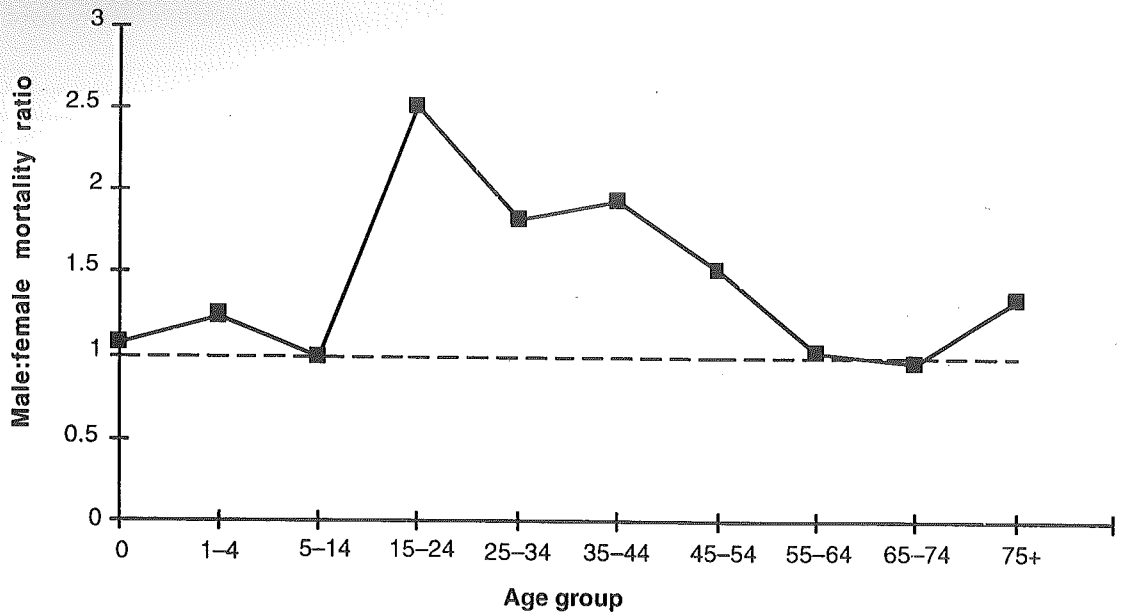


Figure 8: *Ratio of Aboriginal male to female age-specific death rates, 1990–92*

2.2.4 Causes of death

- During 1990–92, more than 60% of Aboriginal deaths were caused by cardiovascular diseases, external causes (accidents, poisoning and violence), respiratory problems, neoplasms and endocrine disorders. Hypertension, ischaemic heart disease and other cardiovascular diseases accounted for more than a quarter of Aboriginal deaths.
- Deaths from motor vehicle accidents, fire, drowning, poisoning and violence and other causes of injuries were the second largest contributor to Aboriginal mortality. Cancer, the leading cause of death among non-Aboriginals (Australian Bureau of Statistics 1994b), is the fourth largest contributor to Aboriginal deaths.
- Aboriginal injury death rates were about four times the non-Aboriginal rates for both males and females (Table 5). Death rates for genito-urinary disorders and respiratory problems were also much higher when compared with non-Aboriginal rates for these conditions.

2.2.4.1 Communicable diseases

- Infectious and parasitic diseases, excluding pneumonia, influenza, meningitis, kidney infections and AIDS, showed the largest differentials in Aboriginal:non-Aboriginal mortality. With age-standardised death rates of 24 per 100,000 males and 34 per 100,000 females in 1991–92 (Table 6), Aboriginal mortality rates for these diseases were about twelve times higher than in the total Australian population (Table 7).

Table 5: *Prominent causes of Aboriginal deaths[a], observed and expected rates[b] per 100,000 population, 1990–92*

Disease/disorder (ICD category)	Aboriginal deaths		Standardised mortality ratio
	Observed rate	Expected rate	
Males			
Circulatory system diseases	237.6	99.6	2.4
Injury and poisoning	196.3	52.8	3.7
Respiratory system diseases	119.1	16.3	7.3
Neoplasms	77.1	74.0	1.0
Nutritional, endocrine disorders	40.6	9.8	4.2
Digestive system diseases	33.1	9.2	3.6
Infections, parasitic diseases	33.1	2.7	12.2
Mental disorders	26.9	5.2	5.2
Ill-defined symptoms	24.8	7.0	3.5
Nervous system diseases	24.1	6.5	3.7
Genito-urinary disorders	19.3	2.8	6.8
Females			
Circulatory system diseases	199.9	75.6	2.6
Neoplasms	94.9	55.8	1.7
Respiratory system diseases	91.5	11.6	7.9
Injury and poisoning	82.8	19.2	4.3
Nutritional, endocrine disorders	52.5	5.4	9.7
Genito-urinary disorders	31.6	3.1	10.1
Digestive system diseases	24.2	6.1	4.0
Ill-defined symptoms	22.9	4.3	5.3
Infections, parasitic diseases	22.9	1.7	13.4
Nervous system diseases	12.8	5.3	2.4
Mental disorders	12.1	3.7	3.3

(a) Figures for the Aboriginal population are based on data from Western Australia, South Australia and the Northern Territory.

(b) The expected death rates were estimated by applying the age-specific death rates for the total Australian population (1990–92) to the Aboriginal population distribution.

Source: Australian Institute of Health and Welfare, derived from deaths registration data.

- With age-standardised death rates of 94 per 100,000 males and 55 per 100,000 females in 1991–92, pneumonia was a much greater cause of death (male SMR, 11.6; female SMR, 8.4) among Aboriginals in New South Wales, Western Australia, South Australia and the Northern Territory than in non-Aboriginals (Tables 8 and 9).
- No aggregated information on AIDS-related deaths is available. However, 29 notifications of HIV infection were reported between 1985 and 1991 in Queensland Aboriginals (Hill and Nielsen 1993).

2.2.4.2 Non-communicable diseases

- Non-communicable diseases, particularly acute myocardial infarction, diabetes, obesity and hypertension, are known to have a high prevalence among Aboriginal people (McGrath et al. 1991).
- Acute myocardial infarction was the largest single contributor to Aboriginal mortality in 1991–92 with age-standardised rates exceeding 198 per 100,000 Aboriginal males and 118 per 100,000 Aboriginal females. Deaths from diabetes as the primary cause accounted for another 82 males and 85 females (per 100,000 persons) annually (Table 8).
- As a direct cause of death, diabetes is more significant among Aboriginal than non-Aboriginal people, with its standardised mortality ratios approaching 7 and 10 in Aboriginal males and Aboriginal females respectively (Table 9).

2.2.4.3 Suicides and homicides

- Suicide and homicide account for 5% of Aboriginal male deaths and 3% of Aboriginal female deaths, in comparison to less than 2% of deaths in the total population.
- From 1985 to 1992, suicide was recorded as the cause for 121 Aboriginal male deaths in New South Wales, South Australia, Western Australia and the Northern Territory. An additional 124 males died of injuries inflicted by others.
- Deaths in custody contributed to these high numbers. In 1993, Aboriginal persons accounted for 11% of all such deaths, the smallest proportion of Aboriginal deaths in custody since 1984 (Morrison et al. 1994).
- No disparity in mortality rates has been found between Aboriginals and non-Aboriginals detained or jailed, the numbers being commensurate with the disproportionately high Aboriginal imprisonment rates (Thomson and McDonald 1993).

2.2.4.4 Cancer

- Each year over 150 Aboriginal people are newly diagnosed with cancer and more than 120 die from the disease. Lung was the leading site for cancer among Aboriginal males, cervix the major site for Aboriginal females.
- No difference was noted between Aboriginal and non-Aboriginal cancer mortality rates in males (Table 5; see also FitzGerald et al. 1993). However, the cancer death rate for Aboriginal females was 70% higher than expected when compared to non-Aboriginal females.
- Mortality from lung cancer alone accounts for 2% of all Aboriginal deaths. Breast cancer accounts for 1% of deaths in Aboriginal women.

Table 6: *Aboriginal age-standardised[(a)] death rates (per 100,000 persons) by ICD chapter and sex, 1985–92 (NSW, SA, WA and NT)*

Cause of death (ICD chapter)	1985–86		1987–88		1989–90		1991–92		All years	
	M	F	M	F	M	F	M	F	M	F
Infectious and parasitic diseases	57	32	59	41	38	30	24	34	44	34
Neoplasms	139	139	183	111	189	159	183	167	174	145
Endocrine and nutritional disorders	47	101	55	101	78	97	102	101	71	100
Diseases of blood and blood-forming organs	8	2	2	1	6	0	7	6	5	2
Mental disorders	51	25	78	21	54	20	42	29	56	24
Diseases of the nervous system	39	18	32	18	28	25	40	9	35	17
Diseases of the circulatory system	639	391	650	447	613	460	519	423	604	430
Respiratory diseases	259	141	259	163	278	182	238	150	258	159
Digestive diseases	57	62	85	40	67	58	51	43	65	50
Diseases of the genito-urinary system	52	51	43	57	48	67	48	47	48	55
Complications of pregnancy & child birth	–	0	–	0	–	4	–	0	–	1
Skin diseases	0	0	0	0	0	4	0	3	0	2
Diseases of the musculoskeletal system	0	8	0	8	3	6	3	7	1	7
Congenital anomalies	8	6	3	6	7	4	5	6	6	5
Certain perinatal conditions	9	11	10	6	13	7	9	6	10	8
Ill-defined conditions	44	25	43	26	33	18	18	19	34	22
Injury and poisoning	185	66	170	61	170	77	152	56	169	65
All causes	**1,592**	**1,080**	**1,674**	**1,108**	**1,623**	**1,219**	**1,440**	**1,106**	**1,578**	**1,128**

(a) Standardised to the 1991 total Australian population.

Source: Australian Institute of Health and Welfare.

Table 7: *Aboriginal standardised mortality ratios[(a)] (SMRs) by ICD chapter and sex, 1985–92 (NSW, SA, WA and NT)*

Cause of death (ICD group)	1985–86		1987–88		1989–90		1991–92		All years	
	M	F	M	F	M	F	M	F	M	F
Infectious and parasitic diseases	11.9	9.6	9.8	9.9	7.3	7.5	7.3	9.2	8.9	9.0
Neoplasms	0.6	1.0	0.9	0.9	0.9	1.3	0.9	1.2	0.8	1.1
Endocrine and nutritional disorders	3.0	7.3	2.9	7.7	3.6	7.1	3.6	7.7	3.3	7.4
Diseases of blood and blood-forming organs	1.6	0.7	0.7	0.7	2.1	0.0	2.7	2.6	1.7	0.9
Mental disorders	5.8	3.8	6.0	2.8	4.4	2.0	4.2	3.9	5.1	3.1
Diseases of the nervous system	3.8	2.5	3.2	2.4	3.3	2.8	2.5	1.3	3.2	2.3
Diseases of the circulatory system	2.0	1.7	2.1	1.9	2.3	2.2	2.1	2.2	2.1	2.0
Respiratory diseases	4.0	4.7	4.1	4.9	4.7	5.5	4.4	5.0	4.3	5.0
Digestive diseases	3.0	4.4	4.3	3.5	3.4	3.8	3.2	3.6	3.5	3.8
Diseases of the genito-urinary system	4.6	5.6	4.5	7.6	5.6	7.7	5.8	6.6	5.1	6.8
Complications of pregnancy & child birth	–	6.7	–	0.0	–	23.3	–	0.0	–	8.5
Skin diseases	5.4	3.3	4.6	0.0	0.0	5.5	0.0	7.5	2.4	4.2
Diseases of the musculoskeletal system	0.0	1.8	0.0	3.1	1.5	2.0	2.4	2.6	0.9	2.4
Congenital anomalies	1.4	1.1	0.6	1.1	1.4	1.1	1.1	1.3	1.1	1.2
Certain perinatal conditions	1.3	2.0	1.7	1.3	2.3	1.6	1.8	1.5	1.8	1.6
Ill-defined conditions	2.4	2.7	3.3	4.5	3.3	3.4	2.8	5.5	2.9	3.9
Injury and poisoning	2.3	2.8	2.2	2.2	2.5	2.8	2.3	2.7	2.3	2.6
All causes	2.1	2.2	2.2	2.2	2.4	2.5	2.2	2.5	2.2	2.3

(a) Age-adjusted to the 1991 Aboriginal male and female populations, as applicable.

Source: Australian Institute of Health and Welfare.

Table 8: *Aboriginal age-standardised[(a)] death rates (per 100,000 persons) for selected specific causes of mortality by sex, 1985–92 (NSW, SA, WA and NT)*

Cause of death	1985–86		1987–88		1989–90		1991–92		All years	
	M	F	M	F	M	F	M	F	M	F
Liver cancer	20	4	14	0	6	5	6	8	11	4
Lung cancer	35	29	59	14	66	27	48	25	52	24
Breast cancer	–	13	–	10	–	21	–	13	–	14
Diabetes mellitus	36	76	46	81	58	80	82	85	56	81
Alcohol dependence syndrome	31	12	31	3	24	4	21	10	26	7
Drug dependence	4	0	3	2	4	0	3	1	4	1
Meningitis	6	7	8	2	3	4	0	0	4	3
Epilepsy	20	4	11	4	12	7	9	2	12	4
Acute myocardial infarction	233	108	233	144	225	150	198	118	221	130
Pneumonia	107	48	87	55	94	71	94	55	95	57
Asthma	7	7	4	9	8	10	10	7	7	8
Other chronic obstructive pulmonary disease	93	36	104	40	117	66	94	51	102	48
Chronic liver disease (alcohol related)	29	22	40	20	34	18	27	17	32	19
Nephritis, nephrotic syndrome and nephrosis	36	39	34	37	19	49	31	22	30	36
Congenital anomalies of circulatory system	3	4	2	3	2	2	2	3	2	3
Slow foetal growth, foetal malnutrition & immaturity	1	3	4	3	5	3	3	4	4	3
Sudden infant death syndrome	4	5	6	5	6	5	5	7	5	6
Transport accidents	79	27	69	22	70	23	58	24	69	24
Accidental poisoning	4	4	5	2	8	3	8	2	6	3
Accidents caused by fire	8	2	5	0	8	12	15	1	9	4
Suicide & self-inflicted injury	15	1	16	4	23	4	16	4	17	3
Homicide & purposely caused injury	33	16	29	11	21	15	17	13	25	14

(a) Age-standardised to 1991 total Australian population.

Source: Australian Institute of Health and Welfare.

Table 9: *Aboriginal standardised mortality ratios[(a)] (SMRs) for selected specific causes of mortality by sex, 1985–92 (NSW, SA, WA and NT)*

	1985–86		1987–88		1989–90		1991–92		All years	
Cause of death	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Liver cancer	6.7	4.7	5.5	0.0	2.2	8.3	2.6	9.5	4.2	5.4
Lung cancer	0.7	1.9	1.2	1.1	1.4	1.7	0.9	1.6	1.0	1.6
Breast cancer		0.5		0.4		0.7		0.6		0.5
Diabetes mellitus	3.5	7.7	4.7	9.4	5.5	8.7	6.9	9.6	5.2	8.8
Alcohol dependence syndrome	19.7	34.5	20.1	9.8	14.0	12.1	12.8	28.9	16.6	21.5
Drug dependence	2.3	0.6	1.7	2.4	2.1	0.6	1.8	2.4	2.0	1.4
Meningitis	6.7	15.9	8.4	5.0	9.8	12.8	2.9	3.6	6.8	9.4
Epilepsy	12.5	2.6	7.7	6.1	9.0	4.8	5.0	2.3	8.5	3.9
Acute myocardial infarction	1.7	1.4	1.8	1.8	2.1	2.1	2.0	1.8	1.9	1.8
Pneumonia	11.4	8.2	10.7	6.5	12.3	9.7	11.6	8.4	11.5	8.2
Asthma	1.3	1.4	0.6	2.0	1.3	1.7	2.4	2.5	1.3	1.9
Other chronic obstructive pulmonary disease	2.7	4.2	3.0	4.5	3.5	5.7	2.9	4.5	3.0	4.8
Chronic liver disease (alcohol related)	5.7	13.9	7.4	13.6	5.6	12.5	5.0	13.2	6.0	13.4
Nephritis, nephrotic syndrome and nephrosis	5.2	6.5	5.1	7.4	4.5	8.0	5.8	4.1	5.1	6.5
Congenital anomalies of circulatory system	1.6	2.2	1.0	1.6	1.2	1.3	1.2	1.2	1.3	1.6
Slow foetal growth, foetal malnutrition & immaturity	1.1	2.0	2.4	2.3	3.4	1.8	2.1	2.9	2.3	2.3
Sudden infant death syndrome	1.1	1.8	1.4	2.2	1.8	2.2	2.1	4.9	1.5	2.5
Transport accidents	2.1	2.6	1.8	1.7	2.6	2.0	2.4	2.7	2.2	2.2
Accidental poisoning	2.4	2.6	3.4	3.8	5.8	5.4	5.1	3.8	4.3	3.9
Accidents caused by fire	7.2	6.8	4.1	2.4	5.4	15.3	6.1	2.5	5.7	6.8
Suicide & self-inflicted injury	1.0	0.4	1.1	0.7	1.4	0.6	0.9	0.9	1.1	0.7
Homicide & purposely caused injury	9.8	10.7	9.0	5.6	7.2	10.9	7.1	8.0	8.3	8.6

(a) Age-adjusted to the 1991 Aboriginal male and female populations, as applicable.

Source: Australian Institute of Health and Welfare.

- Aboriginal deaths from primary liver cancer revealed a geographically limited distribution. Most of these deaths were reported from the Northern Territory and Western Australia.
- Hospitalisation for cancer is 40% less frequent among Aboriginals, age-standardised, than among non-Aboriginals (Table 10). This gap may indicate a lack of access to necessary care in Aboriginal patients with cancer.

2.3 Patterns of health

2.3.1 Acute hospitalisation

- For the purpose of this analysis, we have pooled hospital separation data for New South Wales and South Australia for the year 1991–92, as these two States have the only readily available data.
- For Aboriginal males, the hospital admission rate of 275 per 1,000 was 60% higher than the expected estimate if the age-specific hospitalisation rate of non-Aboriginal males applied (Table 10). The admission rate of 333 per 1,000 Aboriginal females, which also included confinements for childbirth, was 50% higher than the indirectly standardised hospitalisation rate for non-Aboriginal females.
- Aboriginal hospitalisation ratios were higher in all age groups, particularly among 25 to 54 year old males, when compared with non-Aboriginals; Aboriginal females were significantly more likely to be admitted to hospitals at older ages when compared with non-Aboriginal females (Figure 9).
- The leading causes of Aboriginal male hospitalisation were diseases of the respiratory system followed by injury and poisoning, with standardised admission ratios (SARs) of 2.2 and 1.7 respectively. Slightly lower rates but higher differentials for these causes were recorded for Aboriginal females. Infectious diseases were also responsible for frequent hospitalisation with SARs reaching 2.6 (Table 10).
- Studies assessing the accuracy of Aboriginal identification in hospital admissions have revealed considerable incompleteness, and the hospitalisation rates given above may be substantial underestimates. Only one hospital out of 17 surveyed in South Australia reported that every patient was being asked the question aimed at establishing his or her Aboriginality (Rogers et al. 1986). The accuracy of identification in eight hospitals of the North Coast Health Region of New South Wales ranged from 64% to 98%, with an all hospital average for the region of 81% (Thomson et al. 1990).

Table 10: *Prominent causes of Aboriginal hospital admissions[a], observed and expected rates[b] per 1,000 population*

Cause/symptoms (ICD chapter)	Aboriginal hospital admissions		
	Observed rate	Expected rate	Standardised admission ratio
Males			
Respiratory diseases	47	21	2.2
Injury and poisoning	38	23	1.7
Digestive system diseases	28	21	1.3
Mental disorders	27	7	3.9
Nervous system diseases	20	10	2.0
Ill-defined symptoms	17	9	1.9
Circulatory diseases	14	8	1.7
Infectious diseases	11	4	2.6
Skin diseases	11	4	2.6
Endocrine disorders	5	2	3.5
Neoplasms	4	6	0.6
All causes	**275**	**167**	**1.6**
Females			
Pregnancy[c]	59	51	1.2
Respiratory diseases	43	17	2.6
Injury and poisoning	27	13	2.1
Genito-urinary problems	25	23	1.1
Digestive system diseases	24	23	1.0
Ill-defined symptoms	21	10	2.0
Nervous system diseases	16	10	1.6
Circulatory diseases	13	6	2.1
Infectious diseases	11	4	2.6
Skin diseases	9	3	2.7
Neoplasms	5	9	0.6
All causes	**333**	**217**	**1.5**

(a) Rates for both populations derived from combined New South Wales and South Australian data for the year 1991–92.

(b) The expected admission rates were estimated by applying the age-specific admission rates for the non-Aboriginal population (NSW and SA 1991–92) to the Aboriginal population distribution.

(c) Includes confinements for normal pregnancy as well as the supervision of high risk pregnancies.

Source: Australian Institute of Health and Welfare, derived from hospital morbidity databases.

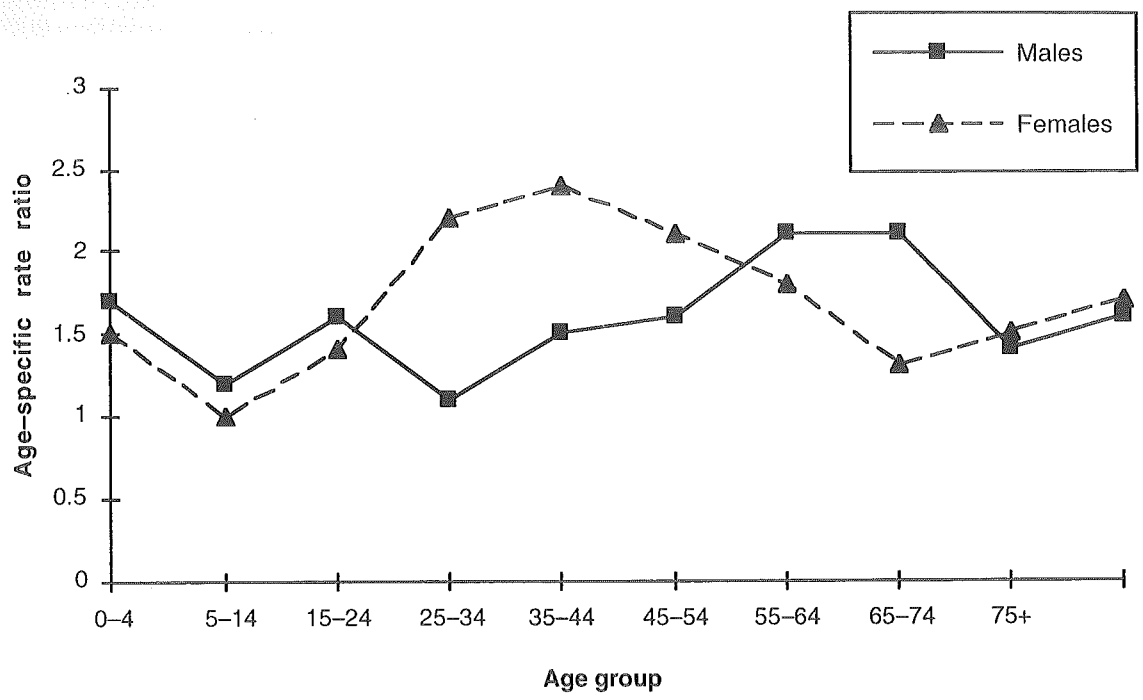


Figure 9: *Age-specific hospital admission rate ratios for Aboriginal males and females, compared with non-Aboriginal males and females respectively*

2.3.2 Self-reported illness

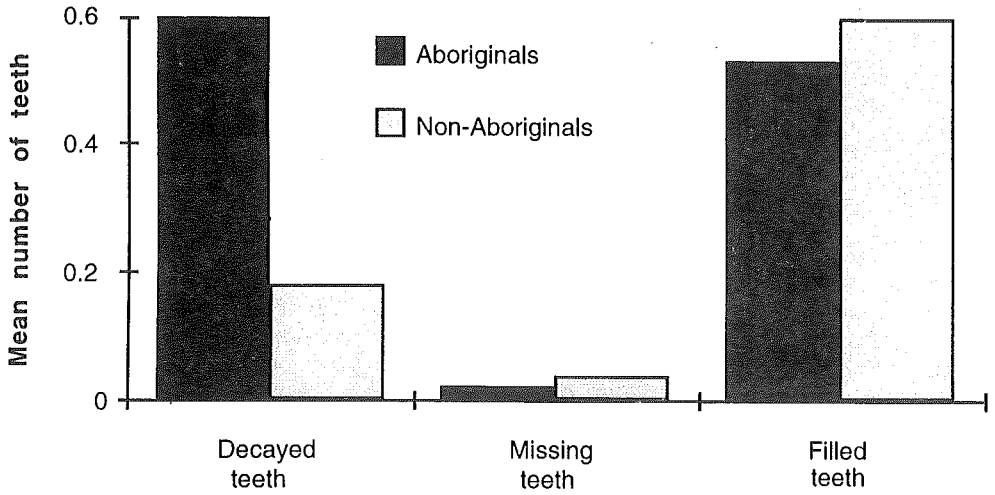
- The 1989–90 Australian Bureau of Statistics National Health Survey included a small Aboriginal sample. Since the survey was based on self-reporting, the results reflect the way respondents perceived their health (Kelly 1993; Australian Bureau of Statistics/Australian Institute of Health and Welfare, in preparation). The comparisons given below should be treated with caution in view of the differences in population structure, culture and perceptions relating to quality of health between Aboriginal and non-Aboriginal populations (Kelly 1993).
- A majority of Aboriginal respondents assessed themselves to be in 'excellent' or 'good' health (66%), as compared with 79% of the total Australian sample. The difference was mainly in the proportion of those rating their health as 'excellent' which was markedly smaller in Aboriginals (18% vs. 29%); those reporting their health as 'good' were in similar proportions in the two populations.
- More than one-third of Aboriginal respondents included in the survey rated their health as 'fair' or 'poor'. The proportion of individuals rating their health as 'poor' was similar in both the Aboriginal and the total samples but the proportion of those rating their health as 'fair' was much higher among Aboriginals (29% vs. 16%).
- Respiratory diseases were the most common major illness conditions reported by Aboriginal respondents. Arthritis and digestive system diseases were two of the other major causes of ill-health. Thirteen per cent

of Aboriginal respondents reported suffering from asthma in comparison to 8% of the total sample.

- Half of the Aboriginal respondents reported long-term illness in comparison to two-thirds of non-Aboriginals. Above the age of 55, Aboriginals were approximately three times more likely to have suffered from endocrine, metabolic and immunity disorders in comparison with the total population.
- The pattern of self-reported Aboriginal health and illness differs from that emerging from acute hospitalisation and mortality data. To some extent this reflects the accumulated impact of common health problems of low severity on the day-to-day life of an individual.

2.3.3 Dental health

- Traditionally, the oral health of Aboriginal persons has been considered excellent even though caries remained largely untreated. However, the pattern appears to have changed lately and Aboriginal children now experience dental caries more often (Australian Institute of Health and Welfare 1992).
- Data from the 1993 Child Dental Health Survey in the Northern Territory have revealed a significantly higher DMFT (decayed, missing and filled teeth) score in 12-year-old Aboriginals than in non-Aboriginals. Dental decay was noted at least three times more often in Aboriginals, but missing teeth were much less common (Figure 10). The proportion of filled teeth was also lower.
- Even though the sample for the above Survey was drawn only from the Northern Territory, the results are likely to reflect the situation among Aboriginal children living in other remote areas of Australia.



Source: AIHW Dental Statistics and Research Unit.

Figure 10: *Dental caries experience of Aboriginal and non-Aboriginal children, Northern Territory, 1993*

2.3.4 Disability and handicap

- Disability leads to a significant loss of healthy life in Australia. Almost 18% of the Australian population, a large proportion of whom are also handicapped, reported a disability in 1993 (Australian Bureau of Statistics 1993).
- Limited information has become available on the extent of disability and handicap among Aboriginal people. The Survey of Disability and Handicap (Australian Bureau of Statistics 1990) did not include appropriate Aboriginal identifiers. The Survey of Disability, Ageing and Carers, conducted by the Australian Bureau of Statistics in 1993, did identify Aboriginals included in its sample; however, no analysis of this particular subset has yet been made.
- A recent survey has quantified the extent of disability and handicap in Aboriginals of the Taree area of New South Wales (Thomson and Snow 1994). One out of every four persons reported a disabling condition (Table 11), the most prominent of which involved the loss of sight or hearing (disorders of the sense organs). Other leading causes of disability included diseases of the musculoskeletal system and connective tissues.
- The most frequent specific disabilities were asthma (5.0%), slow learning and specific delays in development (4.1%), and heart disease (4.0%). High levels of slow learning and delays in development contributed to educational handicap (Thomson and Snow 1994).
- In comparison to the total Australian population, Aboriginal persons in the Taree area were at least one and a half times more likely to be handicapped. The relative importance of the areas of handicap was also different between the two populations, although a mobility handicap was the most frequently reported handicap in both populations (Thomson and Snow 1994).
- In the absence of more comprehensive data, the Taree results allow a perspective on the prevalence of disability among Aboriginal people.

Table 11: *Disability and handicap among Aboriginals of the Taree area of New South Wales*

	Number disabled (per 1,000 persons)				Age-adjusted rate ratio (95% CI)	
	Aboriginals		All Australians			
Condition	M	F	M	F	M	F
Disabled	249	251	160	152	2.5 (2.1–3.0)	2.9 (2.4–3.5)
Handicapped	139	148	130	130	1.7 (1.4–2.1)	1.8 (1.5–2.3)
Severely handicapped	49	53	32	49	2.4 (1.5–3.6)	2.3 (1.5–3.4)

Sources: Thomson and Snow (1994), Australian Bureau of Statistics (1990).

2.4 Important causes of ill-health

2.4.1 Diabetes

- Diabetes mellitus is a major health problem in Aboriginal populations. Adult prevalence rates exceeding 30%, almost four times the non-Aboriginal rate, have been recorded in some communities (McGrath et al. 1991). Diabetes was 6.9 times more often the primary cause of death in Aboriginal males and 9.6 times more often in Aboriginal females in 1991–92 when compared with cause-sex-specific rates in non-Aboriginals (Table 9).
- Directly responsible for almost 5% of all Aboriginal deaths, diabetes is also a significant contributor to long-term illness and disability because of its associated complications. In comparison, the proportion of direct mortality caused by diabetes was less than 2% among non-Aboriginals in 1992 (Jain 1994).
- Diabetes mortality had been lower in Aboriginal males than females until recently. However, the death rate from diabetes in Aboriginal males has increased over the past eight years to match the rate for Aboriginal females. In contrast, the death rate for diabetes is significantly higher for non-Aboriginal males than for non-Aboriginal females.
- Deaths from diabetes are often under-reported in national mortality statistics. The actual contribution of diabetes as a direct or antecedent cause of death may therefore be significantly higher than reports indicate (Whiteall et al. 1990).
- During 1991–92, Aboriginal male hospitalisation for endocrine problems, most of it diabetes-related, was over 3.5 times higher than the rate for non-Aboriginal males (Table 10). Infection was the most common reason for seeking care (Phillips et al. 1993). Diabetes-associated complications such as retinopathy, renal disease and neuropathy also led to frequent hospitalisation among Aboriginals.
- Hyperinsulinaemia and obesity, two of the major predisposing risk factors for diabetes, are common in Aboriginal populations (Guest et al. 1993a). There is also a high prevalence of impaired glucose tolerance (McGrath et al. 1991).

2.4.2 Trachoma

- Trachoma, inflammatory or cicatricial, continues to be a major cause of blindness and visual impairment in Aboriginals resident in remote areas.
- A recent population-based survey in Anangu, Pitjantjatjara and Yalata lands has revealed active inflammatory trachoma in 17.6% of the sample. In addition, a quarter of those sampled had cicatricial trachoma (Stocks et al. 1994). Two per cent of females and 0.8% of males sampled also suffered from monocular or biocular blindness.

2.4.3 Renal disease

- Chronic renal failure in Aboriginal Australians is a major cause of concern. Excess mortality from end stage renal disease in South Australia has been estimated at 12 times higher in Aboriginal men and 25 times higher in Aboriginal women than in non-Aboriginals (Grime et al. 1988). Aboriginal people are recruited to end stage renal programs in the Northern Territory at a rate seven times that of non-Aboriginals (Disney 1992).
- High rates of proteinuria and albuminuria have been reported from Aboriginal populations across the country; however, these markers vary in prevalence between communities. A recent study in southeast Australia has estimated the prevalence of albuminuria to be 36 to 39%, three and a half times the non-Aboriginal rate (Guest et al. 1993b). Proteinuria was also noted in 17 to 35% of Aboriginal adults in three Top End communities (Van Buynder 1991).
- Proteinuria is often associated with diabetes and hypertension, two of the major contributors of illness. However, a high prevalence of renal morbidity resulting from other factors, particularly acute streptococcal infections, has also been reported regularly in Aboriginal populations (Van Buynder 1991).

2.4.4 Cardiovascular diseases

- Diseases of the circulatory system, including coronary heart disease and stroke, are collectively the foremost cause of death among Aboriginals. These diseases also contribute significantly to disability and ill-health. (Age-specific death rates for Aboriginal males and females in 1991–92 were reported to be 519 and 423 deaths per 100,000 persons, respectively.)
- However, less than one-third of Aboriginal deaths are attributed to cardiovascular diseases in comparison with more than 45% in the non-Aboriginal population (d'Espaignet 1993). This low relative frequency of deaths from cardiovascular diseases is due mainly to high mortality from some other causes and to the comparatively young Aboriginal population.
- Significant variation in cardiovascular mortality exists between states. Whereas in New South Wales cardiovascular disease accounts for 40% of Aboriginal deaths, similar to the proportion noted in non-Aboriginals (Fung et al. 1992), its proportion is less than 25% in the Northern Territory where other diseases contribute more significantly to overall mortality.

2.5 Risk factors

A variety of risk factors contribute to the onset of a disease and to subsequent morbidity and mortality. Some of the hospitalisation and mortality experienced by a population can be directly attributed to a particular risk factor; however, in the majority of cases the underlying cause cannot be determined with confidence. Nonetheless, at a population level, some estimates of the contribution (aetiological fraction) of these risk factors can be generated.

2.5.1 Alcohol misuse

- The proportion of Aboriginal adults who consume alcohol regularly is significantly less than for non-Aboriginals. However, there is evidence that Aboriginals who drink tend to do so at levels harmful to health more often than do non-Aboriginals (Kelly 1993). A survey in the Kimberley region has confirmed that a majority of Aboriginal drinkers consume harmful amounts of alcohol (Hall et al. 1993).
- One hundred and ninety-six Aboriginals died of alcohol-related cirrhosis in 1985–92, males accounting for 60% of these deaths (the age-standardised death rate exceeded 32 deaths per 100,000 males per year during this period; Table 8). Alcohol-dependence syndrome accounted for an additional 119 deaths.
- Transport-related accidents accounted for 503 Aboriginal deaths during the eight-year period 1985–92. Alcohol is often implicated in these crashes and a large proportion of deaths can be attributed to its effects. Over 83% of Aboriginal people killed in transport-related accidents in Western Australia (1980–89) had a blood alcohol content equal to or greater than 0.08 g/100 ml (Williams and Maisey 1991).
- Alcohol misuse also contributes significantly to deaths usually attributed to other causes. For example, 35% of deaths from falls among males of all ages are attributable to the use of alcohol (Holman et al. 1990). Similar aetiological fractions have been reported for interpersonal violence and homicide.
- Hospitalisation attributable to alcohol misuse is also common among Aboriginals. In the Kimberley Health Region of Western Australia, it has been estimated that Aboriginals are three to four times more likely than non-Aboriginals to be admitted as inpatients for injuries attributable to alcohol (Swensen and Unwin 1994).
- Foetal Alcohol Syndrome, a birth defect linked to the consumption of alcohol by mothers during pregnancy, occurs significantly more often among Aboriginal babies. Out of 26 cases notified during the period 1980–93 to the Birth Defects Registry of Western Australia, almost three-quarters of the cases occurred in Aboriginal infants, with a birth prevalence rate of 1.1 per 1,000. This compares with the rate of 0.02 per 1,000 for non-Aboriginal infants (Bower et al. 1994).

2.5.2 Tobacco smoking and chewing

- Cigarette smoking contributes significantly to ill-health and mortality in Aboriginal communities (Guest et al. 1992). Almost one-half of Aboriginal adults have self-reported as regular cigarette-smokers, at nearly twice the rate seen in the total population. A further 18% were ex-smokers (Kelly 1993).
- Lung cancer accounted for 184 Aboriginal deaths during 1985–92 with age-standardised death rates of 52 per 100,000 males and 24 per 100,000 females (Table 8). Aboriginal males suffer from smoking-related problems

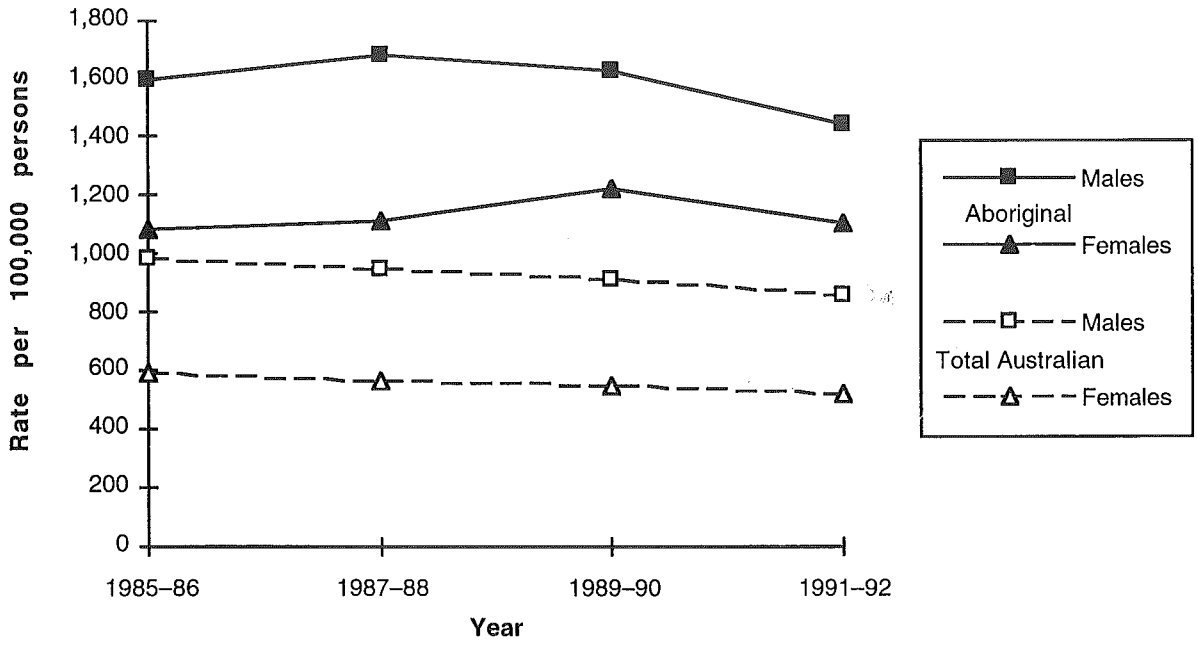
more frequently than do Aboriginal females. Males accounted for almost two-thirds of the Aboriginal lung cancer deaths in 1985–92.

- An additional 291 Aboriginal deaths resulted from chronic obstructive lung diseases during 1985–92. The standardised mortality ratios for Aboriginal males and Aboriginal females were 3.0 and 4.8 respectively (Table 9). Age-standardised, the male death rate (102 deaths per 100,000 males per year) was 116% of the corresponding rate in Aboriginal females (Table 8).
- Although lung cancer does not cause disproportionately high mortality among Aboriginal males when compared with non-Aboriginal males, the mortality rate in Aboriginal females is 60% higher than the equivalent rate in the total population. Deaths from chronic obstructive lung diseases are significantly higher in Aboriginals, at more than four times the rate seen in non-Aboriginals.
- Cigarette smoking also plays a large role in respiratory problems which are the foremost cause of Aboriginal hospitalisation. In the year 1991–92, Aboriginal hospitalisation for these problems was more than 2.4 times the rate in non-Aboriginals (Table 10).
- Smoking is also known to be an important contributor to cardiovascular diseases, peptic ulcers, suicides, poisoning and cirrhosis although the risks are relatively small (Doll et al. 1994). However, given the high death rates for some of these problems among Aboriginals, these small relative risks translate into large absolute numbers of deaths.

3.0 Trends in mortality

Aboriginal deaths were not identified in death registrations in most States and Territories prior to 1985. The limited data available therefore preclude any in-depth analysis aimed at detecting national trends in Aboriginal mortality. Aboriginal deaths in Queensland could not be included in the analysis because of the lack of Aboriginal identifiers in the Deaths Registration System of the State. In addition, data from Victoria, Tasmania and the Australian Capital Territory were excluded due to uncertain validity.

Some clear trends have emerged from this analysis of combined mortality data from New South Wales, the Northern Territory, Western Australia and South Australia for the years 1985–92. After peaking in 1987–88, perhaps because of increasing levels of identification of Aboriginal people, the age-standardised death rate in Aboriginal males has shown a decline from 1989 to 1992 (Figure 11). There was some lowering of mortality during 1991–92 for Aboriginal females as well (Table 6), although the reductions did not match the decline seen in the male death rates.



Source: AIHW unpublished data.

Figure 11: ***Trends in Aboriginal and total Australian age-standardised death rates, 1985–92***

In Aboriginal males, the major disease groups contributing to reduction in mortality were cardiovascular diseases, transport-related deaths and those resulting from interpersonal violence. However, these reductions have lagged behind the corresponding decline for non-Aboriginal males, leading to increased inequality in some cases (Tables 7 and 9). The standardised mortality

ratio for acute myocardial infarction in Aboriginal males for example, rose from 1.7 in 1985–86 to 2.0 in 1991–92 despite a clear decline in the age-standardised death rate (Tables 8 and 9).

The gap between age-standardised death rates for Aboriginal and non-Aboriginal females has also widened. Between 1985–86 and 1991–92, the latter rate declined by almost 12%; no such decline was noted for Aboriginal females (Figure 11). For all causes of death the SMR increased from 2.1 in 1985–86 to 2.2 in 1991–92, although it fell from 2.4 to 2.2 between 1989–90 and 1991–92 (Table 12). There is, however, evidence that the gap may be beginning to narrow in the most recent time period (1991–92).

Table 12: *Aboriginal and Torres Strait Islander age-standardised death rates and standardised mortality ratios by State and Territory, 1985–92*

	1985–86		1987–88		1989–90		1991–92		All years	
	M	F	M	F	M	F	M	F	M	F
	Age-standardised death rate per 100,000 persons[a]									
NSW	874	557	916	618	731	584	733	477	809	556
SA	895	426	1,678	1,143	2,119	1,347	1,443	1,048	1,551	1,004
WA	2,192	1,525	1,978	1,251	1,949	1,446	1,854	1,511	1,987	1,431
NT	2,174	1,670	2,379	1,742	2,381	1,999	2,079	1,724	2,249	1,785
Combined	**1,592**	**1,080**	**1,674**	**1,108**	**1,623**	**1,219**	**1,440**	**1,106**	**1,578**	**1,128**
	Standardised mortality ratio[b]									
NSW	1.2	1.2	1.3	1.3	1.1	1.1	1.1	1.0	1.2	1.2
SA	1.3	1.1	2.3	2.1	3.5	2.8	2.7	2.4	2.4	2.1
WA	2.8	3.0	2.5	2.5	2.7	3.0	2.6	3.2	2.7	2.9
NT	2.9	3.5	3.3	3.7	3.5	4.3	3.1	4.2	3.2	3.9
Combined	**2.1**	**2.2**	**2.2**	**2.2**	**2.4**	**2.5**	**2.2**	**2.5**	**2.2**	**2.3**

(a) Age-standardised to the 1991 Australian population.
(b) Age-adjusted to the 1991 Aboriginal male and female populations.

Source: Australian Institute of Health and Welfare.

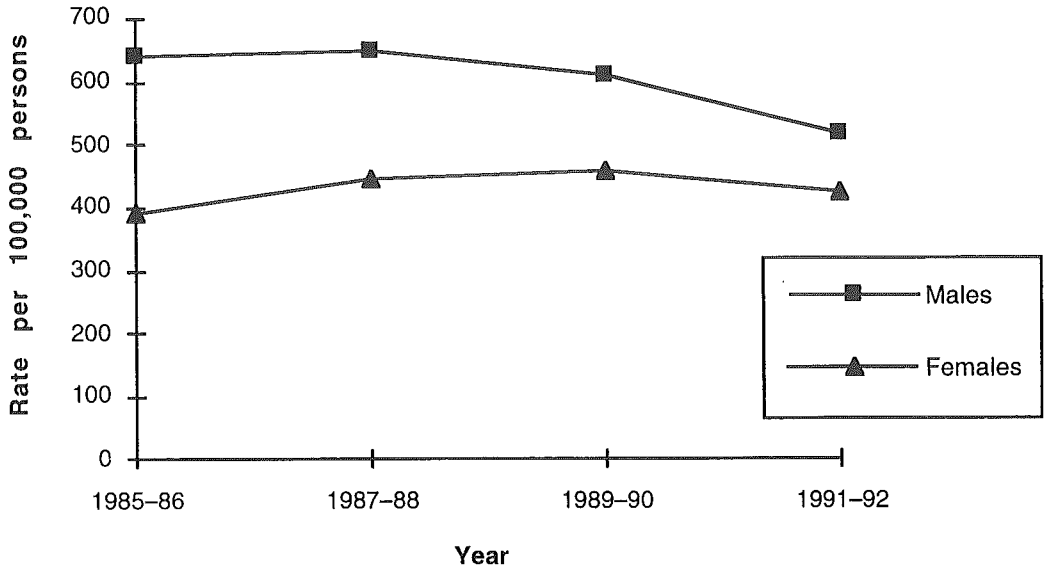
Some details of these trends are summarised in the following sections.

3.1 Causes of death

- Age-standardised death rates from cardiovascular diseases declined by almost 19% between 1985–86 and 1991–92 in Aboriginal males; the decline was particularly significant for ischaemic heart disease. However, no such decline was noted in the rate for Aboriginal females (Figure 12). Death rates from rheumatic heart disease, cerebrovascular disease and hypertension remained stationary in both Aboriginal males and Aboriginal females during this period.

- Diabetes is being increasingly identified as a primary cause of death among Aboriginal males with age-standardised death rates rising from 36 per 100,000 males in 1985–86 to 82 per 100,000 males in 1991–92 (Table 8; Figure 13). Diabetes was responsible for 1 out of 35 Aboriginal male deaths in 1991–92, rising from 1 out of 55 deaths eight years before. This trend follows the pattern seen in male mortality from diabetes in the total Australian population (Jain 1994), except that the Aboriginal death rate is considerably higher.
- Diabetes as a primary cause of death also increased among Aboriginal females, although the increase was not so marked (from 76 deaths per 100,000 females in 1985–86 to 85 deaths per 100,000 females in 1991–92; see Table 8). It must be noted here that the death rate from diabetes in Aboriginal females has traditionally been much higher than in Aboriginal males.
- Cancer death rates increased somewhat during 1985–92, particularly among Aboriginal females (Table 6). The increases occurred despite significant reductions in death rates for some of the malignancies (Table 8).
- The death rate for primary liver cancer declined by more than two-thirds in Aboriginal males, from 20 deaths per 100,000 to 6 deaths per 100,000 during 1985–1992 (Table 8). This reduction contrasts with the trend seen in the total population with rates for liver cancer on the rise (Bennett et al. 1994). An improvement in the distinction of secondary from primary cancers of the liver may have contributed to the trend in Aboriginals.
- Mortality from lung cancer also showed signs of decline in Aboriginal males after peaking at 66 deaths per 100,000 males (age-standardised) in 1989–90; no similar decrease has occurred in Aboriginal females (Table 8).
- Mortality from infectious and parasitic diseases declined by almost 58% for Aboriginal males between 1985–86 and 1991–92 (Table 6). No decline was noted in the rate for Aboriginal females.
- Pneumonia is a major cause of Aboriginal mortality, accounting for almost 1 in 20 deaths; there is no clear trend over time (Figure 14).
- Aboriginal deaths associated with alcohol misuse declined during 1985–92. Deaths from alcohol-dependence syndrome declined from 31 per 100,000 in 1985–86 to 21 per 100,000 Aboriginal males in 1991–92 (Table 8). Alcoholic liver cirrhosis-caused deaths similarly declined by one-fifth in Aboriginal females during the same period.
- The number of deaths from external causes peaked in 1990. However, when age-standardised, the death rate revealed a steady decline from 1985 to 1992 among Aboriginal males (Table 6). No such trend was noted among Aboriginal females.
- Fatal transport-related accidents decreased for both Aboriginal males and Aboriginal females. A 27% reduction in Aboriginal male deaths was noted during 1985 to 1992. Homicides and deaths resulting from injuries inflicted by others also declined by almost 50% among Aboriginal males (Table 8).

- Mortality from suicides and self-inflicted injuries remained at a high level among Aboriginal males and may have risen in Aboriginal females. However, the standardised mortality ratio for suicides among Aboriginals does not differ significantly from 1.0 (Table 9).
- Death rates from congenital anomalies of the heart and circulatory systems decreased for both Aboriginal and non-Aboriginal populations during 1985–92. This reduction may be due to improved diagnostic and therapeutic services, although the claim remains to be substantiated (Fung et al. 1992).



Source: AIHW unpublished data.

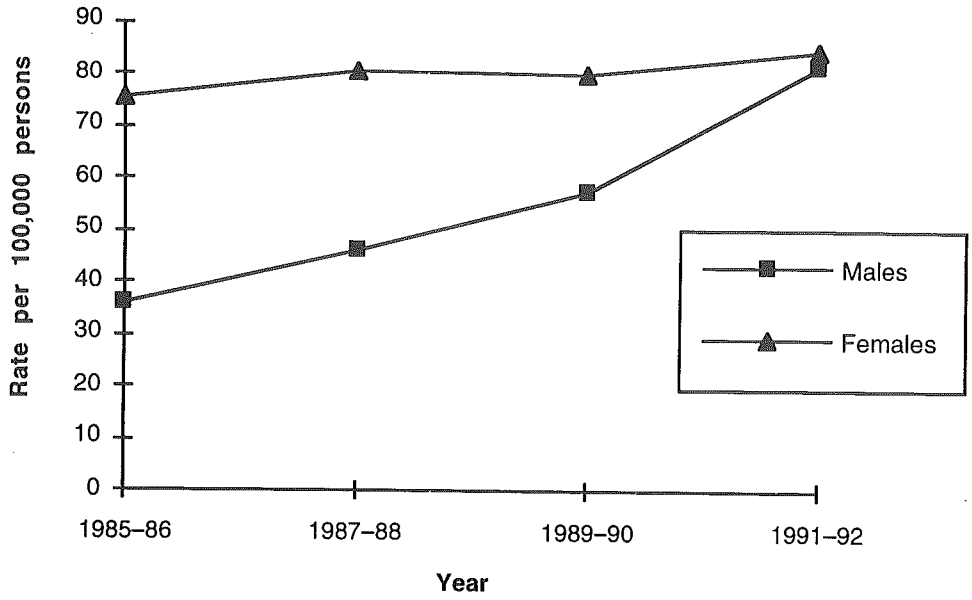
Figure 12: ***Trends in Aboriginal age-standardised death rates for circulatory diseases, 1985–92***

3.2 Age- and sex-specific mortality

- Death rates among Aboriginal males were consistently higher than those for Aboriginal females throughout the period 1985–92 (Table 6). This differential is of long standing as evidenced by the decline in the sex ratio from 110 males per 100 females in 1947 (Smith 1980) to 101 males per 100 females in 1991 (Table 2).
- The Aboriginal sex ratio has been projected at 98 males per 100 females by the year 2001 (Gray and Tesfaghiorghis 1991). However, this decline in the sex ratio may slow down since the excess male mortality has declined significantly from 47% in 1985–86 to 30% in 1991–92 (Table 6).
- This steady trend of a narrowing gap between Aboriginal male and female death rates follows the pattern noted in the total Australian population, with excess male mortality declining in the corresponding period (Bennett et al. 1994). Two major contributors to the reduction in

Aboriginal male death rates were declines in mortality from ischaemic heart disease and injuries. Increases in Aboriginal female mortality from other causes may have reduced the gap further.

- Death rates of Aboriginal infants have declined dramatically in the past two decades (Figure 15). However, the rate of decline has been slow since the early 1980s. An increase in post-neonatal mortality in Aboriginals has been reported recently from Western Australia by Gee (1994).

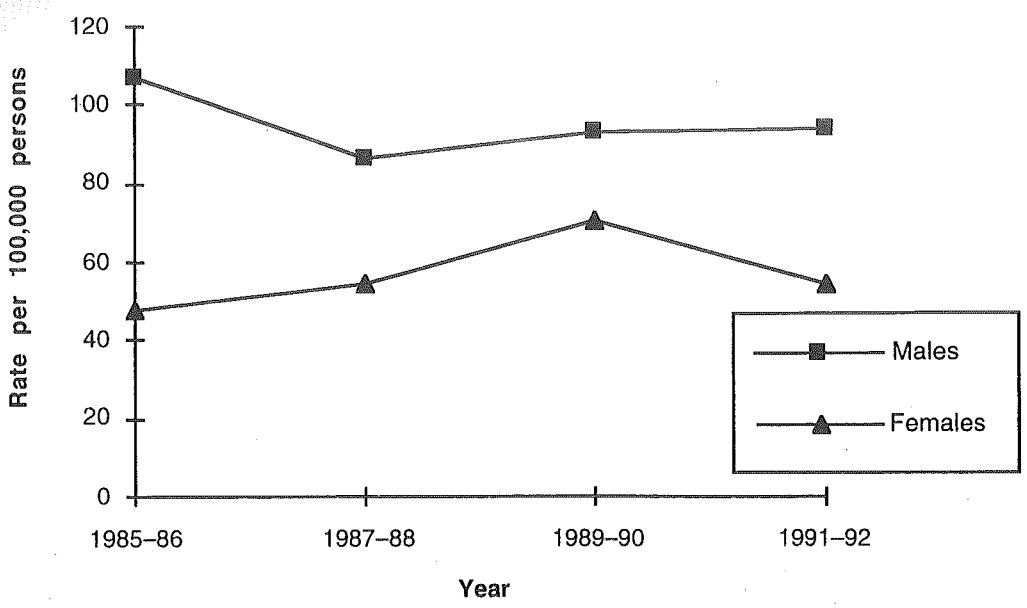


Source: AIHW unpublished data.

Figure 13: ***Trends in Aboriginal age-standardised death rates for diabetes, 1985–1992***

3.3 Life expectancy

- Trends in life expectancy reflect the mortality regimes of a population over a certain period. In view of the limited change in age-specific or cause-specific mortality rates during 1985–92, significant improvements in life expectancy in the short term are unlikely.
- Gray and Gaminiratne (1993) estimated that Aboriginal life expectancy, given the present mortality figures, will be 62.3 years for males and 69.9 years for females in the year 2011, compared with life expectancies exceeding 77 years and 82 years in non-Aboriginal males and females respectively (estimates interpolated from figures provided by the Australian Bureau of Statistics 1994c). The gap in life expectancy between Aboriginal and non-Aboriginal peoples is projected to decrease from 18 years in 1992 to 15 years in males and 12 years in females by 2011.



Source: AIHW unpublished data.

Figure 14: *Trends in Aboriginal age-standardised death rates for pneumonia, 1985–92*

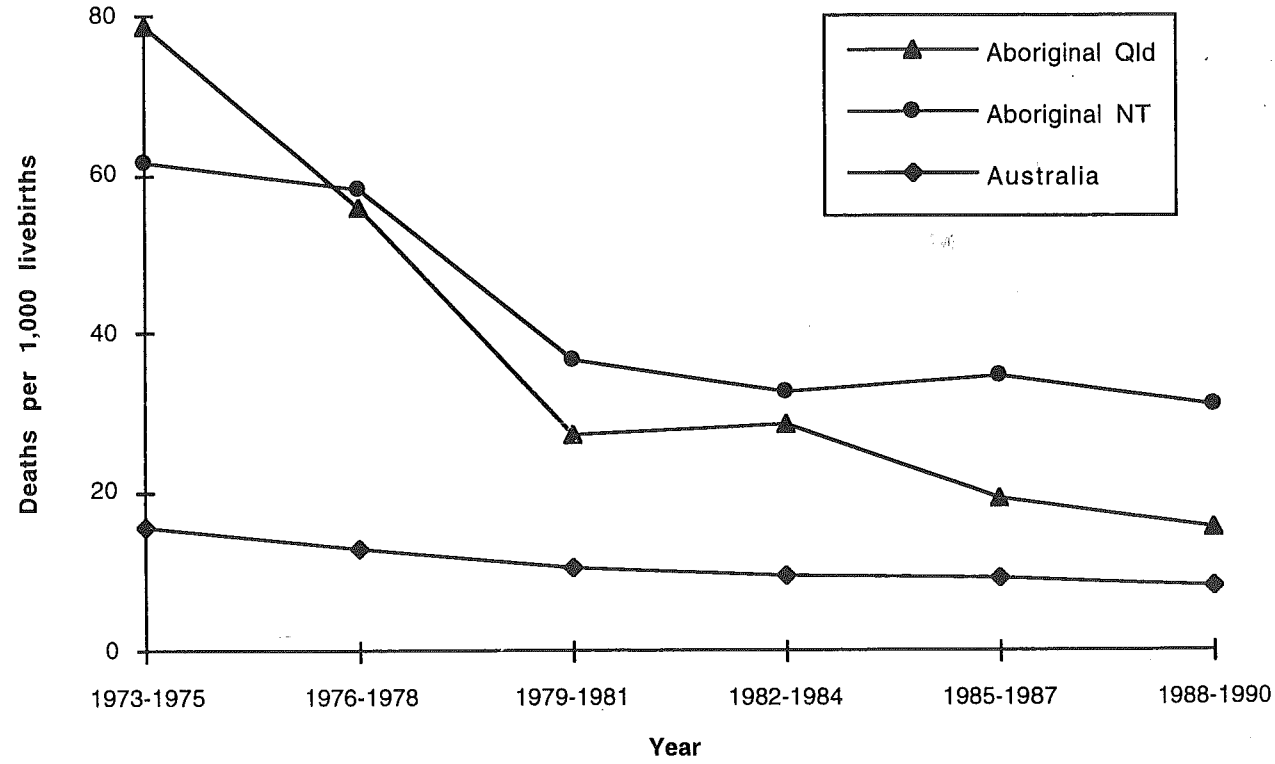


Figure 15: *Trends in Aboriginal infant mortality, 1973–90*

4.0 Regional variation in mortality

- Spatial variation in mortality across Australia reveals a positive correlation between standardised mortality ratios and the Aboriginal percentage of the population, both at the statistical local area (SLA) and at the State and Territory levels (Jain 1994).
- Excluding Victoria, Tasmania and the Australian Capital Territory, the standardised death rates for Aboriginal males varied from 809 per 100,000 in New South Wales to 2,249 per 100,000 in the Northern Territory during 1985–92. Aboriginal female mortality rates similarly varied from 556 per 100,000 in New South Wales to 1,785 per 100,000 in the Northern Territory (Table 12).
- Within the limits of error due to under-identification of Aboriginal deaths, it appears that the gap between Aboriginal and non-Aboriginal mortality rates remained reasonably constant from 1985 to 1992 in Western Australia and New South Wales but worsened in South Australia and the Northern Territory.

5.0 Conclusions

The health of Aboriginal populations remains substantially worse than that of other Australians although a comparison of two recent time periods (1989–90 and 1991–92) suggests that overall mortality has fallen slightly in Aboriginal males and may have begun to fall recently in Aboriginal females.

Aboriginal populations continue to experience increasing levels of a number of chronic degenerative diseases. Diabetes as the primary cause of death is rising in Aboriginal men; complications associated with its poor management are also likely to contribute significantly to disability and ill-health in the population.

There is an urgent need for effective ways of improving the health of Aboriginal and Torres Strait Islander peoples. In addition to eliminating largely preventable communicable diseases, a clear effort must be made to reduce the frequency and severity of non-communicable diseases.

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