Aboriginal and Torres Strait Islander Health Series
Number 8

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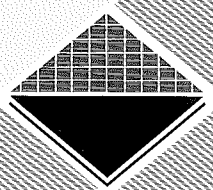
Robert Hogg
Neil Thomson



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Robert Hogg
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Contents

Preface

Since 1972, the Aboriginal Health Programme of the Queensland Department of Health (now Queensland Health) has collected health-related information, including data on births and deaths, on Australian Aborigines and Torres Strait Islanders living in a number of Queensland Aboriginal reserve communities.[1] These data have been useful in guiding programs and monitoring changes in health status.

As part of its national role in Aboriginal health statistics, the Australian Institute of Health and Welfare has assisted Queensland Health by undertaking this analysis of the data on births and deaths. The insights gained from the results should assist the further development of health programs in Queensland for Australian Aborigines and Torres Strait Islanders.

1. These communities include: Aurukun, Bamaga, Cherbourg, Doomadgee, Gununa (Mornington Island), Hopevale, Kowanyama, Lockhart River, Palm Island, Pormpuraaw (Edward River), Weipa, Woorabinda, Wujal Wujal and Yarrabah.

1 Introduction

The health status of Australian Aborigines and Torres Strait Islanders[2] living in the Queensland Aboriginal communities has recently been confirmed as being much worse than that of other Queenslanders (Thomson, Briscoe 1991).

For 1987–1989, the mortality of Aborigines living in the Queensland communities was more than three times that of the total Australian population. The major causes of death were diseases of the circulatory system, injuries and diseases of the respiratory system. Infant mortality was almost two-and-a-half times that of the total Australian population. The greatest difference between Aboriginal and non-Aboriginal death rates was for young and middle-aged adults. As a result, in 1987–1989 the expectation of life at birth of Aborigines living in the Queensland communities was much less that that of all Queenslanders—by around 17 years for males, and almost 20 years for females.

Since the early 1970s, there have been considerable improvements in infant and perinatal mortality rates for Aborigines living in the Queensland communities (Thomson, Briscoe 1991:18–21), but, until this report, little has been known about trends in other measures of health status.

The availability of data on births and deaths of Aborigines living in the Queensland communities since 1972 has enabled this analysis of changes in fertility, birthweights and mortality for three periods: 1972–1977, 1978–1983 and 1984–1990. In particular, this paper summarises changes between these time periods in:

- age-specific and total fertility rates (see Glossary for definitions);
- birthweights (including the proportions of babies with low birthweight);
- expectation of life;
- standardised mortality ratios; and
- age- and cause-specific rates of death.

The analysis of trends in infant and perinatal mortality has followed the procedure used in the Institute's earlier report (Thomson, Briscoe 1991), namely grouping the data by three-year periods.

2. The term 'Aborigines' generally will be used to mean both Australian Aborigines and Torres Strait Islanders. Aboriginal identification is in accordance with the accepted working definition: 'an Aboriginal or Torres Strait Islander is a person of Aboriginal of Torres Strait Islander descent who identifies as an Aboriginal or Torres Strait Islander and is accepted as such by the community in which he (she) lives' (Department of Aboriginal Affairs 1981).

2 The Aboriginal population

According to the Australian censuses, the Aboriginal population of Queensland nearly doubled between 1971 and 1986, but in 1986 it still comprised only 2.4 per cent of the total Queensland population (Table 1). Since 1971, the most notable intercensal increase occurred between 1981 and 1986, when the enumerated Queensland Aboriginal population increased by 37 per cent—a 42 per cent increase for Australian Aborigines and 23 per cent increase for Torres Strait Islanders. In the same period, the increase of the total Queensland population was 13 per cent.

Table 1: ***Queensland Aboriginal and Torres Strait Islander population, by census year***

Census year	Australian Aborigines	Torres Strait Islanders	Combined total	Proportion of total Queensland population
1971	24,414	7,508	31,922	1.7
1976	31,948	9,396	41,344	2.0
1981	33,966	10,732	44,698	1.9
1986	48,098	13,170	61,268	2.4

Source: Australian Bureau of Statistics 1989a

The dramatic rise in the number of Aboriginal people enumerated between 1981 and 1986 is more than could be caused by natural increase alone. The remainder of the increase is probably due to general improvements in the census procedures (changes in form design, field operations and data processing systems) and a public awareness campaign directed particularly at Aboriginal people living in urban areas (Australian Bureau of Statistics 1989a, 1989b).

The Queensland Aboriginal population, like Aboriginal populations in other States and Territories, is relatively young. According to the 1986 Census, more than 40 per cent of Queensland Aborigines were less than 15 years of age and less than 5 per cent were 65 years or over. In comparison, only 24 per cent of the Queensland non-Aboriginal population were less than 15 years of age and more than 10 per cent were 65 years or more (Figure 1). These substantial differences in age structures partly reflect the fact that Aboriginal birth and death rates are much higher than those experienced by the non-Aboriginal population.

Queensland Aboriginal communities

Estimates of the total population living in the Queensland Aboriginal communities from 1972 to 1990 were obtained from Queensland Health. However, a breakdown of these yearly counts by age and sex was not available generally, requiring estimates of

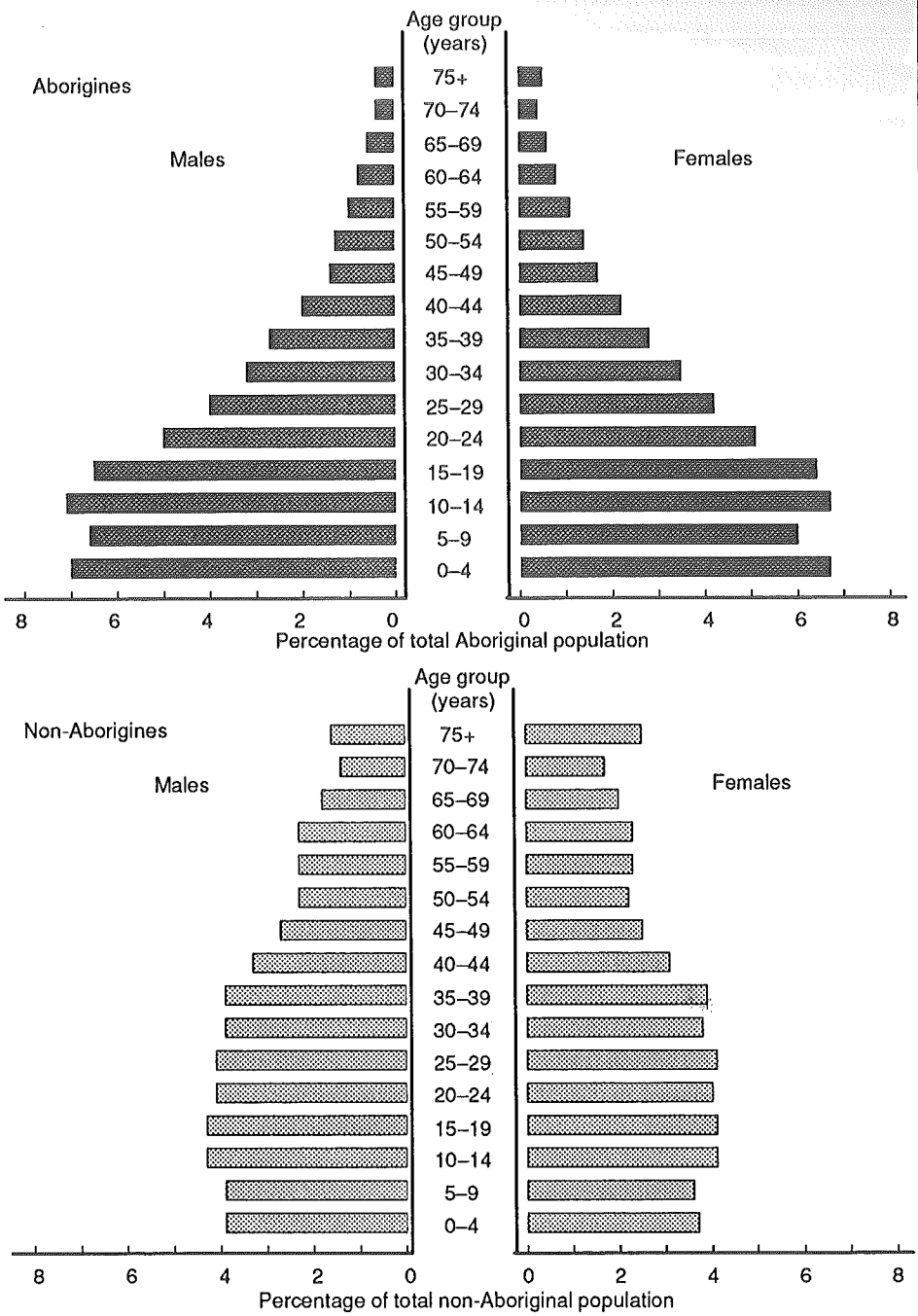
the populations at risk in these communities for the periods 1972–1977, 1978–1983, and 1984–1990 to be made indirectly. The three mid-period estimates were obtained by redistributing total population counts for these communities according to the mid-period age and sex distributions of the total Queensland Aboriginal population. The population of the Queensland Aboriginal communities comprises a relatively small proportion of the total Queensland Aboriginal population, and the proportion has actually decreased over the last two decades from 27 to 21 per cent (Table 2).

Table 2: *Mid-period population estimates for the Queensland Aboriginal communities, 1972–1990*

Years	Queensland Aboriginal communities	Proportion of total Queensland Aboriginal population
1972–1977	10,026	26.7
1978–1983	11,743	26.7
1984–1990	13,126	20.9

Source: AIHW, derived from data provided by Queensland Health

Figure 1: ***Age structure: Queensland Aborigines and non-Aborigines, 30 June 1986***



Source: Australian Bureau of Statistics, Census of Population and Housing 1986

3 Fertility and pregnancy outcome

Over 6,900 births were reported to Queensland Health for the Queensland Aboriginal communities from 1972 to 1990. For recent years, birth records generally contained information about the baby (sex, date of birth, birthweight, birth type, and gestational age) as well as about the mother (age and parity). However, prior to the early 1980s, the information available was usually incomplete.

3.1 Fertility

Aboriginal women across Australia are now having substantially fewer children than they did in the 1960s and 1970s (see Gray 1983, 1990), but their overall fertility[3] still remains much higher than that of non-Aboriginal women. Generally, this pattern of continuing high fertility is due largely to the number of births occurring at younger ages, particularly in the teenage years (Thomson, Briscoe 1991).

Data for births occurring to women living in the Queensland Aboriginal communities largely conforms to this pattern of high fertility (Table 3 and Figure 2). Over the last two decades, total fertility rates for women living in the Queensland communities have declined by 21 per cent, from 3,840 to 2,970 births per 1,000 women. The total fertility rate for Aboriginal women living in the Queensland communities in 1984–1990 is lower than that documented in 1987 for all Aboriginal women in Queensland—3,190 births per 1,000 women (Thomson, Briscoe 1991)—but remains higher than that for non-Aboriginal women because of higher age-specific fertility rates at younger ages.

Table 3: *Age-specific, total and general fertility rates[(a)(b)] for the Queensland Aboriginal communities*

Years	Maternal age						Total fertility rate	General fertility rate
	15–19	20–24	25–29	30–34	35–39	40–44		
1972–1977	201	245	175	90	48	9	3,840	142
1978–1983	177	208	143	74	43	8	3,270	122
1984–1990	154	209	135	67	25	3	2,970	114

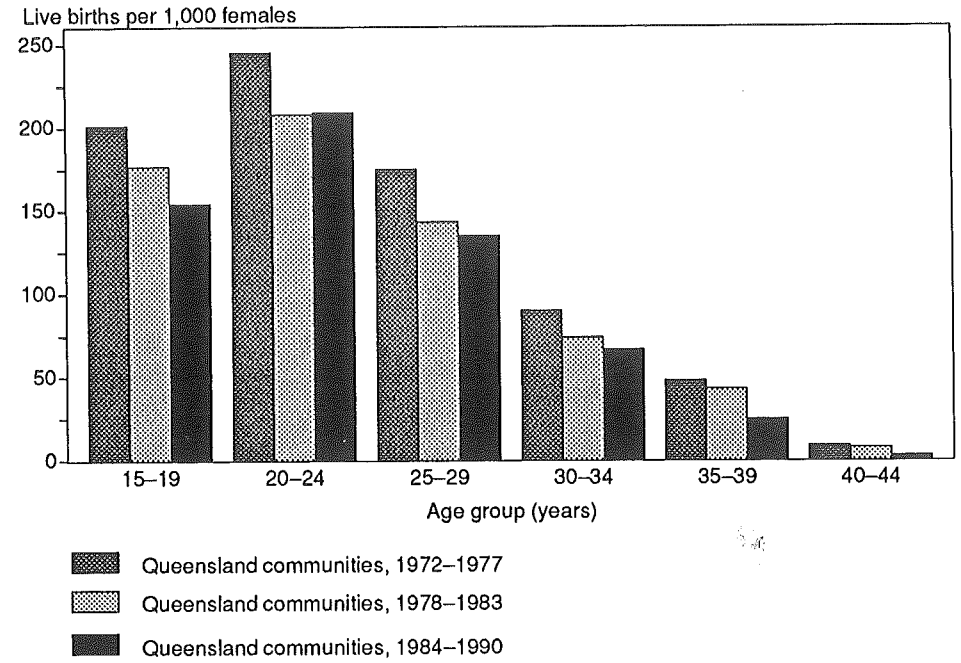
(a) See Glossary for definitions of the various fertility indices.
(b) Rates have been adjusted for live births where the age of mother is unknown.
Source: AIHW, derived from data provided by Queensland Health

3. Fertility is used in the technical sense, denoting actual, rather than potential, reproductive performance. See Glossary for further detail.

Queensland Health's State-wide maternal/perinatal collection found that for non-Aboriginal women in 1987 the age-specific fertility rate for women aged 15–19 years was 25 births per 1,000 women (Thomson, Briscoe 1991), much lower than the rate of 154 per 1,000 for Aboriginal women living in the communities in 1984–1990. Similarly, the rates for women aged 20–24 years were markedly different—92 per 1,000 for non-Aboriginal women in Queensland in 1987, and 209 per 1,000 for Aboriginal women living in the communities. For age groups beyond 20–24 years, the age-specific fertility rates for non-Aboriginal Queensland women were virtually the same as for Aboriginal women living in the Queensland communities.

The decline since the early 1970s in the fertility of Aboriginal women living in the Queensland communities has not been uniform. For the main child-bearing age-groups (15 to 34 years), the decline in age-specific fertility has been least for 20–24 year olds—15 per cent; and greater for the other age-groups: 15–19 years—23 per cent; 25–29 years—23 per cent; and 30–34 years—26 per cent.

Figure 2: ***Age-specific fertility rates, Queensland Aboriginal communities, 1972–1990***



Note: Rates have been adjusted for live births where the age of mother is unknown.

Source: AIHW, derived from data provided by Queensland Health

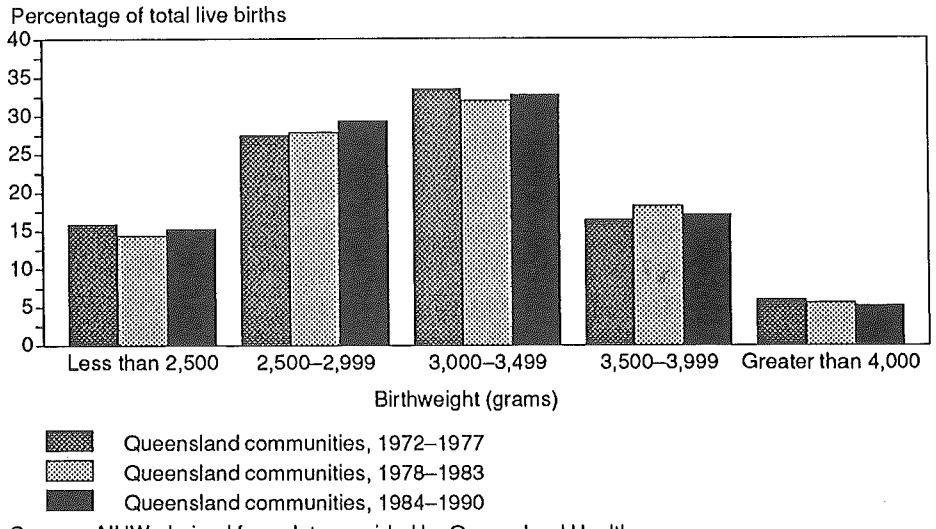
3.2 Birthweight

The birthweight distribution of babies born alive to mothers living in the Queensland Aboriginal communities has remained relatively unchanged over the past two decades. Mean birthweights, consistently between about 3,010 and 3,030 grams (Table 4), are almost 400 grams lighter than the 3,405 grams documented for babies born to non-Aboriginal women in Queensland in 1987 (Thomson, Briscoe 1991). The median birthweights of babies born to Aboriginal women living in the communities, between 3,050 and 3,100 grams, are between 300 and 350 grams lighter than that of babies born to non-Aboriginal women in 1987, 3,415 grams. From 1972 to 1990, the proportion of babies of low birthweight born to Aboriginal women living in the communities (less than 2,500 grams) has remained between 14 and 16 per cent (Figure 3).

This pattern of relatively unchanging birthweights among Aborigines has been reported by other researchers (Dugdale et al. 1990).

Depending on maternal age, parity, and gestational age[4], there are notable differences in the incidence of babies with low birthweight. The incidence of low birthweight tended to be highest for babies born to women under 20 years of age, for first births, and for babies born at less than 37 weeks gestation (Table 5). Teenage mothers also tend to be at greater risk than older mothers of having low birthweight babies at higher parities and at 37 weeks gestation or later. The relatively high incidence of low birthweight babies among teenage mothers is especially important because women less than 20 years of age account for a third of all live births in the communities over the past two decades.

Figure 3: ***Birthweight distribution, Queensland Aboriginal communities, 1972–1990***



Source: AIHW, derived from data provided by Queensland Health

4. Data on these characteristics were generally only available for babies born after 1983.

Table 4: *Mean and median birthweights (grams) for Aborigines living in the Queensland Aboriginal communities, 1972–1990*

Years	Mean weight[a]	Median weight
1972–1977	3,026 (672)	3,100
1978–1983	3,032 (656)	3,060
1984–1990	3,013 (674)	3,050

(a) The standard deviation around the mean is in parentheses.

Source: AIHW, derived from data provided by Queensland Health

Table 5: *Proportions of babies of low birthweight[a] in Queensland Aboriginal communities, by age of mother, parity and gestation[b], 1984–1990*

Years	Maternal age			
	<20	20–24	25–49	All ages
Total live births	18.8 (881)	15.1 (950)	12.5 (791)	15.6 (2,622)
Parity				
One	19.5 (554)	20.2 (218)	19.2 (52)	19.7 (824)
Two	17.2 (186)	14.5 (282)	15.1 (86)	15.5 (554)
Three or more	18.5 (54)	12.5 (351)	12.4 (558)	12.8 (963)
Gestation				
Less than 37 weeks	64.8 (145)	59.6 (109)	69.3 (75)	64.1 (329)
37 weeks and over	9.4 (679)	8.6 (767)	6.7 (645)	8.3 (2091)

(a) The total number of live births, excluding not stated, are in parentheses.

(b) Parity was not known for 281 births; gestation was not known for 202 births.

Source: AIHW, derived from data provided by Queensland Health

4 Mortality

Between 1972 and 1990, over 2,300 deaths were reported for Aborigines living in the Queensland communities. However, the relative completeness of the enumeration of deaths is not known. Each death record could contain information on the deceased's sex, date of death, age, cause of death, and place of death.

4.1 Expectation of life

The available data suggest that the expectation of life at birth of Aborigines living in the Queensland communities has increased only slightly since the early 1970s—from 52.7 to 54.8 years for males, and from 57.6 to 60.3 years for females. This slight increase in expectation of life at birth is due almost entirely to decreased mortality in infancy and early childhood, with the result that expectation of life at most other ages has actually decreased (see Tables A1 to A3, pages 24–26).

For example, between 1972–1977 and 1984–1990, the expectation of life at 15 years declined from 43.4 to 41.7 years for males, and from 48.2 to 47.7 years for females. Declines in expectation of life are most apparent among males, especially those aged 45 years or less. The expectation of life of females at most older ages (between 45 and 70 years) increased slightly. However, because of the small numbers involved (reflected in the large standard errors[5]), expectation of life at birth or at any other age has not changed significantly over the past two decades for males or females.

Table 6: ***Expectation of life at birth[(a)] for Aborigines living in the Queensland Aboriginal communities, by sex, 1972–1990***

Years	Males	Females
1972–1977	52.7	57.6
	(1.0)	(1.0)
1978–1983	52.4	57.4
	(0.8)	(0.9)
1984–1990	54.8	60.3
	(0.7)	(0.8)

(a) The standard error around each value are shown in parentheses.

Source: AIHW, derived from data provided by Queensland Health

5. A measure of standard error is used here to assess the variability in life expectancy at various ages caused by the effect of small numbers (see Chiang 1984: 161–167).

4.2 Standardised mortality ratios

Another way of assessing changes in mortality rates over the last two decades is to compare death rates after adjustment has been made for differences in the age structures of the populations.[6] Between 1972–1977 and 1984–1990, the standardised mortality ratios declined slightly, more so for females than males, but the declines are not statistically significant (Table 7).

Table 7: *Standardised mortality ratios[(a)] for Aborigines living in the Queensland Aboriginal communities, by sex, 1972–1990*

Years	Males	Females
1972–1977	3.7 (3.4–4.1)	4.6 (4.1–5.2)
1978–1983	3.9 (3.5–4.2)	4.8 (4.3–5.3)
1984–1990	3.4 (3.1–3.7)	3.9 (3.5–4.3)

(a) Confidence intervals, at a 95 per cent level of significance, are shown in parentheses.

Source: AIHW, derived from data provided by Queensland Health

4.3 Age-specific death rates

Apart from the substantial improvements in the mortality of infants and very young children (0 to 4 years), age-specific death rates for Aborigines living in the Queensland Aboriginal communities have changed little since the 1970s (Figure 4 and Table A4, page 27). Comparison of these age-specific death rates with those of the total Australian population in 1986 (Australian Bureau of Statistics 1987) reveals the consistently higher death rates experienced by both Aboriginal males and females at all age groups, but especially between the ages of 25 and 44 years (Figure 5).

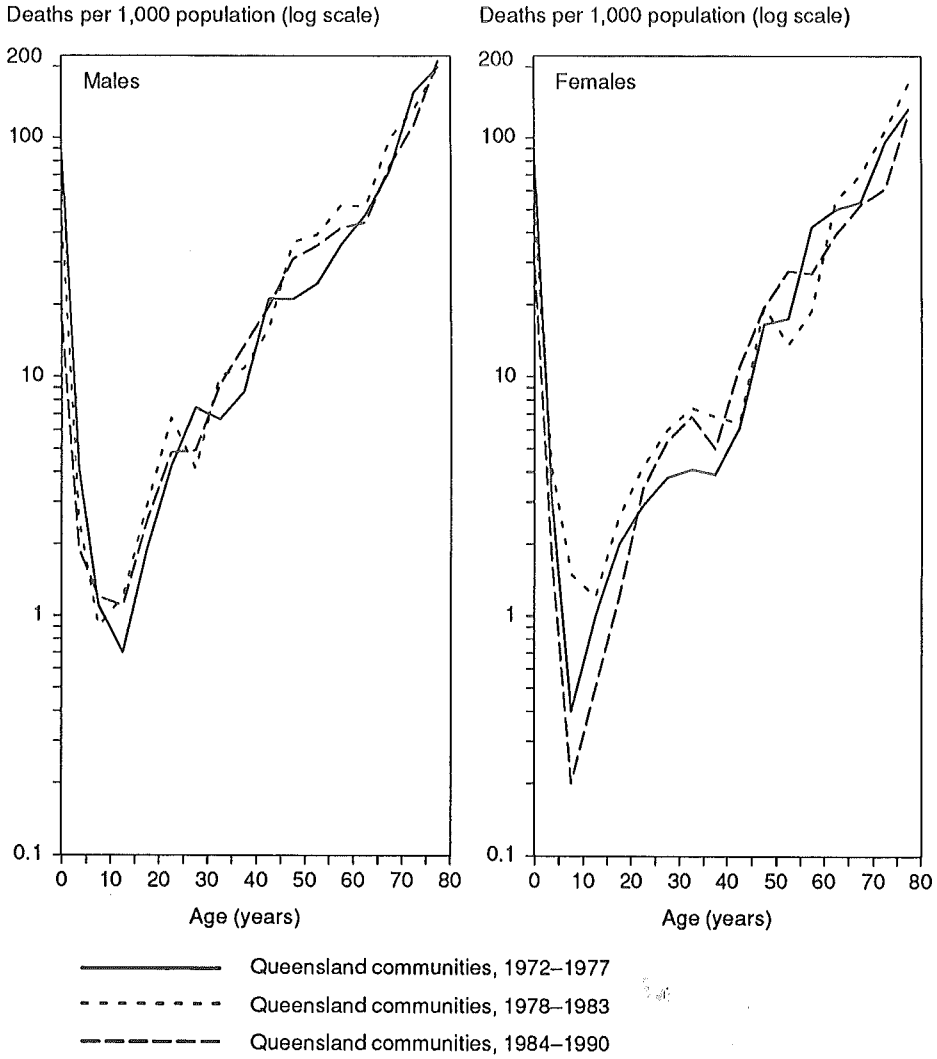
4.4 Causes of death

Changes in the patterns of death from various causes have been assessed by comparing the crude cause-specific death rates for Aborigines living in the Queensland communities with rates expected if they had experienced the same pattern as the total Australian populations in 1986.[7]

6. A technique known as indirect standardisation is used to provide an estimate of the number of deaths expected by Aboriginal males and females living in the Queensland communities if they experienced the same age-specific death rates as the 1986 total Australian populations. The ratio of the number of deaths observed to the number expected is known as the standardised mortality ratio.

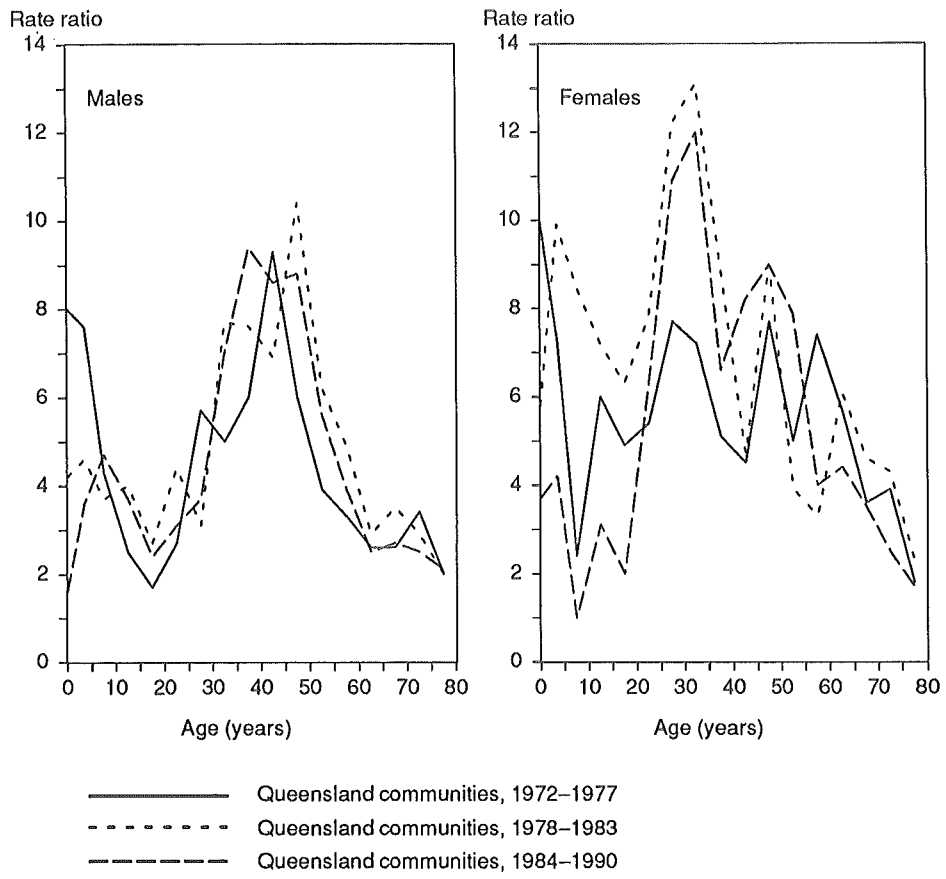
7. The expected number of deaths for each major cause of death was calculated by indirect standardisation, using the age-sex-cause-specific death rates for the 1986 Australian populations as the standard. Excess risk was calculated by subtracting the expected cause-specific death rates from the actual rates for Aborigines living in the Queensland communities. The proportion of excess risk was then derived by calculating a ratio of the cause-specific excess risk to the risk for all causes. The intention of this analysis was to examine changes in Aboriginal mortality over time, so all comparisons have been made to the 1986 Australian rates. To consider the changed relativity of Aboriginal to total population mortality, it would be necessary to compare the actual number of Aboriginal deaths for each time period with the number expected from total Australian rates for the corresponding time period.

Figure 4: *Age-specific death rates by sex, Queensland Aboriginal communities, 1972–1990*



Source: AIHW, derived from data provided by Queensland Health

Figure 5: ***Age-specific death rate ratios by sex, Queensland Aboriginal communities, 1972–1990***



Note: A ratio of the observed Aboriginal rate to the total Australian population rate in 1986.

Source: AIHW, derived from data provided by Queensland Health

For males and females in each of the three periods, the major cause of death was the ICD group *Diseases of the circulatory system* (ICD 390–459) (Table 8). The crude cause-specific death rate for this group declined slightly over the period, but the proportion of excess deaths attributed to this group rose between 1972–1977 and 1984–1990—from 28 to 33 per cent for males, and from 24 to 27 per cent for females (Figure 6). Since the early 1970s, death rates from *Diseases of the circulatory system* have been consistently higher in middle and old age, for both sexes (see Tables A5 to A7, pages 28–30).

Of the various sub-groups within *Diseases of the circulatory system*, deaths were most frequently attributed to *Other forms of heart disease* (ICD 420–429), *Diseases of the pulmonary circulation* (ICD 415–417), *Ischaemic heart disease* (ICD 410–414), and *Cerebrovascular disease* (ICD 430–438). The sub-group *Other forms of heart disease* (which includes heart failure, cardiac dysrhythmias, cardiomyopathy and ill-defined heart disease) was responsible for the greatest proportion of excess mortality experienced by Aborigines living in the Queensland communities, with *Ischaemic heart disease* contributing only a minor proportion of the excess. In view of the fact that *Ischaemic heart disease* is such a major cause of death for Aborigines living in other parts of Australia (see Hogg 1991), it is possible that some deaths from *Ischaemic heart disease* occurring in the Queensland Aboriginal communities have been attributed to *Other forms of heart disease*.

The contributions of the other important causes of death varied between the periods and/or between the sexes. In 1972–1977, the second most frequent cause of death was the ICD group *Diseases of the respiratory system* (ICD 460–519), which contributed almost a quarter of the excess mortality experienced by both male and female Aborigines. Deaths attributed to conditions in this group declined between each of the time periods. However, in 1984–1990, *Diseases of the respiratory system* still caused 5.9 times more male deaths and 7.5 times more female deaths than the numbers expected from the rates for the total Australian populations. These diseases were responsible for 14 per cent of the excess mortality experienced by Aboriginal males, and 13 per cent of the excess mortality experienced by females.

The crude death rates for conditions classified to the ICD group *External causes of injury and poisoning* (ICD E800–E999) changed little over the period. However, the contribution of deaths from conditions in this group (which includes those from motor vehicle and other accidents, suicide and self-inflicted injury, and homicide and injury purposely inflicted by others) to excess mortality increased between 1972–1977 and 1984–1990—from 16 to 21 per cent for males, and from 9 to 12 per cent for females.

Similarly, the crude death rates for *Neoplasms* (ICD 140–239) have changed little over the period. Although the contribution of deaths from *Neoplasms* to excess mortality has increased, they were responsible for only 4 per cent of the excess mortality experienced by Aboriginal males and females in 1984–1990.

The high rates of death for conditions classified in the ICD group *Symptoms, signs and ill-defined conditions* (ICD 780–799) result from the large number of deaths for which a specific cause of death was not reported (especially in the two most recent time periods). Most of these deaths were classified as *Other ill-defined and unknown causes of morbidity and mortality* (ICD 799).

As with death rates for *Diseases of the respiratory system*, the rates for deaths attributed to the ICD groups *Infectious and parasitic* (ICD 1–139) and *Conditions originating in the perinatal period* (ICD 760–779) declined over the period, particularly between 1972–1977 and 1978–1983. For all three ICD groups, the declines were most pronounced among infants (see Tables A5 to A7, pages 28–30), and almost certainly reflect the success of programs aimed at the improvement of the health of Aboriginal infants and young children.

Table 8: *Observed and expected[a] cause-specific death rates[b][c] for Aborigines living in the Queensland communities, by sex, 1972–1990*

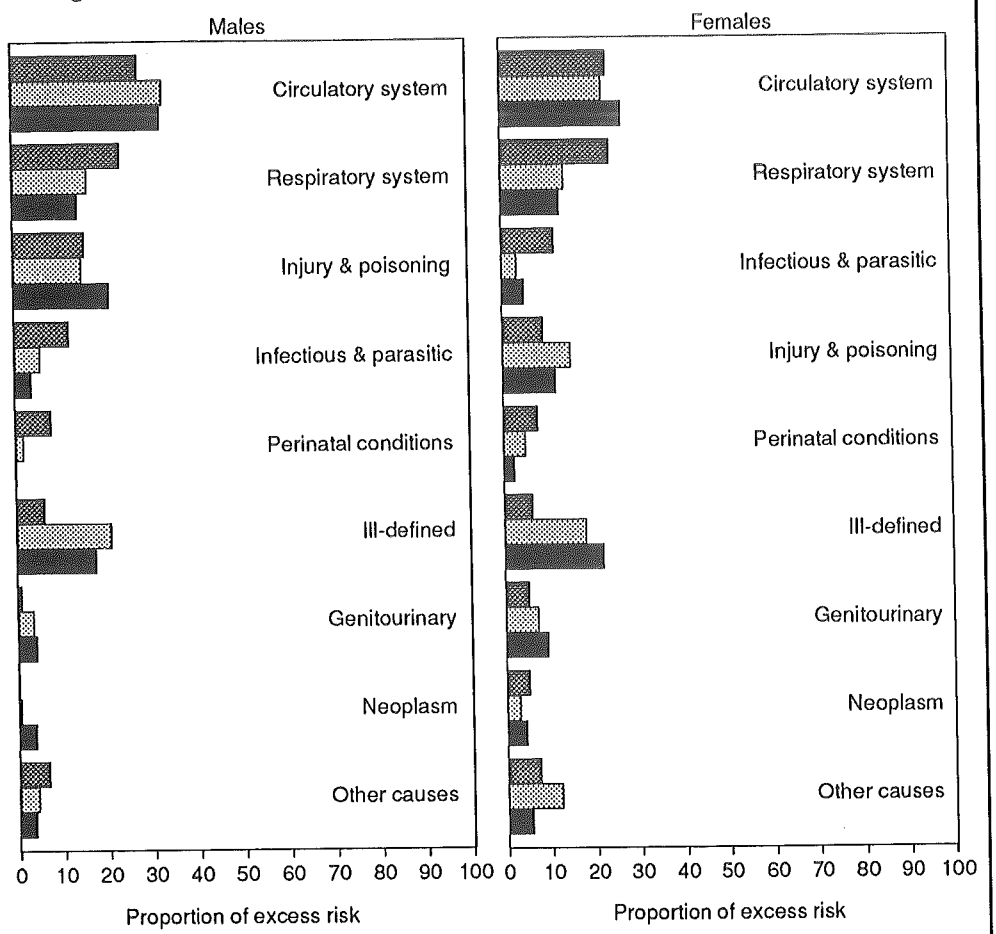
Cause of death	Males						Females					
	72–77		78–83		84–90		72–77		78–83		84–90	
	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
All causes	13.2	3.7	12.9	3.5	10.8	3.4	9.4	2.2	9.6	2.2	8.2	2.3
Infectious and parasitic	1.2	0.0	0.5	0.0	0.3	0.0	0.9	0.0	0.3	0.0	0.3	0.0
Neoplasms	0.8	0.8	0.8	0.8	1.0	0.7	0.9	0.5	0.8	0.5	0.8	0.6
Endocrine, nutritional	0.4	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.0	0.2	0.1
Blood and blood-forming organs	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Mental disorders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Nervous system	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.4	0.0	0.1	0.0
Circulatory system	4.0	1.4	4.4	1.3	3.6	1.2	2.6	0.9	2.5	0.9	2.5	0.9
Respiratory system	2.5	0.2	1.8	0.2	1.3	0.2	1.9	0.1	1.2	0.1	0.9	0.1
Digestive system	0.2	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.1
Genitourinary system	0.1	0.0	0.3	0.0	0.3	0.0	0.4	0.0	0.6	0.0	0.6	0.0
Complications of pregnancy	–	–	–	–	–	–	0.1	0.0	0.0	0.0	0.0	0.0
Skin/subcutaneous tissue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Musculoskeletal system	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Congenital anomalies	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Perinatal causes	0.9	0.1	0.3	0.1	0.1	0.1	0.6	0.1	0.4	0.1	0.2	0.1
Symptoms and ill-defined	0.7	0.1	2.0	0.1	1.4	0.1	0.5	0.1	1.4	0.0	1.3	0.1
Injury and poisoning	2.0	0.5	2.0	0.6	2.1	0.6	0.9	0.2	1.3	0.2	0.9	0.2

(a) Observed rates were estimated from age-sex-cause-specific rates for the 1986 total Australian populations.
(b) Rates are deaths per 1,000 population per year.
(c) Any discrepancy in rates is due to rounding for presentation.

Source: AIHW, derived from data provided by Queensland Health; ABS 1987

Another notable cause of death for Aboriginal women was *Disease of the genitourinary system* (ICD 580–629). Compared with the total 1986 Australian population, causes of death in this group contributed 6 per cent of the excess mortality experienced by Aboriginal females in 1972–1977, and 13 per cent of that experienced in 1984–1990 (Figure 6). For females, cause-specific rates for these diseases have increased noticeably over the past two decades, especially at older ages (see Tables A5 to A7, page 28–30).

Figure 6: *Proportion of excess risk by sex and cause of death, Queensland Aboriginal communities, 1972–1990*



Note: Excess risk was calculated by subtracting the expected cause-specific death rates from the actual rates for Aborigines living in the Queensland communities. The proportion of excess risk was then derived by calculating a ratio of the cause-specific excess risk to the risk for all causes. See text.

Source: AIHW, derived from data obtained from Queensland Health

4.5 Fetal and infant mortality[8]

The infant mortality rate (deaths in the first year of life per 1,000 live births) for Aborigines living in the Queensland communities has declined significantly since the early 1970s, from 78.8 infant deaths per 1,000 live births in 1973–1975 to 15.6 per 1,000 in 1988–1990 (Table 9). As with infant mortality rates in Western Australia and the Northern Territory, rates for Aborigines living in the Queensland communities declined much more rapidly in the 1970s than in the 1980s (Figure 7). For Aborigines living in the Queensland communities, the average annual decline in the infant mortality rate was 6.5 per cent between 1979–1981 and 1988–1990, compared with 19.3 per cent for the period 1973–1975 to 1979–1981. The overall decline since 1973–1975, 11.4 per cent, is much greater than that experienced by the total Australian population, 4.3 per cent.

Between 1973–1975 and 1988–1990, the perinatal mortality rate (the number of fetal deaths plus the number of infant deaths within 28 days of birth per 1,000 total births) for Aborigines living in the Queensland communities declined from 62.6 to 26.9 deaths per 1,000 total births (Table 9). Between 1973–1975 and 1979–1981, the rate declined at an 0average annual rate of 15.2 per cent, but has not declined since 1979–1981. The overall decline since 1973–1975, 5.8 per cent, is only slightly greater than that experienced by the total Australian population, 5.0 per cent (Figure 8).

Table 9: *Infant and perinatal mortality rates[(a)(b)], Aborigines living in the Queensland communities, 1973–1990*

Period	Infant mortality		Perinatal mortality	
	Rate	Rate ratio	Rate	Rate ratio
1973–1975	78.8	5.0	62.6	2.8
1976–1978	56.1	4.4	50.8	2.8
1979–1981	27.4	2.6	26.8	1.9
1982–1984	28.6	2.9	29.8	2.3
1985–1987	19.3	2.1	28.3	2.4
1988–1990	15.6	1.9	26.9	2.5

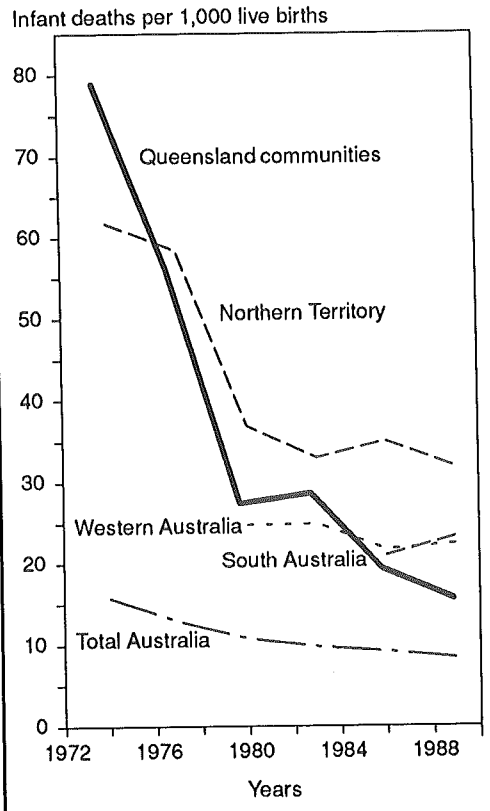
(a) Infant mortality rate is the number of infant deaths per 1,000 live births; perinatal mortality rate is the number of perinatal deaths per 1,000 total births.

(b) Rate ratios are the ratios of the Aboriginal rates to the rates for the total Australian population.

Source: AIHW, derived from data provided by Queensland Health

8. The estimation of Aboriginal rates has followed the convention of using the number of births to Aboriginal mothers as the denominator, disregarding the race of the father. This convention developed because of the absence of separate figures of the number of births to non-Aboriginal mothers and Aboriginal fathers. The exclusion of such births from the denominator may result in overestimation of the level of Aboriginal infant mortality. The preparation of precise estimates of Aboriginal rates requires accurate information about the identification of babies, for both the denominator (births) and numerator (deaths). Since the definition of Aboriginality involves an element of self-identification, it is possible that some deaths of Aboriginal infants may not be identified as such if the infant's Aboriginality is assessed without reference to the parents. On the other hand, it is also possible that some babies with an Aboriginal mother or father may not in fact be identified by their parents as such.

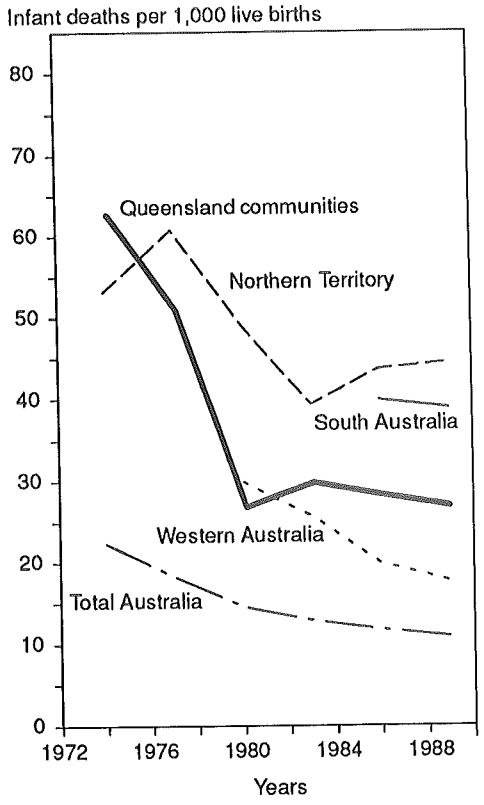
Figure 7: ***Infant mortality rates, Aborigines and total Australian population, 1973–1990***



Note: Rates are infant deaths per 1,000 live births.

Source: AIHW, derived from data supplied by Queensland Health, the Health Department of Western Australia, the Northern Territory Department of Health and Community Services

Figure 8: ***Perinatal mortality rates, Aborigines and total Australian population, 1973–1990***



Note: Rates are perinatal deaths per 1,000 total births.

Source: AIHW, unpublished, from data supplied by Queensland Health, the Health Department of Western Australia, the South Australian Health Commission and the Northern Territory Department of Health and Community Services

5 Summary

In the nineteen-year period from 1972 to 1990, there was little change for Aborigines living in the Queensland Aboriginal communities in many of the indices of fertility, birthweight and mortality.

Along with Aboriginal and non-Aboriginal women in other parts of Australia, the fertility of Aboriginal women living in the communities has declined since the 1970s, but remains higher than that of non-Aboriginal women. The mean and median birthweights of babies born to Aboriginal women did not change significantly between 1972–1977 and 1984–1990, and the proportion of babies with low birthweights is still around 15 per cent.

Between 1972–1977 and 1984–1990, the expectation of life at birth for Aborigines living in the communities increased by around two years for each sex (from 53 to 55 years for males and from 58 to 60 years for females). This was due almost entirely to reduced mortality among infants and young children. Between 1973–1975 and 1988–1990, the infant mortality rate declined from 78.8 to 15.6 infant deaths per 1,000 live births. Since 1972–1977, there have been no consistent changes in age-specific death rates except for the young childhood years.

The main reductions in cause-specific death rates were for conditions classified to the ICD categories *Diseases of the respiratory system, Infectious and parasitic diseases* and *Conditions originating in the perinatal period*.

The mortality experience over the past 19 years of Aborigines living in the Queensland communities needs to be viewed in the context of trends in mortality of the total Australian population in that period.

Between 1974–1975 (the middle years of the first year grouping used in most of this analysis) and 1987 (the middle year of the last year grouping), the expectation of life of all Australian males increased by 4.6 years (from 68.4 to 73.0 years), and that of all Australian females by 4.2 years (from 75.3 to 79.5 years) (AIHW unpublished). These increases in expectation of life reflect substantial declines in standardised death rates—by 30 per cent for males and 28 per cent for females.

In the period in which the infant mortality rate for Aborigines living in the Queensland communities declined from 78.8 to 15.6 infants deaths per 1,000 live births, that of the total Australian population declined from 15.7 to 8.3 per 1,000.

These comparisons confirm the impression that the substantial reductions in the mortality of Aboriginal infants and very young children that occurred over the past 19 years were offset by relatively little change in mortality at other ages. The fact that this occurred in a period when substantial reductions in mortality were documented for the total Australian population highlights the need for the committed approach to Aboriginal health foreshadowed in 1990 by the Queensland Minister for Health (McElligott 1990).

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Appendix tables

Table A1: *Abridged life tables[(a)] for Aborigines living in the Queensland Aboriginal communities, by sex, 1972–1977*

x	n	P_x	D_x	${}_nM_x$	${}_nq_x$	1_x	e^o_x	SE
				Males				
0	1	903	73	0.0808	0.0753	1.0000	52.7	1.0
1–4	4	3,933	16	0.0041	0.0161	0.9247	56.0	0.9
5–9	5	4,685	5	0.0011	0.0053	0.9098	52.9	0.9
10–14	5	4,138	3	0.0007	0.0036	0.9050	48.2	0.9
15–19	5	3,235	6	0.0018	0.0092	0.9017	43.4	0.9
20–24	5	2,645	11	0.0042	0.0201	0.8934	38.7	0.9
25–29	5	2,021	15	0.0074	0.0364	0.8750	34.5	0.8
30–34	5	1,505	10	0.0066	0.0327	0.8431	30.7	0.8
35–39	5	1,399	12	0.0086	0.0420	0.8155	26.7	0.8
40–44	5	1,327	28	0.0211	0.1002	0.7813	22.7	0.8
45–49	5	1,097	23	0.0210	0.0996	0.7030	20.0	0.7
50–54	5	944	23	0.0244	0.1148	0.6330	16.9	0.7
55–59	5	705	25	0.0355	0.1629	0.5603	13.8	0.6
60–64	5	547	26	0.0475	0.2124	0.4690	11.0	0.6
65–69	5	384	28	0.0729	0.3084	0.3694	8.2	0.5
70–74	5	276	43	0.1558	0.5606	0.2555	5.8	0.4
75+	+	247	49	0.1984	1.0000	0.1123	5.0	–
				Females				
0	1	807	63	0.0781	0.0729	1.0000	57.6	1.0
1–4	4	3,832	12	0.0031	0.0124	0.9271	61.1	1.0
5–9	5	4,567	2	0.0004	0.0022	0.9156	57.8	0.9
10–14	5	4,151	4	0.0010	0.0048	0.9136	52.9	0.9
15–19	5	3,474	7	0.0020	0.0100	0.9092	48.2	0.9
20–24	5	2,737	8	0.0029	0.0145	0.9001	43.7	0.9
25–29	5	2,127	8	0.0038	0.0186	0.8870	39.2	0.9
30–34	5	1,704	7	0.0041	0.0203	0.8705	35.0	0.9
35–39	5	1,547	6	0.0039	0.0192	0.8528	30.6	0.9
40–44	5	1,311	8	0.0061	0.0300	0.8364	26.2	0.9
45–49	5	1,083	18	0.0166	0.0798	0.8113	21.9	0.9
50–54	5	858	15	0.0175	0.0838	0.7466	18.6	0.8
55–59	5	638	27	0.0423	0.1914	0.6840	15.1	0.8
60–64	5	481	24	0.0499	0.2218	0.5531	13.0	0.8
65–69	5	354	19	0.0537	0.2366	0.4304	11.0	0.7
70–74	5	240	23	0.0958	0.3866	0.3286	8.7	0.6
75+	+	250	33	0.1320	1.0000	0.2016	7.6	–

(a) For each age interval x this table yields information on: the duration of the interval, n; the total population at risk, P_x; the number of deaths, D_x; the age-specific death rate, ${}_nM_x$; the probability of dying, ${}_nq_x$; the proportion of people who survived, l_x; the life expectancy at age x, e^o_x; and the standard error around each e^o_x value, SE.

Source: AIHW, derived from data provided by Queensland Health

Table A2: *Abridged life tables[(a)] for Aborigines living in the Queensland Aboriginal communities, by sex, 1978–1983*

x	n	P_x	D_x	${}_nM_x$	${}_nq_x$	1_x	e^o_x	SE
				Males				
0	1	907	39	0.0430	0.0414	1.0000	52.4	0.8
1–4	4	4,076	10	0.0024	0.0098	0.9586	53.6	0.8
5–9	5	5,415	5	0.0009	0.0046	0.9493	50.2	0.8
10–14	5	5,173	6	0.0012	0.0058	0.9449	45.4	0.8
15–19	5	4,195	12	0.0029	0.0142	0.9394	40.6	0.8
20–24	5	3,282	22	0.0067	0.0330	0.9261	36.2	0.8
25–29	5	2,446	10	0.0041	0.0202	0.8956	32.3	0.7
30–34	5	1,976	20	0.0101	0.0494	0.8774	27.9	0.7
35–39	5	1,659	18	0.0108	0.0528	0.8341	24.2	0.7
40–44	5	1,337	21	0.0157	0.0756	0.7901	20.5	0.7
45–49	5	1,207	44	0.0364	0.1670	0.7304	16.9	0.6
50–54	5	1,027	40	0.0390	0.1775	0.6084	14.8	0.6
55–59	5	790	41	0.0519	0.2297	0.5004	12.5	0.6
60–64	5	604	31	0.0513	0.2274	0.3855	10.5	0.5
65–69	5	475	47	0.0990	0.3966	0.2978	7.8	0.5
70–74	5	272	36	0.1324	0.4972	0.1797	6.3	0.4
75+	+	253	50	0.1976	1.0000	0.0903	5.1	–
				Females				
0	1	839	38	0.0453	0.0435	1.0000	57.4	0.9
1–4	4	3,769	16	0.0042	0.0168	0.9565	59.0	0.9
5–9	5	5,180	8	0.0015	0.0077	0.9404	55.9	0.8
10–14	5	5,189	6	0.0012	0.0058	0.9332	51.4	0.8
15–19	5	4,207	11	0.0026	0.0130	0.9278	46.7	0.8
20–24	5	3,319	14	0.0042	0.0209	0.9158	42.3	0.8
25–29	5	2,678	16	0.0060	0.0294	0.8966	38.1	0.8
30–34	5	2,151	16	0.0074	0.0365	0.8702	34.2	0.8
35–39	5	1,772	12	0.0068	0.0333	0.8384	30.4	0.8
40–44	5	1,566	10	0.0064	0.0314	0.8106	26.4	0.7
45–49	5	1,276	25	0.0196	0.0934	0.7851	22.1	0.7
50–54	5	1,103	15	0.0136	0.0658	0.7118	19.1	0.7
55–59	5	740	14	0.0189	0.0903	0.6650	15.3	0.6
60–64	5	629	34	0.0541	0.2381	0.6049	11.6	0.6
65–69	5	429	30	0.0699	0.2976	0.4609	9.4	0.6
70–74	5	252	27	0.1071	0.4225	0.3237	7.4	0.5
75+	+	284	48	0.1690	1.0000	0.1869	5.9	–

(a) For each age interval x this table yields information on: the duration of the interval, n; the total population at risk, P_x; the number of deaths, D_x; the age-specific death rate, ${}_nM_x$; the probability of dying, ${}_nq_x$; the proportion of people who survived, l_x; the life expectancy at age x, e^o_x; and the standard error around each e^o_x value, SE.

Source: AIHW, derived from data provided by Queensland Health

Table A3: *Abridged life tables[(a)] for Aborigines living in the Queensland Aboriginal communities, by sex, 1984–1990*

x	n	P_x	D_x	${}_nM_x$	${}_nq_x$	1_x	e^o_x	SE
				Males				
0	1	1,215	20	0.0165	0.0162	1.0000	54.8	0.7
1–4	4	5,185	10	0.0019	0.0077	0.9838	54.7	0.7
5–9	5	5,952	7	0.0012	0.0059	0.9762	51.1	0.7
10–14	5	6,504	7	0.0011	0.0054	0.9705	46.4	0.7
15–19	5	5,992	15	0.0025	0.0124	0.9653	41.7	0.7
20–24	5	4,616	22	0.0048	0.0236	0.9533	37.2	0.7
25–29	5	3,691	18	0.0049	0.0241	0.9308	33.0	0.7
30–34	5	2,931	27	0.0092	0.0450	0.9084	28.7	0.7
35–39	5	2,456	33	0.0134	0.0650	0.8675	25.0	0.7
40–44	5	1,799	35	0.0195	0.0928	0.8111	21.5	0.7
45–49	5	1,289	40	0.0310	0.1440	0.7359	18.5	0.6
50–54	5	1,193	42	0.0352	0.1618	0.6299	16.2	0.6
55–59	5	912	38	0.0417	0.1887	0.5280	13.8	0.6
60–64	5	728	32	0.0440	0.1980	0.4284	11.4	0.5
65–69	5	525	40	0.0762	0.3200	0.3436	8.6	0.5
70–74	5	361	41	0.1136	0.4423	0.2336	6.5	0.4
75+	+	323	68	0.2105	1.0000	0.1303	4.8	–
				Females				
0	1	1,209	35	0.0290	0.0282	1.0000	60.3	0.8
1–4	4	4,984	9	0.0018	0.0072	0.9718	61.1	0.8
5–9	5	5,473	1	0.0002	0.0009	0.9648	57.5	0.8
10–14	5	6,082	3	0.0005	0.0025	0.9639	52.5	0.8
15–19	5	5,955	7	0.0012	0.0059	0.9616	47.7	0.8
20–24	5	4,723	16	0.0034	0.0168	0.9559	42.9	0.8
25–29	5	3,926	21	0.0054	0.0264	0.9399	38.6	0.8
30–34	5	3,215	22	0.0068	0.0336	0.9150	34.6	0.8
35–39	5	2,586	13	0.0050	0.0248	0.8843	30.7	0.8
40–44	5	1,997	22	0.0110	0.0536	0.8623	26.4	0.8
45–49	5	1,593	31	0.0195	0.0928	0.8161	22.8	0.8
50–54	5	1,262	35	0.0277	0.1297	0.7404	19.9	0.7
55–59	5	1,038	28	0.0270	0.1264	0.6444	17.4	0.7
60–64	5	766	30	0.0392	0.1784	0.5630	14.6	0.7
65–69	5	594	31	0.0522	0.2308	0.4625	12.2	0.6
70–74	5	377	23	0.0610	0.2647	0.3558	10.2	0.5
75+	+	420	53	0.1262	1.0000	0.2616	7.92	–

(a) For each age interval x this table yields information on: the duration of the interval, n; the total population at risk, P_x; the number of deaths, D_x; the age-specific death rate, ${}_nM_x$; the probability of dying, ${}_nq_x$; the proportion of people who survived, l_x; the life expectancy at age x, e^o_x; and the standard error around each e^o_x value, SE.

Source: AIHW, derived from data provided by Queensland Health

Table A4: *Age-specific death rates[a] for Aborigines living in the Queensland Aboriginal communities, by sex, 1972–1990*

Age groups	Males			Females		
	1972–1977	1978–1983	1984–1990	1972–1977	1978–1983	1984–1990
0–4	18.4	9.8	4.7	16.2	11.7	7.1
5–14	0.9	1.0	1.1	0.7	1.4	0.3
15–24	2.9	4.5	3.5	2.4	3.3	2.2
25–34	7.1	6.8	6.8	3.9	6.6	6.0
35–44	14.7	13.0	16.0	4.9	6.6	7.6
45–54	22.5	37.6	33.0	17.0	16.8	23.1
55–64	40.7	51.6	42.7	45.6	35.1	32.2
65–74	107.6	111.1	91.4	70.7	83.7	55.6
75+	198.4	197.6	210.5	132.0	169.0	126.2

(a) Rates are deaths per 1,000 in each age group per year

Source: AIHW, derived from data provided by Queensland Health

Table A5: *Cause-specific death rates*[a] *for Aborigines living in the Queensland Aboriginal communities, by age group and sex for selected causes, 1972–1977*

Cause of death	Age group							
	All ages	0	1–14	15–24	25–44	45–54	55–64	65+
					Males			
All causes	13.2	80.8	1.9	2.9	10.4	22.5	40.7	132.3
Infectious and parasitic	1.2	18.8	0.2	0.0	0.2	2.9	3.2	5.5
Neoplasms	0.8	0.0	0.1	0.0	0.2	2.0	4.0	13.2
Circulatory system	4.0	1.1	0.1	0.5	3.8	8.8	20.0	52.9
Respiratory system	2.5	12.2	0.5	0.2	1.3	2.9	4.8	40.8
Genitourinary system	0.1	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Signs, symptoms and ill-defined conditions	0.7	1.1	0.0	0.0	0.8	1.0	1.6	11.0
Injury and poisoning	2.0	4.4	0.5	2.0	3.5	3.9	4.8	2.2
					Females			
All causes	9.4	78.1	1.4	2.4	4.3	17.0	45.6	88.9
Infectious and parasitic	0.9	19.8	0.3	0.0	0.0	0.0	2.7	3.6
Neoplasms	0.9	0.0	0.0	0.2	0.1	3.1	8.9	10.7
Circulatory system	2.6	1.2	0.0	0.3	1.8	6.7	17.0	36.7
Respiratory system	1.9	19.8	0.3	0.3	0.7	1.0	8.9	20.1
Genitourinary system	0.4	0.0	0.0	0.0	0.3	2.1	2.7	3.6
Signs, symptoms and ill-defined conditions	0.5	3.7	0.0	0.0	0.0	0.5	1.8	10.7
Injury and poisoning	0.9	3.7	0.5	1.0	0.9	2.6	0.0	0.0

(a) Rates are deaths per 1,000 in each age group per year

Source: AIHW, derived from data provided by Queensland Health

Table A6: *Cause-specific death rates[a] for Aborigines living in the Queensland Aboriginal communities, by age group and sex for selected causes, 1978–1983*

Cause of death	Age group							
	All ages	0	1–14	15–24	25–44	45–54	55–64	65+
					Males			
All causes	12.9	43.0	1.4	4.5	9.3	37.6	51.7	133.0
Infectious and parasitic	0.5	7.7	0.1	0.5	0.1	0.4	1.4	2.0
Neoplasms	0.8	0.0	0.1	0.1	0.1	1.8	11.5	6.0
Circulatory system	4.4	0.0	0.2	0.3	2.3	17.5	20.8	64.0
Respiratory system	1.8	6.6	0.3	0.1	0.7	4.9	5.7	26.0
Genitourinary system	0.3	0.0	0.1	0.1	0.1	1.3	0.7	5.0
Signs, symptoms and ill-defined conditions	2.0	11.0	0.1	0.1	0.9	7.6	9.3	21.0
Injury and poisoning	2.0	4.4	0.3	2.9	3.5	3.1	1.4	3.0
					Females			
All causes	9.6	45.3	2.1	3.3	6.6	16.8	35.1	108.8
Infectious and parasitic	0.3	3.6	0.1	0.1	0.0	0.0	1.5	2.1
Neoplasms	0.8	0.0	0.1	0.1	0.6	1.7	4.4	10.4
Circulatory system	2.5	0.0	0.3	0.5	2.1	7.6	11.0	33.2
Respiratory system	1.2	1.2	0.4	0.0	0.2	3.4	3.7	20.7
Genitourinary system	0.6	0.0	0.0	0.1	0.4	1.7	4.4	6.2
Signs, symptoms and ill-defined conditions	1.4	1.2	0.2	0.3	0.9	0.4	2.2	33.2
Injury and poisoning	1.3	2.4	0.7	1.6	2.0	1.3	2.9	0.0

(a) Rates are deaths per 1,000 in each age group per year

Source: AIHW, derived from data provided by Queensland Health

Table A7: *Cause-specific death rates[a] for Aborigines living in the Queensland Aboriginal communities, by age group and sex for selected causes, 1984–1990*

Cause of death	Age group							
	All ages	0	1–14	15–24	25–44	45–54	55–64	65+
				Males				
All causes	10.8	16.5	1.4	3.5	10.4	33.0	42.7	123.2
Infectious and parasitic	0.3	0.8	0.2	0.0	0.3	0.4	1.2	2.5
Neoplasms	1.0	1.6	0.0	0.1	0.3	6.0	6.7	11.6
Circulatory system	3.6	1.6	0.3	0.1	3.3	10.9	17.7	54.6
Respiratory system	1.3	2.5	0.2	0.1	0.6	2.4	6.7	22.3
Genitourinary system	0.3	0.0	0.0	0.0	0.4	2.0	0.6	4.1
Signs, symptoms and ill-defined conditions	1.4	1.6	0.0	0.1	1.2	4.4	6.7	20.7
Injury and poisoning	2.1	0.8	0.6	3.0	3.4	6.0	0.6	1.7
				Females				
All causes	8.2	28.9	0.8	2.2	6.7	23.1	32.2	76.9
Infectious and parasitic	0.3	0.8	0.1	0.1	0.3	0.7	1.1	2.2
Neoplasms	0.8	0.0	0.1	0.1	0.7	2.8	7.8	4.3
Circulatory system	2.5	0.0	0.1	0.2	1.9	10.9	12.7	27.3
Respiratory system	0.9	5.0	0.1	0.1	0.5	1.1	2.2	13.7
Genitourinary system	0.6	0.0	0.0	0.0	0.3	2.1	3.3	7.9
Signs, symptoms and ill-defined conditions	1.3	7.4	0.1	0.3	1.0	1.8	3.9	18.0
Injury and poisoning	0.9	0.0	0.3	1.4	1.4	0.7	1.1	0.7

(a) Rates are deaths per 1,000 in each age group per year

Source: AIHW, derived from data provided by Queensland Health

Glossary

age-specific death rate Number of deaths in a specified period of persons of a specific age group per 1,000 persons of the same age group.

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

age-standardised Weighted average of age-specific rates according to a standard distribution of age to eliminate the effect of different age distributions and thus facilitate valid comparison of groups with differing age compositions.

Australian Aborigine/Torres Strait Islander A person of Australian Aboriginal or Torres Strait Islander descent who identifies as an Aborigine or Torres Strait Islander and is accepted as such by the community in which he (she) lives.

expectation of life Predicted number of years remaining to a person if the present pattern of mortality does not change.

fertility The actual production of live offspring. Fetal deaths and abortions are not included in the measurement of fertility in a population.

general fertility rate The number of live births per 1,000 women aged 15 to 49 years.

infant death Death of an infant within a year of birth.

infant mortality rate Number of infant deaths per 1,000 live births.

fetal death Birth of a fetus weighing at least 500 grams (or where birthweight is unavailable, of at least 22 weeks gestation), which shows no signs of life.

fetal mortality rate Number of fetal deaths per 1,000 total births (fetal deaths plus live births).

low birthweight Less than 2,500 grams.

neonatal death Death of an infant within 28 days of birth.

neonatal mortality rate Number of neonatal deaths per 1,000 live births.

perinatal death Fetal deaths (stillbirths) plus neonatal deaths.

perinatal mortality rate Number of perinatal deaths per 1,000 total births (fetal deaths plus live births).

postneonatal death Death of an infant between 28 days and one year of age.

postneonatal mortality rate Number of postneonatal deaths per 1,000 live births.

Queensland Aboriginal communities The Aboriginal reserve communities of Aurukun, Bamaga, Cherbourg, Doomadgee, Gununa (Mornington Island), Hopevale, Kowanyama, Lockhart River, Palm Island, Pormpuraaw (Edward river), Weipa, Woorabinda, Wujal Wujal, and Yarrabah.

relative risk The ratio of the risk of disease or death among the exposed to the risk among the unexposed.

stillbirth See fetal death.

stillbirth rate See fetal death rate.

total fertility rate The number of live births a thousand women would have if, throughout their reproductive years, they had children at the rate prevailing in the reference calendar years. It is five times the sum of the age specific fertility rates for that calendar year.

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