

## CHAPTER 9

## MORTALITY

### INTRODUCTION

The Australian population as a whole enjoys good health by world standards, but Aboriginal and Torres Strait Islander peoples experience far higher death rates than non-Indigenous Australians across all age groups. In 1999–2001, for Queensland, South Australia, Western Australia and the Northern Territory, where about 60% of the Indigenous population reside, there were approximately three times as many deaths as expected for all causes of death, based on total Australian rates, for both Indigenous males and females. The highest standardised mortality ratios (SMRs) for Indigenous males and females were for ‘Endocrine, nutritional and metabolic diseases’, predominantly due to deaths as a result of diabetes mellitus. The exact magnitude of the difference between the Indigenous and non-Indigenous populations is difficult to establish conclusively. Reasons include the incomplete recording of Aboriginal and Torres Strait Islander status on death records, and the experimental nature of estimates of the Indigenous population. These limitations inhibit precise analysis of the data and present difficulties in the monitoring of mortality trends over time. However, the available statistics provide useful measures of Aboriginal and Torres Strait Islander health, and comparisons with the health of the total Australian population.

This Chapter examines the mortality of the Aboriginal and Torres Strait Islander population using death registrations for the period 1999–2001. Mortality data for Queensland, South Australia, Western Australia and the Northern Territory, have been used to present a picture of Indigenous mortality. These jurisdictions are considered to have the most complete coverage of Indigenous deaths for the given period. (Coverage issues are discussed later in this Chapter and in Chapter 11.)

#### Data quality and availability

Almost all deaths in Australia are registered. However the Indigenous status of the deceased is not always recorded, or recorded correctly. The incompleteness of Indigenous identification means that the number of deaths registered as Indigenous is an underestimate of the actual number of deaths which occur in the Aboriginal and Torres Strait Islander population. The extent to which the identification of Indigenous Australians occurs in data collections is referred to as ‘coverage’ or ‘completeness of coverage’. While there is incomplete coverage of Indigenous deaths in all state and territory registration systems, some jurisdictions have been assessed by the Australian Bureau of Statistics (ABS) as having a sufficient level of coverage to enable statistics on Aboriginal and Torres Strait Islander mortality to be produced. These jurisdictions comprise Queensland, South Australia, Western Australia and the Northern Territory and their data have been combined for 1999–2001 for analysis of Indigenous causes of death. Longer term mortality trend discussion in this Chapter is limited to an analysis of data from three jurisdictions: South Australia, Western Australia and the Northern Territory, being the only jurisdictions with 10 years of reasonable coverage of Indigenous deaths in their registration systems.

Data quality and availability  
*continued*

The ABS continues to work with state and territory Registrars of Births, Deaths and Marriages to improve the coverage in all jurisdictions to a level which would allow inclusion of data for all jurisdictions in future publications.

Deaths by year of registration, rather than year of occurrence, for 1999–2001 have been used for this publication. While the majority of deaths are registered in the year they occur, some of those registered in a given period have occurred in previous years, and some which have occurred in that period are not registered until subsequent years. The likelihood of a death being registered in a year following its occurrence increases markedly for those deaths which occur close to the end of the year. Delays in registration also occur when the deaths are subject to the findings of a coroner. Late registrations are more common in relation to Indigenous deaths, and therefore have a greater impact on mortality statistics.

The extent to which deaths occurring in any reference year may have been missed from the deaths registration data for the same year can only be gauged from historical data. Thus for all the deaths in Australia that occurred in 2000 (as seen at the end of 2001), 95% were registered in the year in which they occurred while 5% were registered in 2001. For Indigenous deaths the corresponding figures were 88% registered in the year they occurred and 12% in 2001. These proportions have been fairly stable for a number of years. The relatively high proportion of late registrations evident for Indigenous deaths occurs for various reasons. These include the relative remoteness of many Indigenous deaths and the fact that a larger proportion of Indigenous deaths are referred to state or territory coroners.

Over the period 1999–2001, there have been some fluctuations in the estimated coverage of Indigenous deaths recorded in most jurisdictions. These variations could be the result of various factors including late registrations, fewer identified Indigenous deaths, changes to death forms and/or processing systems by state and territory Registrars of deaths. These factors can affect Indigenous mortality rates within a given period of time due to the small size of the Indigenous population.

Cause of death statistics provided in this Chapter are based on the tenth revision of the International Classification of Diseases (ICD-10). Mortality coding using ICD-10 was introduced in Australia for deaths registered from 1 January 1997.

All rates and ratios derived in this Chapter are calculated using the 'low series' from ABS experimental population projections of the Indigenous population. The 'low series' makes certain assumptions on Indigenous mortality (Chapter 11).

## 9.1 MEASURING MORTALITY

There are a number of ways to quantify the mortality experience of a population. They include:

### Crude death rates

Dividing the number of deaths in a year by the 30 June population for the year gives a 'crude death rate', (usually expressed as deaths per 1,000 or per 100,000 population). The crude rate allows comparisons between populations with the same or similar age structures. However, the age structure of the Indigenous population is very different to that of the total Australian population. Because death is closely related to age, it is important to adjust for the effect of age before meaningful comparisons can be made. Hence crude rates are not used here.

### Age-specific death rates

Relates to deaths for age groups and are the number of deaths in a year per 100,000 mid-year estimated resident population in the same group. Age-specific death rates are effectively crude rates for a particular age cohort.

### Standardised death rates

Enable the comparison of death rates between populations with different age structures by relating them to a standard population (usually the total Australian population). They are usually expressed as deaths per 100,000 population. There are two methods of calculating standardised death rates, namely:

- The direct method — used when the populations under study are large and the age-specific death rates are reliable. It is the overall death rate that would have prevailed in the standard population if it had experienced at each age the death rates of the population under study.
- The indirect method — used when the populations under study are small and the age-specific death rates are unreliable or unknown. It is an adjustment to the crude death rate of the standard population to account for the variation between the actual number of deaths in the population under study and the number of deaths which would have occurred if the population under study had experienced the age-specific death rates of the standard population. The indirect method is more appropriate when calculating standardised death rates for the Indigenous population.

### Standardised Mortality Ratio (SMR)

The SMR provides a relative assessment of the health status of a particular population by comparing the *actual* number of deaths for that population to the *expected* number of deaths that would have occurred if that population had the same mortality experience as the reference (or total) population. If the SMR is greater than 1.0, there were more deaths than expected; if the ratio is less than 1.0, there were fewer than the expected number of deaths.

In this publication, the *expected number of deaths* are calculated by applying the age and sex-specific death rates of the Australian population to the relevant Indigenous population. For example, if Indigenous females had experienced the same age-specific death rates as total Australian females in 1999–2001, the number of expected deaths would have been 622. The actual number of deaths recorded, however, was 1,867. Dividing the actual number of deaths by the expected number gives a standardised mortality ratio of 3.0. As these calculations are age and sex specific, male and female rates cannot be compared.

### Infant mortality rate

Relates to the number of deaths of children under one year of age in a calendar year per 1,000 live births in the same calendar year.

## LIFE EXPECTANCY

The estimates of life expectancy presented here are drawn from the Australian life tables, 1999–2001, and the *Experimental Indigenous Abridged life tables, 1999–2001* (ABS 2001e). The life expectancies for Indigenous males and females have been calculated based on data for all jurisdictions in Australia, except Tasmania and the Australian Capital Territory.

Life expectancy refers to the average number of years a person of a given age and sex can expect to live, if current age-sex-specific death rates continue to apply throughout his or her lifetime. A life table uses age-specific death rates to calculate values which measure mortality, survivorship and life expectancy. To construct a life table, data on population, births and deaths are needed, and the accuracy of the life table depends upon the completeness of these data. Because of uncertainty about the estimates of these components for Aboriginal and Torres Strait Islander peoples, experimental methods are used to calculate life expectancies for the Indigenous population. It is recommended that these experimental life expectancies should only be used as an indicative summary measure of the level of mortality of the Indigenous population.

In the period 1999–2001, using current methodology, the life expectancy at birth for Indigenous Australians was estimated to be 56 years for males and 63 years for females. In contrast, the life expectancy at birth for all Australians was 77 years for males and 82 years for females.

## DEATHS 1999–2001

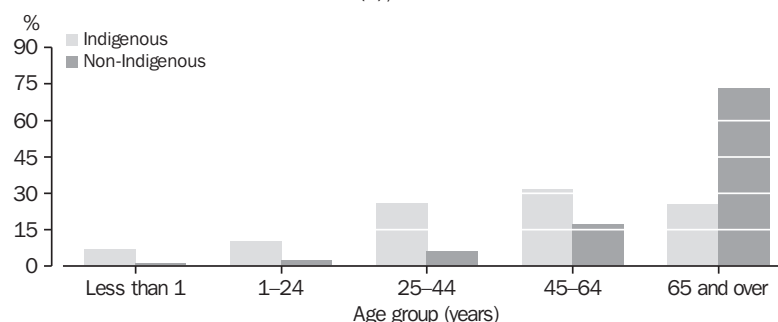
For the period 1999–2001, there were 4,385 Indigenous deaths, (2,518 males and 1,867 females) for persons registered as usual residents of Queensland, South Australia, Western Australia and the Northern Territory. These deaths accounted for 3.2% of all deaths of usual residents of these four jurisdictions, and 71% of all identified Aboriginal and Torres Strait Islander deaths in Australia. In 2001, Aboriginal and Torres Strait Islander peoples in these jurisdictions represented 61% of the total estimated Australian Indigenous population.

The total number of deaths registered for the period 1999–2001 for usual residents of Queensland, South Australia, Western Australia and the Northern Territory, was 138,092, 36% of total Australian deaths (384,937). These four jurisdictions account for 37% of the total Australian population.

Age at death In Queensland, South Australia, Western Australia and the Northern Territory, approximately three-quarters (74.5%) of Indigenous males and two-thirds (64.6%) of Indigenous female deaths were before the age of 65 years. While the Indigenous population has a much younger age profile, this is still a stark contrast to the non-Indigenous population where approximately one-quarter (26.7%) of total male deaths and one-sixth (16.1%) of total female deaths occurred before 65 years of age (graph 9.2 and graph 9.3).

The difference in the contribution of infant deaths (deaths under one year) to total deaths is quite marked. For the period 1999–2001, Indigenous infant deaths accounted for 6.8% of total Indigenous male deaths and 6.7% of total Indigenous female deaths compared to 1% and 0.8% of the total for corresponding non-Indigenous infant deaths. The 25–44 year age group accounted for 26% of total Indigenous male deaths compared with 6.1% of total non-Indigenous male deaths, while the 45–64 year age group accounted for 32% of total Indigenous female deaths compared with 10.9% of total non-Indigenous female deaths (table 9.4).

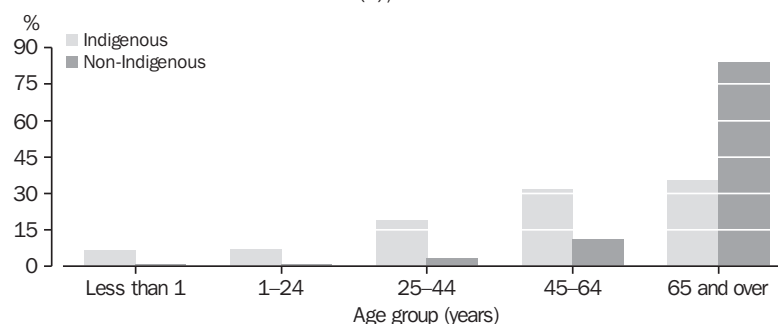
9.2 AGE DISTRIBUTION OF DEATHS(a), MALES — 1999–2001



(a) Data for Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

Source: ABS data available on request, Deaths Registration Database.

9.3 AGE DISTRIBUTION OF DEATHS(a), FEMALES — 1999–2001



(a) Data for Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

Source: ABS data available on request, Deaths Registration Database.

Age at death *continued*

For the four states–territory included in this analysis, Indigenous Australians were over-represented in mortality statistics, relative to their proportion of the total population, in every age group. Table 9.4 shows the proportion of Indigenous deaths as a proportion of total deaths by age groups in 1999–2001 and their respective proportions of the total population for this period.

#### 9.4 INDIGENOUS DEATHS(a) — 1999–2001

Age group (years)	Indigenous deaths as a proportion of total deaths	Indigenous persons as a proportion of total population
	%	%
Less than 1	19.1	7.4
1–4	16.6	7.1
5–14	14.5	6.4
15–24	12.6	4.9
25–34	13.5	3.9
35–44	13.6	2.8
45–54	9.0	1.9
55–64	5.5	1.4
65–74	2.6	1.0
75 and over	0.8	0.5

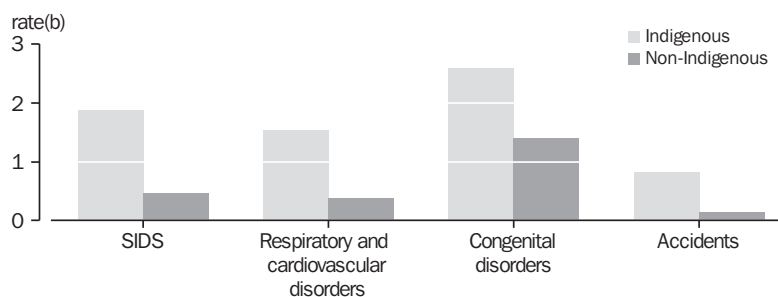
(a) Data are for Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

Source: ABS data available on request, Deaths Registration Database.

Infant deaths

Infant deaths are deaths of live-born children which occur before reaching their first birthday. In 1999–2000, the infant mortality rate for Indigenous infants was two and a half times greater than for non-Indigenous infants (table 9.6). Indigenous infant deaths accounted for 31% of total infant deaths caused by accidents (including motor vehicle accidents), 25% of deaths from respiratory and cardiovascular disorders specific to the perinatal (under one month) period and 24% of deaths from Sudden Infant Death Syndrome. The Indigenous age-specific death rates for these causes are approximately four times those of the non-Indigenous age-specific rates (graph 9.5).

#### 9.5 INFANT DEATHS(a), SELECTED CAUSES — 1999–2001



(a) Data are for Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

(b) Per 1,000 live births.

Source: ABS data available on request, Deaths Registration Database.

Age-specific death rates Age-specific death rates for Indigenous males and females across all age groups in Queensland, South Australia, Western Australia and the Northern Territory were higher than the total male and female rates for these jurisdictions. Apart from the 75 years and over age group, the age-specific death rates were at least double those experienced by the total population. The greatest differences occurred among those in the 35–44 and 45–54 year age groups, where the rates for Indigenous males and females were up to five times greater than those recorded for the total population (table 9.6).

#### 9.6 AGE-SPECIFIC DEATH RATES(a) — 1999–2001

Age group (years)	Males				Females			
	Indigenous rate(b)	Total rate(c)	Rate ratio(d)	Total Australian rate	Indigenous rate(b)	Total rate(c)	Rate ratio(d)	Total Australian rate
Less than 1(e)	16	6	2.6	6	12	5	2.5	5
1–4	74	36	2.0	30	67	24	2.8	24
5–14	37	17	2.2	16	30	12	2.4	11
15–24	252	99	2.5	89	100	35	2.8	34
25–34	448	134	3.3	126	201	52	3.9	47
35–44	873	174	5.0	161	467	89	4.7	89
45–54	1 562	318	4.9	310	975	199	4.9	196
55–64	3 107	838	3.7	832	2 147	481	4.5	484
65–74	6 085	2 418	2.5	2 426	4 182	1 342	3.1	1 348
75 and over	11 006	8 158	1.3	8 179	9 326	6 508	1.4	6 546

(a) Per 100,000 population.

(b) Data are for Indigenous deaths for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

(c) Data are for total deaths of usual residents of Queensland, South Australia, Western Australia and Northern Territory combined, including Indigenous deaths. Based on year of registration.

(d) Indigenous rate divided by the total rate.

(e) Per 1,000 live births.

Source: ABS data available on request, Deaths Registration Database.

For the age groups in which differences in death rates between Indigenous and total population deaths are greatest, table 9.7 shows how the Indigenous age-specific death rates are influenced by conditions such as ischaemic heart disease, diabetes, respiratory and liver diseases as well as the impact of greater exposure to accidents and violence as causes of death. While some rate figures have been derived from a relatively small number of actual deaths, the difference between the two population groups is still considerable.

## 9.7 AGE-SPECIFIC DEATH RATES(a), SELECTED CAUSES

Selected causes	Males				Females			
	35-44 years		45-54 years		35-44 years		45-54 years	
	Indigenous(b)	Total	Indigenous(b)	Total	Indigenous(b)	Total	Indigenous(b)	Total
Malignant neoplasms of digestive organs (C15-C26)	23	8	70	35	4	6	41	21
Malignant neoplasms of respiratory organs (C30-C39)	9	4	74	23	2	3	41	15
Diabetes mellitus (E10-E14)	39	2	148	8	34	1	137	4
Mental and behavioural disorders (F10-F19)	39	8	70	5	6	2	10	1
Ischaemic heart diseases (I20-I25)	177	18	421	60	61	4	181	12
Cerebrovascular diseases (I60-I69)	21	4	62	9	19	3	41	8
Influenza and pneumonia (J10-J18)	23	1	62	2	8	1	7	1
Chronic lower respiratory diseases (J40-J47)	25	1	39	5	21	1	27	5
Diseases of liver (K70-K77)	58	5	93	14	44	3	55	5
Pedestrian injured in transport accident (V01-V09)	30	2	19	2	13	1	17	1
Car occupant injured in transport accident (V40-V49)	21	6	8	5	8	3	14	3
Accidental drowning and submersion (W65-W74)	23	2	12	2	2	0	0	1
Intentional self-harm (X60-X84)	53	30	23	23	6	8	7	7
Assault (X85-Y09)	30	3	43	2	25	2	3	1

(a) Per 100,000 population.

(b) Data are for Indigenous deaths for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration. Denominator based on Experimental Projections of the Aboriginal and Torres Strait Islander Population.

Source: ABS data available on request, Deaths Registration Database.

### TRENDS IN MORTALITY

Various measures may be used to assess trends in mortality over time. The life table based measure, life expectancy at birth, is usually preferred as it takes into account age-sex specific death rates at all ages. However, the construction of this measure depends on the availability of an accurate (preferably annual) series of age-sex specific population estimates (ABS Indigenous estimates are experimental) together with an accurate series of age-sex specific counts of deaths. The ABS is reviewing the quality of the information needed to produce Indigenous life-tables taking into account newly available experimental population estimates based on data from the 2001 Census. Emphasis is being given to the possibilities of producing a revised series of life-table based measures to help assess trends over time (Chapter 11).



Another useful approach to measuring mortality trends is to examine annual changes in the age distributions of deaths. Increases in the proportions of deaths occurring at older ages (or decreases in proportions of deaths at younger ages) can reveal changes in mortality over time. The median age at death is one convenient summary measure which has been used (ABS 2002c). However, the median age of death (i.e. the age at which 50% of all deaths occur after all deaths are ranked by age) only refers to one point in the distribution and does not necessarily reflect changes in the age patterns of mortality occurring at younger or older ages. Dividing total deaths into quartiles (i.e. the first quartile being the point below which 25% of all deaths fall and the third quartile being the point below which 75% of all deaths fall) will permit examination of trends at older and younger age groupings as well as providing the median age at death. It should be noted however, that median age at death is affected by changes in the age distribution due to changes in fertility; and will only provide comparable data if fertility rates remain constant over the period for which median age at death is compared. These measures are presented below.

Trends in mortality are often slow moving so that real changes are usually best seen over long periods of time. However, the possibility of assessing long-term trends in Indigenous mortality is greatly constrained by the availability of accurate data in earlier years. When assessed in terms of consistency in the number of deaths recorded each year (indicating fairly steady coverage), South Australia, Western Australia and the Northern Territory have had comparative annual data since 1991.

A further constraint in assessing time series trends in Indigenous mortality is that the annual numbers of deaths recorded in each jurisdiction have, for statistical purposes, been quite small. Between 1991 and 2001, annual deaths for South Australia, Western Australia and the Northern Territory averaged 121, 371 and 403 respectively. Because the numbers involved are small, year to year fluctuations in the relative number of deaths occurring at different ages become more likely, and therefore it is not meaningful to either look at changes in mortality from one year to the next or to precisely measure the magnitude of changes seen over longer periods of time. When presented for long periods of time the data can nonetheless be useful in helping to determine whether ages at death are generally increasing, falling or remaining stable over the longer term.

It is important in interpreting these age at death statistics to note that Indigenous populations of South Australia, Western Australia, and the Northern Territory refer to a minority of the Indigenous population in Australia. In 2001, the estimated share of Australia's total Indigenous population who were usual residents of these jurisdictions was 32.4% (5.6% in South Australia, 14.4% in Western Australia, and 12.4% in the Northern Territory). As a consequence, possible trends in ages at death in these three jurisdictions only give, at best, a partial account of trends in Indigenous mortality in Australia.

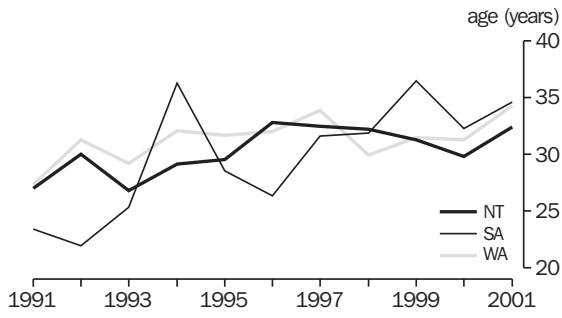
Graphs 9.8, 9.9 and 9.10 present data both separately for South Australia, Western Australia and Northern Territory, and combined for all three states–territory, over the period 1991 to 2001 providing some longer term trend analysis. Data for males and females are presented separately. The graphs show that Indigenous females have consistently had higher ages at death than Indigenous males.

Indigenous deaths  
1991 to 2001

Based on an examination of deaths data from South Australia, Western Australia and the Northern Territory over the period 1991 to 2001, no definitive conclusions about changes in mortality among Indigenous Australians living in these jurisdictions can be made.

9.8 TRENDS IN INDIGENOUS AGE AT DEATH (FIRST QUARTILE): SA, WA and NT — 1991 to 2001

FIRST QUARTILE AGE AT DEATH, MALES



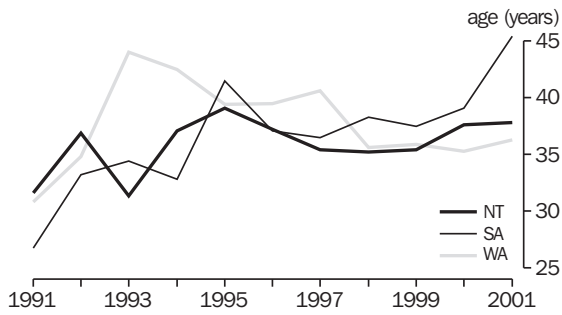
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

FIRST QUARTILE AGE AT DEATH, MALES, SA, WA, AND NT



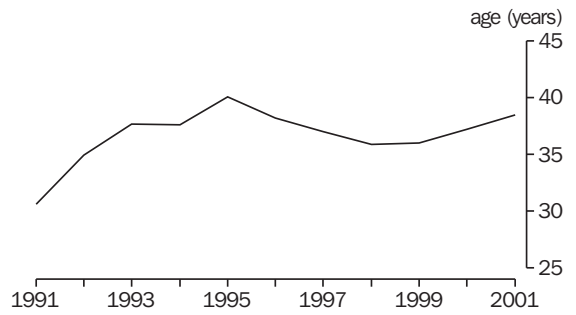
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

FIRST QUARTILE AGE AT DEATH, FEMALES



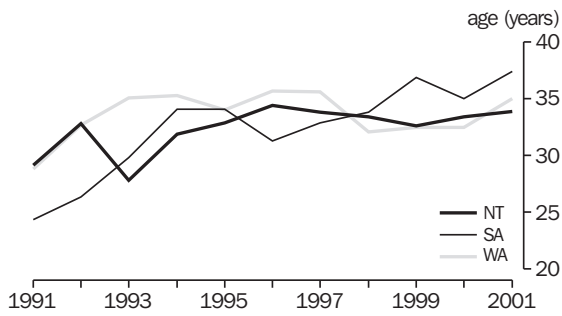
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

FIRST QUARTILE AGE AT DEATH, FEMALES, SA, WA, AND NT



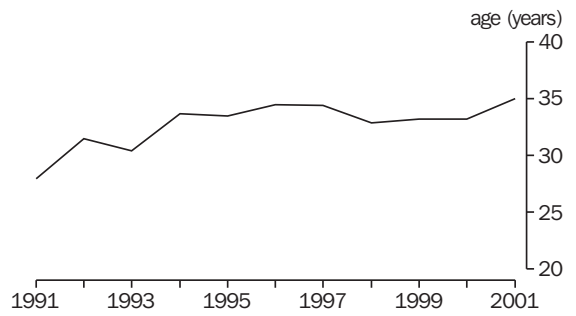
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

FIRST QUARTILE AGE AT DEATH, PERSONS



Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

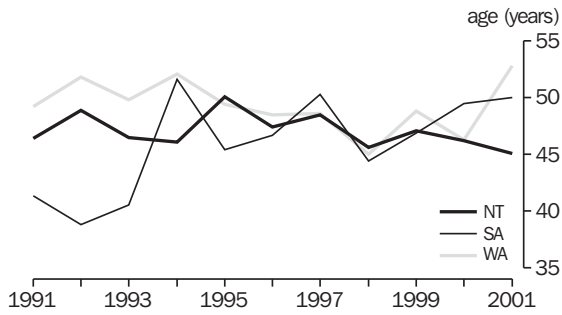
FIRST QUARTILE AGE AT DEATH, PERSONS, SA, WA, AND NT



Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

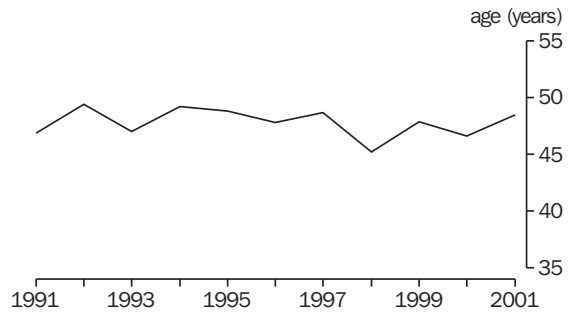
9.9 TRENDS IN INDIGENOUS AGE AT DEATH (MEDIAN AGE): SA, WA and NT — 1991 to 2001

MEDIAN AGE AT DEATH, MALES



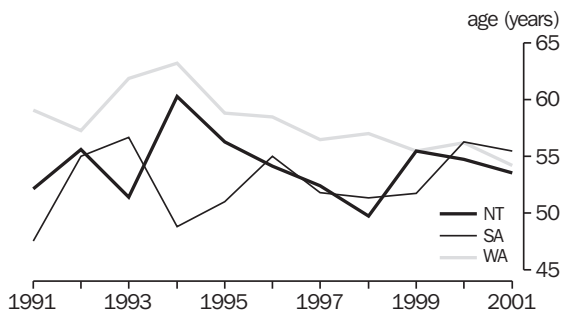
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

MEDIAN AGE AT DEATH, MALES, SA, WA AND NT



Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

MEDIAN AGE AT DEATH, FEMALES



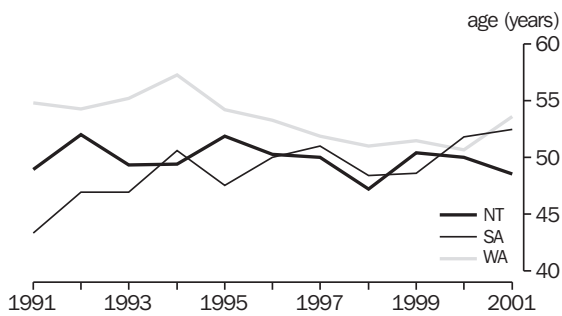
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

MEDIAN AGE AT DEATH, FEMALES, SA, WA AND NT



Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

MEDIAN AGE AT DEATH, PERSONS



Source: ABS 20012c; ABS data available on request, Deaths Registration Database.

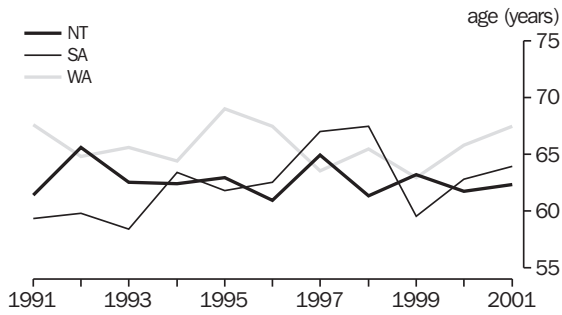
MEDIAN AGE AT DEATH, PERSONS, SA, WA AND NT



Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

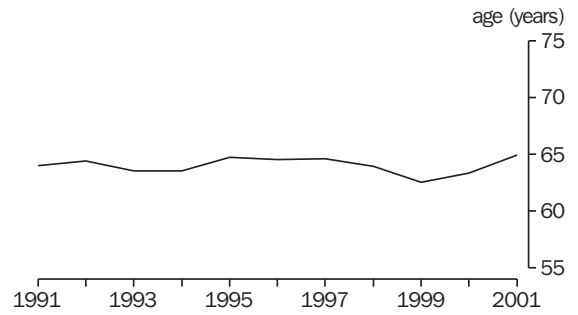
9.10 TRENDS IN INDIGENOUS AGE AT DEATH (THIRD QUANTILE): SA, WA and NT — 1991 to 2001

THIRD QUANTILE AGE AT DEATH, MALES



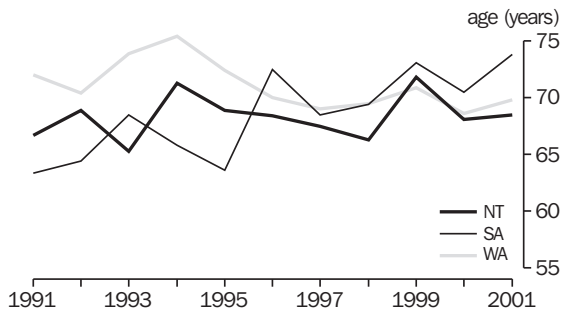
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

THIRD QUANTILE AGE AT DEATH, MALES, SA, WA AND NT



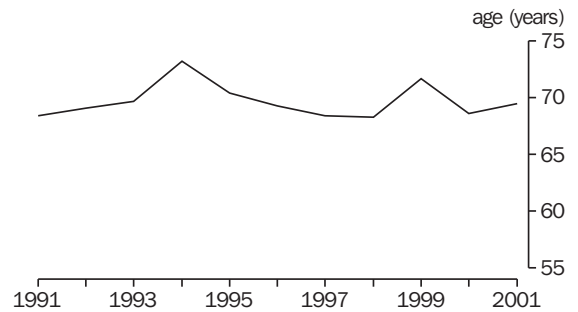
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

THIRD QUANTILE AGE AT DEATH, FEMALES



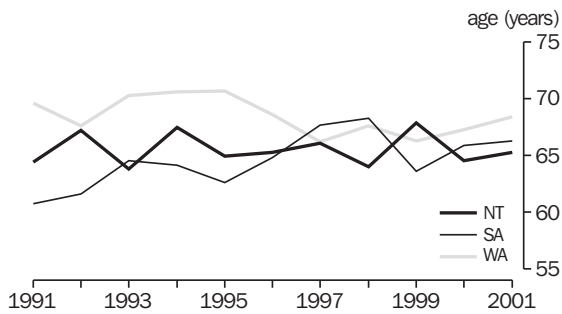
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

THIRD QUANTILE AGE AT DEATH, FEMALES, SA, WA AND NT



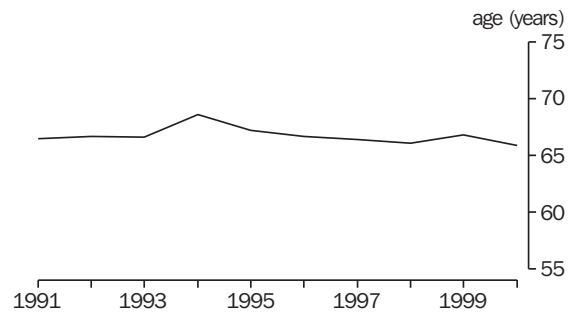
Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

THIRD QUANTILE AGE AT DEATH, PERSONS



Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

THIRD QUANTILE AGE AT DEATH, PERSONS, SA, WA AND NT



Source: ABS 2002c; ABS data available on request, Deaths Registration Database.

## CAUSES OF DEATH

Analysis of causes of deaths in this section is based on recorded Indigenous deaths in Queensland, South Australia, Western Australia and the Northern Territory. References to Indigenous deaths throughout this section refer only to Indigenous deaths recorded in these jurisdictions.

Based on 1999–2001 death registrations, the three leading causes of death for Aboriginal and Torres Strait Islander peoples usually resident in Queensland, South Australia, Western Australia and the Northern Territory were ‘Diseases of the circulatory system’, ‘External causes of morbidity and mortality’ (referred to as external causes — predominantly accidents, ‘Intentional self-harm’ and ‘Assault’) and ‘Neoplasms’ (cancer). Deaths due to these causes accounted for almost 60% of all Indigenous deaths in these states–territory. These were also the leading causes of death among the Australian population as a whole, accounting for about 75% of all deaths.

As noted in the introduction, in 1999–2001, there were approximately three times as many deaths as expected for all causes of death, based on total Australian rates, for both Indigenous males and females. The highest standardised mortality ratios (SMRs) for Indigenous males and females were for ‘Endocrine, nutritional and metabolic diseases’, predominantly due to deaths as a result of ‘Diabetes mellitus’. The SMRs for these diseases were 8 and 12 times the respective total Australian male and female rates (table 9.11).

### 9.11 INDIGENOUS DEATHS, SELECTED CAUSES(a) — 1999–2001

	<i>Males</i>		<i>Females</i>	
	<i>Deaths</i>	<i>SMR(b)</i>	<i>Deaths</i>	<i>SMR(b)</i>
Diseases of the circulatory system (I00–I99)	680	3.2	519	2.8
External causes of morbidity and mortality (V01–Y98)	512	2.9	203	3.2
Neoplasms (C00–D48)	347	1.6	289	1.6
Diseases of the respiratory system (J00–J99)	206	4.4	154	3.9
Endocrine, nutritional and metabolic diseases (E00–E90)	181	7.9	236	11.7
Diseases of the digestive system (K00–K93)	110	4.8	89	4.8
Mental and behavioural disorders (F00–F99)	77	4.1	26	1.9
Certain infectious and parasitic diseases (A00–B99)	68	5.2	48	5.3
Diseases of the nervous system (G00–G99)	59	2.4	48	2.1
Diseases of the genitourinary system (N00–N99)	56	6.2	94	8.7
Symptoms, signs and abnormal findings n.e.c. (R00–R99)	74	6.1	40	5.0
<b>All causes</b>	<b>2 518</b>	<b>3.1</b>	<b>1 867</b>	<b>3.0</b>

(a) Data are for Indigenous deaths for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

(b) Standardised mortality rate = observed deaths divided by expected deaths, based on total Australian age, sex and cause-specific rates.

Source: ABS data available on request, Deaths Registration Database.

The SMRs like those presented in table 9.11 are used to enable meaningful comparisons of death rates between two populations with different age structures, such as the Indigenous and total Australian populations. The SMRs express the actual number of deaths in the Indigenous population as a ratio of the expected number of deaths (box 9.1). Deaths over and above the number expected are referred to as 'excess' deaths.

'Diseases of the circulatory system' accounted for the highest proportion of excess deaths. Other major causes of excess deaths were external causes, 'Endocrine, nutritional and metabolic diseases', and 'Diseases of the respiratory system'. Deaths due to these causes were responsible for over two-thirds of excess deaths among Indigenous males and females (table 9.12).

9.12 MAIN CAUSES OF EXCESS DEATHS(a)(b) — 1999–2001

<i>Causes of death</i>	<i>Indigenous males</i>	<i>Indigenous females</i>
	<i>Proportion of excess</i>	<i>Proportion of excess</i>
	<i>%</i>	<i>%</i>
Diseases of the circulatory system (I00–I99)	27.7	27.0
External causes of morbidity and mortality (V01–Y98)	20.0	11.3
Neoplasms (C00–D48)	8.0	8.3
Diseases of the respiratory system (J00–J99)	9.4	9.2
Endocrine, nutritional and metabolic diseases (E00–E90)	9.3	17.4
Diseases of the digestive system (K00–K93)	5.1	5.7
All other causes	20.5	21.2
<b>All causes</b>	100.0	100.0

(a) Excess deaths are equal to observed deaths minus expected deaths (based on 1999–2001 total Australian age, sex and cause specific rates).

(b) Data are for Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

Source: ABS data available on request, Deaths Registration Database.

The following disease-specific analysis highlights different patterns of mortality experienced by the Indigenous and total Australian population. The proportion of deaths due to any one disease or disease group is affected by the overall pattern of deaths within the respective population. For this reason it is important to have regard to the overall pattern of deaths when interpreting comparisons that are made of proportions that are due to one cause or a group of causes (table 9.22).

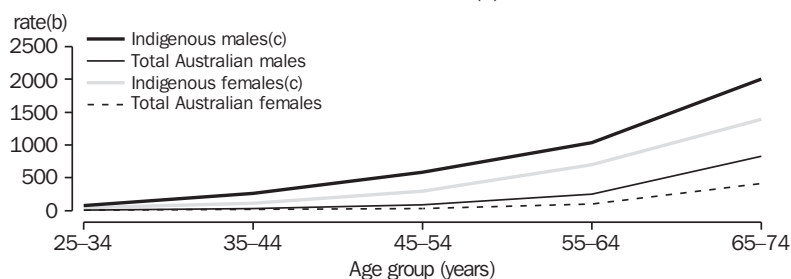
#### Diseases of the circulatory system

'Diseases of the circulatory system' were responsible for 27% of total Indigenous male deaths and 28% of total Indigenous female deaths for the period 1999–2001. This was less than the total Australian population where 'Diseases of the circulatory system' accounted for 36% of total male deaths and 42% of total female deaths. 'Ischaemic heart diseases' (heart attack, angina) were responsible for 62% of total Indigenous male deaths and 50% of total Indigenous female deaths attributed to 'Diseases of the circulatory system', while 'Cerebrovascular disease' (stroke) accounted for 17% (males) and 21% (females) respectively.

Circulatory diseases  
continued

Both Indigenous males and females experienced higher rates of mortality from 'Diseases of the circulatory system' in every age group, when compared to the total Australian population. The greatest differences in age-specific death rates for males occurred in the age groups 25–34 and 35–44 years, with Indigenous males respectively recording rates 8 and 9 times higher than the total Australian male rates. Indigenous females recorded rates 10 times higher than the total Australian female rates for the 25–34, 35–44 and 45–54 year age groups (graph 9.13).

9.13 DISEASES OF THE CIRCULATORY SYSTEM(a)



(a) Data are for years 1999–2001 combined, based on year of registration.

(b) Per 100,000 population.

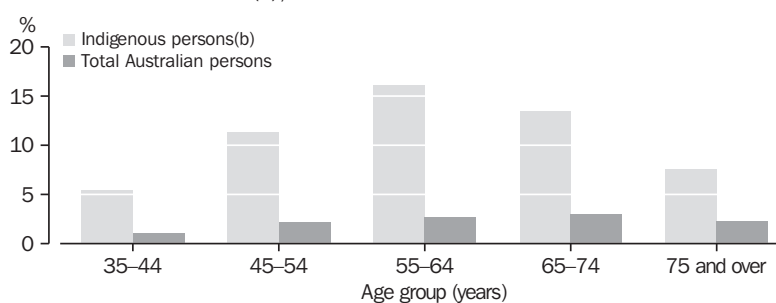
(c) Indigenous data are for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.

Source: ABS data available on request, Deaths Registration Database.

Diabetes

Diabetes has a far greater impact on mortality of the Indigenous population than the total Australian population. For the period 1999–2001 diabetes was responsible for 8.5% of the total Indigenous deaths compared to 2.3% of total Australian deaths. For the total Australian population, the proportion of total deaths caused by diabetes remained constant (2.3%) for all age groups over 45–54 years. For the Indigenous population, diabetes was responsible for a varying proportion of total deaths in different age groups. In the 55–64 years age group, diabetes was responsible for 16% of total Indigenous deaths (graph 9.14).

9.14 DIABETES DEATHS(a), PROPORTION OF TOTAL DEATHS



(a) Data are for years 1999–2001 combined, based on year of registration.

(b) Indigenous data are for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.

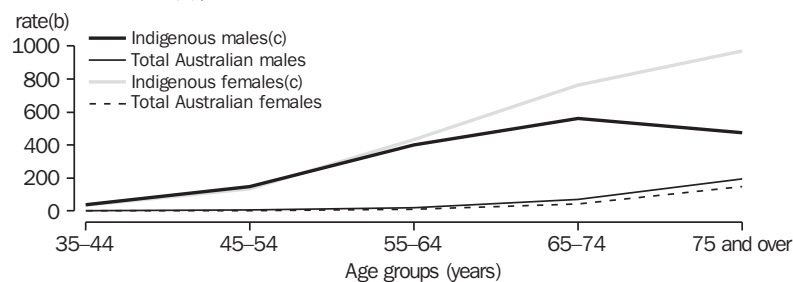
Source: ABS data available on request, Deaths Registrations Database.



Diabetes *continued*

The earlier onset of diabetes experienced by the Indigenous population is reflected in the differences in age-specific death rates (Chapter 7). For the period 1999–2001, Indigenous males in the 35–44, 45–54 and 55–64 years age groups experienced age-specific death rates 20 times higher than the corresponding total Australian male rates. For the same age groups, the rates experienced by Indigenous females were 33 times higher than the corresponding total Australian female rates (graph 9.15).

9.15 DIABETES(a), AGE SPECIFIC RATES



(a) Data are for years 1999–2001 combined, based on year of registration.  
 (b) Per 100,000 population.  
 (c) Indigenous data are for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.

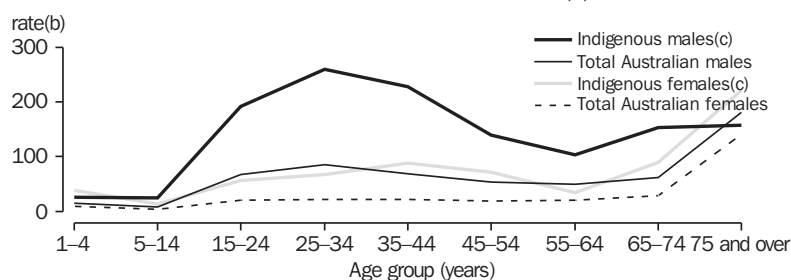
Source: ABS data available on request, Deaths Registrations Database.

External causes of morbidity and mortality

Deaths due to external causes, such as accidents, ‘Intentional self-harm’ (suicide) and ‘Assault’, are a major contributor to premature mortality. In Australia in 2001, the ABS estimates that over 230,000 years of potential life was lost in premature mortality due to external causes (ABS 2001c). Deaths due to external causes have a major impact on the Indigenous population. For the period 1999–2001, these deaths accounted for 16% of all Indigenous deaths, compared to 6% of all deaths for the total Australian population. For both populations, males accounted for approximately 70% of the total deaths. For Indigenous males, the leading cause of death from external causes was ‘Intentional self-harm’ (33%), ‘Transport accidents’ (24%) and ‘Assault’ (10%), while for Indigenous females the leading causes were ‘Transport accidents’ (28%), ‘Assault’ (22%) and ‘Intentional self-harm’ (15%).

The 1999–2001 age-specific death rates for external causes were substantially higher among Indigenous males than among total Australian males for all age groups with the exception of 75 years and over. For most age groups, the Indigenous male age-specific rates were 2 to 3 times higher than the corresponding total Australian males rates. Indigenous females experienced substantially higher age-specific death rates than total Australian females in every age group for the 1999–2001 period, with the greatest difference occurring in the 1–4 and 35–44 years group. In these age groups, Indigenous females recorded a rate more than four times higher than that of the corresponding total Australian females age group (graph 9.16).

9.16 EXTERNAL CAUSES OF MORBIDITY AND MORTALITY(a)



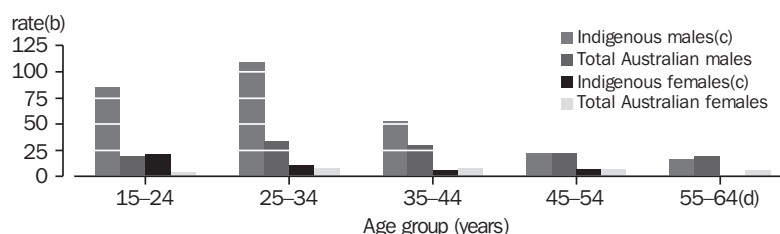
(a) Data are for years 1999–2001 combined, based on year of registration.  
 (b) Per 100,000 population.  
 (c) Indigenous data are for the usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.  
 Source: ABS data available on request, Deaths Registration Database.

Intentional self-harm

‘Intentional self-harm’ was the leading cause of death from external causes for Indigenous males for the 1999–2001 period. While the overall death rate was nearly three times higher than the corresponding total Australian males rates, the major differences occurred in the younger age groups. For the 15–24 years age group, the Indigenous male age-specific rate was over four times higher than the corresponding age-specific rate for total Australian males, while for the 25–34 years age group, the rate was three times higher. For the 45–54 years age group, the Indigenous male age-specific rate was equivalent to the corresponding age-specific rate for total Australian males, while for age groups 55–64 years and above, the Indigenous male age-specific rates were lower than the corresponding total Australian males rates (graph 9.17).

With the exception of the 15–24 years age group, the Indigenous female age-specific rates for ‘Intentional self-harm’ were similar to, or lower than the corresponding total Australian females rates. The 15–24 years age-specific rate was four times higher than the corresponding age-specific rate for total Australian females. For the period 1999–2001, there were no recorded Indigenous female deaths from ‘Intentional self-harm’ for age groups 55–64 years and over (graph 9.17).

9.17 INTENTIONAL SELF-HARM(a)

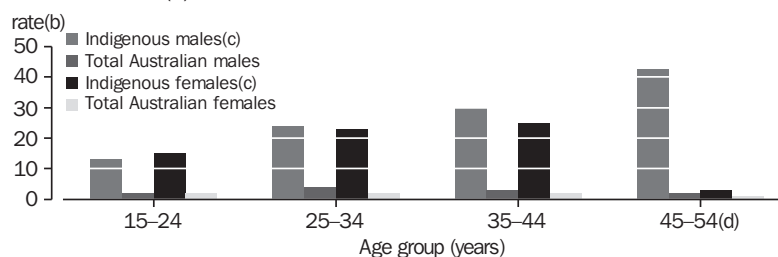


(a) Data are for years 1999–2001 combined, based on year of registration.  
 (b) Per 100,000 population.  
 (c) Indigenous data are for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.  
 (d) Indigenous female rate is zero.

Source: ABS data available on request, Deaths Registration Database.

Assault 'Assault' is a significant cause of deaths for both male and female Indigenous persons, particularly in the 15–24, 25–34, 35–44 and 45–54 years age groups for males and the 15–24, 25–34, 35–44 years age groups for females. Over the period 1999–2001, the male age-specific death rates for these groups were between 6 and 22 times higher than the corresponding age-specific rate for total Australian males, while the female age-specific death rates ranged between 7 and 13 times the equivalent age-specific rate for total Australian females (graph 9.18).

9.18 ASSAULT(a)



(a) Data are for years 1999–2001 combined, based on year of registration.  
 (b) Per 100,000 population.  
 (c) Indigenous data are for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.  
 (d) Total Australian female rate is one.

Source: ABS data available on request, Deaths Registrations Database.

Neoplasms (cancers) 'Neoplasms' were responsible for 15% of total Indigenous deaths for the period 1999–2001, markedly less than the total Australian population where neoplasms accounted for 29% of total deaths. The major causes of cancer deaths for Indigenous males were 'Malignant neoplasms of the respiratory and intrathoracic organs' (35% of total), 'Malignant neoplasms of the digestive organs' (31%), and 'Malignant neoplasms of lip, oral cavity and pharynx' (8%), while for Indigenous females the major causes were 'Malignant neoplasms of the respiratory and intrathoracic organs' (20% of total), 'Malignant neoplasms of the digestive organs' (20%), and 'Malignant neoplasms of the female genital organs' (17%).

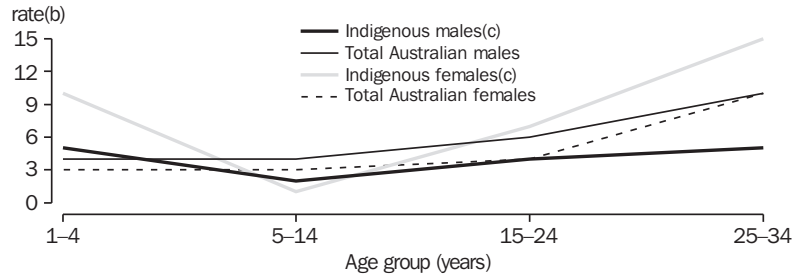
Indigenous persons were under represented in a number of cancer groups, including 'Melanoma' and other 'Malignant neoplasms of skin' (1% of total indigenous cancer deaths compared with 4% of total Australian cancer deaths), 'Malignant neoplasms of lymphoid, haematopoietic and related tissue' (6% Indigenous, 10% total Australian) and 'Malignant neoplasms of male genital organs' (7% total Indigenous males, 13% total Australian males).

Indigenous persons were over represented in other cancer groups, including 'Malignant neoplasms of lip, oral cavity and pharynx' (8% of total Indigenous male cancer deaths compared with 2% of total Australian male cancer deaths), and 'Malignant neoplasms of female genital organs' (17% total Indigenous females, 9% total Australian females).

Neoplasms (cancers)  
continued

The 1999–2001 age-specific death rates for neoplasms indicate that for age groups up to 25–34 years, the rates for Indigenous males and females are closer to those for total Australian males and females (graph 9.19) than for age groups 35–44 years and above. With the exception of females 75 years and over, age-specific rates for Indigenous males and females in these older age groups were up to twice those for the corresponding total Australian males and females rates (graph 9.20).

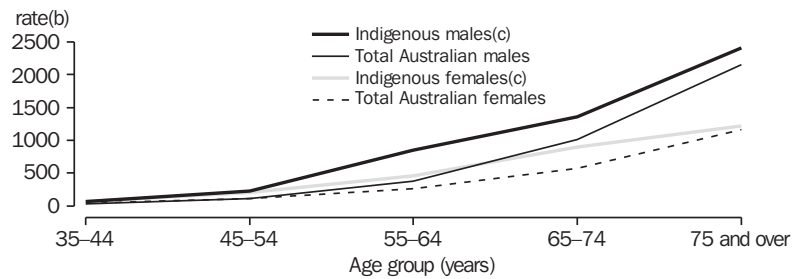
9.19 NEOPLASMS(a), PERSONS AGED UNDER 35 YEARS



(a) Data are for years 1999–2001 combined, based on year of registration.  
 (b) Per 100,000 population.  
 (c) Indigenous data are for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.

Source: ABS data available on request, Deaths Registration Database.

9.20 NEOPLASMS(a), PERSONS AGED 35 YEARS AND OVER



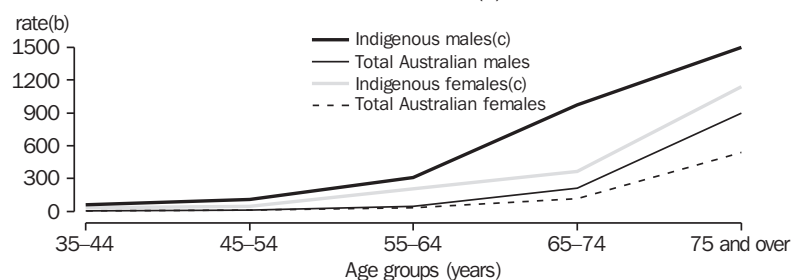
(a) Data are for years 1999–2001 combined, based on year of registration.  
 (b) Per 100,000 population.  
 (c) Indigenous data are for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.

Source: ABS data available on request, Deaths Registration Database.

Diseases of the respiratory system

Respiratory diseases, which include ‘Influenza’ and ‘Pneumonia’ and ‘Chronic lower respiratory diseases’ (including asthma, bronchitis and emphysema) were responsible for 8% of total Indigenous deaths for the period 1999–2001. As with diabetes, respiratory diseases affects the Indigenous population to a much larger degree at younger age groups than the total Australian population, and this is reflected in the differences in age-specific death rates. For the period 1999–2001, Indigenous males in the 35–44 years age group experienced age-specific death rates 20 times higher than the corresponding total Australian male rates, while the rate for Indigenous females in this age group was 10 times higher than that for the corresponding total Australian female rates (graph 9.21).

### 9.21 DISEASES OF THE RESPIRATORY SYSTEM(a)



(a) Data are for years 1999–2001 combined, based on year of registration.

(b) Per 100,000 population.

(c) Indigenous data are for usual residents of Queensland, South Australia, Western Australia and Northern Territory combined.

Source: ABS data available on request, Deaths Registration Database.

### Multiple causes of death

Multiple causes of death include all causes and conditions reported on the medical cause of death certificate. Since 1997, the ABS has coded all causes of death reported on each death certificate, including the underlying, immediate and other associated causes of death. While only one cause can be recorded as the underlying cause of death, many deaths due to chronic diseases, such as heart disease, kidney disease and diabetes often occur with concurrent, or co-existing conditions present. It is useful, therefore, to describe the extent to which any or all of these conditions have been reported. For deaths where the underlying cause was identified as an external cause, multiple causes include circumstances of injury, the nature of injury as well as any other conditions reported on the death certificate.

For the 4,385 Indigenous deaths registered in Queensland, South Australia, Western Australia and the Northern Territory for 1999–2001, there was a total of 13,233 causes reported, an average of three causes relating to each death. On average there were 2.9 causes reported for each male death and 3.2 causes for each female death, compared to 2.9 causes for each total Australian male death and 2.8 causes for each total Australian female death. Deaths where a single cause was reported occurred in 17% of total Indigenous male deaths and 16% of total Indigenous female deaths, less than the total Australian figures of 20% (males) and 21% (females). Table 9.22 shows the relationships between a number of underlying causes of death and associated causes for the Indigenous and total Australian populations including the influence that diabetes, circulatory and respiratory diseases have on the Indigenous population. For deaths from 'Ischaemic heart diseases', Indigenous males recorded associated diabetes at twice the rate of the total Australian male population while the rate for Indigenous females was three times that of the corresponding total Australian female population. Indigenous males and females recorded associated renal failure at twice the rate of the total Australian male and female populations for deaths from diabetes.

9.22 UNDERLYING CAUSES OF DEATH AND ASSOCIATED CAUSES — 1999–2001

	<i>Indigenous males(a) proportion of total</i>	<i>Indigenous females(a) proportion of total</i>	<i>Australian males(a) proportion of total</i>	<i>Australian females(a) proportion of total</i>
	%	%	%	%
<b>Neoplasms (C00–D48)</b>				
Reported alone	31.1	30.4	37.1	40.6
Reported with				
Septicaemia	4.6	5.9	3.9	3.8
Diabetes mellitus	8.6	9.0	4.3	3.4
Ischaemic heart diseases	5.8	6.9	8.0	5.3
Cerebrovascular diseases	3.2	3.1	3.7	3.7
Influenza and pneumonia	14.4	6.9	9.8	7.5
Renal failure	5.5	7.6	5.9	4.5
Chronic lower respiratory diseases	12.1	6.6	7.1	4.0
<b>Diabetes mellitus (E10–E14)</b>				
Reported alone	0.0	1.4	1.7	1.3
Reported with				
Septicaemia	16.1	18.8	8.8	9.4
Ischaemic heart diseases	49.0	41.7	54.5	47.6
Cerebrovascular diseases	14.2	12.4	21.0	22.6
Influenza and pneumonia	9.7	7.8	11.8	9.6
Renal failure	40.0	43.1	21.8	22.1
Chronic lower respiratory diseases	7.1	6.4	6.8	4.7
<b>Ischaemic heart diseases (I20–I25)</b>				
Reported alone	22.0	18.4	14.6	11.9
Reported with				
Diabetes mellitus	16.7	28.7	9.9	9.0
Cerebrovascular diseases	4.8	10.0	7.8	10.2
Influenza and pneumonia	3.6	5.0	5.1	5.9
Renal failure	7.4	15.3	9.4	8.7
Chronic lower respiratory diseases	9.3	10.3	11.7	7.8
Malignant neoplasms	2.1	2.7	6.7	4.1
<b>Renal failure (N17–N19)</b>				
Reported alone	9.7	11.4	6.9	8.0
Reported with				
Septicaemia	19.4	13.6	12.9	11.1
Diabetes mellitus	19.4	15.9	7.7	7.3
Ischaemic heart diseases	29.0	15.9	28.2	23.0
Cerebrovascular diseases	3.2	2.3	7.5	7.9
Influenza and pneumonia	12.9	15.9	16.1	14.8
Chronic lower respiratory diseases	6.5	11.4	8.3	3.9

(a) Data from Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

Source: ABS data available on request, Deaths Registration Database.

Table 9.23 aligns the type and extent of ‘Injuries’ sustained by Indigenous persons whose deaths were due to external causes. For the period 1999–2001, ‘Transport accidents’ were associated with ‘Injuries’ to various parts of the body, while 3.5% of deaths from ‘Intentional self-harm’ involved ‘Poisoning’.

	<i>External causes</i>					
	<i>Transport accidents proportion of total</i>	<i>Other accidents proportion of total</i>	<i>Intentional self-harm proportion of total</i>	<i>Assault proportion of total</i>	<i>Other proportion of total</i>	<i>Total proportion of total</i>
	%	%	%	%	%	%
Injuries to the head	25.6	14.8	3.5	32.8	—	16.9
Injuries to the neck	7.4	1.7	9.6	3.8	—	5.4
Injuries to the thorax	15.9	1.3	2.6	24.4	11.4	9.1
Injuries to the abdomen, lower back, lumbar spine, pelvis, hip and thigh	7.8	5.4	2.6	16.0	0.0	6.6
Injuries involving multiple body regions	31.4	0.7	1.7	7.6	2.9	10.3
Injuries to unspecified part of trunk, limb or body region	3.5	2.7	—	9.9	—	3.2
Effects of foreign body entering through natural orifice	0.8	5.0	—	—	2.9	1.9
Burns and corrosions	—	4.0	0.9	—	—	1.5
Poisoning by drugs, medicaments and biological substances	—	19.1	3.5	—	14.3	7.4
Toxic effects of substances chiefly non-medicinal as to source	1.9	10.7	2.6	1.5	—	4.7
Other and unspecified effects of external causes	1.2	29.9	71.7	1.5	14.3	27.7
Total injuries	100.0	100.0	100.0	100.0	100.0	100.0

(a) Data from Queensland, South Australia, Western Australia and Northern Territory combined. Based on year of registration.

Source: ABS data available on request, Deaths Registration Database.

## SUMMARY

Australia's Indigenous population does not experience the same health status, in terms of mortality, as that experienced by the total Australian population. The estimated life expectancy at birth for Aboriginal and Torres Strait Islander males and females is approximately 20 years below that of the total Australian population.

Indigenous Australians in the four jurisdictions for which deaths data are combined in this report (Queensland, South Australia, Western Australia and the Northern Territory), experience higher death rates, with major differences occurring between ages 35–54 years where age-specific death rates are five times higher than the corresponding total Australian rates. 'Diseases of the circulatory system', 'External causes of morbidity and mortality', 'Neoplasms' and 'Endocrine, nutritional and metabolic diseases' were the leading causes of deaths among Aboriginal and Torres Strait Islander peoples for the period 1999–2001. Diabetes is more prominent in the Indigenous population both as an underlying cause of death (over 8% of total deaths), and reported more frequently as an additional cause of death. 'External causes of morbidity and mortality' are major contributors to total Indigenous deaths, with violent deaths featuring prominently, especially in the 15–24 and 25–34 years age groups.

SUMMARY *continued*

Deaths data from South Australia, Western Australia and the Northern Territory, do not permit any definitive statements on the change in ages of death for Indigenous Australians over the period 1991 to 2001. The ABS plans to release a detailed study into, and exploration of, Indigenous mortality trends in an *Information Paper: Issues in Monitoring Trends in Indigenous Mortality, Australia* (cat. no. 4716.0), expected to be released late in 2003.