

## 1.23 Leading causes of mortality

Causes of death of Aboriginal and Torres Strait Islander Australians, expressed as a rate by age group, age-standardised rate and rate ratio

### Data sources

Data for this measure come from the AIHW National Mortality Database.

The National Mortality Database is a national collection of de-identified information for all deaths in Australia and is maintained by the AIHW. Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the ABS. Information on the cause of death is supplied by the medical practitioner certifying the death or by a coroner. The data are updated each calendar year.

Although the identification of Indigenous deaths is incomplete in all state and territory registration systems, four jurisdictions (Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. These four jurisdictions represent approximately 60% of the Indigenous population of Australia. Data are presented by state/territory of usual residence rather than state/territory where death occurs.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2002–2006 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years. Note that the 2006 edition of this report used year of occurrence of death for all years of analysis except for the latest year of available data, for which year of registration of death was used. Rates published in this report may therefore differ slightly from those published in the previous edition for comparable years of data.

### Analyses

Age-standardised rates and ratios have been used as a measure of mortality in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of mortality among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

### Mortality

#### Mortality by cause of death

Tables 1.23.1 and 1.23.2 present data on the major causes of death of Indigenous Australians over the period 2002–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2002–2006, the most common cause of death among Indigenous Australians was circulatory diseases (26%), followed by external causes (injury and

poisoning) (16%). Indigenous Australians died from these causes of death at two and three times the rate of non-Indigenous Australians respectively (Table 1.23.1).

- Cancer was also a major cause of death among both Indigenous and non-Indigenous Australians, responsible for 15% of Indigenous and 30% of non-Indigenous deaths. Lung cancer is the most common type of cancer from which Indigenous Australians died at almost twice the rate of non-Indigenous Australians.
- Over the period 2002–2006, Indigenous Australians died from diabetes at nine times the rate of non-Indigenous Australians and from kidney diseases at four times the rate of non-Indigenous Australians.
- Deaths higher than the expected number are referred to as ‘excess deaths’. Excess deaths are calculated by subtracting the number of expected Indigenous deaths (based on the age, sex and cause-specific rates of non-Indigenous Australians) from the number of actual cause-specific deaths in the Indigenous population. This is usually expressed as a proportion of excess death from all causes. Diseases of the circulatory system accounted for the highest proportion of excess deaths among Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory over the period 2002–2006 (26% of deaths). Other major causes of excess deaths were external causes (injury and poisoning), endocrine, nutritional and metabolic diseases and diseases of the respiratory system. Deaths due to these causes were responsible for almost two-thirds (64%) of excess deaths among Indigenous persons (Table 1.23.2).

**Table 1.23.1: Causes of mortality, by Indigenous status, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

Underlying cause of death	Number			Per cent			Indigenous			Non-Indigenous			Ratio <sup>(i)</sup>
	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	
Circulatory diseases (I00–I99)	2,008	82,697	1,223	26.1	35.9	36.9	411.7	390.1	433.2	221.4	219.9	222.9	1.9*
External causes (V01–Y98)	1,224	14,170	421	15.9	6.2	12.7	105.8	98.0	113.6	38.3	37.7	38.9	2.8*
Cancer (C00–D48)	1,184	68,882	603	15.4	29.9	18.2	240.0	224.2	255.8	183.2	181.9	184.6	1.3*
<i>Lung cancer (C34)<sup>(j)</sup></i>	276	13,237	114	3.6	5.8	3.4	57.7	50.1	65.3	35.2	34.6	35.8	1.6*
<i>Cervical cancer (C53)<sup>(j)(k)</sup></i>	35	404	8	0.5	0.2	0.2	6.2	3.7	8.6	1.1	1.0	1.2	5.7*
Endocrine, metabolic & nutritional disorders (E00–E89)	694	8,198	96	9.0	3.6	2.9	151.1	138.2	164.0	22.0	21.5	22.4	6.9*
<i>Diabetes (E10–E14)<sup>(j)</sup></i>	609	5,702	60	7.9	2.5	1.8	133.6	121.6	145.7	15.3	14.9	15.7	8.8*
Respiratory diseases (J00–J99)	653	19,880	313	8.5	8.6	9.4	136.4	123.8	149.0	53.4	52.6	54.1	2.6*
Digestive diseases (K00–K93)	450	7,691	120	5.9	3.3	3.6	67.4	59.6	75.1	20.5	20.0	20.9	3.3*
Conditions originating in perinatal period (P00–P96)	213	963	21	2.8	0.4	0.6	7.7	6.7	8.7	2.8	2.6	2.9	2.8*
Nervous system diseases (G00–G99)	193	7,906	130	2.5	3.4	3.9	26.8	21.8	31.8	21.2	20.7	21.7	1.3*

(continued)

**Table 1.23.1 (continued): Causes of mortality, by Indigenous status, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

Underlying cause of death	Number			Per cent			Indigenous			Non-Indigenous			Ratio <sup>(i)</sup>
	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	
Kidney diseases (N00–N29)	179	3,564	48	2.3	1.5	1.4	40.2	33.2	47.1	9.6	9.2	9.9	4.2*
Infectious & parasitic diseases (A00–B99)	168	2,737	38	2.2	1.2	1.1	22.9	18.4	27.3	7.3	7.0	7.6	3.1*
Other causes <sup>(l)</sup>	726	13,409	300	9.4	5.8	9.1	108.1	97.2	119.0	36.1	35.5	36.7	3.0*
<b>All causes</b>	<b>7,692</b>	<b>230,097</b>	<b>3,313</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1318.0</b>	<b>1280.9</b>	<b>1355.1</b>	<b>615.7</b>	<b>613.2</b>	<b>618.2</b>	<b>2.1*</b>

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

- (a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four states and territories are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.
- (b) Data are presented in 5-year groupings because of small numbers each year.
- (c) Rates exclude 3,313 registered deaths where the Indigenous status is not stated.
- (d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.
- (e) Deaths are by year of registration of death and state/territory of usual residence.
- (f) Directly age-standardised using the Australian 2001 standard population.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio Indigenous:non-Indigenous.
- (j) Data for lung cancer and cervical cancer are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.
- (k) Rates for cervical cancer are for females only.
- (l) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified.

Note: Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.2: Main causes of excess Indigenous deaths, by sex, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)</sup>**

Underlying cause of death	Males				Females				Total			
	Observed	Expected	Excess	% excess	Observed	Expected	Excess	% excess	Observed	Expected	Excess	% excess
	No.	No.	No.	%	No.	No.	No.	%	No.	No.	No.	%
Circulatory diseases (I00–I99)	1,128	349	779	26.4	880	311	569	25.8	2,008	670	1,338	26.1
External causes (V01–Y98)	845	282	563	19.1	379	103	276	12.5	1,224	393	831	16.2
Endocrine, metabolic & nutritional disorders (E00–E89)	328	41	287	9.7	366	38	328	14.9	694	80	614	12.0
<i>Diabetes (E10–E14)<sup>(d)</sup></i>	291	26	265	9.0	318	23	295	13.4	609	50	559	10.9
Respiratory diseases (J00–J99)	378	86	292	9.9	275	76	199	9.0	653	164	489	9.5
Cancer (C00–D48)	614	406	208	7.0	570	353	217	9.8	1,184	767	417	8.1
<i>Lung cancer (C34)<sup>(d)</sup></i>	162	84	78	2.6	114	52	62	2.8	276	139	137	2.7
<i>Cervical cancer (C53)<sup>(d)</sup></i>	..	..	..	..	35	7	28	1.3	35	7	28	0.6
Digestive diseases (K00–K93)	260	44	216	7.3	190	36	154	7.0	450	81	369	7.2
Kidney diseases (N00–N29)	80	13	67	2.3	99	14	85	3.9	179	26	153	3.0
Conditions originating in perinatal period (P00–P96)	127	40	87	2.9	86	35	51	2.3	213	75	138	2.7
Infectious & parasitic diseases (A00–B99)	94	20	74	2.5	74	14	60	2.7	168	34	134	2.6
Nervous system diseases (G00–G99)	129	42	87	3.0	64	45	19	0.9	193	86	107	2.1
Other causes <sup>(e)</sup>	386	94	292	9.9	340	95	245	11.1	726	190	536	10.5
<b>All causes</b>	<b>4,369</b>	<b>1,417</b>	<b>2,952</b>	<b>100.0</b>	<b>3,323</b>	<b>1,119</b>	<b>2,204</b>	<b>100.0</b>	<b>7,692</b>	<b>2,566</b>	<b>5,126</b>	<b>100.0</b>

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Deaths are by year of registration of death and state/territory of usual residence.

(d) Data for lung cancer and cervical cancer are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(e) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system; mental & behavioural disorders; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the skin & subcutaneous tissue; diseases of the musculoskeletal system and connective tissue; diseases of the genitourinary system (excluding kidney diseases); pregnancy, childbirth & the puerperium; congenital malformations, deformations and chromosomal abnormalities; symptoms, signs and abnormal clinical findings not elsewhere classified.

Note: Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

Source: AIHW analysis of National Mortality Database.

### **Circulatory diseases**

- Over the period 2002–2006, there were 2,008 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from circulatory diseases. Indigenous Australians died from circulatory diseases at around twice the rate of non-Indigenous Australians (Table 1.23.3).
- The most common type of circulatory disease causing death among Indigenous Australians was ischaemic heart disease (including heart attack and angina), followed by cerebrovascular disease (including stroke). Indigenous Australians died from these diseases at around twice the rate of non-Indigenous Australians.
- Over the period 2002–2006, Indigenous Australians died from hypertensive disease at four times the rate of non-Indigenous Australians. Indigenous Australians died from rheumatic heart disease (which predominantly affects children) at 9 times the rate of non-Indigenous Australians.

**Table 1.23.3: Deaths of Indigenous Australians from circulatory diseases, by sex, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

	Males						Females						Persons					
	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>
Ischaemic heart disease (I20–I25)	714	63.3	277.1	252.0	302.2	1.9*	427	48.5	173.5	154.7	192.3	1.8*	1,141	56.8	221.3	206.0	236.6	1.9*
<i>Acute myocardial infarction (I21)<sup>(j)</sup></i>	349	30.9	136.3	118.6	153.9	1.8*	192	21.8	84.4	70.9	97.9	1.6*	541	26.9	108.6	97.8	119.5	1.7*
Cerebrovascular disease (I60–I69)	157	13.9	86.3	70.1	102.4	1.7*	173	19.7	83.0	69.0	96.9	1.5*	330	16.4	84.7	74.2	95.3	1.5*
<i>Stroke (I60–I64)<sup>(j)</sup></i>	126	11.2	65.6	51.8	79.3	1.7*	146	16.6	66.5	54.2	78.8	1.5*	272	13.5	66.4	57.2	75.6	1.6*
Other heart disease (I26–I52)	160	14.2	68.3	54.6	82.0	2.3*	127	14.4	50.7	40.3	61.1	1.8*	287	14.3	58.6	50.2	66.9	2.0*
Rheumatic heart disease (I00–I09)	30	2.7	6.2	3.2	9.1	6.1*	67	7.6	16.0	11.5	20.5	10.9*	97	4.8	11.5	8.7	14.3	9.0*
Hypertension disease (I10–I15)	36	3.2	17.5	10.9	24.1	3.4*	58	6.6	26.8	19.0	34.6	4.3*	94	4.7	23.1	17.7	28.4	3.9*
Other diseases of the circulatory system (I70–I99)	31	2.7	11.9	7.0	16.7	0.8	28	3.2	12.5	7.2	17.7	1.2	59	2.9	12.4	8.7	16.2	1.0
<b>Total circulatory diseases</b>	<b>1,128</b>	<b>100.0</b>	<b>467.2</b>	<b>433.2</b>	<b>501.2</b>	<b>1.9*</b>	<b>880</b>	<b>100.0</b>	<b>362.4</b>	<b>334.8</b>	<b>390.1</b>	<b>1.8*</b>	<b>2,008</b>	<b>100.0</b>	<b>411.7</b>	<b>390.1</b>	<b>433.2</b>	<b>1.9*</b>

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

- (a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.
- (b) Data are presented in 5-year groupings because of small numbers each year.
- (c) These data exclude 1,223 deaths where the Indigenous status was not stated.
- (d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all causes mortality rate.
- (e) Deaths are by year of registration of death and state/territory of usual residence.
- (f) Directly age-standardised using the Australian 2001 standard population.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio Indigenous:non-Indigenous.
- (j) Data presented for acute myocardial infarction are a subset of data presented for ischaemic heart disease; data presented for stroke are a subset of data presented for cerebrovascular disease in this table.

Note: Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

Source: AIHW analysis of National Mortality Database.

### **External causes (injury and poisoning)**

- Over the period 2002–2006, there were 1,224 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from external causes. Indigenous Australians died from external causes at almost three times the rate of non-Indigenous Australians (Table 1.23.4).
- The most common type of external cause of death among Indigenous Australians was intentional self-harm (suicide), followed by transport accidents and assault. Indigenous Australians died from intentional self-harm and transport accidents at 2 and 3 times the rate of non-Indigenous Australians respectively. Indigenous males and females died from assault at 9 and 10 times the rate of non-Indigenous males and females respectively.

**Table 1.23.4: Deaths of Indigenous Australians from external causes of injury and poisoning, by sex, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

	Males						Females						Persons					
	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>
Intentional self-harm (X60–X84)	294	34.8	42.4	36.8	48.0	2.4*	65	17.2	7.7	5.7	9.6	1.8*	359	29.3	24.3	21.5	27.1	2.2*
<b>Accidents</b>																		
Transport accidents (V01–V99)	239	28.3	38.4	32.1	44.7	2.7*	116	30.6	18.1	14.2	22.0	4.1*	355	29.0	27.7	24.2	31.3	3.0*
Accidental drowning or accidental threats to breathing (W65–W84)	81	9.6	12.1	9.0	15.3	3.3*	33	8.7	5.0	2.5	7.5	3.5*	114	9.3	8.5	6.5	10.5	3.3*
Accidental poisoning by and exposure to noxious substances (X40–X49)	35	4.1	5.3	3.5	7.2	1.5*	21	5.5	3.7	2.0	5.3	2.2*	56	4.6	4.5	3.2	5.7	1.7*
Exposure to electric current/smoke/fire/animals/nature (W85–W99, X00–X39)	23	2.7	4.6	1.9	7.3	4.2*	14	3.7	2.1	0.7	3.4	3.9*	37	3.0	3.2	1.9	4.6	3.9*
Accidental falls (W00–W19)	22	2.6	7.1	3.2	11.1	1.7	14	3.7	5.5	2.0	9.0	1.8	36	2.9	6.3	3.7	9.0	1.7*
Exposure to inanimate mechanical forces (W20–W49)	16	1.9	2.0	0.9	3.0	1.5	6	1.6	0.7	0.1	1.4	3.8*	22	1.8	1.4	0.8	2.0	1.8*

*(continued)*

**Table 1.23.4 (continued): Deaths of Indigenous Australians from external causes of injury and poisoning, by sex, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

	Males						Females						Persons					
	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>
Other external causes of accidental injury (W50–W64 X50–X59)	46	5.4	18.5	11.2	25.7	3.6*	34	9.0	11.1	6.4	15.7	2.5*	80	6.5	14.3	10.2	18.3	3.0*
Assault (X85–Y09)	66	7.8	10.4	7.6	13.1	9.5*	52	13.7	6.8	4.8	8.8	9.9*	118	9.6	8.5	6.8	10.1	9.5*
Complications of medical or surgical care (Y40–Y84)	3	0.4	2.0	–0.5	4.6	1.8	14	3.7	4.9	2.0	7.7	5.0*	17	1.4	3.6	1.6	5.5	3.4*
Other external causes <sup>(i)</sup>	20	2.4	5.3	1.9	8.7	3.7*	10	2.6	2.2	0.4	4.1	4.0*	30	2.5	3.6	1.8	5.4	3.6*
<b>Total external causes</b>	<b>845</b>	<b>100.0</b>	<b>148.2</b>	<b>134.5</b>	<b>161.9</b>	<b>2.7*</b>	<b>379</b>	<b>100.0</b>	<b>67.6</b>	<b>58.7</b>	<b>76.5</b>	<b>3.0*</b>	<b>1,224</b>	<b>100.0</b>	<b>105.8</b>	<b>98.0</b>	<b>113.6</b>	<b>2.8*</b>

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the  $p < 0.05$  level.

- (a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.
- (b) Data are presented in 5 -year groupings because of small numbers each year.
- (c) These data exclude 421 deaths where the Indigenous status was not stated.
- (d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all causes mortality rate.
- (e) Deaths are by year of registration of death and state/territory of usual residence.
- (f) Directly age-standardised using the Australian 2001 standard population.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio Indigenous:non-Indigenous.
- (j) Includes event of undetermined intent; legal intervention and operations of war; sequelae of external cause of mortality; supplementary factors related to causes of mortality not classified elsewhere.

Note: Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

Source: AIHW analysis of National Mortality Database.

### **Neoplasms (cancer)**

- Over the period 2002–2006, there were 1,184 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from cancer. Indigenous Australians died from cancer at around 1.3 times the rate of non-Indigenous Australians (Table 1.23.5).
- The most common type of cancer causing mortality among Indigenous Australians was cancer of the digestive organs, from which they died at 1.3 times the rate of non-Indigenous Australians.
- The second most common type of cancer causing mortality among Indigenous Australians was cancer of the respiratory and intrathoracic organs, which comprises predominantly lung cancer. Indigenous Australians died from lung cancer at almost twice the rate of non-Indigenous Australians.
- Over the period 2002–2006, there were 35 deaths of Indigenous females in the four jurisdictions from cervical cancer. Indigenous females died from cervical cancer at almost six times the rate of non-Indigenous Australians.

**Table 1.23.5: Deaths of Indigenous Australians from neoplasms (cancer), by sex, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

Site of neoplasm	Males						Females						Persons					
	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>
Digestive organs (C15–C26)	189	30.8	84.1	69.7	98.5	1.4*	118	20.7	46.3	36.9	55.7	1.2	307	25.9	63.2	55.0	71.3	1.3*
Respiratory and intrathoracic organs (C30–C39)	179	29.2	86.7	72.1	101.2	1.6*	120	21.1	42.4	34.1	50.6	1.8*	299	25.3	61.6	53.8	69.4	1.7*
<i>Bronchus &amp; lung (C34)<sup>(j)</sup></i>	162	26.4	80.1	66.0	94.1	1.6*	114	20.0	40.6	32.4	48.7	1.8*	276	23.3	57.7	50.1	65.3	1.6*
Ill-defined, secondary & unspecified site (C76–C80)	45	7.3	22.8	14.9	30.7	1.8*	50	8.8	22.7	15.7	29.6	2.3*	95	8.0	22.8	17.5	28.0	2.0*
Lymphoid, haematopoietic and related tissue (C81–C96)	48	7.8	22.2	14.4	30.1	0.9	43	7.5	13.9	9.0	18.9	0.9	91	7.7	17.4	13.1	21.7	0.9
Female genital organs (C51–C58)	..	..	..	..	..	..	86	15.1	30.1	22.8	37.4	2.4*	86	7.3	16.8	12.6	20.9	2.5*
<i>Cervix (C53)<sup>(j)</sup></i>	..	..	..	..	..	..	35	6.1	11.1	6.8	15.5	5.5*	35	3.0	6.2	3.7	8.6	5.7*
Lip, oral cavity and pharynx (C00–C14)	54	8.8	20.3	14.0	26.6	4.2*	25	4.4	7.9	4.5	11.2	5.1*	79	6.7	13.4	10.1	16.8	4.3*
Breast (C50)	..	..	..	..	..	..	73	12.8	24.5	18.1	31.0	1.1	73	6.2	13.6	10.0	17.3	1.1

(continued)

**Table 1.23.5 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by sex, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

Site of neoplasm	Males						Females						Persons					
	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>
Malignant neoplasms of urinary tract (C64–C68)	19	3.1	11.0	5.2	16.8	0.8	13	2.3	4.1	1.6	6.6	0.7	32	2.7	7.0	4.2	9.8	0.8
Male genital organs (C60–C63)	29	4.7	17.6	10.3	24.9	0.6*	..	..	..	..	..	..	29	2.4	7.5	4.5	10.6	0.5*
Other malignant neoplasms <sup>(k)</sup>	37	6.0	12.4	7.5	17.4	0.5*	30	5.3	8.8	4.9	12.7	0.7	67	5.7	10.5	7.4	13.6	0.6*
Non-malignant neoplasms (D00–D48)	14	2.3	7.8	2.7	13.0	1.6	12	2.1	5.0	1.7	8.3	1.6	26	2.2	6.2	3.3	9.0	1.6
<b>Total neoplasms</b>	<b>614</b>	<b>100.0</b>	<b>285.0</b>	<b>258.1</b>	<b>311.8</b>	<b>1.2*</b>	<b>570</b>	<b>100.0</b>	<b>205.7</b>	<b>186.5</b>	<b>224.9</b>	<b>1.4*</b>	<b>1,184</b>	<b>100.0</b>	<b>240.0</b>	<b>224.2</b>	<b>255.8</b>	<b>1.3*</b>

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the  $p < 0.05$  level.

- (a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.
- (b) Data are presented in 5-year groupings because of small numbers each year.
- (c) These data exclude 603 deaths where the Indigenous status was not stated.
- (d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate.
- (e) Deaths are by year of registration of death and state/territory of usual residence.
- (f) Directly age-standardised using the Australian 2001 standard population.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio Indigenous:non-Indigenous.
- (j) Data presented for bronchus & lung cancer are a subset of data presented for all respiratory and intrathoracic organs; data presented for cervix cancer are a subset of data presented for all cancers of the female genital organs in this table.
- (k) Includes neoplasms of bone and articular cartilage; melanoma & other neoplasms of skin; neoplasms of mesothelial and soft tissue; neoplasms of eye, brain and other parts of central nervous system; neoplasms of thyroid and other endocrine glands.

Note: Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

Source: AIHW analysis of National Mortality Database.

**Respiratory diseases**

- Over the period 2002–2006, there were 653 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from respiratory diseases. Indigenous Australians died from respiratory diseases at almost three times the rate of non-Indigenous Australians (Table 1.23.6).
- The most common type of respiratory disease causing death among Indigenous Australians was chronic lower respiratory diseases (including asthma, bronchitis and emphysema), followed by influenza and pneumonia. Indigenous Australians died at around three times and twice the rate of non-Indigenous Australians for these diseases respectively.

**Table 1.23.6: Deaths of Indigenous Australians from respiratory diseases, by sex, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

	Males						Females						Persons					
	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>
Chronic lower respiratory diseases (J40–J47)	209	55.3	111.1	93.3	128.8	3.2*	155	56.4	65.3	53.7	76.8	3.3*	364	55.7	85.0	75.0	95.0	3.2*
Pneumonia and influenza (J10–J18)	110	29.1	40.4	30.3	50.5	2.4*	85	30.9	29.4	21.5	37.2	1.9*	195	29.9	34.4	28.2	40.7	2.1*
Other respiratory disease (J00–06, J20–39, J60–99)	59	15.6	21.2	13.9	28.6	1.5*	35	12.7	13.6	8.4	18.8	1.6*	94	14.4	17.0	12.7	21.3	1.5*
<b>Total respiratory diseases</b>	<b>378</b>	<b>100.0</b>	<b>172.7</b>	<b>150.9</b>	<b>194.4</b>	<b>2.6*</b>	<b>275</b>	<b>100.0</b>	<b>108.2</b>	<b>93.3</b>	<b>123.1</b>	<b>2.5*</b>	<b>653</b>	<b>100.0</b>	<b>136.4</b>	<b>123.8</b>	<b>149.0</b>	<b>2.6*</b>

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the  $p < 0.05$  level.

- (a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.
- (b) Data are presented in 5-year groupings because of small numbers each year.
- (c) These data exclude 313 deaths where the Indigenous status was not stated.
- (d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate.
- (e) Deaths are by year of registration of death and state/territory of usual residence.
- (f) Directly age-standardised using the Australian 2001 standard population.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio Indigenous:non-Indigenous.

*Note:* Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

*Source:* AIHW analysis of National Mortality Database.

### **Diseases of the genitourinary system**

- Over the period 2002–2006, there were 220 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from diseases of the genitourinary system. Indigenous Australians died from genitourinary disease at around four times the rate of non-Indigenous Australians (Table 1.23.7).
- The most common type of genitourinary disease causing mortality among Indigenous Australians was renal failure, from which they died at around four times the rate of non-Indigenous Australians.
- Over the period 2002–2006, Indigenous males and females died from renal tubulo-intestinal disorders at around nine and five times the rate of non-Indigenous males and females respectively. Over the same period, Indigenous males and females died from glomerular disease (a disease of the kidneys) at four and eight times the rate of non-Indigenous males and females respectively.

**Table 1.23.7: Deaths of Indigenous Australians from diseases of the genitourinary system, by sex, Qld, WA, SA and NT, 2002–2006<sup>(a)(b)(c)(d)(e)</sup>**

	Males						Females						Persons					
	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>	No.	%	No. per 100,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Rate ratio <sup>(i)</sup>
Renal failure (N17–N19)	64	66.7	35.2	24.8	45.5	3.7*	77	62.1	32.3	24.1	40.6	4.4*	141	64.1	33.4	27.0	39.9	4.0*
Other diseases of the urinary system (N30–N39)	11	11.5	8.2	2.8	13.5	2.9*	19	15.3	10.0	5.0	14.9	2.5*	30	13.6	9.2	5.6	12.9	2.6*
Renal tubulo-intestinal diseases (N10–N16)	8	8.3	4.1	0.6	7.6	8.7*	9	7.3	3.3	0.7	5.9	4.6*	17	7.7	3.6	1.6	5.7	6.0*
Glomerular disease (N00–N08)	8	8.3	1.9	0.5	3.2	4.3*	8	6.5	2.3	0.6	3.9	7.6*	16	7.3	2.1	1.0	3.2	5.9*
Other diseases of the genitourinary system <sup>(j)</sup>	5	5.2	4.0	0.1	7.8	3.5*	11	8.9	3.6	1.1	6.2	7.9*	16	7.3	3.7	1.5	5.8	5.0*
<b>Total genitourinary diseases</b>	<b>96</b>	<b>100.0</b>	<b>53.3</b>	<b>40.4</b>	<b>66.1</b>	<b>3.7*</b>	<b>124</b>	<b>100.0</b>	<b>51.5</b>	<b>41.1</b>	<b>61.9</b>	<b>4.0*</b>	<b>220</b>	<b>100.0</b>	<b>52.1</b>	<b>44.0</b>	<b>60.2</b>	<b>3.9*</b>

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

- (a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.
- (b) Data are presented in 5-year groupings because of small numbers each year.
- (c) These data exclude 73 deaths where the Indigenous status was not stated.
- (d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all causes mortality rate.
- (e) Deaths are by year of registration of death and state/territory of usual residence.
- (f) Directly age-standardised using the Australian 2001 standard population.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio Indigenous:non-Indigenous.
- (j) Includes: urolithiasis; other disorders of the kidney & urether; disease of male genital organs; disorders of breast; inflammatory disorders of the female pelvic organs; non-inflammatory disorders of the female genital tract; other disorders of the genitourinary tract.

Note: Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

Source: AIHW analysis of National Mortality Database.

## Time series analysis

Longer term mortality trend data are limited to three jurisdictions – Western Australia, South Australia and the Northern Territory, which have over 10 years of adequate identification of Indigenous deaths in their recording systems.

There is a consistent time series of population estimates from 1991. Because of changes in the classification and coding of causes of death from ICD-9 (used up until 1996) to ICD-10 (used from 1997 onwards) which affect the comparability of the data, the analysis reported for this measure is for two time periods – 1991–1996 and 1997–2006.

Because of the late inclusion of a ‘not stated’ category of Indigenous status in 1998 (before which ‘not stated’ responses were included with non-Indigenous deaths), Indigenous mortality rates have been compared with the mortality rates of other Australians (which include deaths of both non-Indigenous people and people for whom Indigenous status was not stated).

Mortality rates, rate ratios and rate differences between Indigenous and other Australians for circulatory diseases, external causes (injury and poisoning), respiratory diseases, diabetes, cancer and kidney-related diseases over the period 1991–1996 and 1997–2006 are presented in tables 1.23.8a to 1.23.13a and Figure 1.23.1.

Additional trends analysis has been presented for Queensland, Western Australia, South Australia and the Northern Territory combined from 1998 to 2006 for Indigenous and non-Indigenous Australians in tables 1.23.8b to 1.23.13b. Queensland has had adequate identification of Indigenous deaths in its recording systems since 1998, and these have been compared with those of non-Indigenous Australians (excluding deaths for which Indigenous status was not stated).

### Circulatory diseases

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were non-significant declines in mortality rates for circulatory diseases among Indigenous Australians and significant declines in mortality rates for circulatory diseases among other Australians (Table 1.23.8a).
- Over the period 1997–2006 there were significant declines in mortality rates for circulatory diseases among Indigenous and other Australians. The fitted trend implies an average yearly decline in the rate of around 21 deaths per 100,000 for Indigenous Australians (equivalent to a 31% reduction in the rate over this period) and 11 deaths per 100,000 for other Australians (equivalent to a 33% reduction on the rate over this period). Over the same period, there was no significant change in mortality rate ratios and a significant decline in the mortality rate difference between Indigenous and other Australians from circulatory diseases (Table 1.23.8a).
- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant declines in mortality rates for circulatory diseases among Indigenous Australians (20% decline) and non-Indigenous Australians (30% decline). There was a significant increase in the rate ratio between Indigenous and other Australians from circulatory diseases (13%) (Table 1.23.8b).

### External causes (injury and poisoning)

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory, there were non-significant declines in mortality rates for injury and poisoning among Indigenous Australians. Over the same period there were no significant changes in

the mortality rates for other Australians. There were also no significant changes in the mortality rate ratio or rate difference between Indigenous and other Australians from injury and poisoning over the period 1991–1996 (Table 1.23.9a).

- Over the period 1997–2006 there was an apparent increase in the mortality rate from injury and poisoning for Indigenous Australians, but this increase did not obtain statistical significance. Over the same period there was a significant decline in the mortality rate for injury and poisoning for other Australians (16% decline over the period). There were significant increases in both the mortality rate ratio and mortality rate difference between Indigenous and other Australians for injury and poisoning over the period 1996–2006 (Table 1.23.9a).
- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there was no significant change in mortality rates for external causes among Indigenous Australians. Over the same period there was a significant decline in mortality rates among non-Indigenous Australians (21% decline). There was a significant increase in the rate ratio between Indigenous and other Australians for external causes (23%) (Table 1.23.9b).

### **Cancer**

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory, there was an apparent decline in the mortality rate for cancer for Indigenous Australians, however, this decline did not obtain statistical significance. Over the same period there was no significant change in the mortality rate for cancer for other Australians (Table 1.23.10a).
- Over the period 1997–2006, there were non-significant increases in mortality rates for cancer among Indigenous Australians and significant declines in mortality rates for cancer among other Australians (10% decline over the period). There were significant increases in the mortality rate ratios and rate differences between Indigenous and other Australians for cancer over the period 1997–2006 reflecting both a relative and an absolute increase in the gap between mortality rates for Indigenous and other Australians from cancer (Table 1.23.10a).
- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there were non-significant increases in mortality rates for cancer among Indigenous Australians and significant declines in mortality rates for cancer among non-Indigenous Australians (10% decline). There were significant increases in the mortality rate ratios and rate differences between Indigenous and other Australians for cancer over the period 1998–2006 (Table 1.23.10b).

### **Respiratory diseases**

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there was a significant decline in mortality rates for respiratory diseases among Indigenous Australians (decrease of 18%) and a non-significant decline in mortality rates for respiratory diseases among other Australians. There was no significant change in the rate ratio but there was a significant decline in the rate difference between Indigenous and other Australians for respiratory diseases over the period 1991–1996 (Table 1.23.11a).
- Over the period 1997–2006, there were no significant changes in the mortality rates for respiratory diseases for Indigenous Australians, but there were significant declines in the mortality rates for respiratory diseases for other Australians (decline of 14%). There were no significant changes in either the mortality rate ratio or mortality rate difference

between Indigenous and other Australians for respiratory diseases over this period (Table 1.23.11a).

- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in the mortality rates for respiratory diseases for Indigenous Australians or other Australians. There were no significant changes in either the mortality rate ratio or mortality rate difference between Indigenous and other Australians for respiratory diseases over this period (Table 1.23.11b).

### **Diabetes**

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were non-significant increases in mortality rates for diabetes among Indigenous Australians and significant increases in mortality rates for diabetes among other Australians (increase of 39%) (Table 1.23.12a).
- Over the period 1997–2006, there were no significant changes in the mortality rates for diabetes for Indigenous or other Australians (Table 1.23.12a).
- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there was no significant change in mortality rates for diabetes among Indigenous Australians and significant increases in mortality rates for diabetes among non-Indigenous Australians (6% increase). There was no significant change in the mortality rate ratios or rate differences between Indigenous and non-Indigenous Australians over this period (Table 1.23.12b).

### **Kidney diseases**

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were no significant changes in mortality rates for kidney diseases among Indigenous Australians, but significant increases in mortality rates for kidney diseases among other Australians (increase of 30%). There were apparent declines in the mortality rate ratios and rate differences between Indigenous and other Australians from kidney diseases, but these did not obtain statistical significance (Table 1.23.13a).
- Over the period 1997–2006, there were non-significant declines in mortality rates for kidney diseases for Indigenous Australians and no significant change in mortality rates for kidney diseases for other Australians. There were apparent declines in the mortality rate ratios and rate differences between Indigenous and other Australians for kidney diseases, but these did not obtain statistical significance (Table 1.23.13a).
- Over the period 1998–2006, in Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in mortality rates for kidney diseases for Indigenous or non-Indigenous Australians (Table 1.23.13a).

Note that fluctuations in the level of Indigenous mortality over time partly reflect changing levels of coverage of Indigenous deaths and population estimates. Given the volatility in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

**Table 1.23.8a: Age-standardised mortality rates, rate ratios and rate differences, circulatory diseases, WA, SA and NT, 1991–1996 and 1997–2006**

	1991	1992	1993	1994	1995	1996	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	553.6	517.0	479.9	632.4	540.8	421.7	-12.5	-11.2	606.0	539.4	510.4	505.0	415.6	396.3	406.9	481.3	412.4	374.2	-20.8*	-30.9
Other <sup>(d)</sup> deaths per 100,000 <sup>(c)</sup>	364.1	349.2	357.6	344.8	324.0	316.4	-9.3*	-12.8	297.6	285.0	267.3	251.6	245.2	236.5	229.9	210.3	208.2	198.3	-10.9*	-32.8
Rate ratio <sup>(e)</sup>	1.5	1.5	1.3	1.8	1.7	1.3	—	1.1	2.0	1.9	1.9	2.0	1.7	1.7	1.8	2.3	2.0	1.9	—	1.2
Rate difference <sup>(f)</sup>	189.5	167.8	122.3	287.7	216.8	105.3	-3.1	-8.2	308.3	254.4	243.1	253.4	170.4	159.7	177.0	271.0	204.2	175.9	-10.0*	-29.1

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the periods 1991–1996 and 1997–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1991 and 1996 and between 1997 and 2006 based on the average annual change over the period.

(c) Rates have been directly age-standardised using the 2001 Australian standard population.

(d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(e) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(f) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.8b: Age-standardised mortality rates, rate ratios and rate differences, circulatory diseases, Qld, WA, SA and NT, 1998–2006**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	511.7	473.4	454.7	407.2	418.9	424.1	446.7	381.3	391.1	-12.6*	-19.8
Non-Indigenous deaths per 100,000 <sup>(c)</sup>	291.5	278.5	257.2	249.4	243.7	231.1	221.1	210.5	203.5	-10.8*	-29.6
Rate ratio <sup>(d)</sup>	1.8	1.7	1.8	1.6	1.7	1.8	2.0	1.8	1.9	0.03*	13.0
Rate difference <sup>(e)</sup>	220.2	195.0	197.6	157.9	175.3	193.0	225.6	170.8	187.6	-1.9	-6.8

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 1998–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1998 and 2006 based on the average annual change over the period.

(c) Rates have been directly age-standardised using the 2001 Australian standard population.

(d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.9a: Age-standardised mortality rates, rate ratios and rate differences, external causes, WA, SA and NT, 1991–1996 and 1997–2006**

	1991	1992	1993	1994	1995	1996	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	172.0	137.3	126.7	138.3	120.7	139.4	-5.7	-16.7	110.8	139.1	105.3	130.6	127.1	124.4	123.8	114.3	150.4	132.3	1.8	14.5
Other <sup>(d)</sup> deaths per 100,000 <sup>(c)</sup>	43.6	42.5	43.8	41.9	41.2	44.4	-0.1	-0.7	41.8	47.7	41.8	43.8	41.1	38.8	39.9	37.9	39.8	37.8	-0.8*	-16.4
Rate ratio <sup>(e)</sup>	3.9	3.2	2.9	3.3	2.9	3.1	-0.1	-16.3	2.6	2.9	2.5	3.0	3.1	3.2	3.1	3.0	3.8	3.5	0.1*	34.3
Rate difference <sup>(f)</sup>	128.4	94.8	82.9	96.4	79.6	95.0	-5.7	-22.2	69.0	91.4	63.4	86.8	86.0	85.6	84.0	76.4	110.5	94.6	2.5*	33.2

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the periods 1991–1996 & 1997–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1991 and 1996 and between 1997 and 2006 based on the average annual change over the period.

(c) Rates have been directly age-standardised using the 2001 Australian standard population.

(d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(e) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(f) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.9b: Age-standardised mortality rates, rate ratios and rate differences, external causes, Qld, WA, SA and NT, 1998–2006**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	122.7	90.8	106.5	105.8	102.8	108.5	97.1	120.8	100.5	-0.2	-1.6
Non-Indigenous deaths per 100,000 <sup>(c)</sup>	46.8	43.0	44.8	41.6	39.7	39.5	38.6	37.9	35.8	-1.2*	-20.9
Rate ratio <sup>(d)</sup>	2.6	2.1	2.4	2.5	2.6	2.7	2.5	3.2	2.8	0.07*	22.6
Rate difference <sup>(e)</sup>	75.9	47.8	61.7	64.2	63.1	69.0	58.5	83.0	64.7	1.0	10.3

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 1998–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1998 and 2006 based on the average annual change over the period.

(c) Rates have been directly age-standardised using the 2001 Australian standard population.

(d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.10a: Age-standardised mortality rates, rate ratios and rate differences, cancer, WA, SA and NT, 1991–1996 and 1997–2006**

	1991	1992	1993	1994	1995	1996	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	229.8	245.9	216.0	215.2	242.6	200.6	-4.5	-9.7	245.9	224.4	196.9	263.4	214.9	233.2	247.3	243.4	227.2	279.1	3.2	11.5
Other <sup>(d)</sup> deaths per 100,000 <sup>(c)</sup>	206.3	200.8	211.2	211.9	203.1	207.0	0.3	0.8	203.2	194.4	195.3	192.4	190.4	191.4	187.7	181.7	180.9	182.7	-2.2*	-9.7
Rate ratio <sup>(e)</sup>	1.1	1.2	1.0	1.0	1.2	1.0	—	-10.5	1.2	1.2	1.0	1.4	1.1	1.2	1.3	1.3	1.3	1.5	0.03*	23.3
Rate difference <sup>(f)</sup>	23.5	45.1	4.9	3.3	39.5	-6.4	-4.8	-101.9	42.7	30.0	1.6	71.0	24.5	41.8	59.6	61.7	46.3	96.4	5.3*	112.4

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the periods 1991–1996 and 1997–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1991 and 1996 and between 1997 and 2006 based on the average annual change over the period.

(c) Rates have been directly age-standardised using the 2001 Australian standard population.

(d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(e) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(f) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.10b: Age-standardised mortality rates, rate ratios and rate differences, cancer, Qld, WA, SA and NT, 1998–2006**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	218.3	224.2	259.6	236.6	220.5	242.6	251.7	225.3	259.6	2.6	9.7
Non-Indigenous deaths per 100,000 <sup>(c)</sup>	198.6	195.7	191.7	188.4	190.7	185.2	182.9	179.9	178.2	-2.5*	-10.1
Rate ratio <sup>(d)</sup>	1.1	1.1	1.4	1.3	1.2	1.3	1.4	1.3	1.5	0.03*	22.3
Rate difference <sup>(e)</sup>	19.8	28.5	67.9	48.2	29.8	57.4	68.8	45.4	81.4	5.1*	207.7

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 1998–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1998 and 2006 based on the average annual change over the period.

(c) Rates have been directly age-standardised using the 2001 Australian standard population.

(d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.11a: Age-standardised mortality rates, rate ratios and rate differences, respiratory diseases, WA, SA and NT, 1991–1996 and 1997–2006**

	1991	1992	1993	1994	1995	1996	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	269.6	231.3	253.1	221.4	216.2	217.5	-9.6*	-17.9	152.9	193.2	143.5	164.2	164.8	162.1	142.7	193.6	137.1	175.0	-0.1	-0.4
Other <sup>(d)</sup> deaths per 100,000 <sup>(c)</sup>	60.6	65.5	61.0	59.0	53.8	58.9	-1.3	-10.7	63.3	57.6	54.2	60.1	57.5	63.0	62.3	55.0	50.5	48.4	-1.0*	-14.4
Rate ratio <sup>(e)</sup>	4.5	3.5	4.1	3.8	4.0	3.7	-0.1	-8.8	2.4	3.4	2.6	2.7	2.9	2.6	2.3	3.5	2.7	3.6	0.1	20.4
Rate difference <sup>(f)</sup>	209.1	165.8	192.1	162.4	162.4	158.6	-8.3*	-20.0	89.7	135.6	89.3	104.2	107.3	99.1	80.4	138.6	86.5	126.7	0.9	9.5

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the periods 1991–1996 and 1997–2006.

- (a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
- (b) Per cent change between 1991 and 1996 and between 1997 and 2006 based on the average annual change over the period.
- (c) Rates have been directly age-standardised using the 2001 Australian standard population.
- (d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.
- (e) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.
- (f) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.11b: Age-standardised mortality rates, rate ratios and rate differences, respiratory diseases, Qld, WA, SA and NT, 1998–2006**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	148.4	116.5	146.7	150.8	147.2	134.2	148.5	116.4	137.6	-0.9	-5.1
Non-Indigenous deaths per 100,000 <sup>(c)</sup>	55.5	52.7	56.5	53.9	58.5	57.6	54.0	49.9	47.7	-0.7	-9.8
Rate ratio <sup>(d)</sup>	2.7	2.2	2.6	2.8	2.5	2.3	2.8	2.3	2.9	0.02	5.2
Rate difference <sup>(e)</sup>	92.9	63.8	90.2	96.9	88.7	76.6	94.5	66.5	89.8	-0.3	-2.3

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 1998–2006.

- (a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
- (b) Per cent change between 1998 and 2006 based on the average annual change over the period.
- (c) Rates have been directly age-standardised using the 2001 Australian standard population.
- (d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.
- (e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.12a: Age-standardised mortality rates, rate ratios and rate differences, diabetes, WA, SA and NT, 1991–1996 and 1997–2006**

	1991	1992	1993	1994	1995	1996	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	114.6	122.7	142.2	122.4	124.4	134.8	2.5	10.8	132.3	95.4	120.3	154.4	154.8	138.1	108.8	140.4	137.8	140.8	1.9	13.2
Other <sup>(d)</sup> deaths per 100,000 <sup>(c)</sup>	13.7	13.9	16.0	17.4	16.9	19.1	1.1*	39.3	17.6	15.0	15.0	15.1	15.4	15.8	15.1	16.3	15.8	17.0	—	2.5
Rate ratio <sup>(e)</sup>	8.4	8.8	8.9	7.0	7.4	7.0	-0.4*	-21.9	7.5	6.3	8.0	10.2	10.0	8.8	7.2	8.6	8.7	8.3	0.1	11.3
Rate difference <sup>(f)</sup>	100.9	108.7	126.2	104.9	107.6	115.7	1.4	6.9	114.8	80.4	105.3	139.3	139.4	122.3	93.6	124.0	122.0	123.8	1.9	14.8

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the periods 1991–1996 and 1997–2006.

- (a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
- (b) Per cent change between 1991 and 1996 and between 1997 and 2006 based on the average annual change over the period.
- (c) Rates have been directly age-standardised using the 2001 Australian standard population.
- (d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.
- (e) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.
- (f) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.12b: Age-standardised mortality rates, rate ratios and rate differences, diabetes, Qld, WA, SA and NT, 1998–2006**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	120.6	124.3	158.9	125.7	135.7	107.1	147.4	122.1	156.7	1.6	10.6
Non-Indigenous deaths per 100,000 <sup>(c)</sup>	14.9	14.8	15.1	14.5	14.9	14.5	15.5	15.5	16.0	0.1*	6.0
Rate ratio <sup>(d)</sup>	8.1	8.4	10.5	8.7	9.1	7.4	9.5	7.9	9.8	—	3.7
Rate difference <sup>(e)</sup>	105.7	109.5	143.7	111.2	120.8	92.5	132.0	106.7	140.7	1.5	11.3

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 1998–2006.

- (a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
- (b) Per cent change between 1998 and 2006 based on the average annual change over the period.
- (c) Rates have been directly age-standardised using the 2001 Australian standard population.
- (d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.
- (e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

**Table 1.23.13a: Age-standardised mortality rates, rate ratios and rate differences, kidney diseases, WA, SA and NT, 1991–1996 and 1997–2006**

	1991	1992	1993	1994	1995	1996	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	56.1	23.1	48.4	19.8	44.8	50.1	0.2	1.7	53.1	70.9	87.4	83.0	29.1	45.7	64.6	38.9	38.4	79.7	-1.6	-27.6
Other <sup>(d)</sup> deaths per 100,000 <sup>(c)</sup>	7.3	6.4	8.4	7.1	8.0	9.6	0.4*	30.0	11.1	10.5	9.8	10.2	10.9	10.7	10.5	10.5	9.9	10.6	—	-2.1
Rate ratio <sup>(e)</sup>	7.7	3.6	5.8	2.8	5.6	5.2	-0.3	-17.7	4.8	6.7	8.9	8.1	2.7	4.3	6.2	3.7	3.9	7.5	-0.2	-29.7
Rate difference <sup>(f)</sup>	48.8	16.7	40.0	12.7	36.8	40.5	-0.2	-2.5	42.0	60.4	77.6	72.8	18.2	35.0	54.1	28.4	28.4	69.1	-1.6	-34.4

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the periods 1991–1996 and 1997–2006.

- (a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
- (b) Per cent change between 1991 and 1996 and between 1997 and 2006 based on the average annual change over the period.
- (c) Rates have been directly age-standardised using the 2001 Australian standard population.
- (d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.
- (e) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.
- (f) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database.

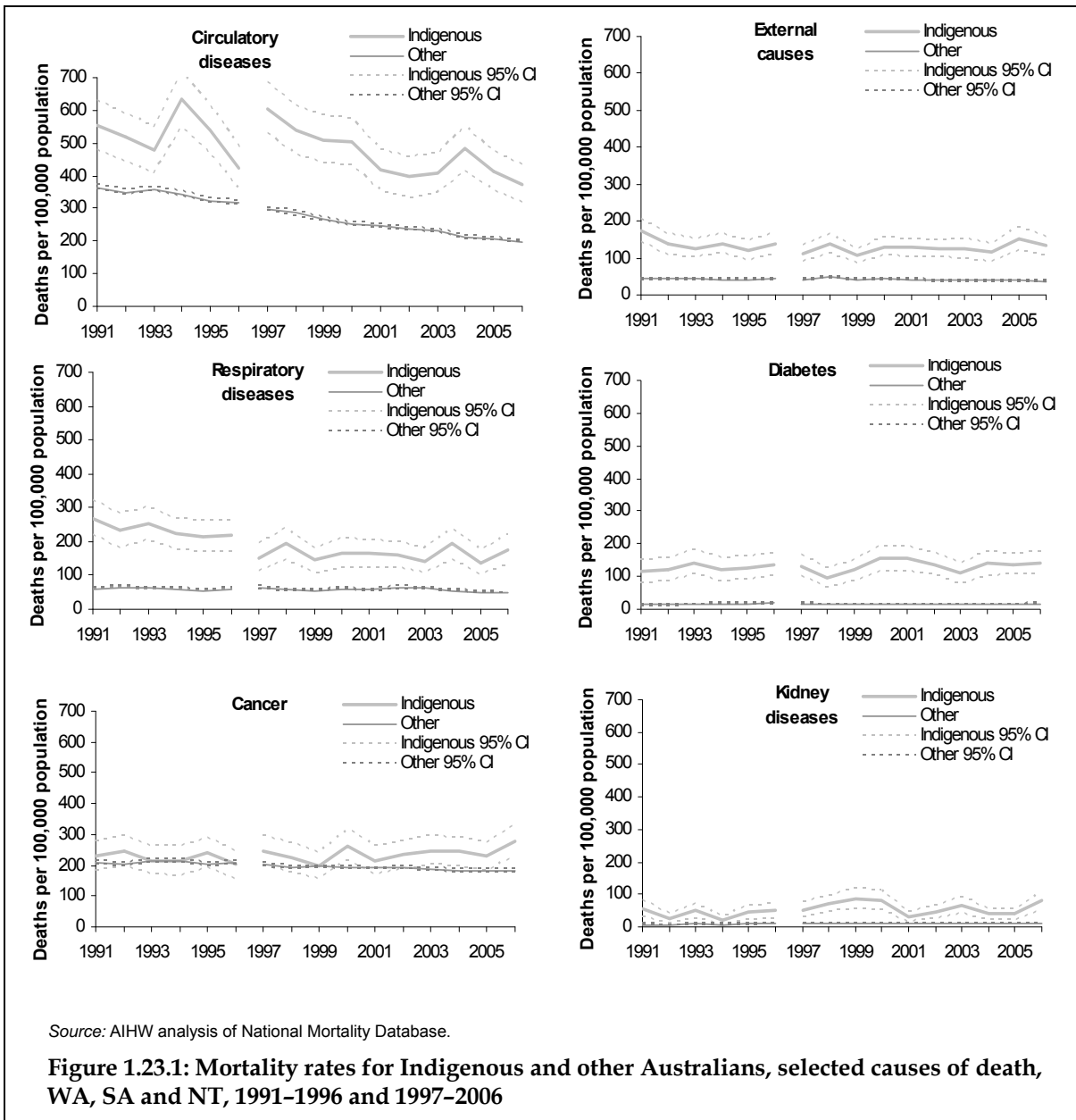
**Table 1.23.13b: Age-standardised mortality rates, rate ratios and rate differences, kidney diseases, Qld, WA, SA and NT, 1998–2006**

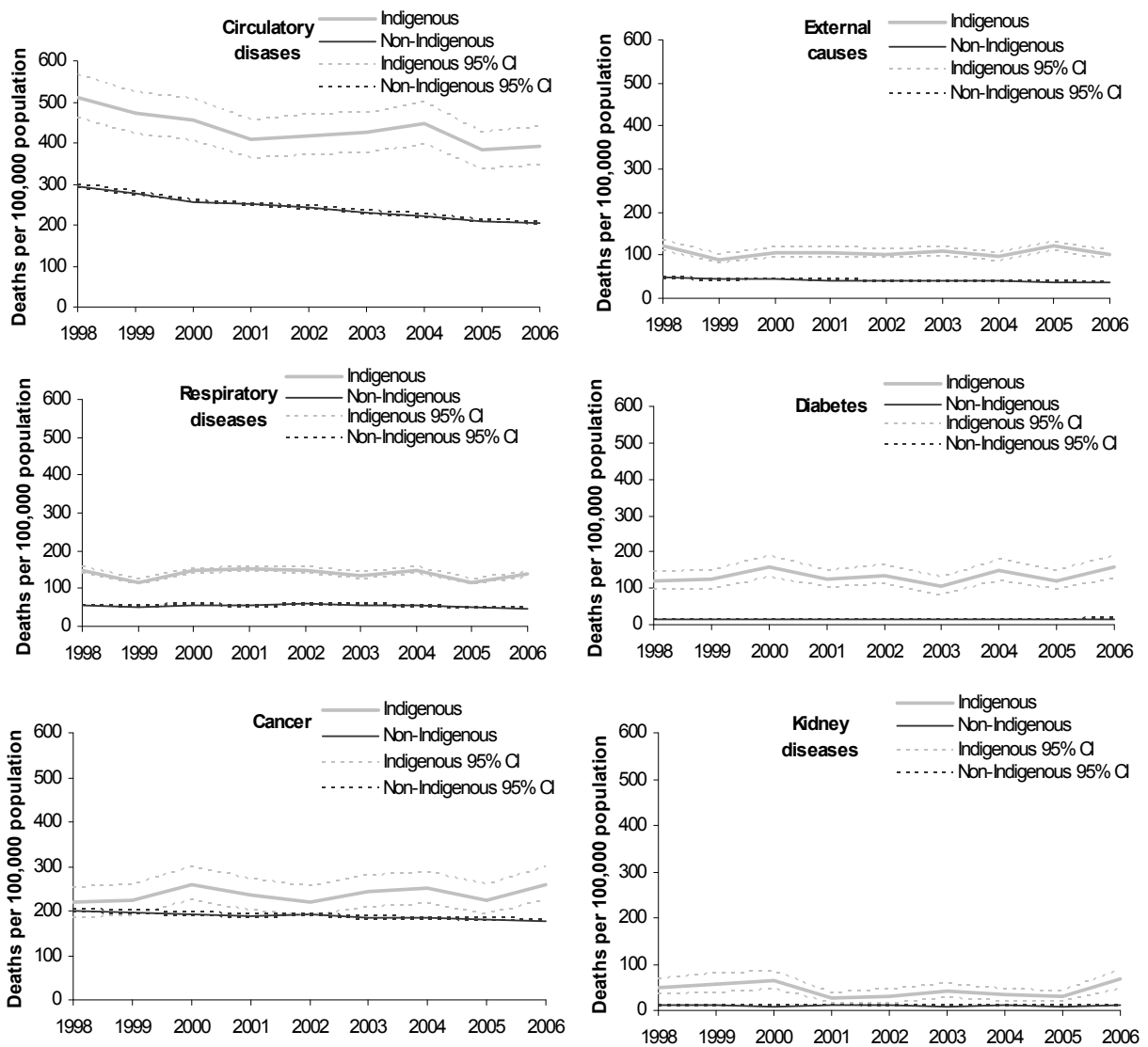
	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change <sup>(a)</sup>	% change <sup>(b)</sup>
Indigenous deaths per 100,000 <sup>(c)</sup>	49.4	58.4	63.7	26.0	30.0	39.8	32.1	29.8	67.6	-1.0	-16.9
Non-Indigenous deaths per 100,000 <sup>(c)</sup>	10.1	10.1	9.0	10.4	9.7	9.4	9.4	9.3	9.9	-0.1	-4.5
Rate ratio <sup>(d)</sup>	4.9	5.8	7.1	2.5	3.1	4.2	3.4	3.2	6.8	-0.1	-15.2
Rate difference <sup>(e)</sup>	39.4	48.3	54.7	15.6	20.3	30.4	22.7	20.4	57.7	-1.0	-20.1

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 1998–2006.

- (a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
- (b) Per cent change between 1998 and 2006 based on the average annual change over the period.
- (c) Rates have been directly age-standardised using the 2001 Australian standard population.
- (d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.
- (e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.





Source: AIHW analysis of National Mortality Database.

**Figure 1.23.2: Mortality rates for Indigenous and non-Indigenous Australians, selected causes of death, Qld, WA, SA and NT, 1998–2006**

### **Sensitivity of mortality trends to changes in identification**

- The fitted trends described above for the period 1991–2006 in Western Australia, South Australia and the Northern Territory for the two leading causes of mortality – circulatory diseases and external causes (injury and poisoning) – have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for coverage were posted – constant identification, increasing identification and decreasing identification.
  - Under the constant identification scenario, the numbers of deaths for the period under study were adjusted using the following under-identification estimates derived from the most recent ABS analyses (relating to the period 2002–2006):
    - Western Australia      72%
    - South Australia        62%
    - Northern Territory     90%.
  - Under the increasing identification scenario, deaths were adjusted by linearly increasing the identification through the periods under study – from 64% in 1991 to 72% in 2006 for Western Australia, from 52% to 62% for South Australia, and from 80% to 90% for the Northern Territory.
  - Under the decreasing identification scenario, deaths were adjusted by linearly decreasing the identification from 80% in 1991 to 72% in 2006 for Western Australia, from 72% to 62% for South Australia, and from 100% to 90% for the Northern Territory.

The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in mortality might not persist. For all three scenarios, the population figures (used as denominators in the calculation of mortality rates) were re-estimated to reflect the altered number of deaths implied by each scenario.

- The observed declines in mortality rates for circulatory disease among other Australians over the period 1991–1996 remained statistically significant under all three identification scenarios. The observed declines in the mortality rates for circulatory diseases among Indigenous and other Australians over the period 1997–2006 also remained statistically significant under all three identification scenarios. The decline in the mortality rate difference over this later period did not remain statistically significant under any identification scenario.
- The observed decline in the mortality rate for other Australians for injury and poisoning over the period 1997–2006 remained statistically significant under the increasing and decreasing identification scenarios. The increase in the mortality rate ratio over this period remained significant under all three identification scenarios and the increase in the mortality rate difference remained significant under the constant and decreasing identification scenarios.

## **Data quality issues**

### **Mortality data**

#### **Deaths**

*The mortality rate for Indigenous Australians can be influenced by identification of Indigenous deaths, late registration of deaths, and changes to death forms and/or processing systems. Because of the small size of the Indigenous population these factors can significantly affect trends over time and between jurisdictions.*

#### **Indigenous status question**

*All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms. However, New South Wales, Victoria, South Australia, the Northern Territory and the Australian Capital Territory all have slightly different wording from the national standard for the instruction on those with both Aboriginal and Torres Strait Islander origin (ABS & AIHW 2005). Although the wording is only slightly different, it would be ideal to have all jurisdictions asking the question in exactly the same way.*

#### **Under-identification**

*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 the number of deaths registered as Indigenous is an underestimate of deaths occurring in the Aboriginal and Torres Strait Islander population (ABS 1997). As a result, the observed differences between Indigenous and non-Indigenous mortality are underestimates of the true differences.*

*Although the identification of Indigenous deaths is incomplete in all state and territory registration systems, four jurisdictions (Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) with 10 years of adequate identification of Indigenous deaths in their recording systems. The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous. The ABS calculated the implied coverage (identification) of Indigenous deaths for the period 2002–2006 using population estimates: New South Wales 45%, Victoria 32%, Queensland 51%, South Australia 62%, Western Australia 72%, Northern Territory 90%, Tasmania and the Australian Capital Territory were not calculated due to small numbers, Australia 55% (ABS 2007).*

*Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.*

*There are also current concerns about data quality for causes of death, especially relating to external causes of death of all Australians (not just Indigenous) (ABS 2006).*

*(continued)*

### **Data quality issues (continued)**

#### ***Numerator and denominator***

*Rate and ratio calculations rely on good numerator and denominator data. The changes in the completeness of identification of Indigenous people in death records may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009 (ABS 2004).*

#### ***Cause of death coding***

*Causes of death are based on the 10th revision of the International Classification of Diseases (ICD-10). Mortality coding using ICD-10 was introduced into Australia on 1 January 1997.*

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