

1.02 Most common reasons for hospitalisation

Hospital admissions for the leading ICD-10-AM categories for Aboriginal and Torres Strait Islander people expressed as a rate by age group, age-standardised rate and rate ratio

Data sources

Data for this measure come from the AIHW's National Hospital Morbidity Database.

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Data are presented for the four jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2003–04 – Queensland, Western Australia, South Australia and the Northern Territory (AIHW 2005). These four jurisdictions represent approximately 60% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the two-year period July 2002 to June 2004. An aggregate of two-years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a change in a type of care (for example, from acute to rehabilitation).

Analyses

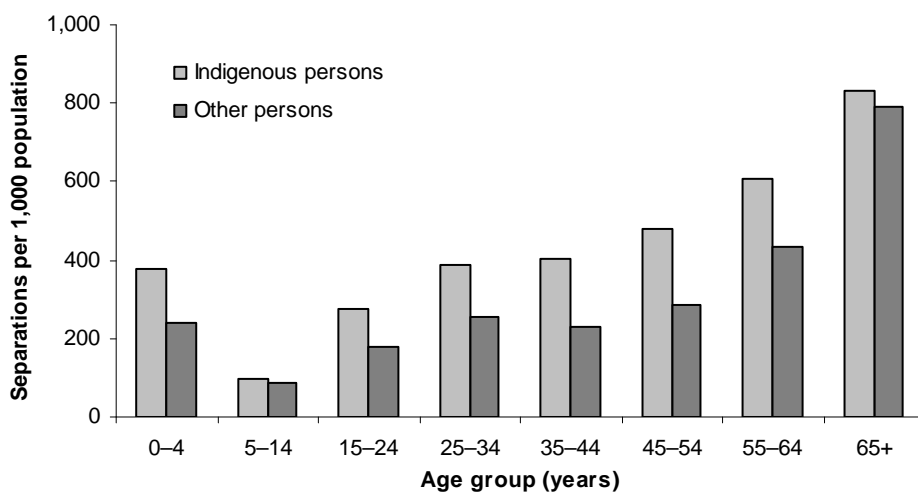
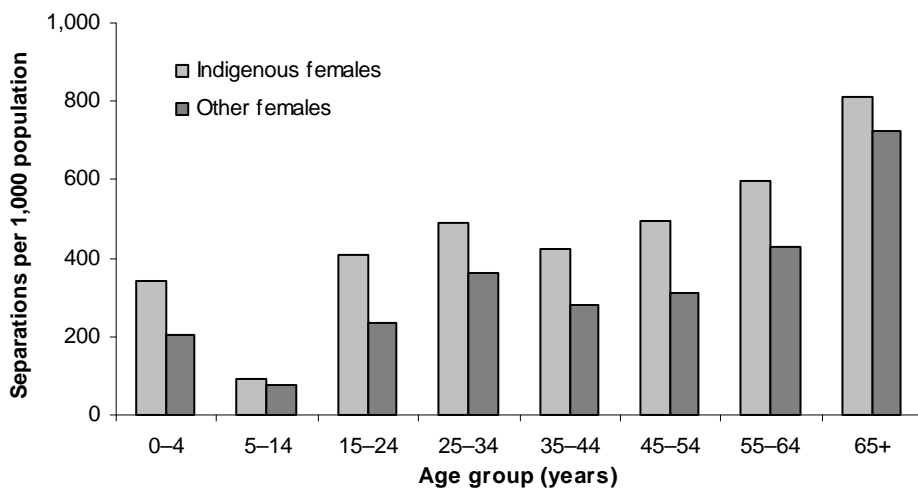
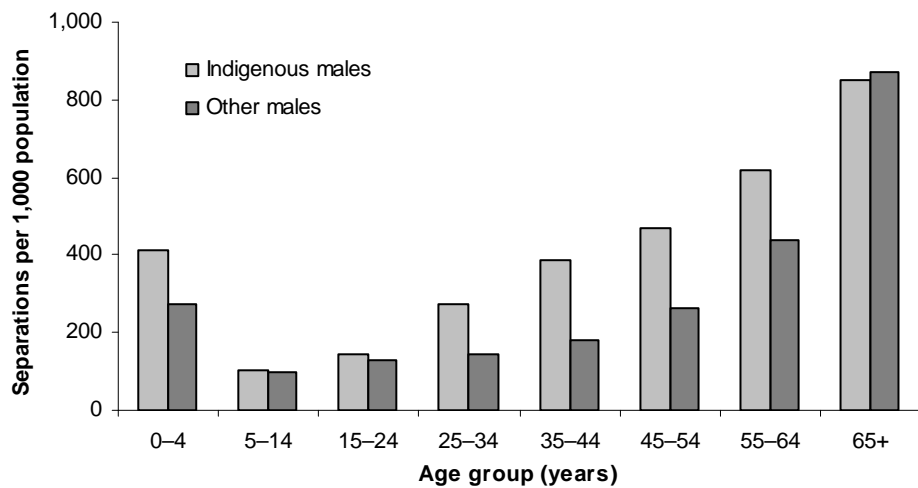
Age-standardised rates and ratios have been used for this indicator as a measure of hospitalisations in the Indigenous population relative to other Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of other Australians,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

Hospitalisations

- In the two-year period July 2002 to June 2004 there were a total of 5,193,610 hospitalisations in Queensland, Western Australia, South Australia and the Northern Territory. Of these, 312,292 or 6% were hospitalisations of Indigenous Australians. For 6.7% of hospitalisations, Indigenous status was not stated.
- Excluding hospitalisations for dialysis, there were 4,604,585 hospitalisations in Queensland, Western Australia, South Australia and the Northern Territory combined, 183,535 (4.0%) of which were hospitalisations of Indigenous Australians (Table 1.02.1).

Hospitalisations by age and sex

- For the two-year period July 2002 to June 2004, in Queensland, Western Australia, South Australia and the Northern Territory, when hospitalisations for dialysis are excluded, Indigenous males had higher hospitalisation rates than other males across all age groups with the exception of those aged 65 years and over. Indigenous females had higher hospitalisation rates than other females across all age groups (Figure 1.02.1).
- The greatest difference in hospitalisation rates occurred in the 25–34, 35–44 and 45–54 year age groups for males and in the 0–4, 15–24 and 45–54 year age groups for females. Indigenous males and females were hospitalised at up to twice the rate of other males and females in these age groups.



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Figure 1.02.1: Age-specific hospitalisation rates (excluding dialysis), by Indigenous status and sex, Qld, WA, SA and NT, July 2002-June 2004

Hospitalisations by state/territory

Table 1.02.1 presents hospitalisations excluding dialysis for the two-year period July 2002 to June 2004 for Queensland, Western Australia, South Australia and the Northern Territory.

- Indigenous Australians in Queensland and South Australia were hospitalised at twice the rate of other Australians while in Western Australia and the Northern Territory, Indigenous Australians were hospitalised at three times the rate of other Australians in these jurisdictions.
- When care involving dialysis is excluded from analysis, Indigenous Australians in Queensland were hospitalised at 1.3 times the rate of other Australians and in Western Australia, South Australia and the Northern Territory, Indigenous Australians were hospitalised at up to twice the rate of other Australians. In Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous Australians were hospitalised at 1.4 times the rate of other Australians.

Table 1.02.1: Hospitalisations (excluding dialysis), by Indigenous status and sex, Qld, WA, SA and NT, July 2002–June 2004^{(a)(b)(c)(d)}

	Indigenous				Other ^(e)				Ratio ⁽ⁱ⁾
	Number	Rate per 1,000 ^(f)	LCL 95% ^(g)	UCL 95% ^(h)	Number	Rate per 1,000 ^(f)	LCL 95% ^(g)	UCL 95% ^(h)	
Qld									
Males	30,704	376.7	370.6	382.8	1,073,612	293.5	293.0	294.1	1.3*
Females	41,583	417.1	411.9	422.3	1,281,869	331.2	330.6	331.8	1.3*
Persons	72,287	396.9	393.0	400.8	2,355,481	311.0	310.6	311.4	1.3*
WA									
Males	22,556	445.7	438.1	453.4	512,571	274.0	273.2	274.8	1.6*
Females	30,290	538.9	531.5	546.3	621,964	310.5	309.7	311.3	1.7*
Persons	52,846	493.5	488.2	498.8	1,134,535	290.7	290.2	291.2	1.7*
SA									
Males	7,625	419.2	406.3	432.2	464,420	299.1	298.2	300.0	1.4*
Females	10,699	504.0	492.1	515.9	564,452	340.7	339.7	341.6	1.5*
Persons	18,324	462.2	453.4	470.9	1,028,873	317.7	317.0	318.3	1.5*
NT									
Males	17,241	371.3	363.8	378.8	39,887	187.0	184.1	189.9	2.0*
Females	22,834	436.4	429.5	443.3	45,782	197.9	195.0	200.9	2.2*
Persons	40,078	403.3	398.3	408.4	85,696	192.9	190.8	195.0	2.1*
Qld, WA, SA and NT^(d)									
Males	78,126	395.3	391.5	399.2	2,090,490	287.7	287.3	288.1	1.4*
Females	105,406	457.2	453.8	460.7	2,514,067	325.4	325.0	325.4	1.4*
Persons	183,535	426.6	424.1	429.2	4,604,585	304.9	304.6	305.2	1.4*

* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

(a) Data are from public and most private hospitals. Data excludes private hospitals from the Northern Territory.

(b) Categories are based on the ICD-10-AM (National Centre for Classification in Health 2004).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised and are for Western Australia, South Australia, the Northern Territory and Queensland only. These four jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Hospitalisation data for four jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

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

(f) Directly age standardised using the Australian 2001 Standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Table 1.02.2 presents data on the most common principal diagnoses for hospitalisations involving Aboriginal and Torres Strait Islander peoples for the two-year period July 2002 to

June 2004 in Queensland, Western Australia, South Australia and the Northern Territory combined.

- In absolute terms the most common principal diagnosis among Indigenous Australians was care involving dialysis (41%), followed by injury and poisoning (8%), pregnancy (7%), diseases of the respiratory system (7%) and diseases of the digestive system (5%). However, when the younger age structure of the Indigenous population is taken into account, circulatory disease becomes a significant cause of hospitalisation among Indigenous people. Diseases of the digestive system were the most common diagnosis for other Australians in these four jurisdictions, responsible for 12% of hospitalisations.
- Overall, in Queensland, Western Australia, South Australia and the Northern Territory, Indigenous Australians were hospitalised at almost three times the rate of other Australians. Excluding dialysis, Indigenous Australians were hospitalised at 1.4 times the rate of other Australians.
- The greatest differences in rates between Indigenous and other Australians were for care involving dialysis and endocrine, nutritional and metabolic diseases, caused mainly by diabetes. Indigenous Australians were hospitalised at 15 and four times the rates of other Australians for these conditions respectively.

Table 1.02.2: Hospitalisations, by principal diagnosis and Indigenous status, Qld, WA, SA and NT, July 2002–June 2004^{(a)(b)(c)(d)}

Principal diagnosis	Number		Per cent		Indigenous			Other ^(e)			Ratio ⁽ⁱ⁾
	Indigenous	Other ^(e)	Indigenous	Other ^(e)	Rate per 1,000 ^(f)	95% UCL ^(g)	95% UCL ^(h)	Rate per 1,000 ^(f)	95% UCL ^(g)	95% UCL ^(h)	
Injury & poisoning & certain other consequences of external causes	25,255	314,996	8.1	6.5	49.1	48.4	49.9	21.9	21.8	22.0	2.2*
Pregnancy, childbirth and the puerperium ^(j)	23,782	317,281	7.6	6.5	34.9	34.5	35.4	22.6	22.6	22.7	1.5*
Diseases of the respiratory system	22,549	232,850	7.2	4.8	52.0	51.1	53.0	16.3	16.3	16.4	3.2*
Diseases of the digestive system	14,954	588,702	4.8	12.1	37.0	36.3	37.8	40.4	40.3	40.5	0.9*
Symptoms, signs and abnormal clinical and laboratory findings	11,459	191,037	3.7	3.9	30.6	29.9	31.3	18.9	18.8	19.0	1.6*
Mental and behavioural disorders	10,881	274,970	3.5	5.6	22.0	21.5	22.4	13.2	13.1	13.2	1.7*
Diseases of the circulatory system	9,815	310,286	3.1	6.4	37.6	36.7	38.4	21.2	21.1	21.2	1.8*
Diseases of the genitourinary system	8,014	258,229	2.6	5.3	21.2	20.6	21.8	17.7	17.7	17.8	1.2*
Diseases of the skin & subcutaneous tissue	7,970	91,441	2.6	1.9	16.8	16.3	17.3	6.3	6.3	6.3	2.7*
Certain infectious and parasitic diseases	7,700	61,520	2.5	1.3	12.4	12.1	12.8	4.4	4.3	4.4	2.9*

(continued)

Table 1.02.2 (continued): Hospitalisations, by principal diagnosis and Indigenous status, Qld, WA, SA and NT, July 2002–June 2004^{(a)(b)(c)(d)}

Principal diagnosis	Number		Per cent		Indigenous			Other ^(e)			Ratio ⁽ⁱ⁾
	Indigenous	Other ^(e)	Indigenous	Other ^(e)	Rate per 1,000 ^(f)	95% UCL ^(g)	95% UCL ^(h)	Rate per 1,000 ^(f)	95% UCL ^(g)	95% UCL ^(h)	
Endocrine, nutritional and metabolic diseases	6,325	78,133	2.0	1.6	21.4	20.8	22.1	5.4	5.3	5.4	4.0*
Other ^(k)	34,831	1,701,605	11.2	34.9	91.6	90.3	92.8	116.7	116.5	116.9	0.8*
<i>Subtotal</i>	<i>183,535</i>	<i>4,421,050</i>	<i>58.8</i>	<i>90.6</i>	<i>426.6</i>	<i>424.1</i>	<i>429.2</i>	<i>304.9</i>	<i>304.6</i>	<i>305.2</i>	<i>1.4*</i>
Care involving dialysis	128,684	460,181	41.2	9.4	455.4	452.6	458.1	31.4	31.4	31.5	14.5*
Total^(l)	312,292	4,881,318	100.0	100.0	882.2	878.5	886.0	336.4	336.1	336.7	2.6*

* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.

(b) Categories are based on the ICD-10-AM (National Centre for Classification in Health 2004).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised and are for Western Australia, South Australia, the Northern Territory and Queensland only. These four jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Hospitalisation data for four jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

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

(f) Directly age standardised using the Australian 2001 Standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate Ratio Indigenous:other.

(j) Rates and rate ratios are for females only.

(k) Includes: diseases of the musculoskeletal system and connective tissue, neoplasms, diseases of the nervous system, certain conditions originating in the perinatal period, diseases of the ear and mastoid process, diseases of the eye and adnexa, diseases of the blood and blood-forming organs and certain disorders involving the immune system, and congenital malformations, deformations and chromosomal abnormalities and factors influencing health status and contact with health services (except dialysis).

(l) Includes hospitalisations for which no principal diagnosis was recorded.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Hospitalisations by associated diagnosis

Table 1.02.3 presents hospitalisations for selected principal diagnoses by associated diagnoses, for Aboriginal and Torres Strait Islander people in Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the two-year period July 2002 to June 2004, the majority of hospitalisations with a principal diagnosis of care involving dialysis were reported with an associated diagnosis of diseases of the genitourinary system (77%) followed by endocrine, metabolic and nutritional disorders (10%).
- Approximately 22% of hospitalisations with a principal diagnosis of injury and poisoning were reported with an associated diagnosis of mental and behavioural disorders and to a lesser extent with endocrine, metabolic and nutritional disorders (10%).
- Hospitalisations with a principal diagnosis of circulatory diseases were most commonly reported with an associated diagnosis of endocrine, metabolic and nutritional diseases (47%).
- Hospitalisations with a principal diagnosis of infectious and parasitic diseases, diseases of the digestive system, respiratory diseases, and skin diseases were all commonly reported with an associated diagnosis of endocrine, metabolic and nutritional disorders (42%, 20%, 20% and 19% respectively).
- Hospitalisations with a principal diagnosis of endocrine, nutritional and metabolic diseases were commonly reported with an associated diagnosis of diseases of the circulatory system (37%).

Table 1.02.3: Hospitalisations of Indigenous persons: principal diagnosis by associated causes of hospitalisation, Qld, WA, SA, and NT, July 2002–June 2004^{(a)(b)(c)(d)}

Associated cause of hospitalisation	Principal diagnosis													Subtotal (excluding dialysis)	Total ^(f)
	Dialysis (Z49)	Injury & poisoning (S00-Y98)	Pregnancy (O00-O99)	Respiratory (J00-J99)	Digestive (K00-K93)	Mental disorders (F00-F99)	Abnormal findings (R00-R99)	Circulatory (I00-I99)	Genito-urinary (N00-N99)	Skin (L00-L99)	Infectious (A00-B99)	Endocrine (E00-E90)	Other ^(e)		
Percent															
Genitourinary diseases (N00–N99)	76.5	4.6	4.9	6.4	6.7	2.5	8.0	15.0	24.1	5.4	15.0	29.6	6.4	8.2	36.3
Endocrine, nutritional & metabolic (E00–E90)	9.8	10.3	2.6	19.8	19.9	9.8	23.2	47.4	22.2	18.9	41.7	46.5	12.7	17.9	14.6
Mental and behavioural disorders (F00–F99)	0.0	21.7	3.7	11.2	19.5	49.0	16.5	12.4	6.5	7.9	6.9	11.4	8.6	14.0	8.2
Diseases of the circulatory system (I00–I99)	1.9	5.8	1.9	13.0	10.8	3.8	17.6	58.1	12.1	9.0	8.5	36.5	8.6	12.1	7.9
Infectious and parasitic diseases (A00–B99)	0.0	8.8	7.3	14.1	8.8	3.5	6.4	6.5	22.3	37.1	21.9	17.9	7.2	11.1	6.5
Injury & poisoning (S00–Y98)	0.0	41.6	0.9	1.9	3.0	6.7	3.0	3.6	3.3	15.9	3.3	6.7	6.2	9.5	5.6
Symptoms, signs and abnormal findings (R00–R99)	0.1	5.7	4.9	10.2	8.0	12.9	15.1	11.1	8.2	5.4	16.6	13.8	7.9	8.9	5.2

(continued)

Table 1.02.3 (continued): Hospitalisations of Indigenous persons: principal diagnosis by associated causes of hospitalisation, Qld, WA, SA, and NT, July 2002–June 2004^{(a)(b)(c)(d)}

Associated cause of hospitalisation	Principal diagnosis													Subtotal (excluding dialysis)	Total ^(f)
	Dialysis (Z49)	Injury & poisoning (S00-Y98)	Pregnancy (O00-O99)	Respiratory (J00-J99)	Digestive (K00-K93)	Mental disorders (F00-F99)	Abnormal findings (R00-R99)	Circulatory (I00-I99)	Genito-urinary (N00-N99)	Skin (L00-L99)	Infectious (A00-B99)	Endocrine (E00-E90)	Other ^(e)		
Percent															
Respiratory diseases (J00–J99)	0.0	3.2	2.4	20.5	5.3	3.7	6.3	13.7	5.7	3.2	14.9	9.9	5.3	7.4	4.4
Pregnancy, childbirth (O00–O99)	0.0	0.2	54.4	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.4	7.2	4.2
Digestive diseases (K00–K93)	0.0	3.0	2.1	4.2	25.8	4.0	7.7	6.7	5.5	2.7	6.2	8.3	4.7	6.2	3.6
Skin diseases (L00–L99)	0.0	3.9	0.5	2.8	1.9	1.3	2.0	2.3	2.1	16.3	9.6	16.0	2.8	3.7	2.2
Care involving dialysis (Z49)	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.5	0.0	0.1	0.1
Other ^(e)	1.4	34.0	71.3	40.3	38.8	55.5	44.5	62.7	43.6	35.3	42.6	63.5	55.4	49.4	29.6
Total number^(g)	128,684	25,255	23,782	22,549	14,954	10,881	11,459	9,815	8,014	7,970	7,700	6,325	34,831	183,535	312,292

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.

(b) Categories are based on the ICD-10-AM (National Centre for Classification in Health 2004).

(c) Financial year reporting.

(d) Indigenous data are reported by state/territory of usual residence of the patient hospitalised and are for Western Australia, South Australia, the Northern Territory and Queensland only. These four jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Hospitalisation data for four jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Includes: diseases of the musculoskeletal system and connective tissue, neoplasms, diseases of the nervous system, certain conditions originating in the perinatal period, diseases of the ear and mastoid process, diseases of the eye and adnexa, diseases of the blood and blood-forming organs and certain disorders involving the immune system, and congenital malformations, deformations and chromosomal abnormalities and factors influencing health status and contact with health services (except dialysis).

(f) Includes hospitalisations for which no principal diagnosis was recorded.

(g) Total number of hospitalisations for each principal diagnosis.

Note: Sum of components may exceed 100% as more than one associated diagnosis can be reported for each hospitalisation.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Time series analysis

All hospitalisations

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians over the period 1998–99 to 2003–04 are presented in Table 1.02.4 and Figure 1.02.2.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates among Indigenous males, females and persons during the five-year period 1998–99 to 2003–04. The fitted trend implies an average yearly increase in the rate of around 45 per 1,000 for Indigenous persons.
- There were also significant increases in hospitalisation rates among other Australian males, females and persons during the same period, with an average yearly increase in the rate of 5 per 1,000 population.
- There were significant increases in the hospitalisation rate ratios and rate differences between Indigenous and other Australians. The fitted trend implies an average yearly increase of 0.1 in the rate ratio and 40 per 1,000 in the hospitalisation rate differences between Indigenous and other Australians in the five-year period 1998–99 to 2003–04. This indicates a relative and absolute increase in the gap between hospitalisation rates for Indigenous and other Australians.

It should be noted that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians. Also, changes in access, hospital policies and practices all impact on the level of hospitalisation over time. Caution should be used in interpreting changes over time as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect better access to hospitals rather than a worsening of health.

Table 1.02.4: Age-standardised hospitalisation rates, rate ratios and rate differences, Qld, WA, SA and NT, 1998–99 to 2003–04

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	Annual change ^(a)
Indigenous rate per 1,000							
Males	648.9	661.8	689.5	734.7	764.2	840.1	37.4*
Females	797.7	882.9	881.7	961.2	1,013.5	1,063.9	51.5*
Persons	726.0	778.1	790.3	854.9	896.5	957.3	45.0*
Other Australian^(b) rate per 1,000							
Males	318.3	325.1	333.9	338.9	340.3	343.4	5.0*
Females	339.7	347.2	357.1	364.6	364.9	367.4	5.7*
Persons	326.7	333.9	343.4	349.8	350.5	353.2	5.4*
Rate ratio^(c)							
Males	2.0	2.0	2.1	2.2	2.2	2.4	0.1*
Females	2.4	2.6	2.6	2.7	2.9	3.0	0.1*
Persons	2.2	2.3	2.3	2.4	2.6	2.7	0.1*
Rate difference^(d)							
Males	330.6	336.8	355.6	395.8	423.9	496.8	32.4*
Females	471.0	549.0	538.3	611.4	663.0	710.7	46.1*
Persons	399.3	444.2	446.9	505.2	546.1	604.1	39.7*

* Represents results with statistically significant increases or declines at the p<.05 level over the period 1998–99 to 2003–04.

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

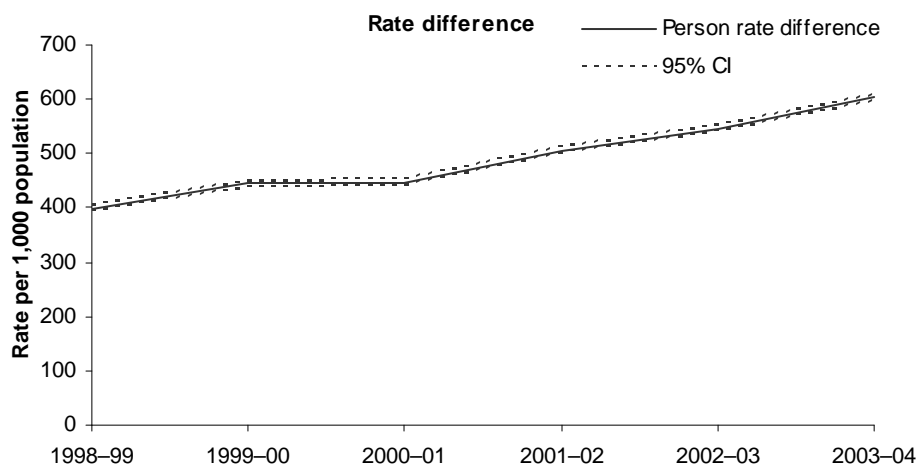
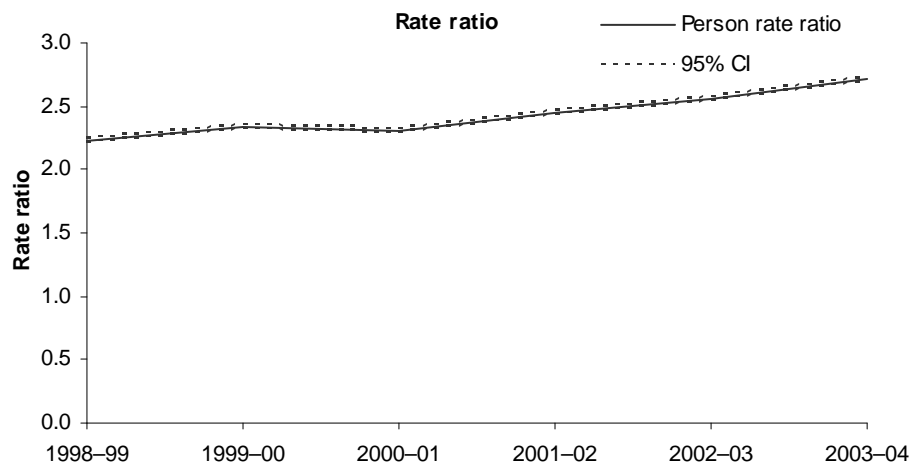
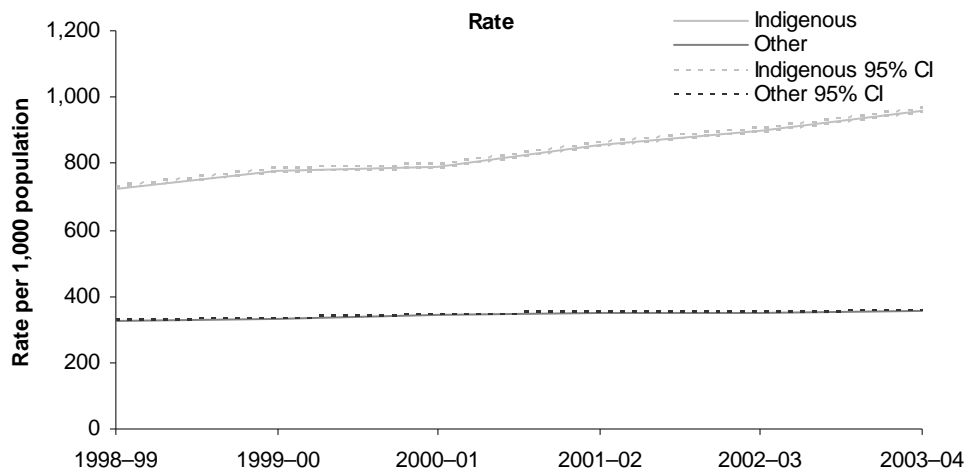
(b) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.

(c) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.

(d) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for other Australians.

Note: Rates have been directly age standardised using the 2001 Australian Standard population.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Figure 1.02.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians, Qld, WA, SA and NT, 1998-99 to 2003-04

All hospitalisations excluding dialysis

Hospitalisation rates, rate ratios and rate differences (excluding dialysis) between Indigenous and other Australians over the period 1998–99 to 2003–04 are presented in Table 1.02.5 and Figure 1.02.3.

- In Queensland, Western Australia, South Australia and the Northern Territory, there were significant declines in hospitalisations rates among Indigenous females over the five-year period 1998–99 to 2003–04. The fitted trend implies an average yearly increase in the rate of around 12 per 1,000. There was no significant change in the hospitalisation rate for Indigenous males over the same period.
- Over the period 1998–99 to 2003–04, there were no significant changes in the hospitalisation rates among other Australians.
- There were significant declines in both the hospitalisation rate ratios and rate differences between Indigenous females and other females over the period 1998–99 to 2003–04. This indicates a relative and absolute decline in the gap between hospitalisation rates for Indigenous females and other females. There was no significant change in the hospitalisation rate ratios or rate differences for males.

Table 1.02.5: Age-standardised hospitalisation rates, rate ratios and rate differences (excluding dialysis), Qld, WA, SA and NT, 1998–99 to 2003–04

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	Annual change ^(a)
Indigenous rate per 1,000							
Males	392.8	398.9	377.2	384.1	384.6	406.0	0.9
Females	507.2	515.1	446.3	452.5	452.7	461.6	-11.7*
Persons	451.7	458.9	412.5	419.3	419.5	433.6	-5.8
Other Australian^(b) rate per 1,000							
Males	290.9	295.3	288.9	292.0	287.8	287.7	-1.0
Females	322.4	328.3	320.5	326.5	325.2	325.5	0.3
Persons	304.7	310.0	303.0	307.7	304.9	305.0	-0.3
Rate ratio^(c)							
Males	1.3	1.4	1.3	1.3	1.3	1.4	0.0
Females	1.6	1.6	1.4	1.4	1.4	1.4	-0.04*
Persons	1.5	1.5	1.4	1.4	1.4	1.4	0.0
Rate difference^(d)							
Males	101.8	103.6	88.3	92.1	96.8	118.3	1.9
Females	184.8	186.8	125.8	126.0	127.5	136.1	-12.0*
Persons	147.0	149.0	109.5	111.7	114.6	128.7	-5.5

* Represents results with statistically significant increases or declines at the p<.05 level over the period 1998–99 to 2003–04.

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

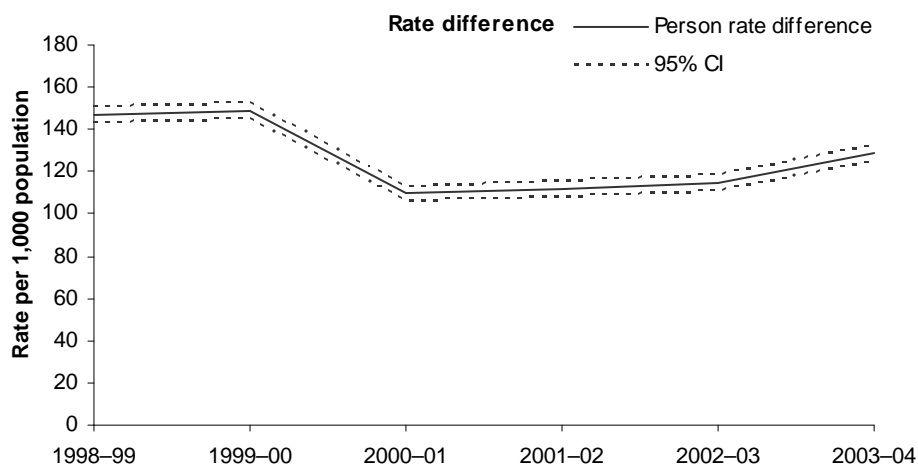
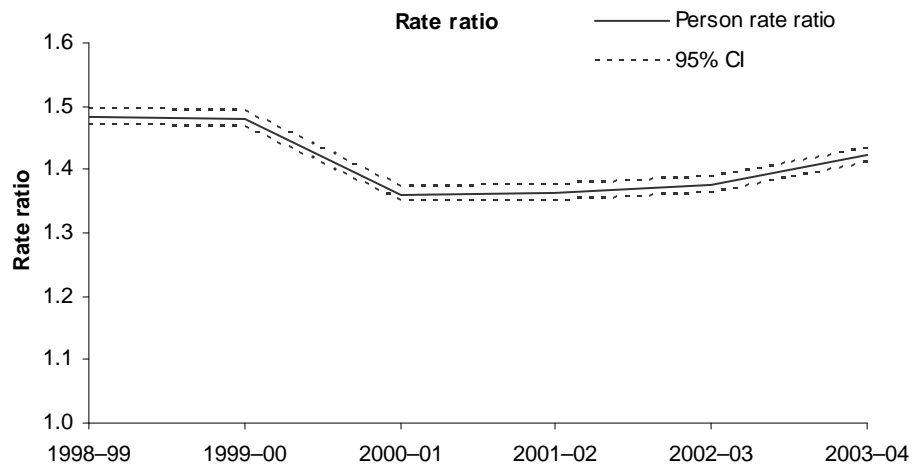
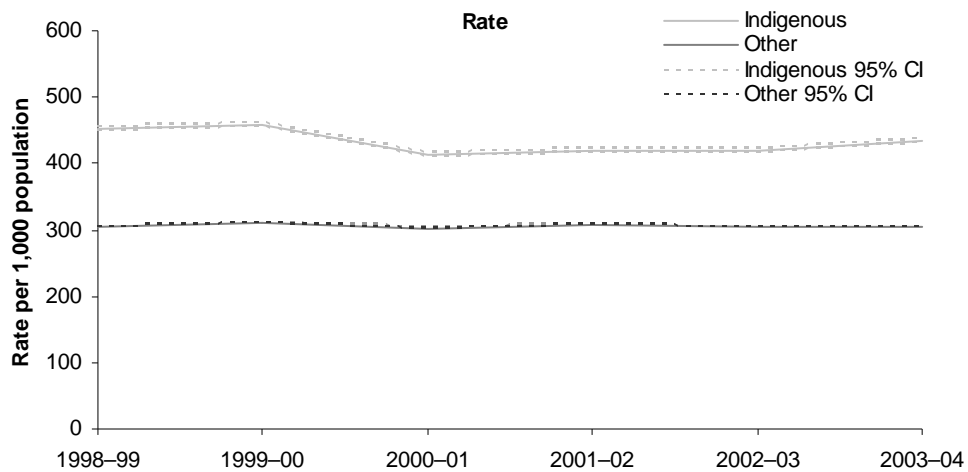
(b) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.

(c) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.

(d) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for other Australians.

Note: Rates have been directly age standardised using the 2001 Australian standard population.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Figure 1.02.3: Hospitalisation rates, rate ratios and rate differences (excluding dialysis) between Indigenous and other Australians, Qld, WA, SA and NT, 1998-99 to 2003-04

Sensitivity of hospitalisation trends to changes in identification

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted – constant identification, increasing identification and decreasing identification:
 - Under the constant identification scenario, the number of hospitalisations for the period under study were adjusted using the following identification factors:
 - Qld 80%
 - WA 94%
 - SA 90%
 - NT 98%
 - Under the increasing identification scenario, hospitalisations were adjusted by linearly increasing the identification through the period under study – from 70% in 1998–99 to 80% in 2003–04 for Queensland, from 90% to 94% for Western Australia, from 85% to 90% for South Australia, and from 96% to 98% for the Northern Territory.
 - Under the decreasing identification scenario, hospitalisations were adjusted by linearly decreasing the identification from 90% in 1998–99 to 80% in 2003–04 for Queensland, from 98% to 94% for Western Australia, from 95% to 90% for South Australia, and from 100% to 98% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgements about the largest plausible shifts in identification during the period; of course if any actual shift in identification were more extreme than has been posted under these scenarios, then the observed trends in hospitalisations might not persist.
- For all hospitalisations, the increases in hospitalisation rates, rate ratios and rate differences during the period 1998–99 to 2003–04 remained significant under all three identification scenarios.
- For all hospitalisations excluding dialysis, the observed decline in hospitalisation rates for Indigenous females and the decline in the rate ratio and rate difference for females during the period 1998–99 to 2003–04 remained statistically significant under the constant and increasing identification scenarios. None of the aforementioned trends remained statistically significant under the decreasing identification scenario.

Time series by principal diagnosis

- Hospitalisation rates among Indigenous Australians for most principal diagnoses were similar for the period June 1998 to July 2000 as for the period June 2002 to July 2004. Hospitalisations of Indigenous Australians for care involving dialysis and symptoms, signs and abnormal clinical findings increased between the two periods and hospitalisations for mental and behavioural disorders declined (Table 1.02.6).

Table 1.02.6: Hospitalisations, by principal diagnosis and Indigenous status, Qld, WA, SA and NT, July 1998–June 2000^{(a)(b)(c)(d)}

Principal diagnosis	Number		Percent		Indigenous			Other ^(e)			Ratio ⁽ⁱ⁾
	Indigenous	Other ^(e)	Indigenous	Other ^(e)	Rate per 1,000 ^(f)	95% UCL ^(g)	95% UCL ^(h)	Rate per 1,000 ^(f)	95% UCL ^(g)	95% UCL ^(h)	
Injury & poisoning & certain other consequences of external causes	24,965	312,813	9.0	7.1	51.4	50.6	52.2	22.7	22.6	22.8	2.3*
Pregnancy, childbirth and the puerperium ^(j)	21,751	302,408	7.9	6.9	34.0	33.6	34.5	21.4	21.3	21.4	1.6*
Diseases of the respiratory system	23,177	233,612	8.4	5.3	54.1	53.1	55.0	17.0	16.9	17.1	3.2*
Diseases of the digestive system	13,195	520,846	4.8	11.8	34.2	33.4	34.9	37.5	37.4	37.6	0.9*
Symptoms, signs and abnormal clinical and laboratory findings	9,075	178,946	3.3	4.1	20.3	19.8	20.8	12.7	12.6	12.7	1.6*
Mental and behavioural disorders	10,310	223,808	3.7	5.1	27.1	26.5	27.8	16.3	16.2	16.4	1.7*
Diseases of the circulatory system	9,024	304,050	3.3	6.9	36.7	35.8	37.6	22.7	22.6	22.8	1.6*
Diseases of the genitourinary system	8,973	256,627	3.2	5.8	25.0	24.4	25.7	18.2	18.1	18.3	1.4*
Diseases of the skin & subcutaneous tissue	8,504	81,265	3.1	1.8	19.1	18.6	19.6	5.9	5.9	6.0	3.2*
Certain infectious and parasitic diseases	7,762	64,002	2.8	1.5	12.7	12.3	13.1	4.6	4.6	4.7	2.8*

(continued)

Table 1.02.6 (continued): Hospitalisations, by principal diagnosis and Indigenous status, Qld, WA, SA and NT, July 1998–June 2000^{(a)(b)(c)(d)}

Principal diagnosis	Number		Percent		Indigenous			Other ^(e)			Ratio ⁽ⁱ⁾
	Indigenous	Other ^(e)	Indigenous	Other ^(e)	Rate per 1,000 ^(f)	95% UCL ^(g)	95% UCL ^(h)	Rate per 1,000 ^(f)	95% UCL ^(g)	95% UCL ^(h)	
Endocrine, nutritional and metabolic diseases	4,652	45,980	1.7	1.0	15.8	15.3	16.3	3.4	3.3	3.4	4.7*
Other ^(k)	57,602	1,582,048	20.8	35.9	124.8	123.5	126.2	114.8	114.6	115.0	1.1*
<i>Subtotal</i>	<i>198,990</i>	<i>4,106,405</i>	<i>72.0</i>	<i>93.1</i>	<i>455.4</i>	<i>452.8</i>	<i>458.0</i>	<i>297.2</i>	<i>296.9</i>	<i>297.4</i>	<i>1.5*</i>
Care involving dialysis	77,539	302,477	28.0	6.9	296.9	294.6	299.2	22.4	22.3	22.4	13.3*
Total^(l)	276,529	4,408,882	100.0	100.0	752.3	748.8	755.8	319.5	319.2	319.8	2.4*

* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

- (a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.
- (b) Categories are based on the ICD-10-AM (National Centre for Classification in Health 2004).
- (c) Financial year reporting.
- (d) Data are reported by state of usual residence of the patient hospitalised and are for Western Australia, South Australia, the Northern Territory and Queensland only. These four jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Hospitalisation data for four jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.
- (e) Other includes hospitalisations of non-Indigenous persons and those for whom Indigenous status was 'not stated'.
- (f) Directly age standardised using the Australian 2001 Standard population.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio Indigenous:other.
- (j) Rates and rate ratios are for females only.
- (k) Includes: diseases of the musculoskeletal system and connective tissue, neoplasms, diseases of the nervous system, certain conditions originating in the perinatal period, diseases of the ear and mastoid process, diseases of the eye and adnexa, diseases of the blood and blood-forming organs and certain disorders involving the immune system, and congenital malformations, deformations and chromosomal abnormalities and factors influencing health status and contact with health services (except dialysis).
- (l) Includes hospitalisations for which no principal diagnosis was recorded.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Data quality issues

Hospital separation data

Separations

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The not stated category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. While the identification of Indigenous people in hospitalisations is incomplete in all states and territories, four jurisdictions (Queensland, Western Australia, South Australia and the Northern Territory) have been assessed as having adequate Indigenous identification in 2003–04 (AIHW 2005). It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these four jurisdictions is 60%. The following caveats have also been recommended:

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a degree of Indigenous under-identification in Western Australia and relatively marked Indigenous under-identification in Queensland data).*
- *Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for four jurisdictions should not be assumed to represent the hospitalisation experience in other jurisdictions (ABS & AIHW 2005).*

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 hospital records may take place at different rates than changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from ABS's Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009 (ABS 2004).

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