

## 3.06. Ambulatory care sensitive hospital admissions

*The number of hospital admissions for ambulatory care sensitive conditions for Aboriginal and Torres Strait Islander people expressed as a rate by age group, age-standardised rate and 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 in each state and territory. 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 that 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).

Ambulatory care sensitive conditions are those for which, in theory, hospitalisation is thought to be avoidable through health care in ambulatory settings. Ambulatory settings include primary health care including general practice, community care, emergency department care and outpatient care. The conditions selected for this measure are those thought to be sensitive to preventative care, adequate management of chronic conditions, and timely care for an acute illness in ambulatory settings, particularly primary health care.

Ambulatory care sensitive conditions can be broken down into three categories:

- vaccine-preventable conditions, including influenza, tetanus, measles, mumps, rubella, diphtheria, pertussis and polio

- potentially preventable acute conditions, including dehydration, gastroenteritis, kidney infection, perforated ulcer, cellulitis, pelvic inflammatory disease, ear, nose and throat infections, and dental conditions
- potentially preventable chronic conditions, including diabetes, asthma, angina, hypertension, congestive heart failure and chronic obstructive pulmonary disease.

## Analyses

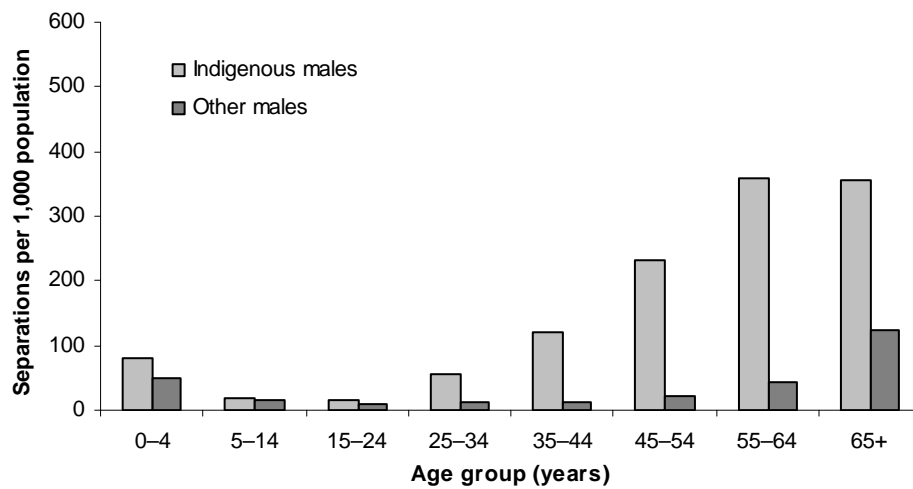
Age-standardised rates and ratios have been used for this indicator as a measure of hospitalisations in the Indigenous population relative to other Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of other Australians,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

## Hospitalisations

- For the two-year period July 2002 to June 2004, there were 502,864 ambulatory care sensitive hospital admissions in Queensland, Western Australia, South Australia and the Northern Territory combined, 52,160 (10.4%) of which were hospitalisations of Aboriginal and Torres Strait Islander peoples.
- Ambulatory care sensitive conditions represented 20% of all hospital admissions of Aboriginal and Torres Strait Islander Australians in the four jurisdictions.

## Hospitalisations by age and sex

- In the two-year period July 2002 to June 2004, Indigenous males and females had higher hospitalisation rates than other males and females for ambulatory care sensitive conditions across all age groups (Figure 3.06.1).
- Differences in rates between Indigenous and other Australians were particularly marked in the older age groups. For males, the greatest difference in rates occurred in the 35–44 and 45–54 year age groups where Indigenous males were hospitalised for ambulatory care sensitive conditions at 9–10 times the rate of other males. For females, the greatest difference in rates occurred in the 45–54 and 55–64 year age group where Indigenous females were hospitalised at 11–12 times the rate of other females.
- For both Indigenous and other Australian males and females, hospitalisation rates increased with age, being highest among those aged 65 years and over.
- Approximately 44% of Indigenous Australians hospitalised for ambulatory care sensitive conditions were males (22,859) and 56% were females (29,301).



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

**Figure 3.06.1: Age-specific hospitalisation rates for ambulatory care sensitive hospital admissions, by Indigenous status and sex, Qld, WA, SA and NT, July 2002 to June 2004**

## **Hospitalisations by state/territory**

Table 3.06.1 presents the number of ambulatory care sensitive hospital admissions for the two-year period July 2002 to June 2004 in Queensland, Western Australia, South Australia and the Northern Territory.

- Indigenous Australians in Queensland, South Australia and the Northern Territory were hospitalised for ambulatory care sensitive conditions at around four times the rate of other Australians. In Western Australia, Indigenous Australians were hospitalised at around 10 times the rate of other Australians.
- In Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous Australians were hospitalised for ambulatory care sensitive conditions at around five times the rate of other Australians.

**Table 3.06.1: Hospitalisations for ambulatory care sensitive hospital admissions, by Indigenous status and sex, Qld, WA, SA and NT, July 2002 to June 2004<sup>(a)(b)(c)(d)</sup>**

	Indigenous				Other <sup>(e)</sup>				Ratio <sup>(i)</sup>
	Number	Rate per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Number	Rate per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	
<b>Qld</b>									
Males	7,539	110.8	107.3	114.2	119,491	34.3	34.1	34.5	3.2*
Females	8,579	119.2	116.1	122.3	111,597	29.5	29.3	29.6	4.0*
Persons	16,118	115.2	112.9	117.5	231,088	31.7	31.6	31.8	3.6*
<b>WA</b>									
Males	9,458	261.2	254.8	267.5	56,647	32.8	32.5	33.1	8.0*
Females	13,664	351.2	344.5	357.8	55,897	29.2	29.0	29.5	12.0*
Persons	23,122	308.8	304.1	313.4	112,544	30.8	30.6	31.0	10.0*
<b>SA</b>									
Males	1,862	118.2	111.2	125.2	50,668	113.5	109.0	118.0	3.5*
Females	2,177	134.9	128.0	141.8	50,600	29.4	29.2	29.7	4.6*
Persons	4,039	127.9	122.9	132.8	101,268	31.2	31.0	31.3	4.2
<b>NT</b>									
Males	4,000	113.5	109.0	118.0	3,720	35.4	34.0	36.8	3.2*
Females	4,881	127.7	123.5	131.9	2,083	22.5	21.4	23.6	5.7*
Persons	8,881	121.0	117.9	124.1	5,804	29.7	28.8	30.6	4.1*
<b>Qld, WA, SA, NT</b>									
<b>Males</b>	<b>22,859</b>	<b>149.2</b>	<b>146.7</b>	<b>151.7</b>	<b>230,526</b>	<b>33.6</b>	<b>33.5</b>	<b>33.8</b>	<b>4.4*</b>
<b>Females</b>	<b>29,301</b>	<b>177.8</b>	<b>175.4</b>	<b>180.2</b>	<b>220,177</b>	<b>29.2</b>	<b>29.1</b>	<b>29.3</b>	<b>6.1*</b>
<b>Persons</b>	<b>52,160</b>	<b>164.7</b>	<b>163.0</b>	<b>166.4</b>	<b>450,704</b>	<b>31.2</b>	<b>31.1</b>	<b>31.3</b>	<b>5.3*</b>

\* 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): ICD-10-AM codes J10 J11 J188 A35 A36 A37 A80 B05 B06 B161 B169 B180 B181 B26 G000 M014 J45 J46 I50 I110 J81 E101 E102 E103 E104 E105 E106 E107 E108 E110 E111 E112 E113 E114 E115 E116 E117 E118 E130E131 E132 E133 E134 E135 E136 E137 E138 E140 E141 E142 E143 E144 E145 E146 E147 E148 J20 J41 J42 J43 J44 J47 I20 I240 I248 I249 D501 D508 D509 I10 I119 E40 E41 E42 E43 E550 E643E86 K522 K528 K529 N390 N10 N12 N11 N136 K250 K251 K252 K254 K255 K256 K260 K261 K262K264 K265 K266 K270 K271 K272 K274 K275 K276 K280 K281 K282 K284 K285 K286 L03 L04 L08 L980 L88 L983 N70 N73 N74 H66 H67 J02 J03 J06 J312 K02 K03 K04 K05 K06 K08 K098 K099 K12 K13 K35 K36 K37 O15 G40 G41 R56 R02. Note some of these codes are for principal diagnosis only, some are for principal or associated diagnosis, and some are principal diagnosis with the exclusion of some procedure codes. For more information on coding used, and refer to AIHW and National Health Performance Committee 2004, *The national report on health sector performance indicators 2003*.
- (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 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.

Note: Person numbers and rates include hospitalisations for which sex was indeterminate or 'not stated'.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

## Hospitalisations by diagnosis

Table 3.06.2 presents data on the top 10 ambulatory care sensitive hospital admissions for Aboriginal and Torres Strait Islander peoples in Queensland, Western Australia, South Australia and the Northern Territory combined for the two-year period July 2002 to June 2004.

- In the two-year period July 2002 to June 2004, diabetes complications were the most common type of ambulatory sensitive condition among Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined; followed by convulsions and epilepsy; and ear, nose and throat infections. Indigenous Australians were hospitalised at around 12, 6 and 2 times the rate of other Australians for these conditions respectively.
- Chronic obstructive pulmonary disease (COPD) was the fourth most common ambulatory sensitive condition for which Indigenous Australians were hospitalised, at almost five times the rate of other Australians.
- For most ambulatory sensitive care conditions, other Australians had a greater average length of stay in hospital than Indigenous Australians (4.9 days compared to 3.8 days). This contrasts with the length of stay for all conditions combined which was higher for Indigenous Australians (3.1) than other Australians (2.1).
- Congestive heart failure and COPD were responsible for the greatest average number of days in hospital of these conditions, with Indigenous Australians staying an average of around 6 days in hospital compared to 8 days for other Australians.

**Table 3.06.2: Top 10 ambulatory care sensitive hospital admissions, by Indigenous status, Qld, WA, SA and NT, July 2002 to June 2004<sup>(a)(b)(c)(d)</sup>**

	Separations					Average bed days		Total bed days		
	Number Indigenous	Indigenous rate per 1,000 <sup>(e)</sup>	LCL 95% <sup>(f)</sup>	UCL 95% <sup>(g)</sup>	Other rate per 1,000 <sup>(e)</sup>	Ratio <sup>(h)</sup>	Indigenous	Other <sup>(i)</sup>	Indigenous	Other <sup>(i)</sup>
Diabetes complications	26,789	101.2	99.8	102.5	8.3	12.2*	4.4	6.6	117,184	803,056
Convulsions and epilepsy	3,943	8.4	8.1	8.7	1.4	6.1*	2.5	3.0	9,818	58,203
Ear, nose and throat infections	3,074	4.2	4.0	4.4	1.8	2.3*	2.1	1.8	6,496	44,590
Chronic Obstructive Pulmonary Disease	2,910	13.6	13.0	14.2	2.7	5.0*	5.5	7.7	15,916	306,156
Asthma	2,706	5.2	4.9	5.5	1.9	2.7*	2.5	2.5	6,685	69,136
Cellulitis	2,589	5.8	5.5	6.1	1.3	4.3*	3.5	5.0	9,175	97,269
Pyelonephritis	2,336	7.1	6.7	7.5	1.9	3.8*	3.7	4.8	8,688	131,131
Dental problems	2,276	3.0	2.8	3.1	2.7	1.1	1.6	1.1	3,615	44,464
Angina	1,687	6.7	6.3	7.1	2.3	2.9*	2.5	2.8	4,174	94,458
Congestive cardiac failure	1,583	7.1	6.7	7.5	2.0	3.5*	5.7	7.6	8,077	226,645
<b>Total<sup>(j)</sup></b>	<b>52,160</b>	<b>164.7</b>	<b>163.0</b>	<b>166.4</b>	<b>31.2</b>	<b>5.3*</b>	<b>3.8</b>	<b>4.9</b>	<b>189,828</b>	<b>1,875,108</b>

\* 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 Queensland, Western Australia, South Australia, and the Northern Territory 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) Directly age standardised using the Australian 2001 Standard population.
- (f) LCL = lower confidence limit.
- (g) UCL = upper confidence limit.
- (h) Ratio - Indigenous:Other.
- (i) Other includes hospitalisations of non-Indigenous people and those for whom Indigenous status was 'not stated'.
- (j) Note that the sum of the number of hospitalisations for each condition exceeds the total as more than one ambulatory care sensitive condition can be diagnosed for each hospital separation.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

## Hospitalisations by diagnosis and age group

Table 3.06.3 presents data on the top three ambulatory care sensitive hospital admissions by age group for Aboriginal and Torres Strait Islander peoples in Queensland, Western Australia, South Australia and the Northern Territory combined for the two-year period July 2002 to June 2004.

- In the two-year period July 2002 to June 2004, ear, nose and throat infections were the most common type of ambulatory sensitive condition among Indigenous Australians aged less than 1 year of age, followed by pyelonephritis (chronic infection of the kidneys). Indigenous infants were hospitalised at around three times the rate of other infants for ear, nose and throat infections and at similar rates to other infants for pyelonephritis. Ear, nose and throat infections and pyelonephritis accounted for approximately 6% and 1% of all hospitalisations of Indigenous infants.
- Ear, nose and throat infections were also a common reason for hospitalisation among Indigenous Australians aged 1–14 years of age who were hospitalised at twice the rate of other Australians at this age. Ear, nose and throat infections accounted for 6% of total hospitalisations of Indigenous Australians in this age group.
- Pyelonephritis and cellulitis (bacterial infection of the skin) were common ambulatory care sensitive conditions causing hospitalisation among Aboriginal and Torres Strait Islander peoples aged 15–24 years. Indigenous Australians of this age were hospitalised at three and four times the rate of other Australians for these conditions respectively. These conditions together accounted for approximately 2% of total hospitalisations of Indigenous Australians aged 15–24 years.
- Diabetes complications were the most common ambulatory care sensitive condition among Indigenous Australians aged 25–44, 45–64 and 65 years and older. Indigenous Australians were hospitalised at between six and 23 times the rate of other Australians for diabetes complications in these age groups. Diabetes complications were responsible for 7%, 14% and 14% of total hospitalisations of Indigenous Australians in these age groups respectively.
- Chronic obstructive pulmonary disease was another common potentially preventable condition responsible for hospitalisation among Indigenous Australians aged 45–64 and 65 years and over. Indigenous Australians were hospitalised at up to eight times the rate of other Australians for this condition. COPD accounted for 1% and 3% of total hospitalisations of Indigenous Australians aged 45–64 and 65 years and over respectively.

**Table 3.06.3: Major ambulatory care sensitive hospital admissions, by age group and Indigenous status, Qld, WA, SA and NT, July 2002 to June 2004<sup>(a)(b)(c)(d)</sup>**

Age group (years)	Condition	Indigenous				Other <sup>(e)</sup>				Rate ratio <sup>(i)</sup>
		Number	Rate per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Number	Rate per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	
<1	Ear, nose and throat infections	705	48.9	45.3	52.5	2,606	15.2	14.6	15.8	3.2
	Pyelonephritis	127	8.8	7.3	10.3	1,255	7.3	6.9	7.7	1.2
	Convulsions and epilepsy	110	7.6	6.2	9.1	869	5.1	4.7	5.4	1.5
1–14	Ear, nose and throat infections	1,575	7.8	7.5	8.2	13,251	5.0	4.9	5.0	1.6
	Dental conditions	1,563	7.8	7.4	8.2	17,263	6.5	6.4	6.6	1.2
	Asthma	1,295	6.4	6.1	6.8	13,933	5.2	5.1	5.3	1.2
15–24	Pyelonephritis	319	2.9	2.6	3.2	2,254	1.1	1.1	1.2	2.6
	Cellulitis	305	2.8	2.5	3.1	1,275	0.6	0.6	0.7	4.3
	Diabetes complications	297	2.7	2.4	3.0	2,166	1.1	1.0	1.1	2.5
25–44	Diabetes complications	6,768	41.9	40.9	42.9	9,381	2.2	2.2	2.3	18.9
	Convulsions and epilepsy	1,857	11.5	11.0	12.0	4,532	1.1	1.0	1.1	10.7
	Cellulitis	949	5.9	5.5	6.3	3,808	0.9	0.9	0.9	6.5
45–64	Diabetes complications	15,513	229.6	226.0	233.2	35,198	10.0	9.9	10.1	23.0
	COPD	1,255	18.6	17.5	19.6	8,413	2.4	2.3	2.4	7.8
	Angina	955	14.1	13.2	15.0	10,563	3.0	2.9	3.0	4.7
65+	Diabetes complications	4,144	260.3	252.3	268.2	72,824	40.4	40.1	40.7	6.4
	COPD	967	60.7	56.9	64.6	30,654	17.0	16.8	17.2	3.6
	Congestive cardiac failure	430	27.0	24.5	29.6	26,152	14.5	14.3	14.7	1.9

(continued)

**Table 3.06.3 (continued): Major ambulatory care sensitive hospital admissions, by age group and Indigenous status, Qld, WA, SA and NT, July 2002 to June 2004<sup>(a)(b)(c)(d)</sup>**

\* 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 Queensland, Western Australia, South Australia, and the Northern Territory 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 for Indigenous people and those for whom Indigenous status was not stated.
- (f) Rate per 1,000 population.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio—hospitalisation rate for Indigenous Australians divided by hospitalisation rate for other Australians.

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

## Time series analyses

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australian's for ambulatory care sensitive conditions are presented below.

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 reflect better access rather than a worsening of health but is likely to be a combination of both.

### All ambulatory care sensitive conditions

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for total ambulatory care sensitive conditions over the five-year period 1998–99 to 2003–04 are presented in Table 3.06.4 and Figure 3.06.2. This period has been used for analysis as coding changes were made to diabetes complications (the most common ambulatory care sensitive condition) in July 1999 and July 2000. Coding for diabetes is only consistent from 2000–01 onwards and thus data for prior years should not be included in the analysis of trends involving diabetes complications.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for ambulatory care sensitive conditions among Indigenous Australians during the period 2000–01 to 2003–04. The fitted trend implies an average yearly increase in the rate for females of around 19 per 1,000, most of which is attributable to an increase in rates in 2003–04. These increases in hospitalisation rates were significant for both males and females.
- Over the same period, there were significant increases in hospitalisation rates for ambulatory care sensitive conditions among other Australians, with an average yearly increase in the rate of around 0.8 per 1,000. These increases in hospitalisation rates were also significant for both males and females.

- There were significant increases in both the hospitalisation rate ratios and rate differences between Indigenous and other Australians over the period 2000–01 to 2003–04, reflecting both a relative and absolute increase in the gap between hospitalisation rates of Indigenous and other Australians for ambulatory care sensitive conditions over the period.

**Table 3.06.4: Age-standardised hospitalisation rates, rate ratios and rate differences for all ambulatory care sensitive hospital admissions, Qld, WA, SA and NT, 2000-01 to 2003-04**

	2000-01	2001-02	2002-03	2003-04	Annual change <sup>(a)</sup>
<b>Indigenous rate per 1,000</b>					
Males	120.7	117.0	126.6	171.3	16.2*
Females	135.6	141.1	152.7	202.1	21.1*
Persons	128.9	130.6	141.1	187.6	18.6*
<b>Other Australians rate per 1,000<sup>(b)</sup></b>					
Males	31.6	32.0	32.6	34.6	1.0*
Females	28.2	28.1	28.6	29.8	0.5*
Persons	29.7	29.8	30.4	32.0	0.8*
<b>Rate ratio<sup>(c)</sup></b>					
Males	3.8	3.7	3.9	4.9	0.4
Females	4.6	4.7	5.0	6.3	0.6*
Persons	4.3	4.4	4.6	5.9	0.5*
<b>Rate difference<sup>(d)</sup></b>					
Males	89.1	84.99	94.0	136.7	15.2*
Females	105.9	111.3	122.3	170.1	20.4*
Persons	99.3	100.8	110.7	155.6	17.9*

\* Represents results with statistically significant increases or declines at the  $p < .05$  level over the period 2001-01 to 2003-04.

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

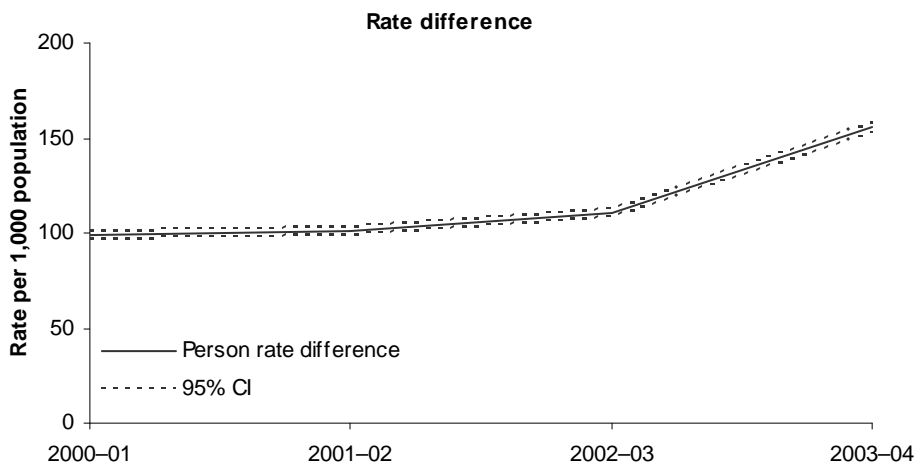
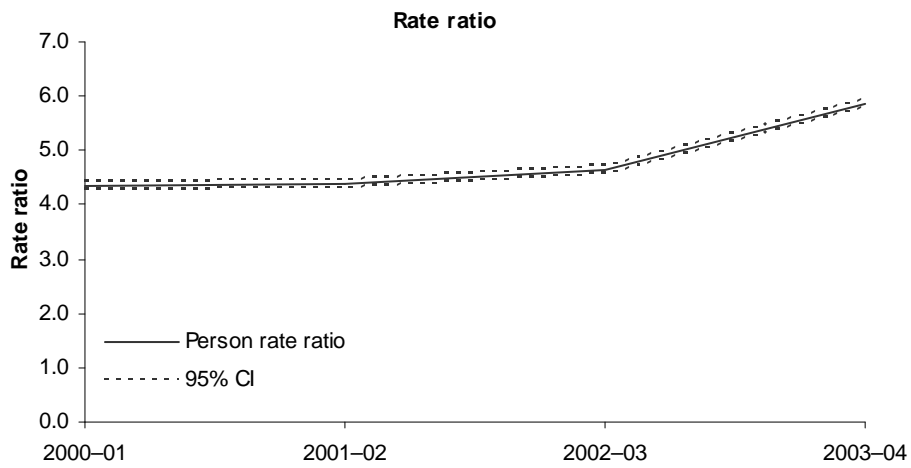
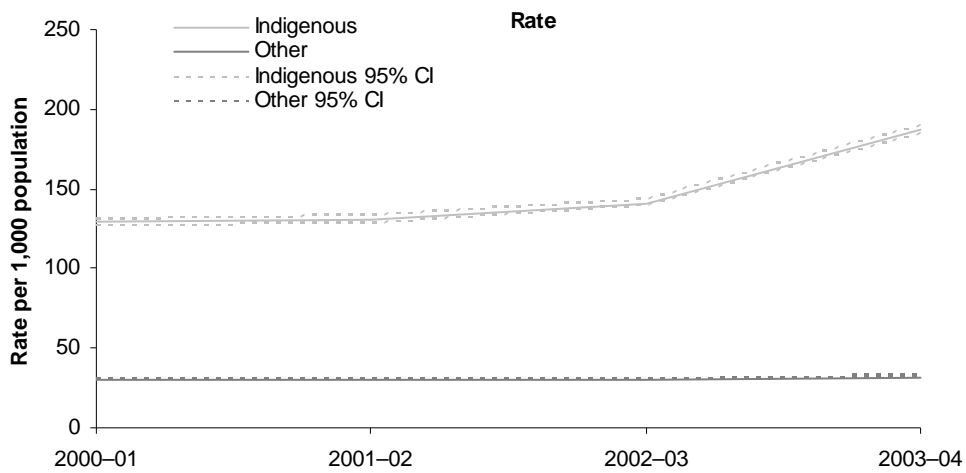
(b) Other includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.

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

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

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

Source: AIHW analysis of AIHW National Hospital Morbidity Database.



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

**Figure 3.06.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for total ambulatory care sensitive conditions, Qld, WA, SA and NT, 2000-01 to 2003-04**

## Vaccine-preventable conditions

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for vaccine-preventable conditions such as influenza, diphtheria, measles, mumps and rubella over the period 1998–99 to 2003–04 are presented in Table 3.06.5 and Figure 3.06.3.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were apparent declines in hospitalisation rates for vaccine-preventable conditions (predominantly influenza) among Indigenous and other Australians during the period 1998–99 to 2003–04, however, these declines were only statistically significant for Indigenous females and other females. The fitted trend implies an average yearly decline in the rate of around 1.9 per 1,000 for Indigenous females and 0.4 per 1,000 for other females.
- Most of the declines in rates for vaccine-preventable hospitalisations over this period were attributable to a sharp decline in hospitalisation rates from 1998–99 to 1999–00. This is likely to be the result of the introduction of a number of vaccination programs and changes to the Australian Standard Vaccination Schedule in 1999 and 2000. Such changes include: funding for influenza and pneumococcal vaccine for Aboriginal and Torres Strait Islander adults aged 50 years and over and for those aged 15–49 years who are at high risk from these diseases; funding of influenza vaccine for non-Indigenous Australians aged 65 years and over; inclusion of diphtheria-tetanus-pertussis – hepatitis B vaccine on the childhood immunisation schedule; and the new requirement for full immunisation against hepatitis B and haemophilus influenza type B (Hib) at 12 months of age (Menzies et al. 2004).
- There were significant declines in the hospitalisation rate ratios between Indigenous and other Australians for vaccine-preventable conditions over the period 1998–99 to 2003–04. There were significant declines in the hospitalisation rate differences between Indigenous and other females.

**Table 3.06.5: Age-standardised hospitalisation rates, rate ratios and rate differences for vaccine preventable conditions, Qld, WA, SA and NT, 1998–99 to 2003–04**

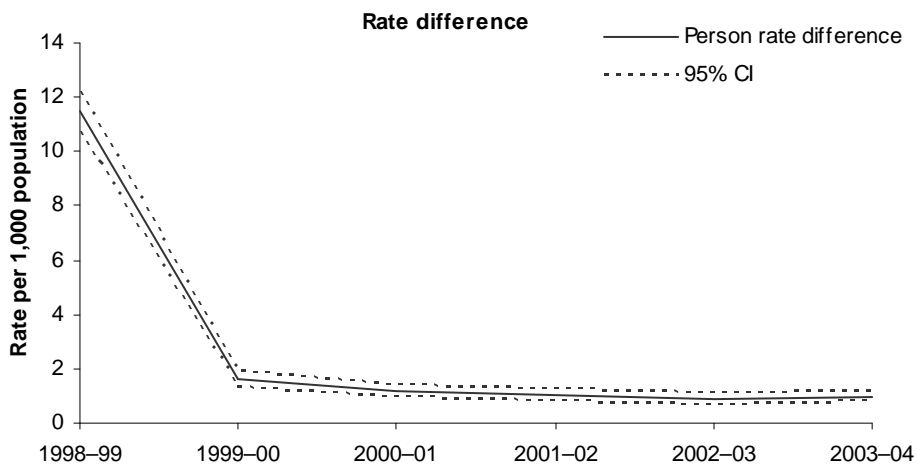
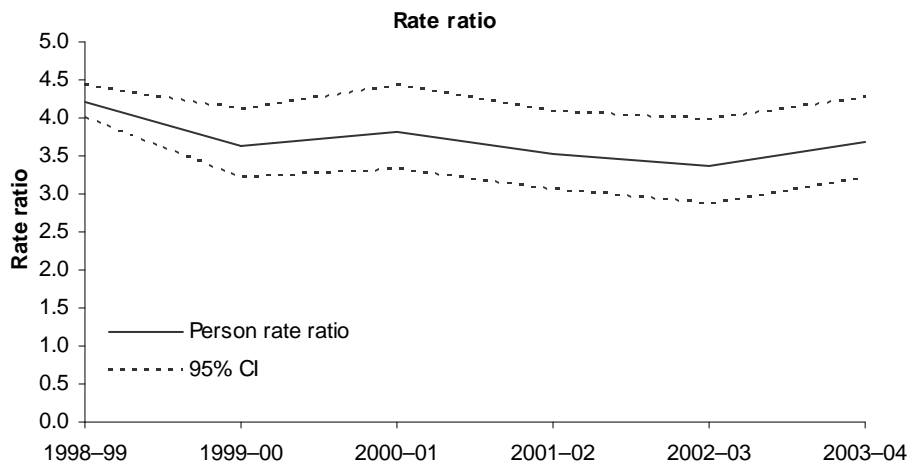
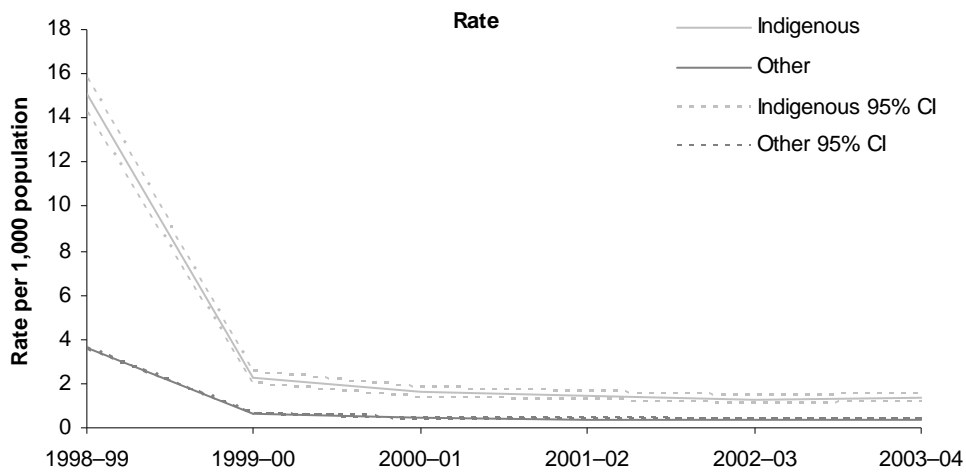
	1998–99	1999–2000	2000–01	2001–02	2002–03	2003–04	Annual change <sup>(a)</sup>
<b>Indigenous rate per 1,000</b>							
Males	16.9	1.9	1.6	1.5	1.4	1.5	-2.3
Females	13.5	2.5	1.6	1.4	1.1	1.3	-1.9*
Persons	15.1	2.2	1.6	1.4	1.3	1.4	-2.0
<b>Other Australian rate per 1,000<sup>(b)</sup></b>							
Males	4.3	0.7	0.4	0.4	0.4	0.4	-0.6
Females	3.0	0.5	0.4	0.4	0.3	0.3	-0.4*
Persons	3.6	0.6	0.4	0.4	0.4	0.4	-0.5
<b>Rate ratio<sup>(c)</sup></b>							
Males	3.9	2.8	3.5	3.4	3.4	3.7	0.0
Females	3.8	4.1	3.9	3.5	3.1	3.5	-0.1*
Persons	4.2	3.7	3.8	3.5	3.4	3.7	-0.1*
<b>Rate difference<sup>(d)</sup></b>							
Males	12.6	1.2	1.1	1.0	1.0	1.1	-1.7
Females	10.0	1.9	1.2	1.0	0.8	0.9	-1.4*
Persons	11.5	1.6	1.2	1.0	0.9	1.0	-1.6

\* 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 hospitalisation rates for other Australians.
- (d) Hospitalisation rates for Indigenous Australians minus hospitalisation rates for other Australians.

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

Source: AIHW analysis of AIHW National Hospital Morbidity Database.



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

**Figure 3.06.3: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for vaccine-preventable conditions, Qld, WA, SA and NT, 1998-99 to 2003-04**

### **Potentially preventable chronic conditions**

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable chronic conditions such as diabetes, asthma, angina, hypertension and chronic obstructive pulmonary disease over the period 2000–01 to 2003–04 are presented in Table 3.06.6 and Figure 3.06.4. This period has been used for analysis as coding changes were made to diabetes complications (the most common potentially preventable chronic condition) in July 1999 and July 2000. Coding for diabetes is only consistent from 2000–01 onwards and thus data for prior years should not be included in the analysis of trends involving diabetes complications.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for potentially preventable chronic conditions (predominantly diabetes) among Indigenous Australians during the period 2000–01 to 2003–04. The fitted trend implies an average yearly increase in the rate of around 19 per 1,000, most of which is attributable to an increase in rates in 2003–04. These increases in hospitalisation rates were significant for both males and females.
- There were also significant increases in hospitalisation rates for potentially preventable chronic conditions for other Australians, with an average yearly increase in the rate of around 0.5 per 1,000. These increases were statistically significant for males but not for females.
- There were significant increases in both the hospitalisation rate ratios and rate differences between Indigenous and other Australians over the period 2000–01 to 2003–04. This reflects a relative and absolute increase in the gap between hospitalisation rates for Indigenous and other Australians for potentially preventable chronic conditions over the period 2000–01 to 2003–04.

**Table 3.06.6: Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable chronic conditions, Qld, WA, SA and NT, 2000-01 to 2003-04**

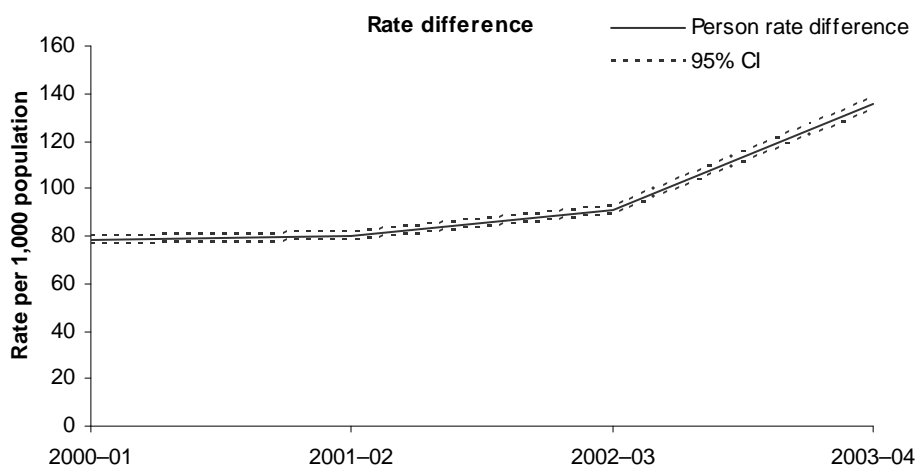
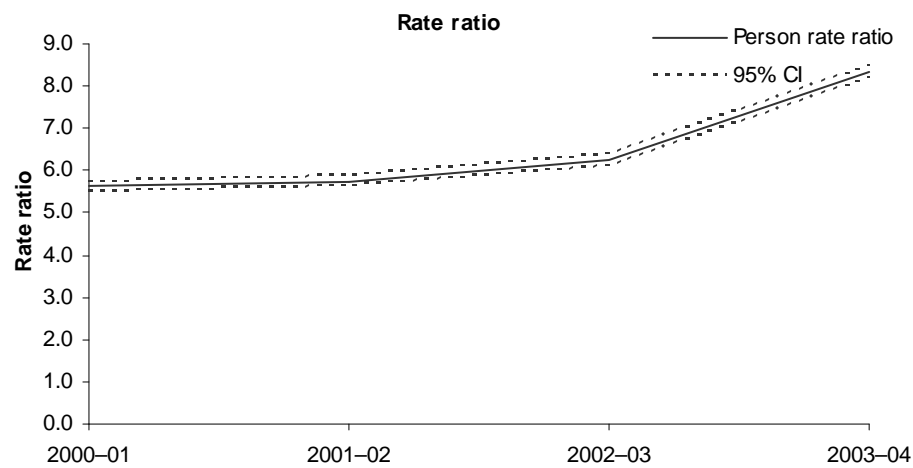
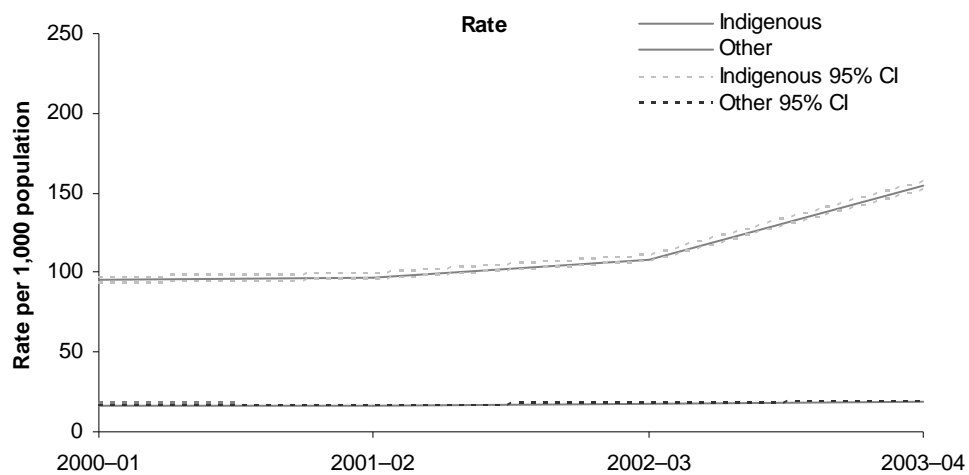
	2001-01	2001-02	2002-03	2003-04	Annual change <sup>(a)</sup>
<b>Indigenous rate per 1,000</b>					
Males	88.5	84.5	94.8	138.4	16.0*
Females	100.9	106.3	119.0	168.0	21.4*
Persons	95.4	96.8	108.3	154.0	18.7*
<b>Other Australian rate per 1,000<sup>(b)</sup></b>					
Males	19.4	19.6	20.1	21.8	0.8*
Females	14.8	14.5	14.9	15.7	0.3
Persons	16.9	16.8	17.3	18.5	0.5*
<b>Rate ratio<sup>(c)</sup></b>					
Males	4.6	4.3	4.7	6.4	0.6
Females	6.0	6.3	6.9	9.1	1.0*
Persons	5.6	5.8	6.3	8.3	0.9*
<b>Rate difference<sup>(d)</sup></b>					
Males	69.0	64.9	74.7	116.7	15.3*
Females	84.0	89.5	101.7	149.5	20.9*
Persons	78.5	80.0	91.0	135.5	18.2*

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2000-01 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 hospitalisation rates for other Australians.
- (d) Hospitalisation rates for Indigenous Australians minus hospitalisation rates for other Australians.

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

Source: AIHW analysis of AIHW National Hospital Morbidity Database.



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

**Figure 3.06.4: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable chronic conditions, Qld, WA, SA and NT, 2000-01 to 2003-04**

## Potentially preventable acute conditions

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable acute conditions such as kidney infection, perforated ulcer, cellulitis, pelvic inflammatory disease, ear, nose and throat infections and dental conditions over the period 1998–99 to 2003–04 are presented in Table 3.06.7 and Figure 3.06.5.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant declines in hospitalisation rates for potentially preventable acute conditions among Indigenous females during the period 1998–99 to 2003–04. The fitted trend implies an average yearly decline in the rate of around 1 per 1,000.
- There were significant increases in hospitalisation rates for other Australians during the same period, with an average yearly increase in the rate of 0.4 per 1,000.
- There were significant declines in both the hospitalisation rate ratios and rate differences between Indigenous and other Australians over the period 1998–99 to 2003–04, reflecting a relative and absolute decline in the gap between hospitalisation rates for Indigenous and other Australians. The declines in hospitalisation rate ratios were significant for both males and females and the declines in hospitalisation rate differences were significant for females but not for males.

**Table 3.06.7: Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable acute conditions, Qld, WA, SA and NT, 1998–99 to 2003–04**

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	Annual change <sup>(a)</sup>
<b>Indigenous rate per 1,000</b>							
Males	35.3	33.9	32.0	32.5	32.2	34.8	–0.2
Females	41.1	38.7	35.9	35.9	35.7	36.1	–1.0*
Persons	38.4	36.5	34.1	34.4	34.2	35.6	–0.6
<b>Other Australian rate per 1,000<sup>(b)</sup></b>							
Males	10.2	10.7	11.0	11.3	11.4	11.8	0.3*
Females	11.0	11.6	12.4	12.6	12.8	13.2	0.4*
Persons	10.6	11.1	11.7	12.0	12.1	12.5	0.4*
<b>Rate ratio<sup>(c)</sup></b>							
Males	3.5	3.2	2.9	2.9	2.8	3.0	–0.1*
Females	3.9	3.5	3.1	3.0	2.9	2.9	–0.2*
Persons	3.6	3.3	2.9	2.9	2.8	2.8	–0.2*
<b>Rate difference<sup>(d)</sup></b>							
Males	25.1	23.3	21.0	21.1	20.8	23.0	–0.5
Females	30.5	27.6	24.2	23.9	23.6	23.6	–1.3*
Persons	27.8	25.4	22.4	22.4	22.1	23.0	–1.0*

\* 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.

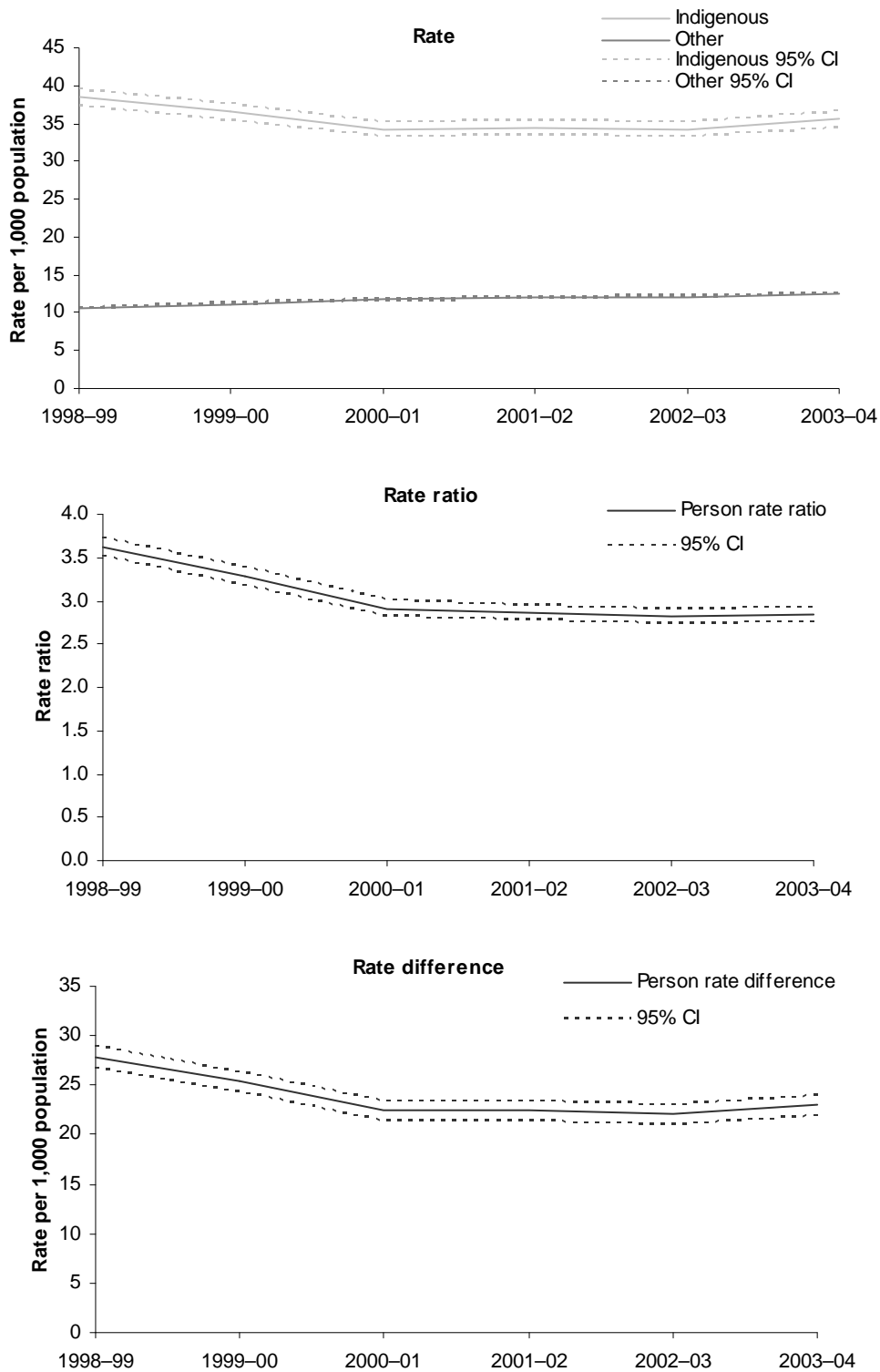
(b) Other includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.

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

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

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

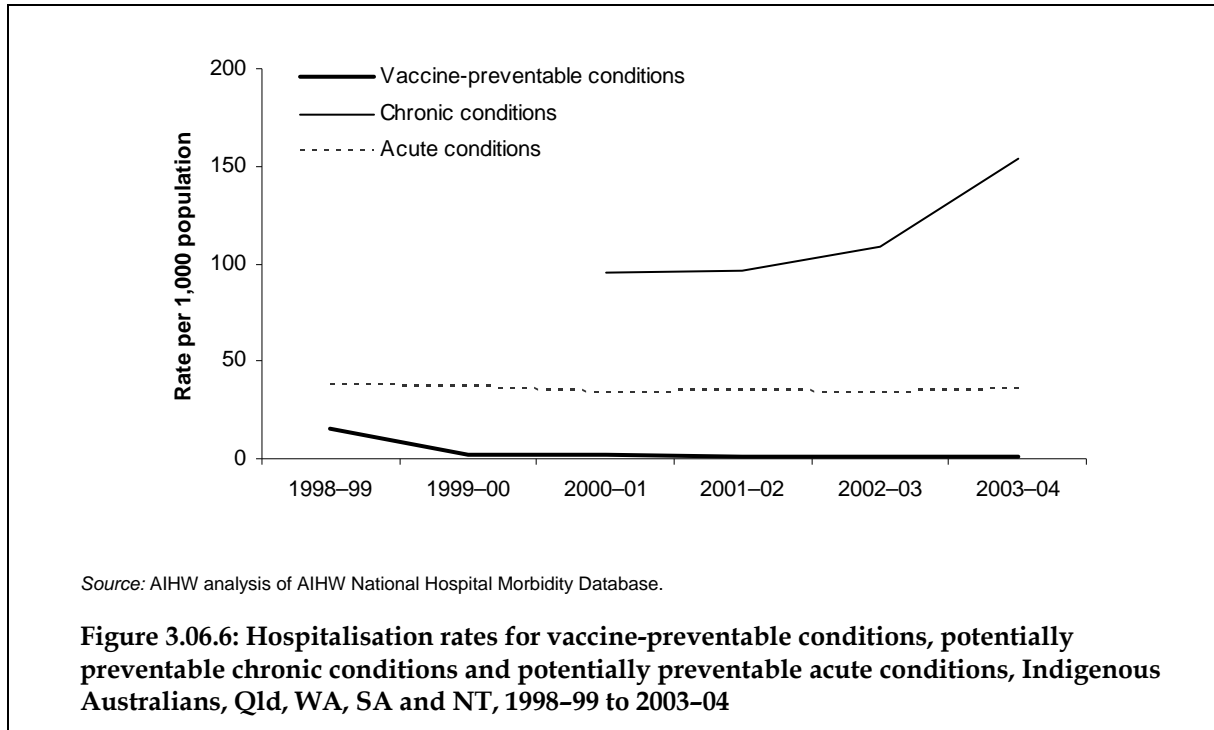
Source: AIHW analysis of AIHW National Hospital Morbidity Database.



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

**Figure 3.06.5: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable acute conditions, Qld, WA, SA and NT, 1998-99 to 2003-04**

Figure 3.06.6 presents hospitalisation rates for Indigenous Australians for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions. Indigenous Australians are hospitalised at much higher rates for chronic conditions than acute conditions or vaccine preventable conditions.



## **Data quality issues**

### **Hospital separations 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 of 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 identification in 2003–04 (AIHW 2005). It has therefore been recommended that reporting of Indigenous hospital separations 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 the ABS's Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009 (ABS 2004).*

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