

## 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 Australian Institute of Health and Welfare's (AIHW) National Hospital Morbidity Database.

### 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 six jurisdictions that have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2006–08: New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (AIHW 2010). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

In the period 2007–08, there were 276,000 hospital separations (episodes of care for admitted patients) for Aboriginal and Torres Strait Islander patients: around 3.5% of all separations. The proportion of separations of Aboriginal and Torres Strait Islander persons was higher in public hospitals (5.4% or 256,425 separations) compared with private hospitals (0.6% or 20,015 separations). Of all Aboriginal and Torres Strait Islander separations, nearly 93% occurred in public hospitals (AIHW 2009).

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, because 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 from July 2006 to June 2008, or, in some cases, July 2007 to June 2009. An aggregate of two years of data has been used, because 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. This can include a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change in the type of care (for example, from acute to rehabilitation). 'Separation' also means the

process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

## Analyses

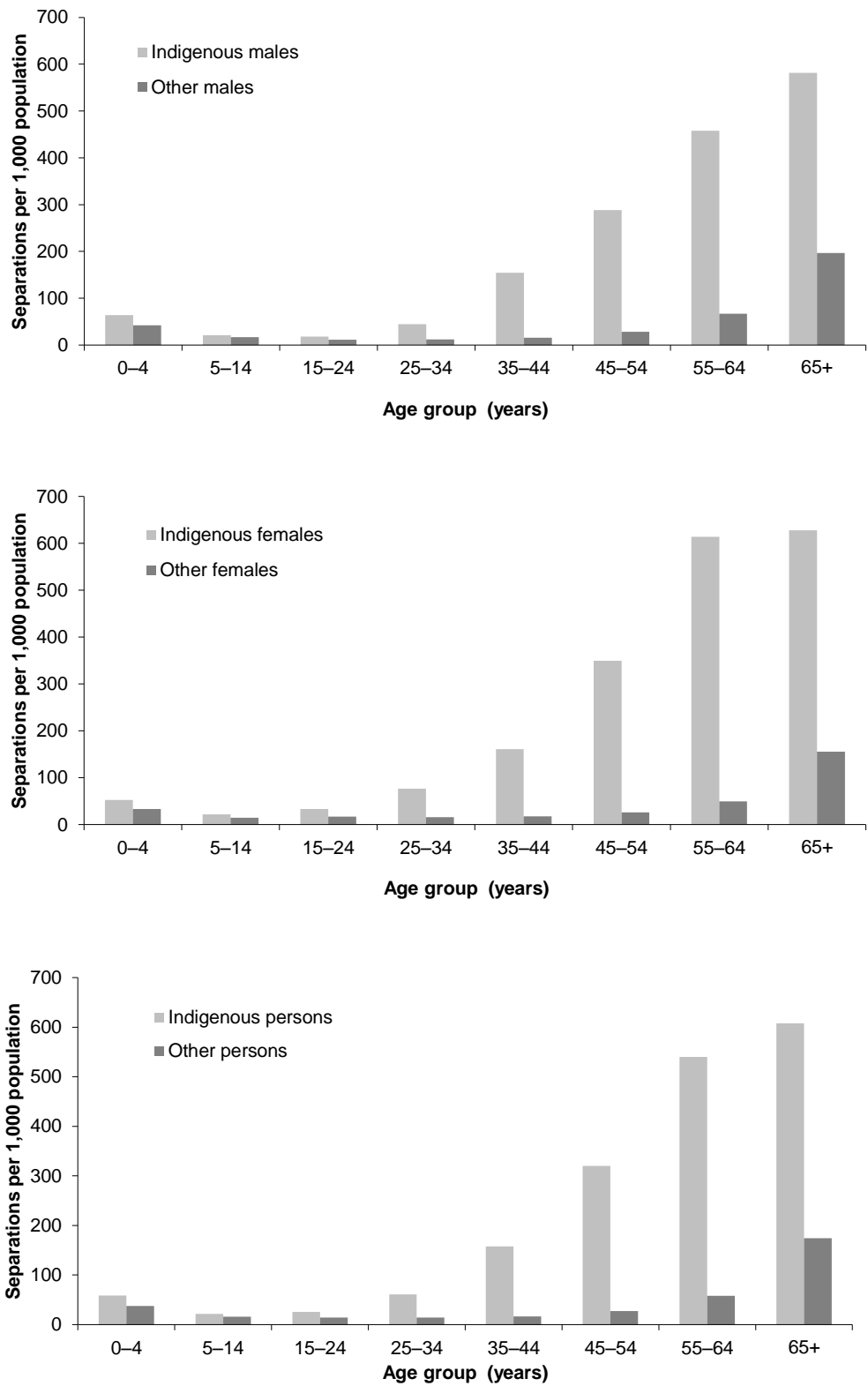
Age-standardised rates and ratios have been used for this indicator as a measure of hospitalisations in the Indigenous population relative to other Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of other Australians,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

## Hospitalisations

- For the two-year period from July 2006 to June 2008, there were 1,869,314 ambulatory care sensitive hospital admissions in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 120,308 (6.4%) of which were hospitalisations of Aboriginal and Torres Strait Islander peoples.
- Ambulatory care sensitive conditions represented 23% of all hospital admissions of Indigenous Australians in the six jurisdictions (Tables 3.06.2 and 3.12.23).

## Hospitalisations by age and sex

- In the two-year period from July 2006 to June 2008, 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; Table 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 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 12 to 13 times the rate of other females in both these age groups.
- For Indigenous males and females, hospitalisation rates increased with age from age 15–24 years onwards; for other Australians the rates increased from the age-group 25–34 years onwards. The highest rates were observed among age groups 55–64 and 65 years and over in both population groups.
- Approximately 43% of Indigenous Australians hospitalised for ambulatory care sensitive conditions were males (51,744) and 57% were females (68,564).



Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.1: Age-specific hospitalisation rates for ambulatory care sensitive hospital admissions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008**

**Table 3.06.1: Age-specific hospitalisation rates for ambulatory care sensitive conditions (per 1,000 population), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008 (a)(b)(c)(d)**

	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65+
<b>Males</b>								
Indigenous	63.9	20.9	18.0	44.7	154.1	288.2	458.0	581.6
Other <sup>(e)</sup>	42.0	16.5	11.5	12.0	15.4	28.2	66.6	196.7
<b>Females</b>								
Indigenous	52.6	21.9	33.1	76.5	160.8	349.3	614.0	627.6
Other <sup>(e)</sup>	33.1	14.9	17.3	16.1	17.5	26.3	49.7	155.3
<b>Persons</b>								
Indigenous	58.4	21.4	25.4	60.8	157.6	319.9	540.4	608.1
Other <sup>(e)</sup>	37.7	15.7	14.4	14.0	16.4	27.3	58.2	174.1

(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 fifth edition (National Centre for Classification in Health 2006): ICD-10-AM codes J10, J11, J181, 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, E130, E131, 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, E643, E86, K522, K528, K529, N390, N10, N12, N11, N136, K250, K251, K252, K254, K255, K256, K260, K261, K262, K264, 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 additional diagnosis, and some are principal diagnosis with the exclusion of some procedure codes. For more information on coding used, 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 New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six 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.

#### Notes

1. Population estimates based on the 2006 Census.

2. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

## Hospitalisations by state/territory

Table 3.06.2 presents the number of ambulatory care sensitive hospital admissions for the two-year period from July 2006 to June 2008 in New South Wales, Victoria, Queensland, Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory.

- Over the period from July 2006 to June 2008, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for ambulatory care sensitive conditions at around five times the rate of other Australians.
- Within Australia, for all states and territories combined, Indigenous people were hospitalised for ambulatory care sensitive conditions at five times the rate of other Australians.
- Indigenous Australians in New South Wales and Victoria were hospitalised for ambulatory care sensitive conditions at around three times the rate of other Australians. In Queensland, South Australia and the Northern Territory Indigenous Australians were hospitalised for ambulatory care sensitive conditions at four times the rate of other

Australians. In Western Australia, Indigenous Australians were hospitalised at around 14 times the rate of other Australians.

**Table 3.06.2: Hospitalisations for ambulatory care sensitive hospital admissions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, and Tas and ACT, July 2006 to June 2008<sup>(a)(b)(c)(d)</sup>**

	Indigenous				Other <sup>(e)</sup>				Ratio <sup>(f)</sup>
	Number	No. per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Number	No. per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	
<b>NSW</b>									
Males	9,369	102.6	99.9	105.2	282,127	41.8	41.6	41.9	2.5*
Females	10,433	107.5	105.1	110.0	271,321	35.5	35.4	35.6	3.0*
Persons	19,802	105.3	103.5	107.1	553,455	38.4	38.3	38.5	2.7*
<b>Vic</b>									
Males	1,697	80.4	75.8	85.1	246,214	48.3	48.1	48.5	1.7*
Females	2,945	167.6	160.9	174.3	242,727	41.8	41.7	42.0	4.0*
Persons	4,642	128.9	124.6	133.2	488,942	44.7	44.6	44.8	2.9*
<b>Qld</b>									
Males	10,657	137.8	134.4	141.2	183,594	46.7	46.5	47.0	2.9*
Females	13,074	166.4	163.0	169.8	164,492	38.7	38.5	38.8	4.3*
Persons	23,731	154.1	151.7	156.6	348,086	42.4	42.2	42.5	3.6*
<b>WA</b>									
Males	21,263	607.0	597.1	617.0	107,563	55.0	54.7	55.3	11.0*
Females	31,371	737.6	728.7	746.4	91,226	43.1	42.8	43.4	17.1*
Persons	52,634	668.6	662.1	675.1	198,789	48.6	48.4	48.8	13.7*
<b>SA</b>									
Males	2,881	182.4	174.3	190.4	75,368	46.1	45.8	46.4	4.0*
Females	3,033	160.6	154.2	167.0	76,091	40.8	40.5	41.1	3.9*
Persons	5,914	169.4	164.4	174.4	151,460	43.1	42.9	43.3	3.9*
<b>NT</b>									
Males	5,877	161.9	156.5	167.4	5,110	45.8	44.3	47.3	3.5*
Females	7,708	178.0	173.4	182.6	3,164	32.3	31.0	33.6	5.5*
Persons	13,585	169.5	166.1	173.0	8,274	39.6	38.6	40.7	4.3*
<b>NSW, Vic, Qld, WA, SA and NT</b>									
<b>Males</b>	<b>51,744</b>	<b>194.3</b>	<b>192.2</b>	<b>196.4</b>	<b>899,976</b>	<b>46.1</b>	<b>46.0</b>	<b>46.2</b>	<b>4.2*</b>
<b>Females</b>	<b>68,564</b>	<b>229.0</b>	<b>227.0</b>	<b>230.9</b>	<b>849,021</b>	<b>39.0</b>	<b>38.9</b>	<b>39.0</b>	<b>5.9*</b>
<b>Persons</b>	<b>120,308</b>	<b>212.3</b>	<b>210.9</b>	<b>213.7</b>	<b>1,749,006</b>	<b>42.2</b>	<b>42.1</b>	<b>42.3</b>	<b>5.0*</b>
<b>Tas</b>									
Males	610	75.3	68.2	82.3	22,219	43.0	42.4	43.5	1.8*
Females	708	59.8	54.9	64.7	20,940	37.8	37.2	38.3	1.6*
Persons	1,318	66.3	62.1	70.5	43,175	40.0	39.6	40.4	1.7*
<b>ACT</b>									
Males	118	59.6	42.3	76.9	9,557	33.2	32.5	33.9	1.8*
Females	125	59.9	44.6	75.2	8,804	27.6	27.0	28.2	2.2*
Persons	243	59.3	47.9	70.7	18,361	30.2	29.7	30.6	2.0*

(continued)

**Table 3.06.2 (continued): Hospitalisations for ambulatory care sensitive hospital admissions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT July 2006 to June 2008(a)(b)(c)(d)**

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

- (a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.
- (b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006): ICD-10-AM codes J10, J11, J13, J14, J153, J154, J157, J159, J168, J181, 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, E130, E131, 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, E643, E86, K522, K528, K529, N390, N10, N12, N11, N136, K250, K251, K252, K254, K255, K256, K260, K261, K262, K264, 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 additional diagnosis, and some are principal diagnosis with the exclusion of some procedure codes. For more information on coding used, 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 New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six 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 in five-year age groups to 75+ for NSW, Vic, Qld, WA, SA and NT. Directly age-standardised using the Australian 2001 standard population in five-year age groups to 65+ for Tasmania and the ACT.
- (g) LCL = lower confidence limit.
- (h) UCL = upper confidence limit.
- (i) Rate ratio—Indigenous: other.

**Notes:**

1. Population estimates based on the 2006 Census.
2. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

## Hospitalisations by remoteness

Hospitalisation rates for ambulatory care sensitive hospital conditions in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are presented by Australian Standard Geographical Classification (ASGC) in Table 3.06.3, covering the period July 2007 to June 2009.

- Indigenous Australians in all remoteness areas were more likely to be hospitalised for ambulatory care sensitive conditions than other Australians. The ratio of hospitalisations of Indigenous people compared with other Australians was higher and the difference was statistically significant for all ASGC areas.
- Rates of hospitalisations per 1,000 head of population were highest for Indigenous people living in *Remote* areas, at 495 per 1,000. The rate was highest for other Australians who lived in *Very remote* areas, at 47 per 1,000. The lowest rates were observed in *Inner regional* areas for Indigenous people (149 per 1,000) and *Major cities* for other Australians (39 per 1,000).
- Indigenous people were hospitalised for these conditions at a rate of 11 times that of other Australians in *Remote* areas of Australia. In *Inner regional* areas, where the lowest ratio was observed, Indigenous Australians were hospitalised at a rate of four times that of other Australians. Nationally, the rate was five times.

**Table 3.06.3: Hospitalisations for ambulatory care sensitive conditions by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT combined, July 2007 to June 2009<sup>(a)(b)(c)(d)(e)(f)</sup>**

	Indigenous				Other <sup>(g)</sup>				Ratio <sup>(k)</sup>
	Number	No. per 1,000 <sup>(h)</sup>	LCL 95% <sup>(i)</sup>	UCL 95% <sup>(i)</sup>	Number	No. per 1,000 <sup>(h)</sup>	LCL 95% <sup>(i)</sup>	UCL 95% <sup>(i)</sup>	
Major cities	27,617	171.3	168.9	173.7	1,068,917	38.7	38.6	38.8	4.4*
Inner regional	15,939	149.2	146.5	152.0	353,935	42.9	42.8	43.1	3.5*
Outer regional <sup>(l)</sup>	25,961	226.6	223.4	229.8	164,266	44.7	44.5	44.9	5.1*
Remote	26,266	494.6	487.8	501.4	21,354	44.6	44.0	45.2	11.1*
Very remote	19,595	199.5	194.1	204.9	6,919	47.2	46.9	47.6	4.2*
<b>Total<sup>(m)</sup></b>	<b>115,493</b>	<b>216.1</b>	<b>214.7</b>	<b>217.6</b>	<b>1,616,383</b>	<b>40.1</b>	<b>40.1</b>	<b>40.2</b>	<b>5.4*</b>

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

(aa) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory.

(bb) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006).

(cc) Financial year reporting.

(dd) Data are reported by state/territory of usual residence of the patient hospitalised.

(ee) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by five-year age group to 65+.

(ff) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

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

(hh) Directly age-standardised using the Australian 2001 standard population.

(ii) LCL = lower confidence limit.

(jj) UCL = upper confidence limit.

(kk) Rate ratio — Indigenous: other.

(ll) Outer regional includes remote Victoria

(mm) Total includes hospitalisations where ASGC is missing.

Notes:

5. Population estimates based on the 2006 Census.

6. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

## Hospitalisations by diagnosis

Table 3.06.4 presents data on the top 10 ambulatory care sensitive hospital admissions for Aboriginal and Torres Strait Islander peoples in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined for the two-year period July 2006 to June 2008.

- In the two-year period July 2006 to June 2008, diabetes complications were the most common type of ambulatory care sensitive condition among Indigenous Australians in these six jurisdictions, followed by convulsions and epilepsy, and chronic obstructive pulmonary disease (COPD). Indigenous Australians were hospitalised at around eight times the rate of other Australians for diabetes complications and around five times the rate of other Australians for convulsions and epilepsy and COPD.
- Ear, nose and throat infections was the fourth most common ambulatory care sensitive condition for which Indigenous Australians were hospitalised, at twice the rate of other Australians.



- For most ambulatory care sensitive conditions, the average length of stay in hospital was higher among other Australians compared with Indigenous Australians (4.7 days compared with 3.3 days for total ambulatory care sensitive conditions).
- Of these conditions, COPD and congestive heart failure were responsible for the greatest average number of days in hospital, with Indigenous Australians staying an average of between five and six days in hospital compared with between seven and eight days for other Australians.

**Table 3.06.4: Top 10 ambulatory care sensitive hospital admissions, by Indigenous status, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008<sup>(a)(b)(c)(d)</sup>**

	Separations						Average bed days		Total bed days	
	Number Indigenous	Indigenous no. per 1,000 <sup>(e)</sup>	LCL 95% <sup>(f)</sup>	UCL 95% <sup>(g)</sup>	Other no. per 1,000 <sup>(e)(h)</sup>	Ratio <sup>(i)</sup>	Indigenous	Other <sup>(h)</sup>	Indigenous	Other <sup>(h)</sup>
Diabetes complications	82,788	165.2	163.9	166.4	20.3	8.1*	3.5	5.9	290,618	5,100,337
Convulsions and epilepsy	6,034	7.0	6.8	7.2	1.5	4.8*	2.4	3.0	14,223	170,123
Chronic obstructive pulmonary disease	4,928	11.8	11.5	12.2	2.5	4.6*	5.6	7.1	27,375	770,094
Ear, nose and throat infections	4,171	3.1	3.0	3.2	1.6	1.9*	1.9	1.7	7,768	108,380
Dental problems	4,115	3.1	3.0	3.2	2.7	1.1*	1.5	1.2	6,028	123,238
Cellulitis	3,911	4.6	4.4	4.8	1.5	3.0*	3.5	3.8	13,686	240,259
Asthma	3,850	3.7	3.5	3.8	1.8	2.1*	2.0	2.2	7,812	151,949
Pyelonephritis	3,793	6.1	5.8	6.4	2.2	2.8*	3.6	4.7	13,750	430,377
Angina	2,534	5.2	4.9	5.4	1.7	3.0*	2.3	2.4	5,834	176,448
Congestive cardiac failure	2,480	5.9	5.6	6.1	2.0	3.0*	5.4	7.5	13,460	636,965
<b>Total<sup>(i)</sup></b>	<b>120,308</b>	<b>212.3</b>	<b>210.9</b>	<b>213.7</b>	<b>42.2</b>	<b>5.0*</b>	<b>3.3</b>	<b>4.7</b>	<b>397,313</b>	<b>8,229,632</b>

(continued)

**Table 3.06.4 (continued): Top 10 ambulatory care sensitive hospital admissions, by Indigenous status, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008<sup>(a)(b)(c)(d)</sup>**

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the  $p < 0.05$  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 fifth edition (National Centre for Classification in Health 2006).
- (c) Financial year reporting.
- (d) Data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six 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) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was 'not stated'.
- (i) Rate ratio—Indigenous: other.
- (j) All ambulatory care sensitive hospital admissions. Note that the sum of the number of hospitalisations for each condition may exceed the total because more than one ambulatory care sensitive condition can be diagnosed for each hospital separation.

*Notes:*

1. Population estimates based on the 2006 Census.
2. Care types 7.3, 9 and 10 (newborn — unqualified days only; organ procurement; hospital boarder) excluded from analysis.

*Source:* AIHW analysis of National Hospital Morbidity Database.

## Hospitalisations by diagnosis and age group

Table 3.06.5 presents data on the top three ambulatory care sensitive hospital admissions by age group for Aboriginal and Torres Strait Islander people in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined for the two-year period from July 2006 to June 2008.

- In the two-year period from July 2006 to June 2008, ear, nose and throat infections were the most common type of ambulatory sensitive condition among Indigenous Australians aged less than one year of age, followed by pyelonephritis. Indigenous infants were hospitalised at twice the rate of other infants for ear, nose and throat infections and at similar rates for pyelonephritis.
- Dental conditions were the most common reason for hospitalisation among Indigenous Australians aged 1–14 years of age. This group was hospitalised at 1.1 times the rate of other Australians at this age. Dental conditions accounted for 6% of total hospitalisations of Indigenous Australians in this age group.
- Diabetes complications was the most common reason for hospitalisation among Aboriginal and Torres Strait Islander peoples aged 15–24 years, followed by appendicitis. Indigenous Australians of this age were hospitalised at more than twice the rate of other Australians for diabetes complications and at similar rates to other Australians for appendicitis. These two conditions each accounted for approximately 1% of total hospitalisations of Indigenous Australians aged 15–24 years.
- Diabetes complications was also 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 4 and 18 times the rate of other Australians for diabetes complications in these age groups. Diabetes complications were responsible for 12%, 25% and 27% of total hospitalisations of Indigenous Australians in these age groups, respectively.
- COPD 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 six 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 3.06.5: Major ambulatory care sensitive hospital admissions, by age group and Indigenous status, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008<sup>(a)(b)(c)(d)</sup>**

Age group (years)	Condition	Indigenous				Other <sup>(e)</sup>				Rate ratio <sup>(i)</sup>
		Number	No. per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	Number	No. per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	
<1	Ear, nose and throat infections	770	31.9	29.6	34.2	5,956	16.1	15.7	16.5	2.0*
	Pyelonephritis	231	9.6	8.3	10.8	3,801	10.3	9.9	10.6	0.9
	Convulsions and epilepsy	187	7.7	6.6	8.9	2,411	6.5	6.2	6.8	1.2*
1–14	Dental conditions	2,763	8.5	8.2	8.8	39,985	7.7	7.7	7.8	1.1*
	Ear, nose and throat infections	2,094	6.5	6.2	6.7	28,811	5.6	5.5	5.6	1.2*
	Asthma	1,910	5.9	5.6	6.2	38,342	7.4	7.4	7.5	0.8*
15–24	Diabetes complications	758	4.1	3.8	4.4	6,905	1.7	1.7	1.8	2.4*
	Appendicitis	644	3.5	3.2	3.8	14,988	3.7	3.7	3.8	0.9
	Pyelonephritis	569	3.1	2.8	3.3	7,070	1.8	1.7	1.8	1.7*
25–44	Diabetes complications	18,256	72.8	71.8	73.9	33,595	4.0	4.0	4.1	18.0*
	Convulsions and epilepsy	2,617	10.4	10.0	10.8	12,982	1.6	1.5	1.6	6.7*
	Cellulitis	1,337	5.3	5.0	5.6	11,461	1.4	1.4	1.4	3.9*
45–64	Diabetes complications	47,467	370.4	367.1	373.8	232,373	31.5	31.4	31.7	11.7*
	COPD	2,350	18.3	17.6	19.1	22,151	3.0	3.0	3.0	6.1*
	Angina	1,479	11.5	11.0	12.1	23,479	3.2	3.1	3.2	3.6*
65+	Diabetes complications	16,039	552.1	543.5	560.6	586,218	151.1	150.7	151.5	3.7*
	COPD	1,713	59.0	56.2	61.8	84,161	21.7	21.5	21.8	2.7*
	Congestive cardiac failure	771	26.5	24.7	28.4	74,726	19.3	19.1	19.4	1.4*

(continued)

**Table 3.06.5 (continued): Major ambulatory care sensitive hospital admissions, by age group and Indigenous status, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008<sup>(a)(b)(c)(d)</sup>**

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the  $p < 0.05$  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 fifth edition (National Centre for Classification in Health 2006).
- (c) Financial year reporting.
- (d) Data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.
- (e) Other includes hospitalisations for non-Indigenous people and those for whom Indigenous status was not stated.
- (f) Age standardised number 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.

*Notes:*

1. Population estimates based on the 2006 Census.
2. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

## Time series analyses

Time series data from 2001–02 to 2007–08 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period – Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population and are presented in Tables 3.06.6, 3.06.8, 3.06.10, 3.06.12, 3.06.14 and their corresponding figures.

New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Therefore additional trend analysis has been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2007–08 for Indigenous and Other Australians in Tables 3.06.7, 3.06.9, 3.06.11, 3.6.13 and 3.6.15 and their corresponding figures.

Trends are presented for:

- all ambulatory care sensitive conditions
- vaccine preventable conditions
- potentially preventable chronic conditions
- potentially preventable acute conditions

Note 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 have an impact on the level of hospitalisation over time. Caution should be used in interpreting changes over time because 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 2001–02 to 2007–08**

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for total ambulatory care sensitive conditions over the seven-year period 2001–02 to 2007–08 in Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 3.06.6 and Figure 3.06.2. This period has been used for analysis because 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 earlier 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 2001–02 to 2007–08. The fitted trend implies an average yearly increase in the rate for Indigenous Australians of around 28 per 1,000 which is equivalent to a 126% increase in the rate over the period. The 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 2.7 per 1,000. This is equivalent to a 54% increase in the rate over this period. The 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 2007–08 (48% increase in the rate ratio and 147% increase in the rate difference), 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 3.06.6: Age-standardised hospitalisation rates, rate ratios and rate differences for all ambulatory care sensitive hospital admissions, Qld, WA, SA and NT, 2001-02 to 2007-08<sup>(a)</sup>**

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	Annual change <sup>(b)</sup>	Per cent change over period <sup>(c)</sup>
<b>Indigenous separations</b>									
Males	9,844	10,423	12,925	15,622	17,896	18,732	21,946	2,068*	126.0*
Females	11,788	12,812	16,951	21,726	24,423	26,264	28,922	3,064*	155.9*
Persons	21,635	23,235	29,876	37,348	42,319	44,996	50,868	5,131*	142.3*
<b>Other Australian<sup>(d)</sup> separations</b>									
Males	107,800	112,377	121,992	149,712	166,696	178,842	192,793	15,450*	86.0*
Females	104,539	108,445	115,654	139,064	151,985	162,294	172,679	12,445*	71.4*
Persons	212,342	220,823	237,646	288,776	318,681	341,136	365,473	27,895*	78.8*
<b>Indigenous rate (separations per 1,000)</b>									
Males	121.8	129.9	172.4	204.8	230.3	237.8	281.5	26.9*	132.5*
Females	144.8	154.5	200.3	254.7	281.9	288.9	308.8	30.1*	124.6*
Persons	134.9	143.7	187.0	231.5	258.1	264.5	294.4	28.3*	125.7*
<b>Other Australian<sup>(d)</sup> rate (separations per 1,000)</b>									
Males	32.7	33.2	35.2	42.0	45.5	47.4	49.7	3.2*	58.7*
Females	28.6	29.1	30.3	35.5	37.8	39.3	40.9	2.3*	48.2*
Persons	30.4	30.9	32.5	38.5	41.3	43.0	44.9	2.7*	53.6
<b>Rate ratio<sup>(e)</sup></b>									
Males	3.7	3.9	4.9	4.9	5.1	5.0	5.7	0.3*	47.2*
Females	5.1	5.3	6.6	7.2	7.5	7.4	7.6	0.4*	52.8*
Persons	4.4	4.6	5.7	6.0	6.2	6.2	6.6	0.4*	47.9*

(continued)



**Table 3.06.6 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences for all ambulatory care sensitive hospital admissions, Qld, WA, SA and NT, 2001–02 to 2007–08<sup>(a)</sup>**

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	Per cent change over period <sup>(c)</sup>
<b>Rate difference<sup>(f)</sup></b>									
Males	89.1	96.6	137.2	162.7	184.8	190.3	231.8	23.7*	159.5*
Females	116.2	125.4	170.0	219.3	244.1	249.6	268.0	27.8*	143.5*
Persons	104.4	112.7	154.4	193.0	216.8	221.5	249.5	25.5*	146.7*

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2001–02 to 2007–08.

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

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

(c) Per cent change between 2001–02 and 2007–08 based on the average annual change over the period.

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

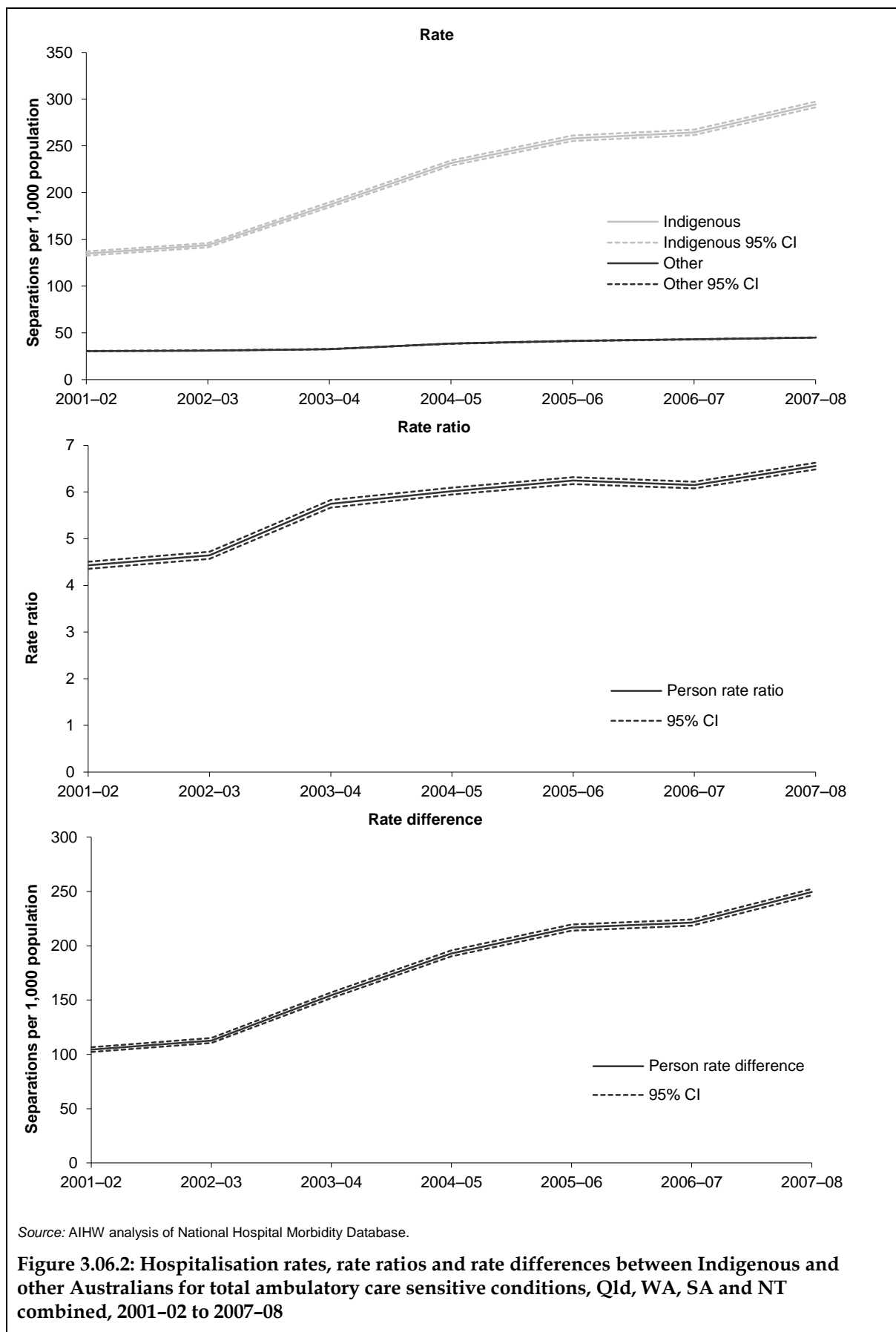
(e) Hospitalisation rates for Indigenous Australians divided by hospitalisation rates for other Australians.

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

*Notes:*

1. Rates have been directly age-standardised using the Australian 2001 standard population.
2. Population estimates are based on the 2006 Census.
3. Care types 7.3, 9 and 10 (newborn — unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



### **All ambulatory care sensitive conditions 2004–05 to 2007–08**

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians over the period 2004–05 to 2007–08 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 3.06.7 and Figure 3.06.3.

- 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 2004–05 to 2007–08. The fitted trend implies an average yearly increase in the rate for Indigenous Australians of around 14 per 1,000 which is equivalent to a 24% increase in the rate over the period. The 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 1.8 per 1,000. This is equivalent to a 14% increase in the rate over this period. The 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 2004–05 to 2007–08 (9.0% increase in the rate ratio and 27% increase in the rate difference), 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 3.06.7: Age-standardised hospitalisation rates, rate ratios and rate differences for total ambulatory care sensitive conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08<sup>(a)</sup>**

	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	Per cent change over period <sup>(c)</sup>
<b>Indigenous separations</b>						
Males	20,631	23,089	23,846	27,898	2,256*	32.8*
Females	27,066	30,546	32,599	35,965	2,875*	31.9*
Persons	47,698	53,635	56,445	63,863	5,131*	32.3*
<b>Other Australian<sup>(d)</sup> separations</b>						
Males	377,342	408,378	436,065	463,911	28,739*	22.8*
Females	359,849	389,553	413,048	435,973	25,187*	21.0*
Persons	737,209	797,936	849,118	899,888	53,922*	21.9*
<b>Indigenous rate (separations per 1,000)</b>						
Males	159.1	175.4	178.3	209.7	15.5*	29.2*
Females	192.5	214.9	221.3	236.4	13.8*	21.5*
Persons	176.8	196.6	201.1	223.1	14.3*	24.3*
<b>Other Australian<sup>(d)</sup> rate (separations per 1,000)</b>						
Males	41.1	43.5	45.3	47.0	2.0*	14.3*
Females	34.8	36.9	38.3	39.6	1.6*	13.5*
Persons	37.6	39.9	41.5	42.9	1.8*	14.0*
<b>Rate ratio<sup>(e)</sup></b>						
Males	3.9	4.0	3.9	4.5	0.2*	13.0*
Females	5.5	5.8	5.8	6.0	0.1*	6.9*
Persons	4.7	4.9	4.8	5.2	0.1*	9.0*
<b>Rate difference<sup>(f)</sup></b>						
Males	118.0	131.9	133.1	162.8	13.5*	34.4*
Females	157.7	178.0	183.0	196.8	12.2*	23.3*
Persons	139.2	156.7	159.6	180.2	12.6*	27.1*

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2004–05 to 2007–08.

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

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

(c) Per cent change between 2004–05 and 2007–08 based on the average annual change over the period.

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

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

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

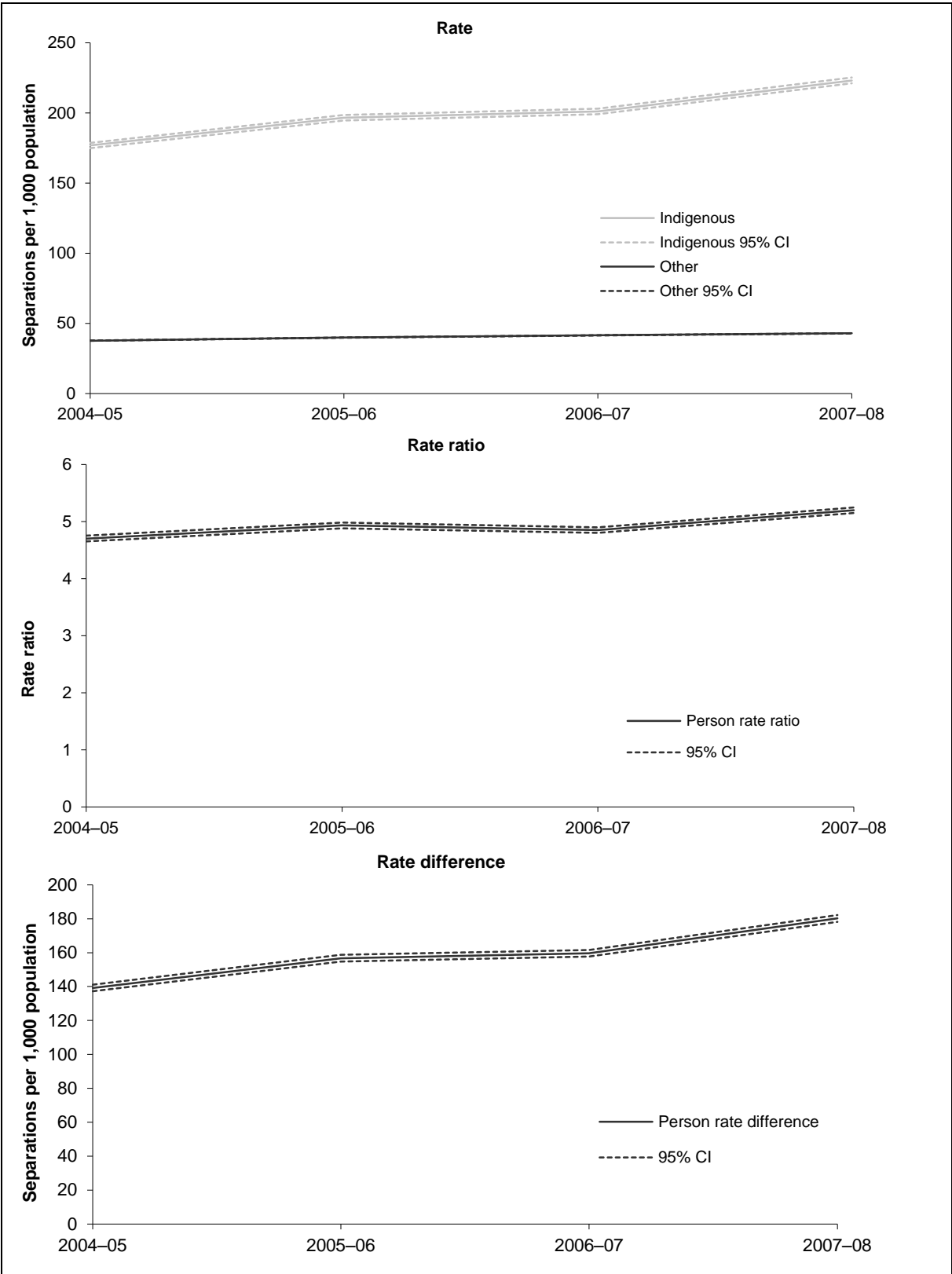
**Notes**

1. Rates have been directly age-standardised using the 2001 Australian standard population.

2. Population estimates are based on the 2006 Census.

3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.3: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for total ambulatory care sensitive conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004-05 to 2007-08**

### **Vaccine-preventable conditions 2001–02 to 2007–08**

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for vaccine-preventable conditions, such as influenza, pneumonia, diphtheria, measles, mumps and rubella, over the period 2001–02 to 2007–08 for Queensland, Western Australia, South Australia and the Northern Territory are presented in Table 3.06.8 and Figure 3.06.4.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were statistically significant declines in hospitalisation rates for vaccine-preventable conditions among Indigenous Australians during the period 2001–02 to 2007–08. The fitted trend implies an average yearly decline in the rate of around 0.2 per 1,000 for Indigenous Australians, which was equivalent to a 25% decline in the rate over the period.
- Over the same period, there were statistically significant declines in hospitalisation rates for other Australian males and females. The fitted trend implies an average yearly decline in the rate of around 0.04 per 1,000 for other Australians, which is equivalent to a 30% decline in the rate over the period.
- There was no significant change in the hospitalisation rate ratio between Indigenous and other Australians for vaccine-preventable conditions over the period 2001–02 to 2007–08. There was a significant decline in the hospitalisation rate difference between Indigenous and other Australians for vaccine-preventable conditions over the period 2001–02 to 2007–08 (24%).

**Table 3.06.8: Age-standardised hospitalisation rates, rate ratios and rate differences for vaccine preventable conditions, Qld, WA, SA and NT, 2001–02 to 2007–08<sup>(a)(b)</sup>**

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	% change over period <sup>(c)</sup>
<b>Indigenous separations</b>									
Males	507	420	400	369	432	343	431	-13	-14.8
Females	502	383	442	356	354	370	403	-15	-17.5
Persons	1,009	803	842	725	786	713	834	-27	-16.2
<b>Other Australian<sup>(d)</sup> separations</b>									
Males	3,220	3,114	2,955	2,505	2,712	2,312	3,044	-85	-15.8
Females	2,822	2,643	2,557	2,076	2,298	1,790	2,452	-110*	-23.3*
Persons	6,042	5,757	5,512	4,581	5,010	4,102	5,496	-195	-19.3
<b>Indigenous rate (separations per 1,000)</b>									
Males	4.9	4.4	4.0	3.7	4.1	3.1	3.7	-0.2*	-26.7*
Females	4.4	3.8	3.3	3.2	3.0	3.2	3.2	-0.2*	-23.7*
Persons	4.6	4.0	3.6	3.4	3.5	3.2	3.5	-0.2*	-24.8*
<b>Other Australian<sup>(d)</sup> rate (separations per 1,000)</b>									
Males	1.0	0.9	0.8	0.7	0.7	0.6	0.8	-0.05*	-28.2*
Females	0.8	0.7	0.7	0.5	0.6	0.4	0.6	-0.04*	-32.4*
Persons	0.9	0.8	0.8	0.6	0.7	0.5	0.7	-0.04*	-30.0*
<b>Rate ratio<sup>(e)</sup></b>									
Males	5.1	4.8	4.8	5.3	5.5	5.1	4.7	0.0	1.6
Females	5.6	5.2	4.8	5.8	5.1	7.3	5.3	0.1	13.7
Persons	5.3	5.0	4.7	5.5	5.3	6.1	5.0	0.1	7.3

(continued)

**Table 3.06.8 (continued) : Age-standardised hospitalisation rates, rate ratios and rate differences for vaccine preventable conditions, Qld, WA, SA and NT, 2001–02 to 2007–08<sup>(a)(b)</sup>**

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	% change over period <sup>(c)</sup>
<b>Rate difference<sup>(f)</sup></b>									
Males	3.9	3.5	3.2	3.0	3.3	2.5	2.9	–0.2*	–26.3*
Females	3.6	3.0	2.7	2.6	2.4	2.8	2.6	–0.1*	–21.8*
Persons	3.8	3.2	2.9	2.8	2.8	2.7	2.8	–0.1*	–23.6*

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2001–02 to 2007–08.

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

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

(c) Per cent change between 2001–02 and 2007–08 based on the average annual change over the period.

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

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

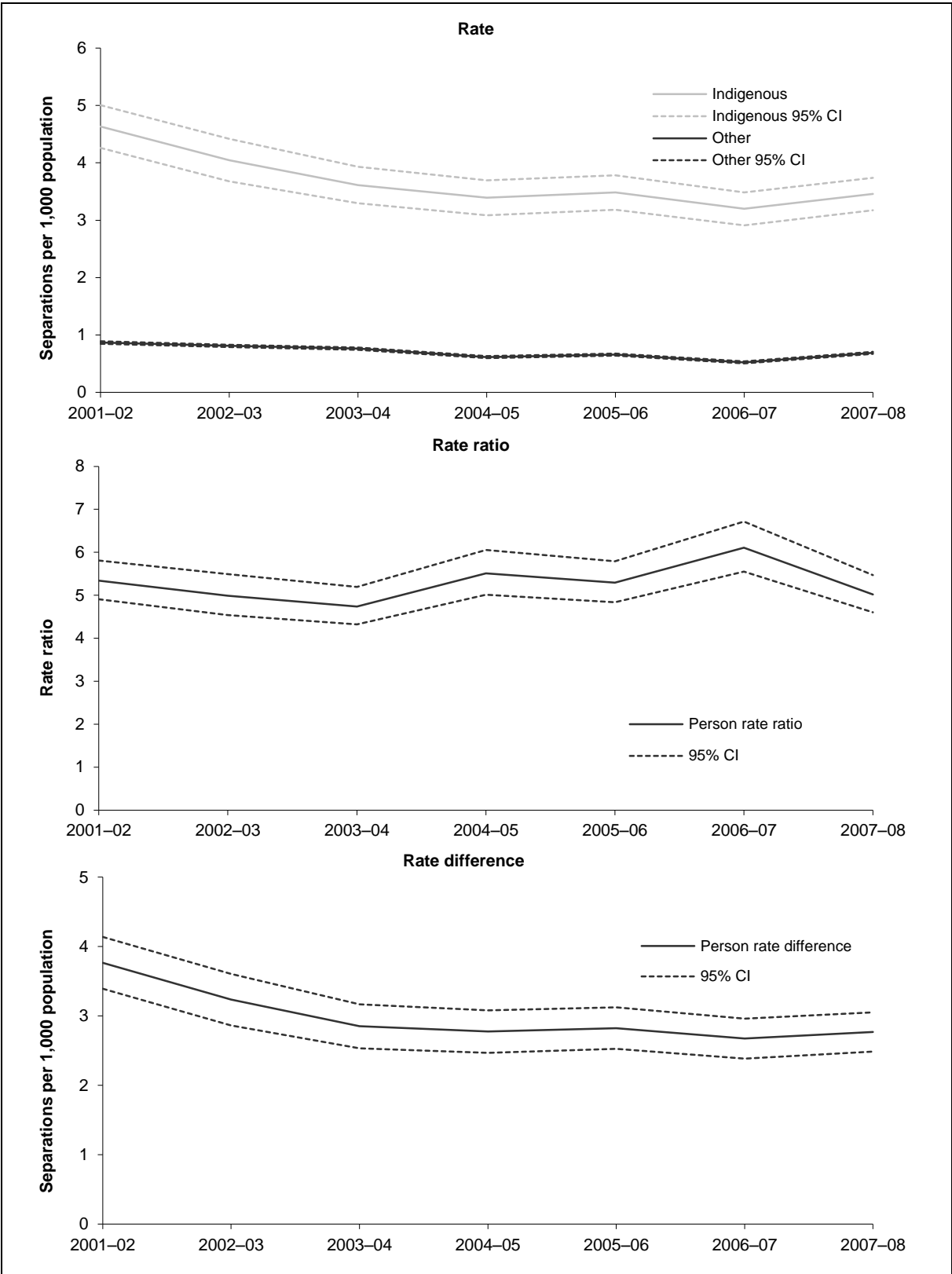
(f) Hospitalisation rates for Indigenous Australians minus hospitalisation rates for other Australians.

*Notes:*

1. Rates have been directly age-standardised using the Australian 2001 standard population.
2. Population estimates are based on the 2006 Census.
3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.





Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.4: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for vaccine-preventable conditions, Qld, WA, SA and NT combined, 2001-02 to 2007-08**

### **Vaccine preventable conditions 2004–05 to 2007–08**

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians over the period 2004–05 to 2007–08 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 3.06.9 and Figure 3.06.5.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in hospitalisation rates for vaccine-preventable conditions among Indigenous Australians during the period 2004–05 to 2007–08. Over the same period, there was also no significant change in hospitalisation rates for other Australians.
- There was no significant change in the hospitalisation rate ratio between Indigenous and other Australians for vaccine-preventable conditions over the period 2004–05 to 2007–08. There was a significant increase in the hospitalisation rate difference between Indigenous females and other females for vaccine-preventable conditions over the same period (8.4%).

**Table 3.06.9: Age-standardised hospitalisation rates, rate ratios and rate differences for vaccine preventable conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08<sup>(a)</sup>**

	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	% change over period <sup>(c)</sup>
<b>Indigenous separations</b>						
Males	468	518	453	539	15	9.5
Females	447	452	461	517	22*	14.7*
Persons	915	970	914	1,056	37	12.0
<b>Other Australian separations</b>						
Males	7,182	7,084	6,476	7,775	117	4.9
Females	5,424	5,541	4,784	6,161	145	8.0
Persons	12,606	12,625	11,260	13,936	263	6.2
<b>Indigenous rate (separations per 1,000)</b>						
Males	2.8	3.1	2.5	2.8	–0.1	–7.4
Females	2.4	2.4	2.4	2.6	0.1*	7.3*
Persons	2.6	2.7	2.5	2.7	0.0	0.7
<b>Other Australian<sup>(d)</sup> rate (separations per 1,000)</b>						
Males	0.8	0.8	0.7	0.8	0.0	–2.0
Females	0.5	0.5	0.5	0.6	0.0	3.5
Persons	0.7	0.6	0.6	0.7	0.00	0.6
<b>Rate ratio<sup>(e)</sup></b>						
Males	3.6	4.1	3.8	3.5	–0.1	–5.4
Females	4.5	4.4	5.3	4.4	0.1	4.8
Persons	4.0	4.2	4.4	3.9	0.0	0.6
<b>Rate difference<sup>(f)</sup></b>						
Males	2.1	2.3	1.9	2.0	–0.1	–9.5
Females	1.9	1.9	2.0	2.0	0.1*	8.4*
Persons	1.9	2.1	1.9	2.0	0.0	0.8

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2004–05 to 2007–08.

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

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

(c) Per cent change between 2004–05 and 2007–08 based on the average annual change over the period.

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

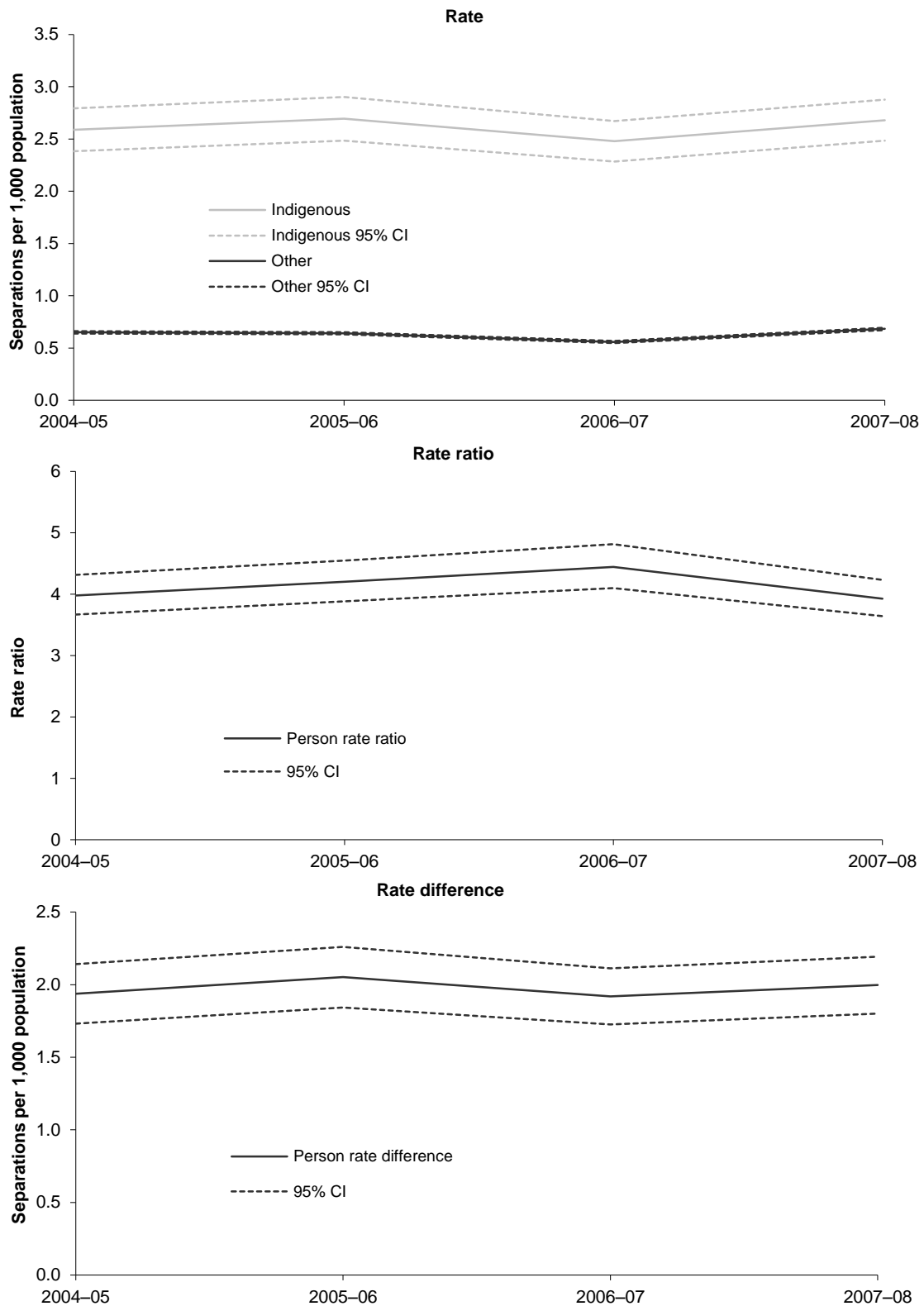
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.

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

**Notes:**

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on the 2006 Census.
3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.5: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for vaccine preventable conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004-05 to 2007-08**

## **Potentially preventable chronic conditions 2001–02 to 2007–08**

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 2001–02 to 2007–08 in Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 3.06.10 and Figure 3.06.6. This period has been used for analysis because 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 earlier 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 2001–02 to 2007–08. The fitted trend implies an average yearly increase in the rate of around 29 per 1,000 (equivalent to an increase of 178% over the period). 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 2.7 per 1,000. This is equivalent to an increase of 95% in the rate over the period. These increases were statistically 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 2001–02 to 2007–08 (an increase of 42% in the rate ratio and 196% in the rate difference). 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 2001–02 to 2007–08.

**Table 3.06.10: Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable chronic conditions, Qld, WA, SA and NT, 2001–02 to 2007–08<sup>(a)</sup>**

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	Per cent change over period <sup>(c)</sup>
<b>Indigenous separations</b>									
Males	5,468	6,189	8,539	11,341	13,509	14,575	17,249	2,039*	223.7*
Females	7,144	8,350	12,307	17,275	20,052	21,732	23,970	3,035*	254.9*
Persons	12,614	14,539	20,846	28,616	33,561	36,307	41,219	5,074*	241.3*
<b>Other Australian<sup>(d)</sup> separations</b>									
Males	63,231	67,023	74,675	103,511	118,414	129,265	140,506	14,287*	135.6*
Females	54,281	57,206	61,807	86,252	97,747	106,600	113,311	11,136*	123.1*
Persons	117,512	124,229	136,482	189,763	216,161	235,865	253,817	25,424*	129.8*
<b>Indigenous rate (separations per 1,000)</b>									
Males	86.4	95.7	138.0	173.0	198.1	208.5	248.8	27.6*	191.7*
Females	107.3	118.8	165.3	222.6	251.6	258.9	276.8	31.2*	174.6*
Persons	98.3	108.7	152.2	199.5	226.9	234.9	262.1	29.2*	178.4*
<b>Other Australian<sup>(d)</sup> rate (separations per 1,000)</b>									
Males	19.6	20.2	21.8	29.3	32.4	34.3	36.2	3.2*	96.8*
Females	14.5	14.9	15.7	21.4	23.6	25.0	26.0	2.2*	92.3*
Persons	16.8	17.3	18.5	25.0	27.7	29.3	30.7	2.7*	95.1*
<b>Rate ratio<sup>(e)</sup></b>									
Males	4.4	4.8	6.3	5.9	6.1	6.1	6.9	0.4*	48.0*
Females	7.4	8.0	10.5	10.4	10.7	10.3	10.7	0.5*	42.5*
Persons	5.8	6.3	8.2	8.0	8.2	8.0	8.5	0.4*	42.4*
<b>Rate difference<sup>(f)</sup></b>									
Males	66.8	75.6	116.2	143.7	165.7	174.2	212.6	24.4*	219.6*
Females	92.8	103.9	149.6	201.2	227.9	233.9	250.8	29.0*	187.5*
Persons	81.5	91.3	133.7	174.5	199.2	205.5	231.4	26.6*	195.6*

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2001–02 to 2007–08.

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

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

(c) Per cent change between 2001–02 and 2007–08 based on the average annual change over the period.

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

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

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

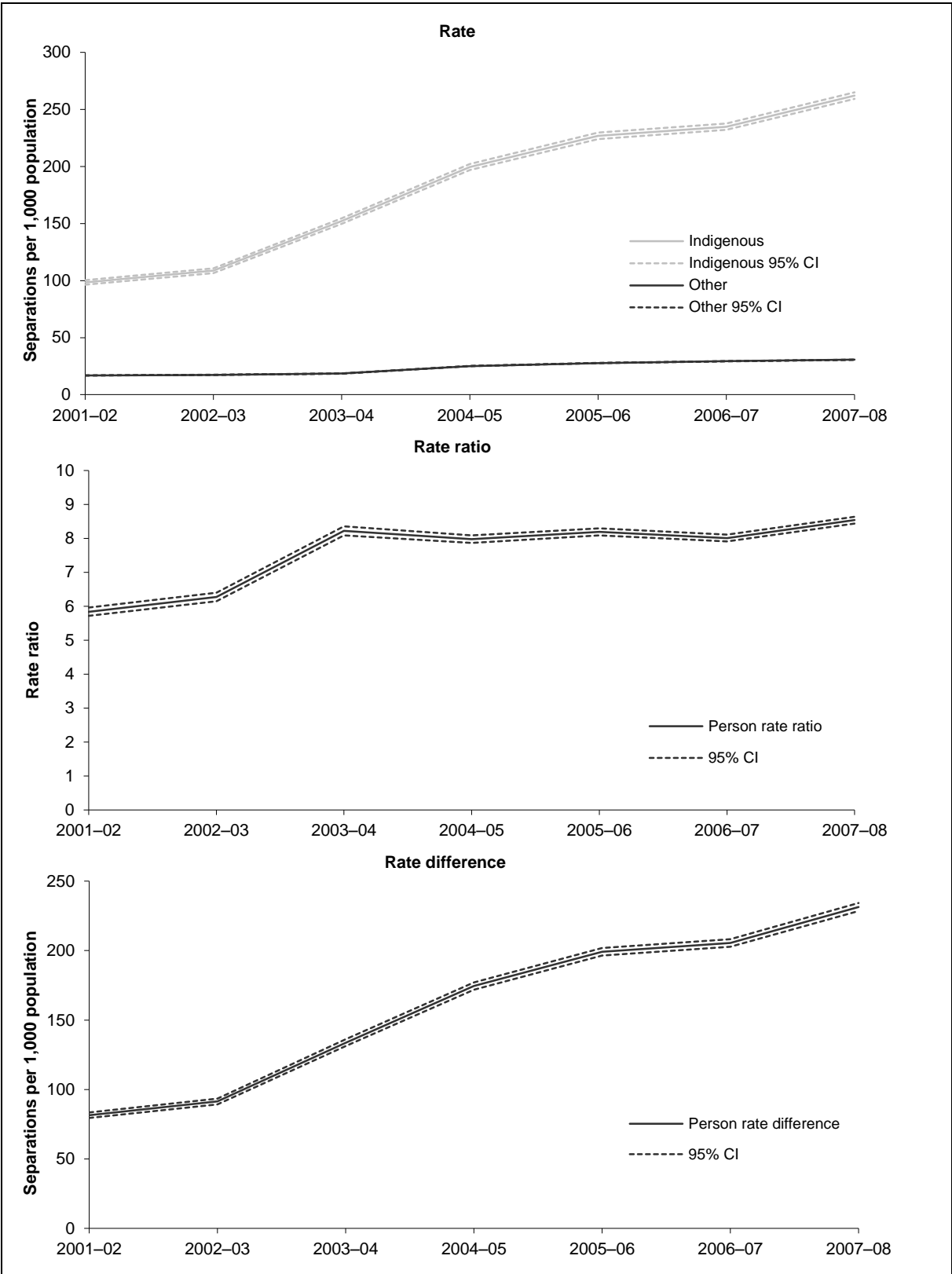
**Notes:**

1. Rates have been directly age-standardised using the Australian 2001 standard population.

2. Population estimates are based on the 2006 Census.

3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.6: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable chronic conditions, Qld, WA, SA and NT combined, 2001-02 to 2007-08**

### **Potentially preventable chronic conditions 2004–05 to 2007–08**

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians over the period 2004–05 to 2007–08 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 3.06.11 and Figure 3.06.7.

- In New South Wales, Victoria, 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 2004–05 to 2007–08. The fitted trend implies an average yearly increase in the rate of around 14 per 1,000 (equivalent to an increase of 28% over the period); 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 1.5 per 1,000. This is equivalent to an increase of 18% in the rate over the period. These increases were statistically 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 2004–05 to 2007–08 (an increase of 8.4% in the rate ratio and 30% in the rate difference). 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 2004–05 to 2007–08.



**Table 3.06.11: Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable chronic conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08<sup>(a)</sup>**

	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	Per cent change over period <sup>(c)</sup>
<b>Indigenous separations</b>						
Males	14,717	16,900	17,899	21,205	2,046*	41.7*
Females	20,826	24,219	26,108	28,828	2,590	37.3
Persons	35,544	41,119	44,007	50,033	4,636*	39.1*
<b>Other Australian<sup>(d)</sup> separations</b>						
Males	260,338	286,919	311,332	334,176	24,593*	28.3*
Females	225,688	249,872	269,447	284,288	19,538*	26.0*
Persons	486,040	536,794	580,783	618,466	44,127*	27.2*
<b>Indigenous rate (separations per 1,000)</b>						
Males	132.2	147.8	152.9	181.8	15.4*	34.9*
Females	165.1	188.1	194.9	207.8	13.5*	24.5*
Persons	149.6	169.4	175.1	194.9	14.1*	28.3*
<b>Other Australian<sup>(d)</sup> rate (separations per 1,000)</b>						
Males	28.4	30.6	32.3	33.7	1.8*	18.6*
Females	21.1	22.8	24.1	24.8	1.2*	17.7*
Persons	24.4	26.4	27.8	28.9	1.5*	18.3*
<b>Rate ratio<sup>(e)</sup></b>						
Males	4.7	4.8	4.7	5.4	0.2*	13.7*
Females	7.8	8.2	8.1	8.4	0.1*	5.7*
Persons	6.1	6.4	6.3	6.7	0.2*	8.4*
<b>Rate difference<sup>(f)</sup></b>						
Males	103.8	117.2	120.6	148.0	13.6*	39.3*
Females	144.0	165.3	170.8	183.0	12.3*	25.5*
Persons	125.2	143.1	147.3	166.0	12.6*	30.3*

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2004–05 to 2007–08.

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

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

(c) Per cent change between 2004–05 and 2007–08 based on the average annual change over the period.

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

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

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

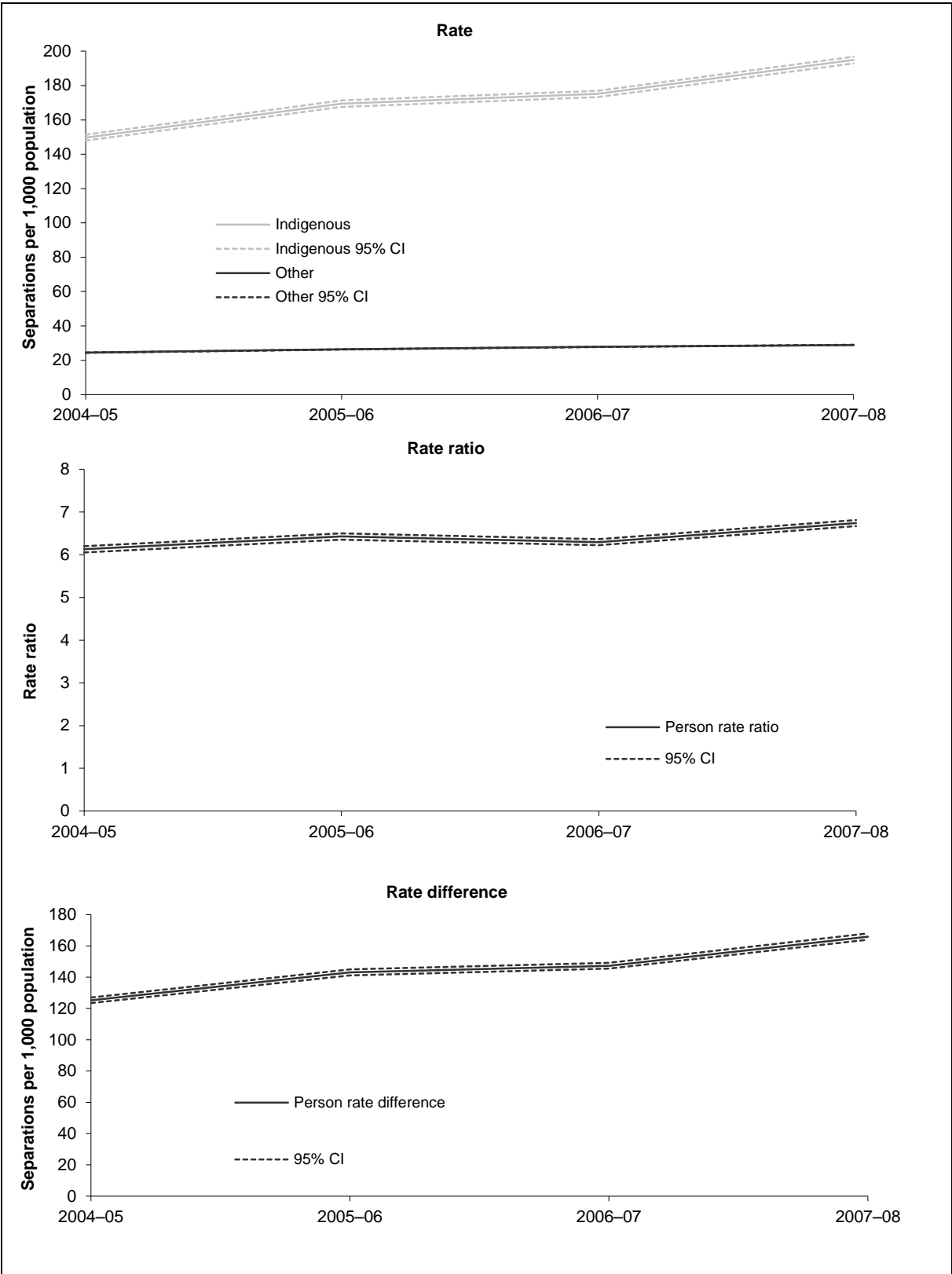
**Notes:**

1. Rates have been directly age-standardised using the 2001 Australian standard population.

2. Population estimates are based on the 2006 Census.

3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.7: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable chronic conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004-05 to 2007-08**

### **Potentially preventable acute conditions 2001–02 to 2007–08**

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 2001–02 to 2007–08 for Queensland, Western Australia, South Australia and the Northern Territory combined, are presented in Table 3.06.12 and Figure 3.06.8.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in hospitalisation rates for potentially preventable acute conditions among Indigenous Australians during the period 2001–02 to 2007–08.
- There were significant increases in hospitalisation rates for other Australians during the same period, with an average yearly increase in the rate of 0.2 per 1,000. This is equivalent to a 9.2% increase in the rate over the period and was significant for both males and females.
- There were no significant changes in the hospitalisation rate ratios or rate differences between Indigenous and other Australians over the period 2001– to 2007–08.

**Table 3.06.12: Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable acute conditions, Qld, WA, SA and NT, 2001–02 to 2007–08<sup>(a)</sup>**

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	Per cent change over period <sup>(c)</sup>
<b>Indigenous separations</b>									
Males	4,044	4,025	4,242	4,268	4,430	4,212	4,792	100*	14.9*
Females	4,389	4,410	4,580	4,757	4,750	4,956	5,463	160*	21.9*
Persons	8,434	8,435	8,822	9,025	9,180	9,168	10,255	260*	18.5*
<b>Other Australian<sup>(d)</sup> separations</b>									
Males	42,636	43,708	45,927	46,097	48,507	50,437	53,051	1,689*	23.8*
Females	48,465	49,872	52,775	53,131	55,035	57,299	60,621	1,914*	23.7*
Persons	91,104	93,581	98,702	99,228	103,542	107,736	113,673	3,602*	23.7*
<b>Indigenous rate (separations per 1,000)</b>									
Males	33.3	33.0	35.3	33.3	35.1	31.9	36.3	0.2	4.3
Females	37.0	36.7	36.8	37.7	37.0	37.0	40.6	0.4	6.7
Persons	35.4	35.1	36.1	35.8	36.2	34.6	38.7	0.3	5.6
<b>Other Australian<sup>(d)</sup> rate (separations per 1,000)</b>									
Males	12.5	12.6	13.0	12.8	13.1	13.3	13.7	0.2*	8.9*
Females	13.6	13.8	14.3	14.1	14.3	14.6	15.1	0.2*	9.6*
Persons	13.1	13.2	13.7	13.5	13.7	14.0	14.4	0.2*	9.2*
<b>Rate ratio<sup>(e)</sup></b>									
Males	2.7	2.6	2.7	2.6	2.7	2.4	2.7	0.0	-4.2
Females	2.7	2.7	2.6	2.7	2.6	2.5	2.7	0.0	-2.6
Persons	2.7	2.7	2.6	2.7	2.6	2.5	2.7	0.0	-3.3

(continued)

**Table 3.06.12 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable acute conditions, Qld, WA, SA and NT combined, 2001–02 to 2007–08<sup>(a)</sup>**

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	Per cent change over period <sup>(c)</sup>
<b>Rate Difference<sup>(f)</sup></b>									
Males	20.8	20.4	22.3	20.6	22.0	18.5	22.7	0.1	1.6
Females	23.4	22.9	22.4	23.6	22.7	22.4	25.5	0.2	5.0
Persons	22.3	21.8	22.4	22.3	22.5	20.7	24.3	0.1	3.5

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2001–02 to 2005–06.

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

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

(c) Per cent change between 2001–02 and 2005–06 based on the average annual change over the period.

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

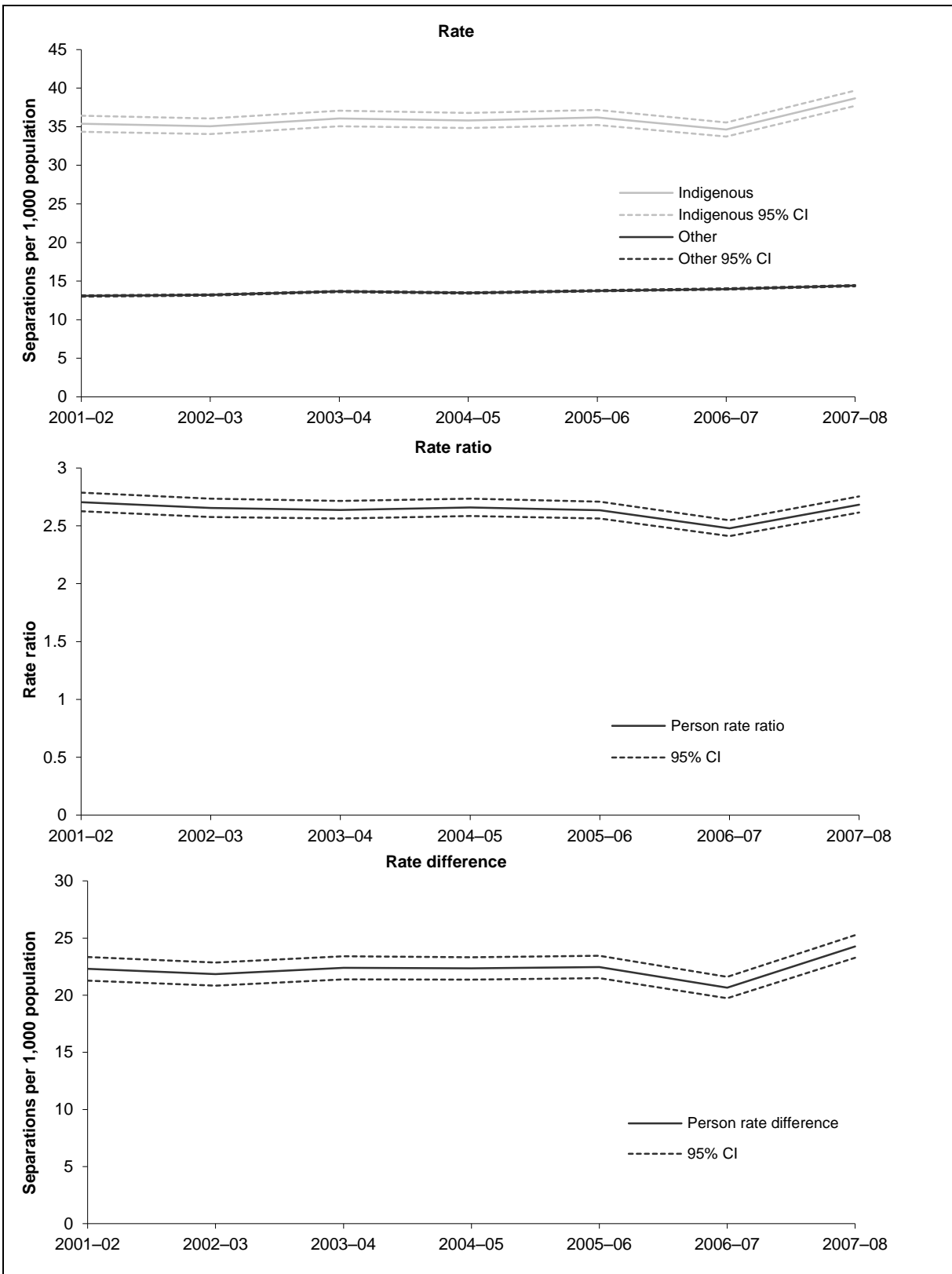
(e) Hospitalisation rates for Indigenous Australians divided by hospitalisation rates for other Australians.

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

*Notes:*

1. Rates have been directly age-standardised using the Australian 2001 standard population.
2. Population estimates are based on the 2006 Census.
3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

*Source:* AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.8: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable acute conditions, Qld, WA, SA and NT combined, 2001-02 to 2007-08**

### **Potentially preventable acute conditions 2004–05 to 2007–08**

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians over the period 2004–05 to 2007–08 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 3.06.13 and Figure 3.06.9.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for potentially preventable acute conditions among Indigenous females during the period 2004–05 to 2007–08 (10%; 3.5 separations per 1,000 population). These differences were however not significant for Indigenous males or Indigenous persons.
- There were significant increases in hospitalisation rates for other Australians during the same period, with an average yearly increase in the rate of 0.3 per 1,000. This is equivalent to a 7.8% increase in the rate over the period and significant increases were seen for both males and females.
- There were no significant changes in the hospitalisation rate ratios or rate differences between Indigenous and other Australians over the period 2004–05 to 2007–08.

**Table 3.06.13: Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable acute conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08<sup>(a)</sup>**

	2004–05	2005–06	2006–07	2007–08	Annual change <sup>(b)</sup>	Per cent change over period <sup>(c)</sup>
<b>Indigenous separations</b>						
Males	5,868	6,213	6,003	6,795	257*	13.1*
Females	6,543	6,737	6,970	7,721	377*	17.3*
Persons	12,411	12,950	12,973	14,516	634*	15.3*
<b>Other Australian<sup>(d)</sup> separations</b>						
Males	116,491	122,257	126,875	131,775	5,047*	13.0*
Females	135,700	142,800	148,434	155,807	6,596*	14.6*
Persons	252,195	265,059	275,310	287,584	11,642*	13.8*
<b>Indigenous rate (separations per 1,000)</b>						
Males	27.7	29.3	27.3	30.5	0.6	6.9
Females	31.2	31.5	31.5	34.7	1.1*	10.2*
Persons	29.7	30.6	29.6	32.8	0.8	8.5
<b>Other Australian<sup>(d)</sup> rate (separations per 1,000)</b>						
Males	12.6	13.0	13.2	13.5	0.3*	6.8*
Females	13.9	14.3	14.6	15.1	0.4*	8.7*
Persons	13.2	13.7	13.9	14.3	0.3*	7.8*
<b>Rate ratio<sup>(e)</sup></b>						
Males	2.2	2.3	2.1	2.3	0.0	0.0
Females	2.3	2.2	2.2	2.3	0.0	1.4
Persons	2.2	2.2	2.1	2.3	0.0	0.7
<b>Rate difference<sup>(f)</sup></b>						
Males	15.1	16.3	14.1	17.0	0.3	6.9
Females	17.4	17.1	16.9	19.6	0.7	11.4
Persons	16.4	16.9	15.7	18.5	0.5	9.1

\* Represents results with statistically significant increases or declines at the  $p < 0.05$  level over the period 2004–05 to 2007–08.

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

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

(c) Per cent change between 2004–05 and 2007–08 based on the average annual change over the period.

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

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

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

**Notes:**

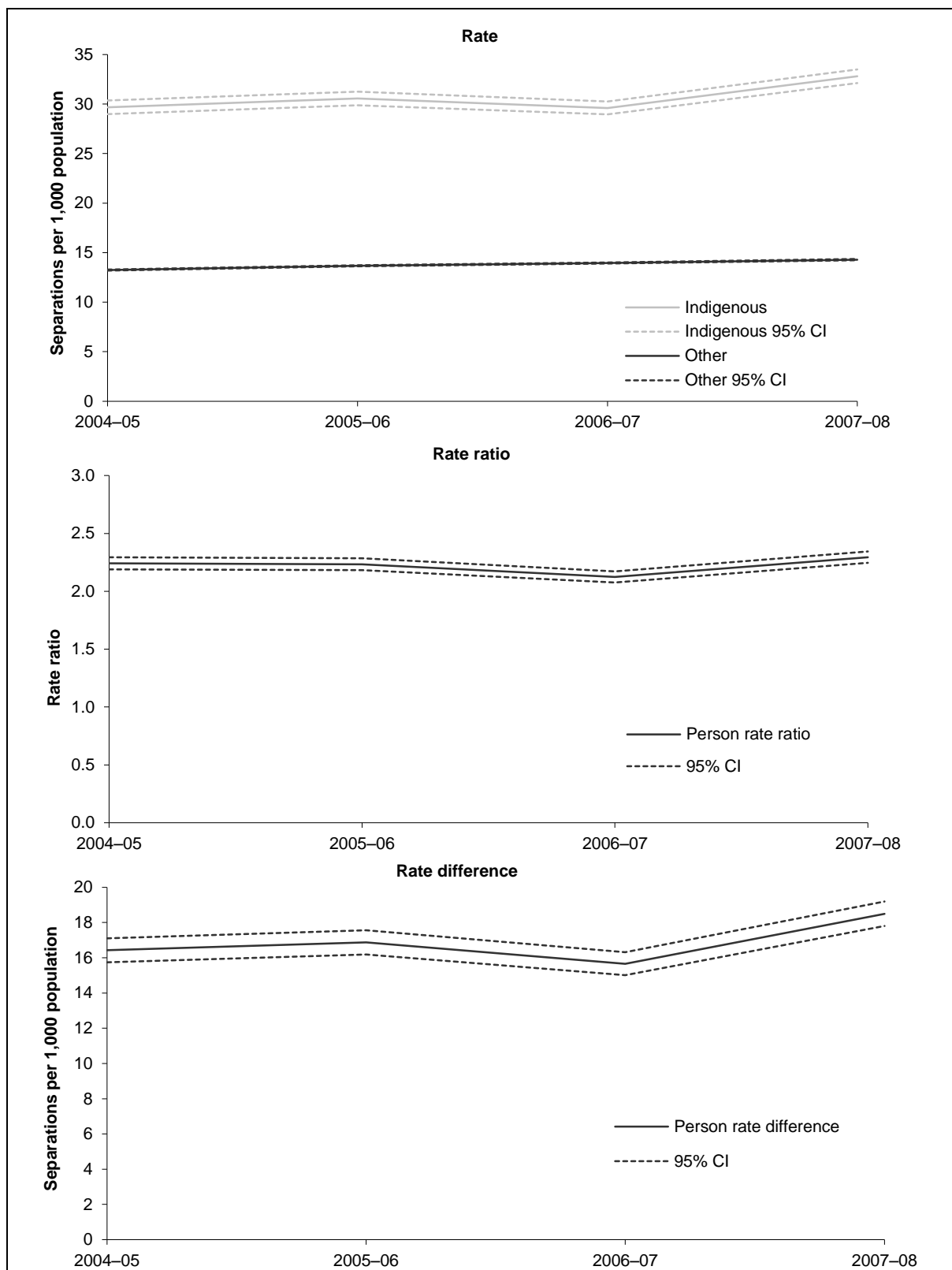
1. Rates have been directly age-standardised using the 2001 Australian standard population.

2. Population estimates are based on the 2006 Census.

3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.





Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.9: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable acute conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004-05 to 2007-08**

## Comparison of vaccine preventable, chronic and acute conditions 2001–02 to 2007–08

Table 3.06.14 and Figure 3.06.10 present hospitalisation rates for Indigenous Australians for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions for the period 2001–02 to 2007–08 in Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period between 2001–02 and 2007–08, the age-standardised rates of potentially preventable chronic conditions hospitalisations for Indigenous Australians have increased from 98 to 262 per 1,000 persons.
- Hospitalisations for vaccine preventable conditions have declined slightly over the period from 2001–02 to 2007–08 while hospitalisations for acute conditions showed a small increase.

**Table 3.06.14: Hospitalisation rates (per thousand head of population) for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions, Indigenous Australians, Qld, WA, SA and NT, 2001–02 to 2007–08<sup>(a)</sup>**

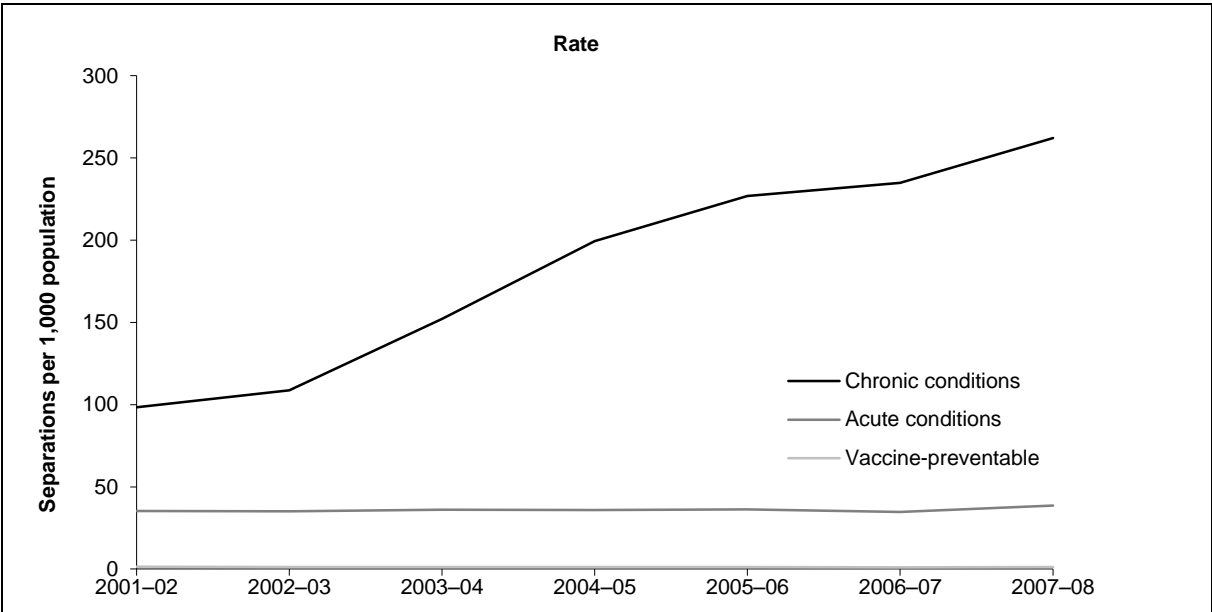
	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08
Chronic conditions	98.3	108.7	152.2	199.5	226.9	234.9	262.1
Vaccine-preventable	4.6	4.0	3.6	3.4	3.5	3.2	3.5
Acute conditions	35.4	35.1	36.1	35.8	36.2	34.6	38.7

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

*Notes:*

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on the 2006 Census.
3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database



Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.10: Hospitalisation rates for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions, Indigenous Australians, Qld, WA, SA and NT combined, 2001-02 to 2007-08**

## Comparison of vaccine preventable, chronic and acute conditions 2004–05 to 2007–08

Table 3.06.15 and Figure 3.06.11 present hospitalisation rates for Indigenous Australians for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions for the period 2004–05 to 2007–08 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- The age-standardised hospitalisation rates for potentially preventable chronic conditions for Indigenous Australians have increased from 150 to 195 per 1,000 persons over the period between 2001–02 and 2007–08.
- Hospitalisations for vaccine preventable conditions have remained largely unchanged over the period from 2001–02 to 2007–08 while hospitalisations for acute conditions showed a small increase.

**Table 3.06.15: Hospitalisation rates (per thousand head of population) for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions, Indigenous Australians, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08<sup>(a)</sup>**

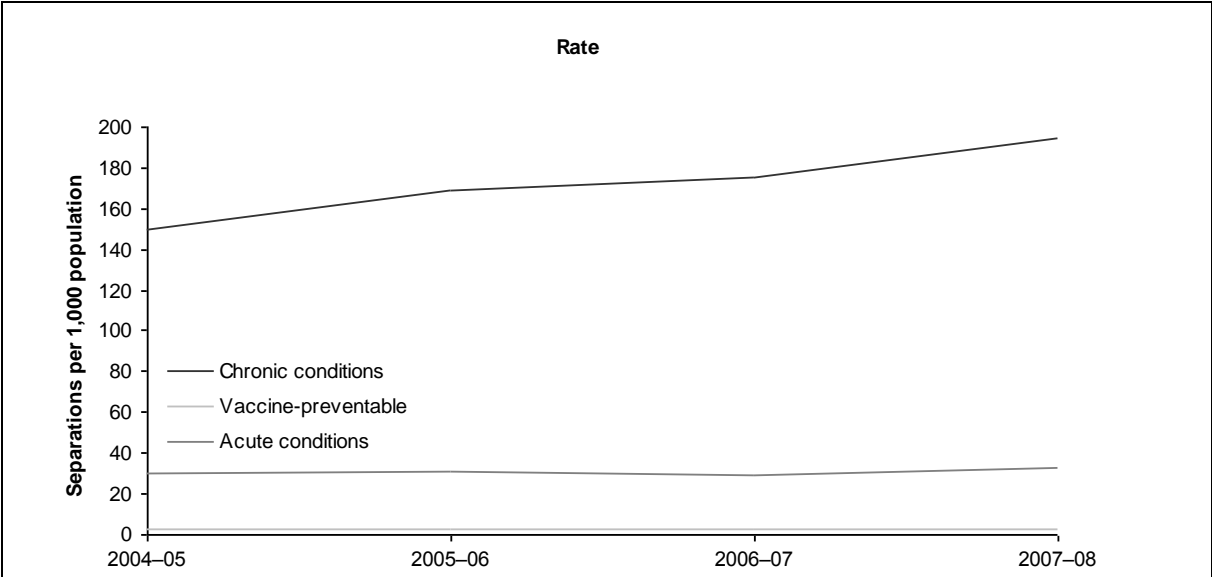
	2004–05	2005–06	2006–07	2007–08
Chronic conditions	149.6	169.4	175.1	194.9
Vaccine-preventable	2.6	2.7	2.5	2.7
Acute conditions	29.7	30.6	29.6	32.8

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

*Notes:*

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on the 2006 Census.
3. Care types 7.3, 9 and 10 (newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database



Source: AIHW analysis of National Hospital Morbidity Database.

**Figure 3.06.11: Hospitalisation rates for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions, Indigenous Australians, NSW, Vic, Qld, WA, SA and NT combined, 2004-05 to 2007-08**

## **Data quality issues**

### **National Hospital Morbidity data**

#### **Hospital separations data**

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.

The proportion of Aboriginal and Torres Strait Islander separations in public hospitals increased over the 11-year period 1996–97 to 2007–08, from 3.7% to 5.4%. In private hospitals, it stayed around 0.2% to 0.3% until 2003–04, when there was a modest increase to 0.5%.

#### **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).

'Not stated' responses to the Indigenous status question were around 1% in public hospitals and 4% in private hospitals in 2007–08. This is a reduction from 1998–99 when 2% of responses in public hospitals and 8% of responses in private hospitals had a 'not stated' Indigenous status (AIHW 2009).

#### **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 peoples. An estimated 89% of Indigenous patients were correctly identified in Australian public hospital admission records in 2007–08. In other words, 11% of Indigenous patients were not identified, and the 'true' number of hospital admissions for Indigenous persons was about 12% higher than reported.

For several years, Queensland, South Australia, Western Australia and the Northern Territory reported that Indigenous status in their hospital separations data was of acceptable quality (AIHW 2007). The AIHW, however, has recently completed an assessment of the level of Indigenous under-identification in hospital data in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (80% or higher overall levels of Indigenous identification in public hospitals only) in their hospital separations data. For Tasmania and the Australian Capital Territory, the levels of Indigenous identification were not considered acceptable for analysis purposes. It has therefore been recommended that reporting of Indigenous hospital separations data be limited to information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate. The proportion of the Indigenous population covered by these six jurisdictions is 96%. The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

- Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.
- Hospitalisation data for these six jurisdictions are not necessarily representative of other jurisdictions.
- From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

#### **Remoteness areas**

There were acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses by remoteness areas, in aggregate, across states and territories. However, the sample size was insufficient to allow assessment of the quality of Indigenous identification by remoteness area within jurisdictions.

#### **Numerator and denominator**

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population Censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2010* (ABS 2009).

#### **Data sources for injury emergency episodes**

The National Non-admitted Patient Emergency Department Care Database is a national collection of de-identified data on emergency department episodes based on the Non-admitted Emergency Department Care National Minimum Data Set. This data set includes the standard Indigenous status question but does not include injury coding (for example, ICD-10). The Injury Surveillance National Minimum Data Set includes injury coding (components of ICD-10) but does not include demographic details such as Indigenous status. Therefore, there is currently no national minimum data set containing both Indigenous status and injury coding.

## **List of symbols used in tables**

- n.a. not available
- rounded to zero (including null cells)
- 0 zero
- .. not applicable
- n.e.c. not elsewhere classified
- n.f.d. not further defined
- n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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## List of tables

Table 3.06.1:	Age-specific hospitalisation rates for ambulatory care sensitive conditions (per 1,000 population), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008 .....	1685
Table 3.06.2:	Hospitalisations for ambulatory care sensitive hospital admissions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, and Tas and ACT, July 2006 to June 2008 .....	1687
Table 3.06.3:	Hospitalisations for ambulatory care sensitive conditions by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT combined, July 2007 to June 2009 .....	1689
Table 3.06.4:	Top 10 ambulatory care sensitive hospital admissions, by Indigenous status, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008 .....	1691
Table 3.06.5:	Major ambulatory care sensitive hospital admissions, by age group and Indigenous status, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008 .....	1694
Table 3.06.6:	Age-standardised hospitalisation rates, rate ratios and rate differences for all ambulatory care sensitive hospital admissions, Qld, WA, SA and NT, 2001–02 to 2007–08 .....	1697
Table 3.06.7:	Age-standardised hospitalisation rates, rate ratios and rate differences for total ambulatory care sensitive conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08.....	1701
Table 3.06.8:	Age-standardised hospitalisation rates, rate ratios and rate differences for vaccine preventable conditions, Qld, WA, SA and NT, 2001–02 to 2007–08.....	1704
Table 3.06.9:	Age-standardised hospitalisation rates, rate ratios and rate differences for vaccine preventable conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08 .....	1708
Table 3.06.10:	Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable chronic conditions, Qld, WA, SA and NT, 2001–02 to 2007–08 .....	1711
Table 3.06.11:	Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable chronic conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08.....	1714



Table 3.06.12:	Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable acute conditions, Qld, WA, SA and NT, 2001–02 to 2007–08 .....	1717
Table 3.06.13:	Age-standardised hospitalisation rates, rate ratios and rate differences for potentially preventable acute conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08.....	1721
Table 3.06.14:	Hospitalisation rates (per thousand head of population) for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions, Indigenous Australians, Qld, WA, SA and NT, 2001–02 to 2007–08 .....	1723
Table 3.06.15:	Hospitalisation rates (per thousand head of population) for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions, Indigenous Australians, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08 .....	1725

## List of figures

Figure 3.06.1:	Age-specific hospitalisation rates for ambulatory care sensitive hospital admissions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT combined, July 2006 to June 2008.....	1684
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 combined, 2001–02 to 2007–08 .....	1699
Figure 3.06.3:	Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for total ambulatory care sensitive conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08 .....	1702
Figure 3.06.4:	Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for vaccine-preventable conditions, Qld, WA, SA and NT combined, 2001–02 to 2007–08.....	1706
Figure 3.06.5:	Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for vaccine preventable conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08 .....	1709
Figure 3.06.6:	Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable chronic conditions, Qld, WA, SA and NT combined, 2001–02 to 2007–08 .....	1712
Figure 3.06.7:	Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable chronic conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08 .....	1715
Figure 3.06.8:	Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable acute conditions, Qld, WA, SA and NT combined, 2001–02 to 2007–08 .....	1719
Figure 3.06.9:	Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for potentially preventable acute conditions, NSW, Vic, Qld, WA, SA and NT combined, 2004–05 to 2007–08 .....	1722
Figure 3.06.10:	Hospitalisation rates for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions, Indigenous Australians, Qld, WA, SA and NT combined, 2001–02 to 2007–08 .....	1724

Figure 3.06.11: Hospitalisation rates for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions, Indigenous Australians, NSW, Vic, Qld, WA, SA and NT combined, 2004-05 to 2007-08.....1726