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 six jurisdictions that have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (AIHW unpublished data). These six jurisdictions represent approximately 96% 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 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 2-year period from July 2004 to June 2006. An aggregate of 2 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 portion of a hospital stay beginning or ending a change in a 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.

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, pneumonia, 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

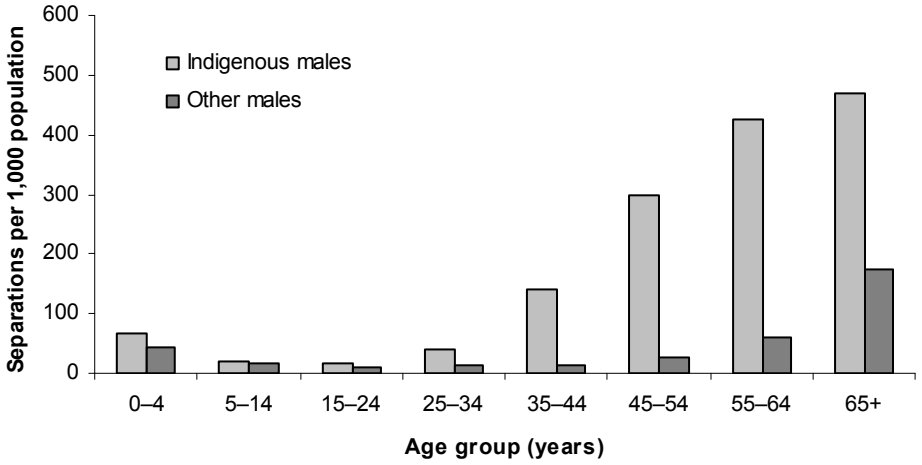
Age-standardised rates and ratios have been used for this indicator as a measure of hospitalisations in the Indigenous population relative to other Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of other Australians,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

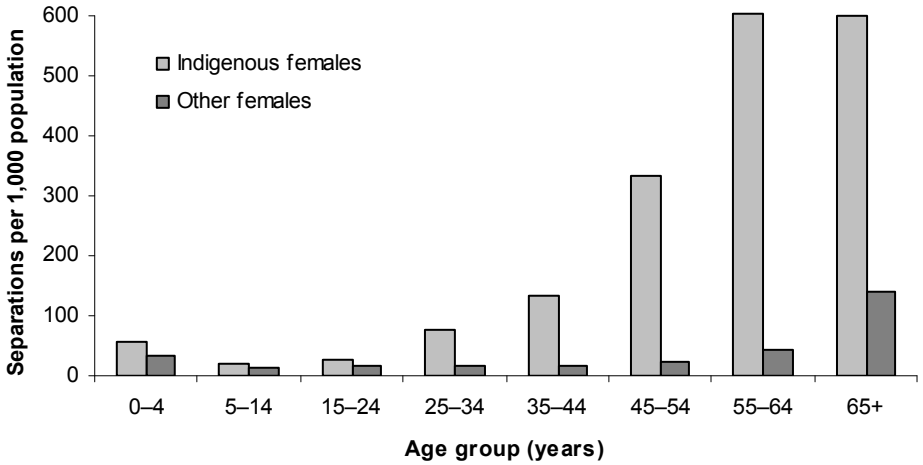
Hospitalisations

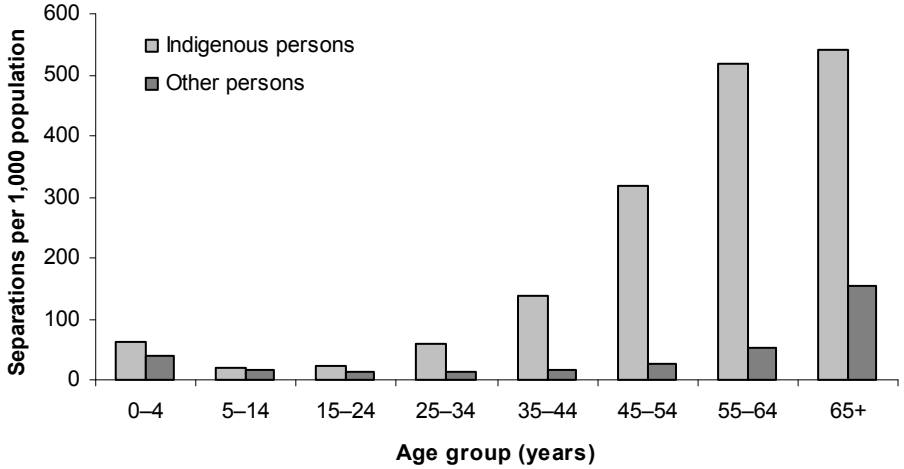
- For the 2-year period from July 2004 to June 2006, there were 1,634,239 ambulatory care sensitive hospital admissions in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 101,253 (6.2%) of which were hospitalisations of Aboriginal and Torres Strait Islander peoples.
- Ambulatory care sensitive conditions represented 22% of all hospital admissions of Indigenous Australians in the six jurisdictions.

Hospitalisations by age and sex

- In the 2-year period from July 2004 to June 2006, 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 10–12 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 14 times the rate of other females in both these age groups.
- For both Indigenous and other Australian males and females, hospitalisation rates increased with age from age 15–24 years onwards, being highest among those aged 55–64 and 65 years and over.
- About 43% of Indigenous Australians hospitalised for ambulatory care sensitive conditions were males (43,662) and 57% were females (57,590).







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 2004 to June 2006

Hospitalisations by state/territory

Table 3.06.1 presents the number of ambulatory care sensitive hospital admissions for the 2-year period from July 2004 to June 2006 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. As well as rates and ratios for the six jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations in 2004–06, unadjusted and adjusted national level data are included in the hospitalisations by state and territory table. The Australia data is adjusted by applying a completeness factor of 89.5%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- Over the period from July 2004 to June 2006, 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 5 times the rate of other Australians.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous persons were hospitalised for ambulatory care sensitive conditions at 5.6 times the rate of other Australians.
- Indigenous Australians in New South Wales and Victoria were hospitalised for ambulatory care sensitive conditions at around 3 times the rate of other Australians. In Queensland, South Australia and the Northern Territory Indigenous Australians were hospitalised for ambulatory care sensitive conditions at 4 to 5 times the rate of other Australians. In Western Australia, Indigenous Australians were hospitalised at around 13 times the rate of other Australians.

Table 3.06.1: Hospitalisations for ambulatory care sensitive hospital admissions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Indigenous				Other[e]				
	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Ratio[i]
NSW									
Males	8,036	99.8	96.7	102.8	248,849	38.2	38.1	38.4	2.6*
Females	9,268	112.8	109.9	115.7	241,133	32.7	32.6	32.8	3.4*
Persons	17,305	107.0	104.9	109.1	490,005	35.2	35.1	35.3	3.0*
Vic									
Males	2,158	123.3	116.7	129.8	219,681	45.3	45.1	45.4	2.7*
Females	2,178	136.2	129.5	142.9	216,592	38.9	38.8	39.1	3.5*
Persons	4,336	132.3	127.5	137.1	436,273	41.7	41.6	41.8	3.2*
Qld									
Males	9,086	135.2	131.4	139.0	154,340	41.7	41.5	42.0	3.2*
Females	10,830	153.3	149.7	156.9	139,598	34.6	34.5	34.8	4.4*
Persons	19,916	145.6	143.0	148.2	293,938	37.9	37.8	38.0	3.8*
WA									
Males	16,653	474.2	465.7	482.6	91,583	50.1	49.8	50.5	9.5*
Females	25,776	649.4	640.6	658.2	81,713	41.0	40.7	41.2	15.9*
Persons	42,429	567.0	560.8	573.1	173,296	45.2	44.9	45.4	12.6*
SA									
Males	2,349	147.1	139.6	154.5	65,725	41.8	41.5	42.1	3.5*
Females	2,824	164.1	156.9	171.3	66,810	37.1	36.8	37.4	4.4*
Persons	5,173	156.5	151.3	161.7	132,535	39.1	38.9	39.4	4.0*
NT									
Males	5,380	152.3	147.2	157.4	4,297	40.4	38.9	41.9	3.8*
Females	6,714	175.7	170.8	180.6	2,642	27.7	26.5	28.9	6.3*
Persons	12,094	164.6	161.1	168.1	6,939	34.5	33.6	35.5	4.8*
NSW, Vic, Qld, WA, SA and NT									
Males	**43,662**	**177.4**	**175.3**	**179.5**	**784,475**	**42.2**	**42.1**	**42.3**	**4.2***
Females	**57,590**	**218.2**	**216.1**	**220.3**	**748,488**	**35.9**	**35.8**	**35.9**	**6.1***
Persons	**101,253**	**199.2**	**197.7**	**200.7**	**1,532,986**	**38.7**	**38.6**	**38.8**	**5.1***
Australia unadjusted[j]									
Males	44,432	173.8	171.7	175.9	816,950	42.2	42.1	42.3	4.1*
Females	58,366	211.5	209.5	213.5	778,097	35.8	35.7	35.9	5.9*
Persons	102,799	193.8	192.4	195.3	1,595,072	38.7	38.6	38.7	5.0*
Australia adjusted[j][k]									
Males	49,653	194.2	192.0	196.4	811,729	42.0	41.9	42.0	4.6*
Females	65,224	236.3	234.2	238.5	771,239	35.5	35.4	35.6	6.7*
Persons	114,878	216.6	215.0	218.1	1,582,993	38.4	38.3	38.4	5.6*

(continued)

Table 3.06.1 (continued): Hospitalisations for ambulatory care sensitive hospital admissions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(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. 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 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 Indigenous people and those for whom Indigenous status was not stated.

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio—Indigenous: other.

(j) Includes all eight states and territories, including the Australian Capital Territory and Tasmania; Other Territories and Residence State not applicable (e.g. overseas, at sea, no fixed address).

(k) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

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

Source: AIHW analysis of 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 New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined for the 2-year period July 2004 to June 2006.

- In the 2-year period July 2004 to June 2006, diabetes complications were the most common type of ambulatory 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 9 times the rate of other Australians for diabetes complications and around 5 times the rate of other Australians for convulsions and epilepsy and COPD.
- Ear, nose and throat infections was the fourth most common ambulatory sensitive condition for which Indigenous Australians were hospitalised, at more than 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 (4.8 days compared with 3.4 days for total ambulatory care sensitive conditions). This is similar to the pattern of length of stay for all conditions combined which was higher for other Australians (3.4) than for Indigenous Australians (2.9).
- 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 around 6 days in hospital compared with around 7 days for other Australians.

Table 3.06.2: Top 10 ambulatory care sensitive hospital admissions, by Indigenous status, NSW, Vic, Qld, WA, SA and NT combined, July 2004 to June 2006[(a)(b)(c)(d)]

	Separations						Average bed days		Total bed days	
	Number Indigenous	Indigenous no. per 1,000[(e)]	LCL 95%[(f)]	UCL 95%[(g)]	Other no. per 1,000[(e)(h)]	Ratio[(i)]	Indigenous	Other[(h)]	Indigenous	Other[(h)]
Diabetes complications	65,120	147.0	145.7	148.3	16.9	8.7*	3.5	6.1	230,102	4,171,241
Convulsions and epilepsy	5,929	7.5	7.3	7.8	1.5	5.2*	2.3	2.9	13,855	161,507
Chronic obstructive pulmonary disease	4,526	13.2	12.7	13.6	2.6	5.1*	5.7	7.2	25,655	764,282
Ear, nose and throat infections	4,129	3.5	3.3	3.6	1.6	2.1*	1.9	1.8	7,665	107,715
Asthma	4,077	4.4	4.3	4.6	1.9	2.4*	2.2	2.3	9,018	161,219
Dental problems	3,657	2.9	2.8	3.0	2.6	1.1*	1.5	1.2	5,539	115,255
Cellulitis	3,542	4.7	4.5	4.9	1.4	3.2*	3.4	5.1	12,088	291,781
Pyelonephritis	3,343	6.2	5.9	6.5	2.1	3.0*	3.6	4.7	11,960	386,872
Congestive cardiac failure	2,426	6.6	6.3	6.9	1.9	3.4*	5.7	7.7	13,877	613,472
Angina	2,397	5.4	5.2	5.7	1.9	2.8*	2.4	2.6	5,746	202,471
Total[(j)]	**101,253**	**199.2**	**197.7**	**200.7**	**38.7**	**5.1***	**3.4**	**4.8**	**339,870**	**7,322,059**

* 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 exceeds the total as more than one ambulatory care sensitive condition can be diagnosed for each hospital separation.

Source: AIHW analysis of 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 New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined for the 2-year period from July 2004 to June 2006.

- In the 2-year period from July 2004 to June 2006, 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 convulsions and epilepsy. Indigenous infants were hospitalised at around 3 times the rate of other infants for ear, nose and throat infections and at twice the rate for convulsions and epilepsy. Ear, nose and throat infections and pyelonephritis accounted for about 5% and 1% of all hospitalisations of Indigenous infants.
- Dental conditions were the most common reason for hospitalisation among Indigenous Australians aged 1–14 years of age. This group was hospitalised at 1.4 times the rate of other Australians at this age. Dental conditions accounted for 6% of total hospitalisations of Indigenous Australians in this age group.
- Convulsions and epilepsy were the most common reason for hospitalisation among Aboriginal and Torres Strait Islander peoples aged 15–24 years. Indigenous Australians of this age were hospitalised at over twice the rate of other Australians for this condition. Convulsions and epilepsy accounted for approximately 1% 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 5 and 20 times the rate of other Australians for diabetes complications in these age groups. Diabetes complications were responsible for 10%, 23% and 23% of total hospitalisations of Indigenous Australians in these age groups, respectively.
- Chronic obstructive pulmonary disease (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 8 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, NSW, Vic, Qld, WA, SA and NT combined, July 2004 to June 2006[a][b][c][d]

		Indigenous				Other[e]				
Age group (years)	Condition	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]
<1	Ear, nose and throat infections	767	32.3	30.0	34.5	5,693	12.0	11.7	12.3	2.7*
	Convulsions and epilepsy	220	9.3	8.0	10.5	2,174	4.6	4.4	4.8	2.0*
	Pyelonephritis	193	8.1	7.0	9.3	3,382	7.1	6.9	7.4	1.1
1–14	Dental conditions	2,540	7.8	7.5	8.1	39,588	5.7	5.7	5.8	1.4*
	Asthma	2,110	6.5	6.2	6.8	37,736	5.5	5.4	5.5	1.2*
	Ear, nose and throat infections	2,108	6.5	6.2	6.8	27,898	4.0	4.0	4.1	1.6*
15–24	Convulsions and epilepsy	524	2.8	2.6	3.0	6,065	1.2	1.1	1.2	2.4*
	Appendicitis	512	2.7	2.5	3.0	13,457	2.6	2.5	2.6	1.1
	Diabetes complications	507	2.7	2.5	3.0	6,116	1.2	1.1	1.2	2.3*
25–44	Diabetes complications	14,177	54.9	54.0	55.8	30,609	2.7	2.7	2.8	20.0*
	Convulsions and epilepsy	2,624	10.2	9.8	10.5	13,289	1.2	1.2	1.2	8.5*
	Cellulitis	1,305	5.1	4.8	5.3	10,445	0.9	0.9	1.0	5.4*
45–64	Diabetes complications	39,231	327.1	323.8	330.3	185,838	19.7	19.6	19.8	16.6*
	COPD	2,144	17.9	17.1	18.6	21,758	2.3	2.3	2.3	7.8*
	Angina	1,390	11.6	11.0	12.2	24,636	2.6	2.6	2.6	4.4*
65+	Diabetes complications	11,034	421.3	413.5	429.2	458,048	90.9	90.7	91.2	4.6*
	COPD	1,566	59.8	56.8	62.8	81,712	16.2	16.1	16.3	3.7*
	Congestive cardiac failure	724	27.6	25.6	29.7	70,457	14.0	13.9	14.1	2.0*

(continued)

Table 3.06.3 (continued): Major ambulatory care sensitive hospital admissions, by age group and Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(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. 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 Indigenous people and those for whom Indigenous status was not stated.

(f) Age specific 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.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analyses

Time series data is presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 1998–99 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. New South Wales and Victoria were identified as having adequate identification of Indigenous hospitalisations from 2004–05 onwards, and so they were included as part of the current period analysis (2004–05 to 2005–06), but not as part of the time series analyses.

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

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

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for total ambulatory care sensitive conditions over the 5-year period 2000–01 to 2005–06 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 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 2000–01 to 2005–06. The fitted trend implies an average yearly increase in the rate for Indigenous Australians of around 30 per 1,000 which is equivalent to a 114% 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 2.3 per 1,000. This is equivalent to a 38% 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 2005–06 (57% increase in the rate ratio and 136% 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 3.06.4: Age-standardised hospitalisation rates, rate ratios and rate differences for all ambulatory care sensitive hospital admissions, Qld, WA, SA and NT, 2000–01 to 2005–06[(a)(b)]

	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[(c)]	% change over period[(d)]
Indigenous number per 1,000								
Males	123.5	119.8	129.1	173.4	208.9	237.8	25.2*	102.2
Females	138.0	143.6	154.8	203.8	262.5	294.7	34.0*	123.1
Persons	131.6	133.3	143.4	189.4	237.7	268.7	29.9*	113.5
Other Australians number per 1,000[(e)]								
Males	32.1	32.6	33.1	35.1	41.9	45.4	2.8*	43.0
Females	28.7	28.6	29.0	30.3	35.4	37.8	1.9*	33.6
Persons	30.2	30.4	30.9	32.4	38.4	41.3	2.3*	38.4
Rate ratio[(f)]								
Males	3.8	3.7	3.9	4.9	5.0	5.2	0.3*	44.2
Females	4.8	5.0	5.3	6.7	7.4	7.8	0.7*	69.7
Persons	4.4	4.4	4.6	5.8	6.2	6.5	0.5*	56.9
Rate difference[(g)]								
Males	91.4	87.2	96.0	138.3	166.9	192.4	22.5*	122.9
Females	109.3	115.1	125.8	173.5	227.1	257.0	32.1*	146.6
Persons	101.4	102.9	112.5	157.0	199.4	227.5	27.5*	135.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2001–01 to 2005–06.

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

(b) Rates in this table may differ slightly to those published in the 2006 edition of the Health Performance Framework because the codes for non-vaccine preventable pneumonia (J13, J14, J153, J154, J157, J159, J168, J181) are now included for consistency with other published data.

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

(d) Per cent change between 2000–01 and 2005–06 based on the average annual change over the period.

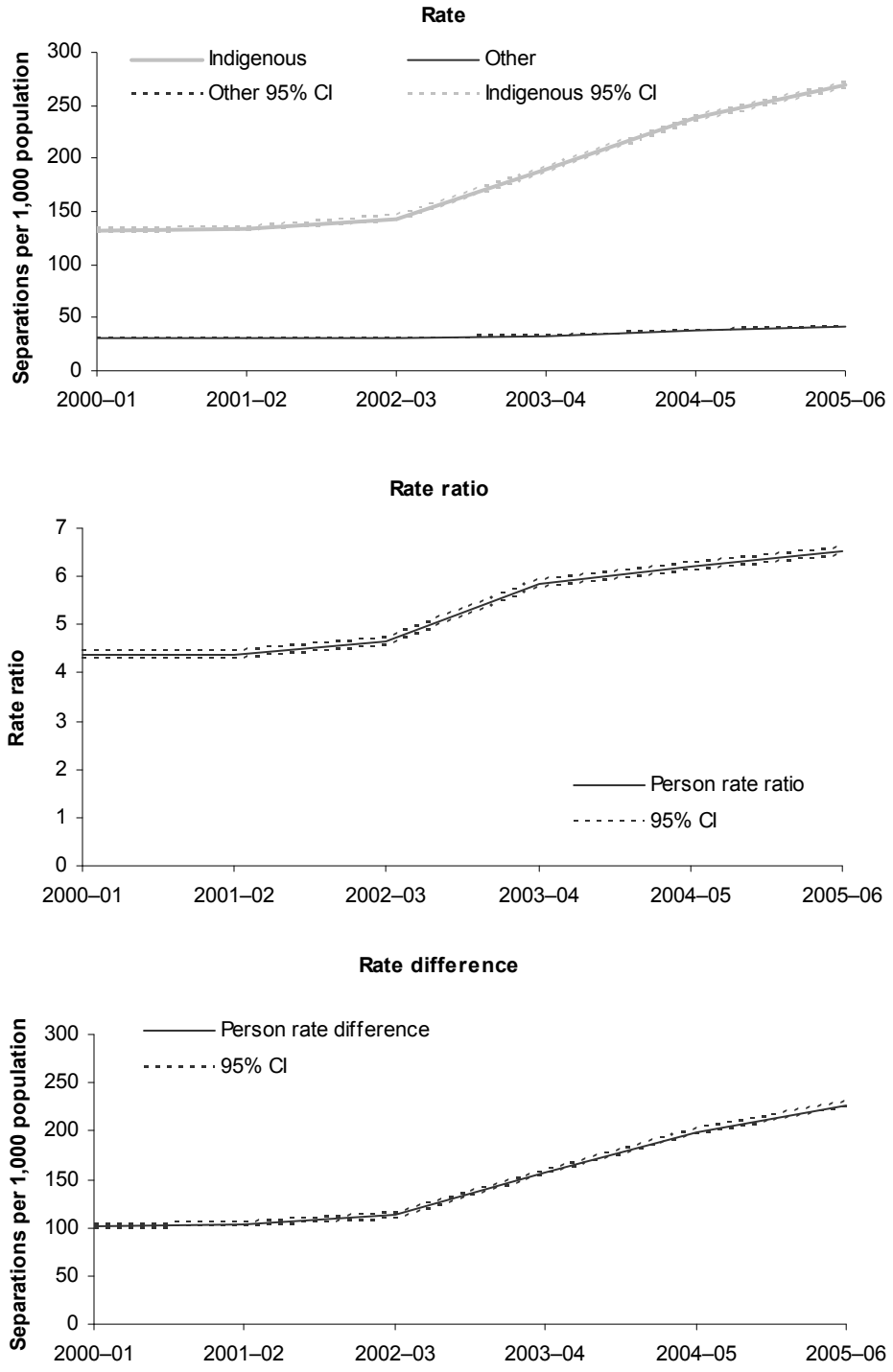
(e) 'Other Australians' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.

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

(g) 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 National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Note: Rates in these graphs may differ slightly to those published in the 2006 edition of the Health Performance Framework as the codes for non-vaccine preventable pneumonia (J13, J14, J153, J154, J157, J159, J168, J181) are now included for consistency with other published data.

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, 2000–01 to 2005–06

Vaccine-preventable conditions

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 1998–99 to 2005–06 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 statistically significant declines in hospitalisation rates for vaccine-preventable conditions among Indigenous Australians during the period 1998–99 to 2005–06. The fitted trend implies an average yearly decline in the rate of around 1.4 per 1,000 for Indigenous Australians, which was equivalent to a 56% 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 0.3 per 1,000 for other Australians, which is equivalent to a 56% decline in the rate over the period.
- 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 Indigenous 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 was no significant change in the hospitalisation rate ratio between Indigenous and other Australians for vaccine-preventable conditions over the period 1998–99 to 2005–06. There was a significant decline in the hospitalisation rate difference between Indigenous and other Australians for vaccine-preventable conditions over the period 1998–99 to 2005–06 (56%).

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 2005–06[(a)(b)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[(c)]	% change over period[(d)]
Indigenous number per 1,000										
Males	19.7	4.7	4.2	4.0	3.6	3.3	2.9	3.2	–1.5*	–54.0
Females	15.5	5.0	3.8	3.7	2.9	2.7	2.7	2.4	–1.3*	–57.7
Persons	17.4	4.9	4.0	3.9	3.2	3.0	2.8	2.8	–1.4*	–55.9
Other Australians number per 1,000[(e)]										
Males	4.7	1.1	0.8	0.8	0.7	0.7	0.5	0.6	–0.4*	–56.4
Females	3.3	0.9	0.7	0.7	0.6	0.6	0.5	0.5	–0.3*	–55.3
Persons	3.9	1.0	0.7	0.7	0.7	0.6	0.5	0.6	–0.3*	–55.9
Rate ratio[(f)]										
Males	4.2	4.3	5.2	5.1	5.0	4.8	5.3	5.3	0.1*	22.3
Females	4.7	5.8	5.6	5.5	4.7	4.6	5.8	4.7	—	–5.7
Persons	4.5	5.0	5.4	5.3	4.8	4.6	5.5	5.0	—	7.1
Rate difference[(g)]										
Males	15.0	3.6	3.4	3.2	2.9	2.7	2.3	2.6	–1.1*	–53.3
Females	12.2	4.1	3.1	3.0	2.3	2.1	2.2	1.9	–1.0*	–58.3
Persons	13.5	3.9	3.3	3.1	2.6	2.3	2.3	2.2	–1.1*	–55.9

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

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

(b) For consistency with other published data, ICD10-AM codes for non-vaccine preventable pneumonia (J13, J14, J153, J154, J157, J159, J168, J181) have been included in the vaccine-preventable conditions category. These codes were not included in this category in the 2006 edition of the Health Performance Framework.

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

(d) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.

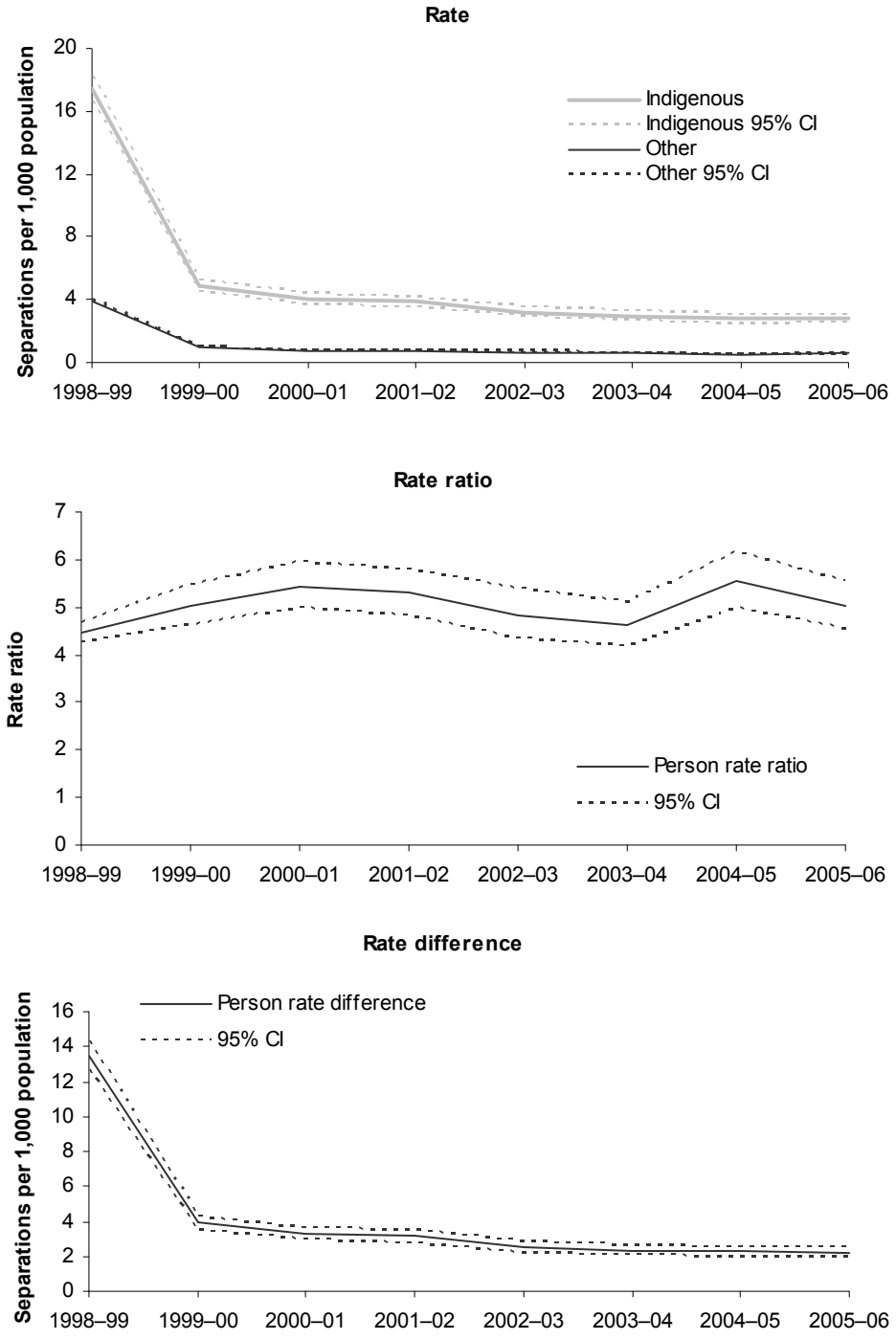
(e) 'Other Australians' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.

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

(g) 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 National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Note: For consistency with other published data, ICD10-AM codes for non-vaccine preventable pneumonia (J13, J14, J153, J154, J157, J159, J168, J181) have been included in the vaccine-preventable conditions category. These codes were not included in this category in the 2006 edition of the Health Performance Framework.

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 combined, 1998–99 to 2005–06

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 2005–06 are presented in Table 3.06.6 and Figure 3.06.4. 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 2000–01 to 2005–06. The fitted trend implies an average yearly increase in the rate of around 31 per 1,000 (equivalent to an increase of 161% over the period), most of which is attributable to an increase in rates after 2002–03. 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 2.3 per 1,000. This is equivalent to an increase of 67% 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 2000–01 to 2005–06 (an increase of 61% in the rate ratio and 181% 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 2000–01 to 2005–06.

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 2005–06[a]

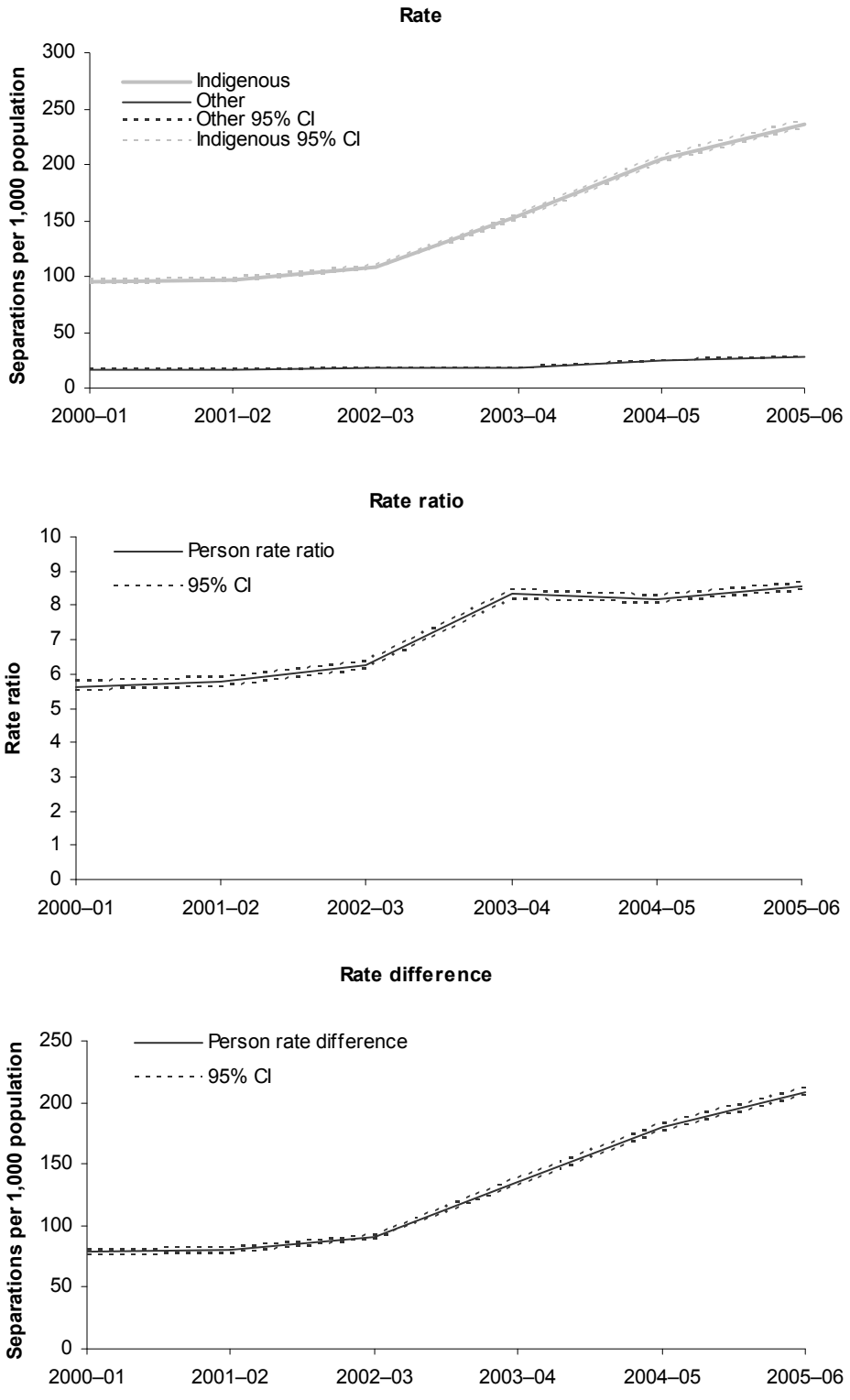
	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous number per 1,000								
Males	88.5	84.5	94.8	138.4	176.2	204.7	25.7*	145.3
Females	100.9	106.3	119.0	168.0	229.4	263.3	35.2*	174.2
Persons	95.4	96.8	108.3	154.0	204.8	236.5	30.7*	161.0
Other Australians number per 1,000[d]								
Males	19.4	19.6	20.2	21.8	29.2	32.4	2.7*	70.2
Females	14.8	14.5	14.9	15.7	21.4	23.6	1.9*	62.8
Persons	16.9	16.8	17.3	18.5	25.0	27.7	2.3*	67.1
Rate ratio[e]								
Males	4.6	4.3	4.7	6.3	6.0	6.3	0.4	48.9
Females	6.8	7.3	8.0	10.7	10.7	11.1	1.0	72.8
Persons	5.6	5.8	6.3	8.3	8.2	8.5	0.7*	60.6
Rate difference[f]								
Males	69.0	64.9	74.7	116.6	146.9	172.3	23.0*	166.4
Females	86.1	91.8	104.1	152.3	208.0	239.7	33.3*	193.4
Persons	78.5	80.0	90.9	135.5	179.8	208.8	28.4*	181.2

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2001–01 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 2000–01 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.

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

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 potentially preventable chronic conditions, Qld, WA, SA and NT combined, 2000–01 to 2005–06

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 2005–06 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 apparent declines in hospitalisation rates for potentially preventable acute conditions among Indigenous females during the period 1998–99 to 2005–06, but the trend was not statistically significant.
- 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 16% increase in the rate over the period.
- There were significant declines in the hospitalisation rate ratios between Indigenous and other Australians over the period 1998–99 to 2005–06 (16%). The declines in hospitalisation rate ratios were significant for both males and females. There were apparent declines in the hospitalisation rate differences between Indigenous and other Australians over the period 1998–99 to 2005–06 (11%), but the decline was only significant for females (16%).

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 2005–06[a]

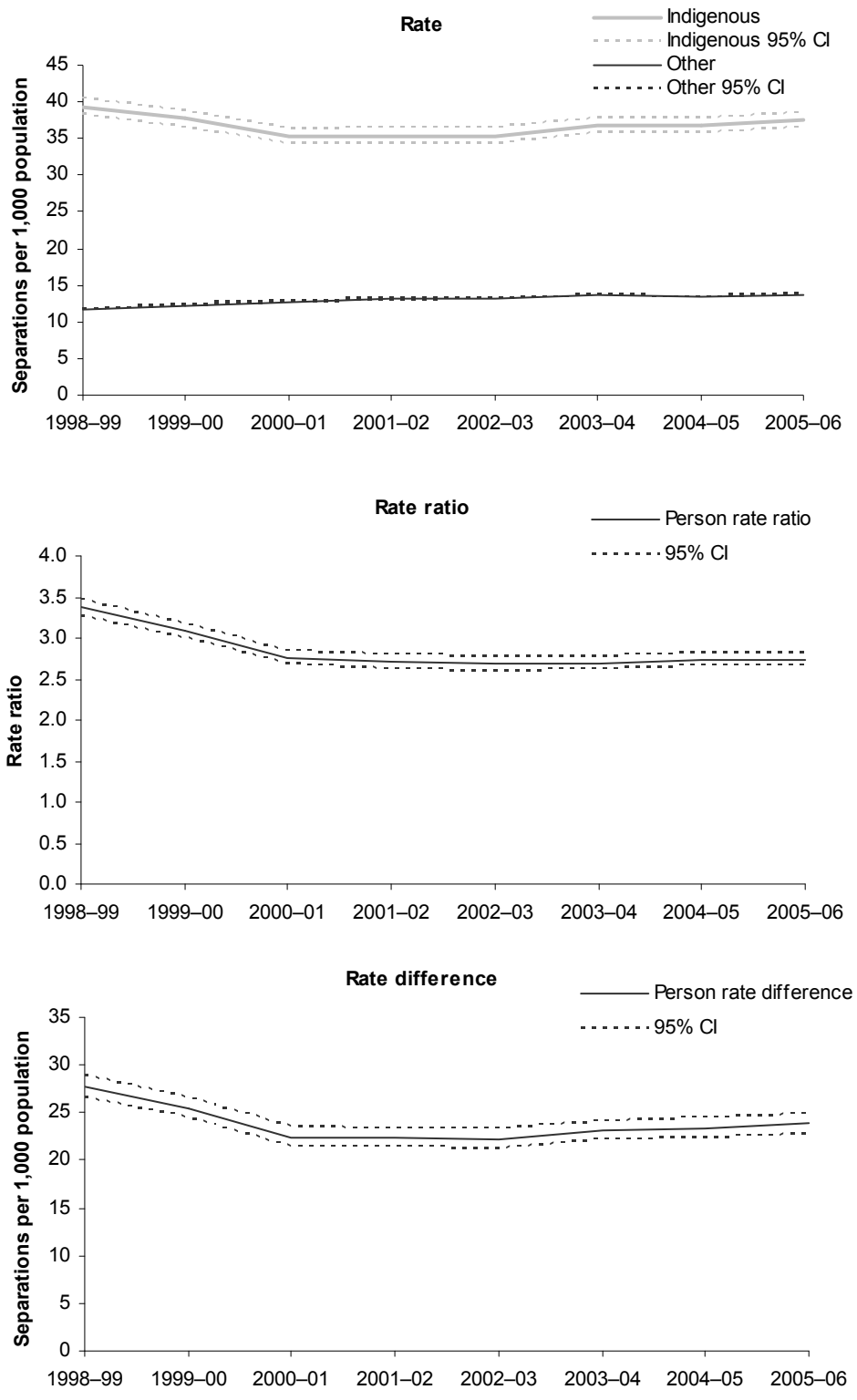
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous number per 1,000										
Males	36.2	35.0	33.0	33.4	33.4	36.0	34.3	36.4	0.1	1.5
Females	42.1	40.0	37.0	37.0	37.0	37.4	38.8	38.5	–0.4	–5.9
Persons	39.4	37.7	35.2	35.4	35.4	36.8	36.9	37.6	–0.1	–2.6
Other Australians number per 1,000[d]										
Males	11.4	11.9	12.2	12.5	12.6	13.0	12.7	13.1	0.2*	13.7
Females	12.0	12.6	13.4	13.6	13.8	14.3	14.1	14.3	0.3*	18.6
Persons	11.7	12.2	12.8	13.1	13.2	13.6	13.4	13.7	0.3*	16.4
Rate ratio[e]										
Males	3.2	3.0	2.7	2.7	2.7	2.8	2.7	2.8	–0.05*	–10.3
Females	3.5	3.2	2.8	2.7	2.7	2.6	2.8	2.7	–0.1*	–1.7
Persons	3.4	3.1	2.8	2.7	2.7	2.7	2.7	2.7	–0.1*	–15.6
Rate difference[f]										
Males	24.8	23.2	20.9	21.0	20.8	23.0	21.6	23.3	–0.1	–4.2
Females	30.1	27.4	23.7	23.3	23.3	23.1	24.7	24.2	–0.7*	–15.7
Persons	27.7	25.5	22.4	22.4	22.2	23.1	23.4	23.9	–0.4	–10.5

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 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 1998–99 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.

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

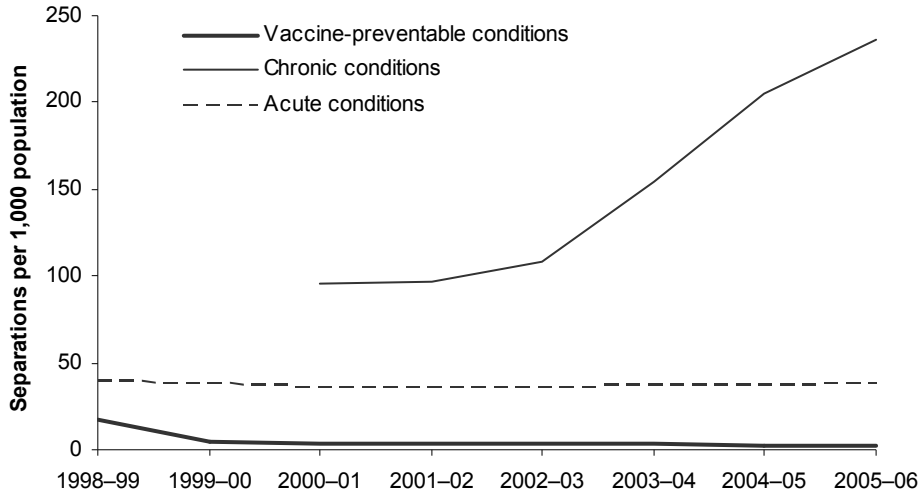
Source: AIHW analysis of National Hospital Morbidity Database.



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 potentially preventable acute conditions, Qld, WA, SA and NT combined, 1998–99 to 2005–06

Figure 3.06.6 presents hospitalisation rates for Indigenous Australians for vaccine preventable, potentially preventable chronic and potentially preventable acute conditions for the period 1998–99 to 2005–06. Indigenous Australians are hospitalised at much higher rates for chronic conditions than acute conditions or vaccine preventable conditions.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.06.6: Hospitalisation rates for vaccine-preventable conditions, potentially preventable chronic conditions and potentially preventable acute conditions, Indigenous Australians, Qld, WA, SA and NT combined, 1998–99 to 2005–06

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 involving Aboriginal and Torres Strait Islander people. 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 (20% or less overall under-identification of Indigenous patients) in their hospital separations data (AIHW unpublished). It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. 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 (ABS & AIHW 2005):

- *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 for Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data for South Australia and Victoria).*
- *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 the jurisdictions not included.*

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.

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 Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009 *(ABS 2004).*

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