1.08 Diabetes

Prevalence of diabetes for Aboriginal and Torres Strait Islander people expressed as a rate by age group, age-standardised rate and ratio

Data sources

Data for this indicator come from the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), the Bettering the Evaluation and Care of Health (BEACH) survey and the AIHW's National Hospital Morbidity Database.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at six-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey which is conducted by the AIHW and the University of Sydney. Information is collected from a random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive encounters is collected from each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated. This is because some GPs might not ask about Indigenous status, or the patient may choose not to identify (AIHW 2002). The estimates presented here are also derived from a relatively small sample of GP encounters involving Indigenous Australians.

Due to a late inclusion of a 'not stated' category of Indigenous status in 2001–02, (before which not stated responses were included with non-Indigenous encounters), GP encounters for which Indigenous status was not reported have been included with encounters for non-Indigenous people under the 'other' category.

Data are presented for the five-year period 2000–01 to 2004–05, during which there were 7,296 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.6% of total GP encounters.

Hospitalisations

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

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

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

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

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

Analyses

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

Self-reported prevalence

Data on the self-reported prevalence of diabetes were measured in the National Aboriginal and Torres Strait Islander Health Survey and are presented below.

- In 2004–05, after adjusting for differences in age structure, approximately 12% of Indigenous Australians reported diabetes or high sugar levels compared to 4% of non-Indigenous Australians.
- The greatest difference in prevalence rates between Indigenous and non-Indigenous Australians was among those aged 45–54 years and over. Indigenous Australians were more than five times as likely to report diabetes as non-Indigenous Australians in this age group (Table 1.08.1).
- Prevalence of diabetes was highest among those aged 55 years and over for both Indigenous Australians (32%) and non-Indigenous Australians (12%).
- Indigenous males were three times as likely, and Indigenous females four times as likely, as non-Indigenous males and females to report diabetes/high sugar levels (Table 1.08.2).
- There was no significant change in the prevalence of diabetes among Indigenous Australians between 1995, 2001 and 2004–05 (Table 1.08.3).

Table 1.08.1: Persons reporting diabetes/high sugar levels, by Indigenous status and age group, 2004–05[(a)]

Age group	Indigenous	Non-Indigenous
	%	%
0–14	__[(b)]	__[(c)]
15–24	1[(c)]	1[(c)]
25–34	4*	1*
35–44	10*	2*
45–54	21*	4*
55 years and over	32*	12*
Total	**6***	**4***
Total (age standardised)[(d)]	**12***	**4***

* Represents statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Estimate has a relative standard error greater than 50% and is considered too unreliable for general use.

(c) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(d) Total is a directly age-standardised proportion.

Source: ABS 2006.

Table 1.08.2: Persons reporting diabetes/high sugar levels, by Indigenous status, sex and remoteness, 2004–05

	Males		Females		Persons	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
Remote	15	n.a.	18	n.a.	16	n.a.
Non-remote	10	4	11	3	11	4
Total	**11**	**4**	**13**	**3**	**12**	**4**
Total number	232,362	9,788,447	241,948	9,893,092	474,310	19,681,539

Note: Data are age standardised.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Table 1.08.3: Indigenous persons reporting diabetes/ high sugar levels, by remoteness, 1995, 2001 and 2004–05

	1995	2001	2004–05
Remote	n.a.	7	9
Non-remote	4	4	5
Total	**n.a.**	**5**	**6**
Total number	265,416	442,995	474,310

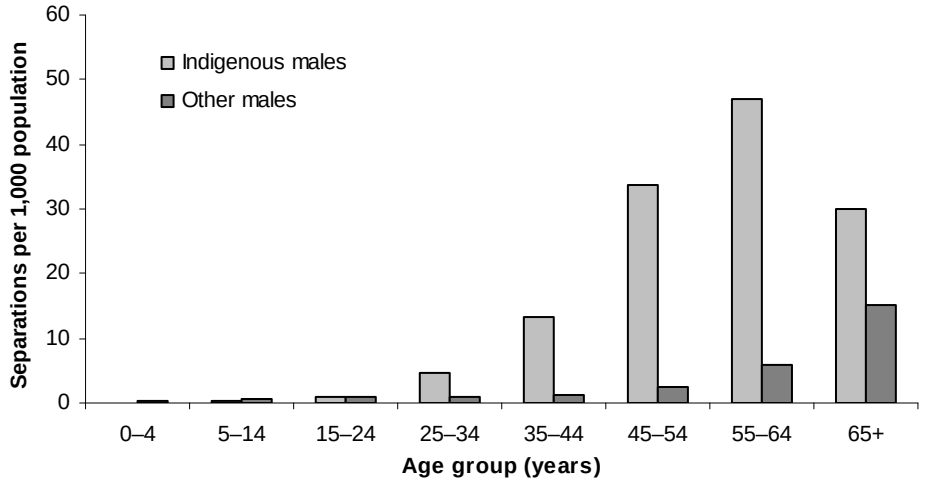
Sources: ABS 2006; 1995 National Health survey (Indigenous supplement); 2001 National Health Survey (Indigenous supplement).

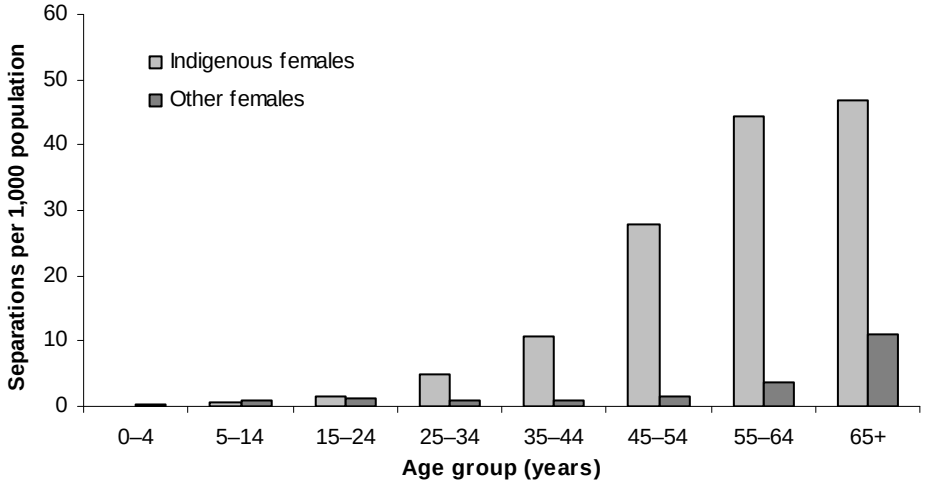
Hospitalisations

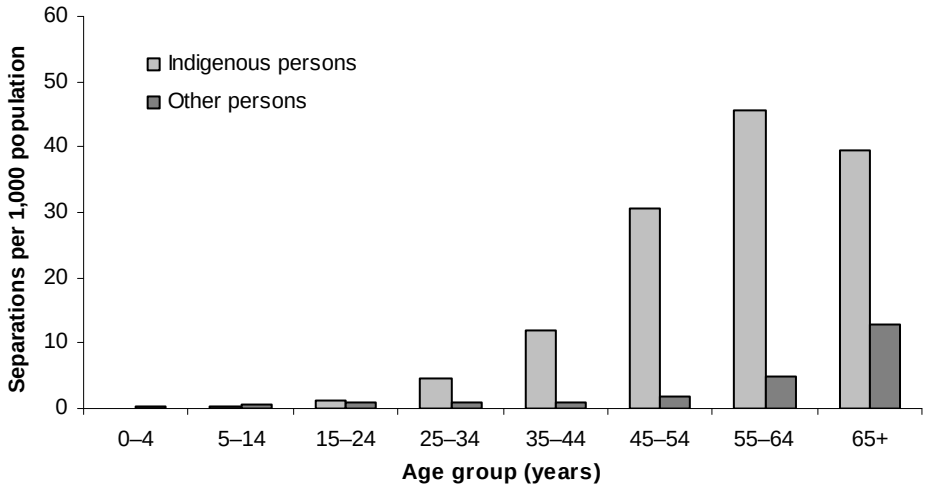
- In the two-year period July 2002 to June 2004, there were 46,636 hospitalisations for diabetes in Queensland, Western Australia, South Australia and the Northern Territory combined, 4,508 hospitalisations (9.7%) of which were hospitalisations of Aboriginal and Torres Strait Islander peoples (Table 1.08.4).
- Diabetes was the principal diagnosis in 1.4% of all hospital separations for Aboriginal and Torres Strait Islander Australians.

Hospitalisations by age and sex

- For the two-year period July 2002 to June 2004, in Queensland, Western Australia, South Australia and the Northern Territory, Indigenous males and females had much higher hospitalisation rates for diabetes than other males and females in all age groups from 25–34 years onwards (Figure 1.08.1).
- The greatest difference in rates for both males and females occurred in the 54–64 year age group, where Indigenous males were hospitalised at around 15 times the rate of other males and Indigenous females were hospitalised at 19 times the rate of other females.
- For Indigenous males, hospitalisation rates from diabetes were highest among those aged 55–64 years, whereas for Indigenous females, other males and other females, rates were highest among those aged 65 years and over.
- Approximately 48% of Indigenous Australians hospitalised for diabetes were males (2,145) and 52% were females (2,363).







Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Figure 1.08.1: Age-specific hospitalisation rates for a principal diagnosis of diabetes, by Indigenous status and sex, Qld, WA, SA and NT, July 2002–June 2004

Hospitalisations by state/territory

Table 1.08.4 presents hospitalisations for a principal diagnosis of diabetes for the two-year period July 2002 to June 2004 for Queensland, Western Australia, South Australia and the Northern Territory.

- In Queensland and Western Australia, Indigenous Australians were hospitalised for diabetes at six times the rate of other Australians. In South Australia, Indigenous Australians were hospitalised for diabetes at five times the rate of other Australians; and in the Northern Territory, Indigenous Australians were hospitalised at three times the rate of other Australians.
- In Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females were hospitalised for diabetes at five and seven times the rate of other Australians respectively.

Table 1.08.4: Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by sex, Qld, WA, SA and NT, July 2002–June 2004[(a)(b)(c)(d)]

	Indigenous				Other[(e)]				
	Number	Rate per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Number	Rate per 1,000[(g)]	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]
Qld									
Males	808	14.3	13.1	15.5	9,790	2.8	2.8	2.9	5.1*
Females	887	14.6	13.5	15.7	7,879	2.1	2.0	2.1	7.1*
Persons	1,695	14.5	13.7	15.3	17,669	2.4	2.4	2.4	6.0*
WA									
Males	514	13.5	12.1	14.8	5,642	3.4	3.3	3.4	4.0*
Females	688	18.7	17.1	20.3	5,065	2.6	2.5	2.7	7.1*
Persons	1,202	16.4	15.3	17.4	10,707	3.0	2.9	3.0	5.5*
SA									
Males	247	19.5	16.7	22.3	6,739	4.3	4.2	4.4	4.5*
Females	268	19.7	17.1	22.4	5,956	3.3	3.2	3.4	6.0*
Persons	515	19.8	17.8	21.7	12,695	3.8	3.7	3.8	5.3*
NT									
Males	576	20.2	18.3	22.1	859	8.4	7.7	9.0	2.4*
Females	520	15.9	14.4	17.5	198	2.2	1.9	2.5	7.2*
Persons	1,096	18.0	16.8	19.2	1,057	5.7	5.3	6.1	3.1*
Qld, WA, SA, NT[(d)]									
Males	2,145	15.7	14.9	16.5	23,030	3.4	3.3	3.4	4.7*
Females	2,363	16.3	15.6	17.1	19,098	2.5	2.5	2.5	6.6*
Persons	**4,508**	**16.1**	**15.6**	**16.7**	**42,128**	**2.9**	**2.9**	**2.9**	**5.6***

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

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

(b) Categories are based on the ICD-10-AM (National Centre for Classification in Health 2004); ICD-10-AM codes E10–E14.

(c) Financial year reporting.

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

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

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other

Source: AIHW analysis of AIHW National Hospital Morbidity database.

Hospitalisations by principal diagnosis

Table 1.08.5 presents hospitalisations for a principal diagnosis of diabetes by type of diabetic condition for the two-year period July 2002 to June 2004 for Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the period 2002–03 to 2003–04 in Queensland, Western Australia, South Australia and the Northern Territory combined, of all hospitalisation with a principal diagnosis of diabetes, type 2 diabetes was the most common, responsible for 88% of hospitalisations of Indigenous Australians for diabetes (excluding gestational diabetes).
- In the four jurisdictions, Indigenous males and females were hospitalised for type 2 non-insulin-dependent diabetes at much higher rates than other males and females (six and nine times higher respectively).
- Indigenous males and females were hospitalised for other specified diabetes at nine and four times the rate of other males and females respectively.
- Indigenous females were hospitalised for gestational diabetes at four times the rate of other females.

Table 1.08.5: Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by sex, Qld, WA, SA and NT, July 2002–June 2004[(a)(b)(c)(d)]

	Males						Females						Persons					
Principal diagnosis	**No.**	**%[(e)]**	**Rate per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**	**No.**	**%[(e)]**	**Rate per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**	**No.**	**%[(e)]**	**Rate per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**
Type 2—non-insulin-dependent diabetes (E11)	1,867	87.0	14.3	13.5	15.0	5.6*	2,093	88.6	15.0	14.3	15.8	8.8*	3,960	87.8	14.8	14.2	15.3	7.0*
Type 1—insulin-dependent diabetes (E10)	245	11.4	1.3	1.1	1.5	1.6*	243	10.3	1.2	1.0	1.3	1.6*	488	10.8	1.2	1.1	1.4	1.6*
Other specified diabetes (E13)	24	1.1	0.1	0.1	0.1	8.5*	9	0.4	0.0	0.0	0.1	4.1*	33	0.7	0.1	0.0	0.1	6.5*
Unspecified diabetes (E14)	9	0.4	0.0	0.0	0.1	2.3	18	0.8	0.1	0.0	0.1	6.7*	27	0.6	0.1	0.0	0.1	4.2*
Total[(j)]	**2,145**	**100.0**	**15.7**	**14.9**	**16.5**	**4.7***	**2,363**	**100.0**	**16.3**	**15.6**	**17.1**	**6.6***	**4,508**	**100.0**	**16.1**	**15.6**	**16.7**	**5.6***
Gestational diabetes (O24.4)	—	—	—	—	—	—	610	20.5[(k)]	1.9	1.8	2.1	3.7*	—	—	—	—	—	—

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

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

(b) Categories are based on the ICD-10-AM (National Centre for Classification in Health 2004); ICD-10-AM codes E10-E14, 024.4.

(c) Financial year reporting.

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

(e) Percentage of male, female and total hospitalisations of Indigenous people for diabetes (excluding gestational diabetes) in the period 2002–03 to 2003–04. Note: Percentages for gestational diabetes are out of the total number of hospitalisations for diabetes, including gestational diabetes.

(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) Total excludes gestational diabetes (O24.4).

(k) Proportion of Indigenous females with gestational diabetes out of those with type 1, type 2, other specified, unspecified or gestational diabetes (E10–E14 and O24.4).

Note: There were no hospitalisations with a principal diagnosis of malnutrition-related diabetes mellitus (E13).

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Hospitalisations by associated diagnosis

Table 1.08.6 presents hospitalisations with a principal diagnosis of diabetes by associated causes of hospitalisation for Aboriginal and Torres Strait Islander peoples in Queensland, Western Australia, South Australia and the Northern Territory.

- For the two-year period July 2002 to June 2004, aside from factors influencing health status and contact with health services, hospitalisations of Indigenous Australians with a principal diagnosis of diabetes were commonly reported with an associated diagnosis of diseases of the circulatory system (39%), diseases of the genitourinary system (29%) and other endocrine, metabolic and nutritional disorders (22%).
- Aside from the diseases mentioned above, insulin-dependent diabetes was commonly reported with an associated diagnosis of mental and behavioural disorders (21%), and non-insulin-dependent diabetes was commonly reported with an associated diagnosis of diseases of the skin (21%) and eyes (20%).

Table 1.08.6: Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by associated causes of hospitalisation, Qld, WA, SA and NT, July 2002–July 2004[(a)(b)(c)(d)]

	Reported with a principal diagnosis of diabetes				
Associated cause of hospitalisation	Insulin-dependent diabetes (E10) (%)	Non-Insulin-dependent diabetes (E11) (%)	Other specified diabetes (E13) (%)	Unspecified diabetes (E14) (%)	Total (%)
Factors influencing health status and contact with health services (includes dialysis) (Z00–Z99)	55.1	46.4	66.7	18.5	47.3
Diseases of the circulatory system (I00–I99)	23.0	41.2	57.6	22.2	39.2
Diseases of the genitourinary system (N00–N99)	13.7	30.7	12.1	14.8	28.6
Endocrine, nutritional & metabolic diseases (E00–E90) excluding (E10–E14)	17.8	23.1	24.2	11.1	22.4
Diseases of the skin & subcutaneous tissue (L00–L99)	12.3	21.2	27.3	7.4	20.2
Diseases of the eye & adnexa (H00–H59)	10.2	19.6	15.2	0.0	18.5
Certain infectious and parasitic diseases (A00–B99)	12.9	18.4	39.4	11.1	17.9
Diseases of the nervous system (G00-G99)	7.8	15.6	36.4	0.0	14.8
Mental & behavioural disorders (F00–F99)	20.7	11.0	51.5	3.7	12.3
Symptoms, signs & abnormal clinical & laboratory findings (R00–R99)	11.1	10.2	18.2	11.1	10.3
Neoplasms (cancer) (C00–D48)	6.6	10.8	15.2	0.0	10.3
Diseases of the digestive system (K00–K93)	15.6	7.3	30.3	0.0	8.4
Diseases of the respiratory system	11.9	7.6	3.0	0.0	8.0
Injury & poisoning (S00–T98)	2.5	8.1	15.2	3.7	7.5
Other[(e)]	8.4	8.1	12.1	0.0	8.1
Total number	**488**	**3,960**	**33**	**27**	**4,508**

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

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

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

(c) Financial year reporting.

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

(e) Includes: diseases of the musculoskeletal system and connective tissue, diseases of the ear and mastoid process, congenital malformations, deformations and chromosomal abnormalities, pregnancy, childbirth and the puerperium, certain conditions originating in the perinatal period, diseases of the blood and blood-forming organs. and certain disorders involving the immune system.

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

Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Time series analysis

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for diabetes over the period 2000–01 to 2003–04 are presented in Table 1.08.7 and Figure 1.08.2. This period has been used for analysis as coding changes were made to diabetes complications in July 1999 and July 2000. Coding for diabetes is only consistent from 2000–01 onwards and data for prior years should not be included in the analysis of diabetes trends.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for diabetes among Indigenous males, females and persons during the period 2000–01 to 2003–04. The fitted trend implies an average yearly increase in the rate of around 1.0 per 1,000 population.
- There were also significant increases in hospitalisation rates among other Australian males, females and persons during the same period, with an average yearly increase in the rate of around 0.2 per 1,000 population.
- There was no significant change in the hospitalisation rate ratio, but a significant increase in the hospitalisation rate difference between Indigenous and other Australians for diabetes over the period 2000–01 to 2003–04. This increase was significant for females but not for males.

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

Table 1.08.7: Age-standardised hospitalisation rates, rate ratios and rate differences from diabetes, Qld, WA, SA and NT, 2000–01 to 2003–04

	2000–01	2001–02	2002–03	2003–04	Annual change[(a)]
Indigenous rate per 1,000					
Males	13.9	14.4	14.3	17.0	0.9*
Females	14.1	15.7	15.4	17.3	0.9*
Persons	14.0	15.1	15.0	17.3	1.0*
Other rate per 1,000[(b)]					
Males	2.8	3.2	3.3	3.5	0.2*
Females	2.0	2.3	2.4	2.6	0.2*
Persons	2.4	2.7	2.8	3.0	0.2*
Rate ratio[(c)]					
Males	5.0	4.5	4.4	4.9	0.0
Females	5.9	5.7	5.4	5.8	−0.1
Persons	5.9	5.5	5.3	5.8	0.0
Rate difference[(d)]					
Males	11.1	11.2	11.1	13.6	0.7
Females	11.7	12.9	12.5	14.3	0.7*
Persons	11.6	12.4	12.1	14.3	0.8*

* Represents results with statistically significant increases or declines at the p<.05 level over the period 2000–01 to 2003–04.

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

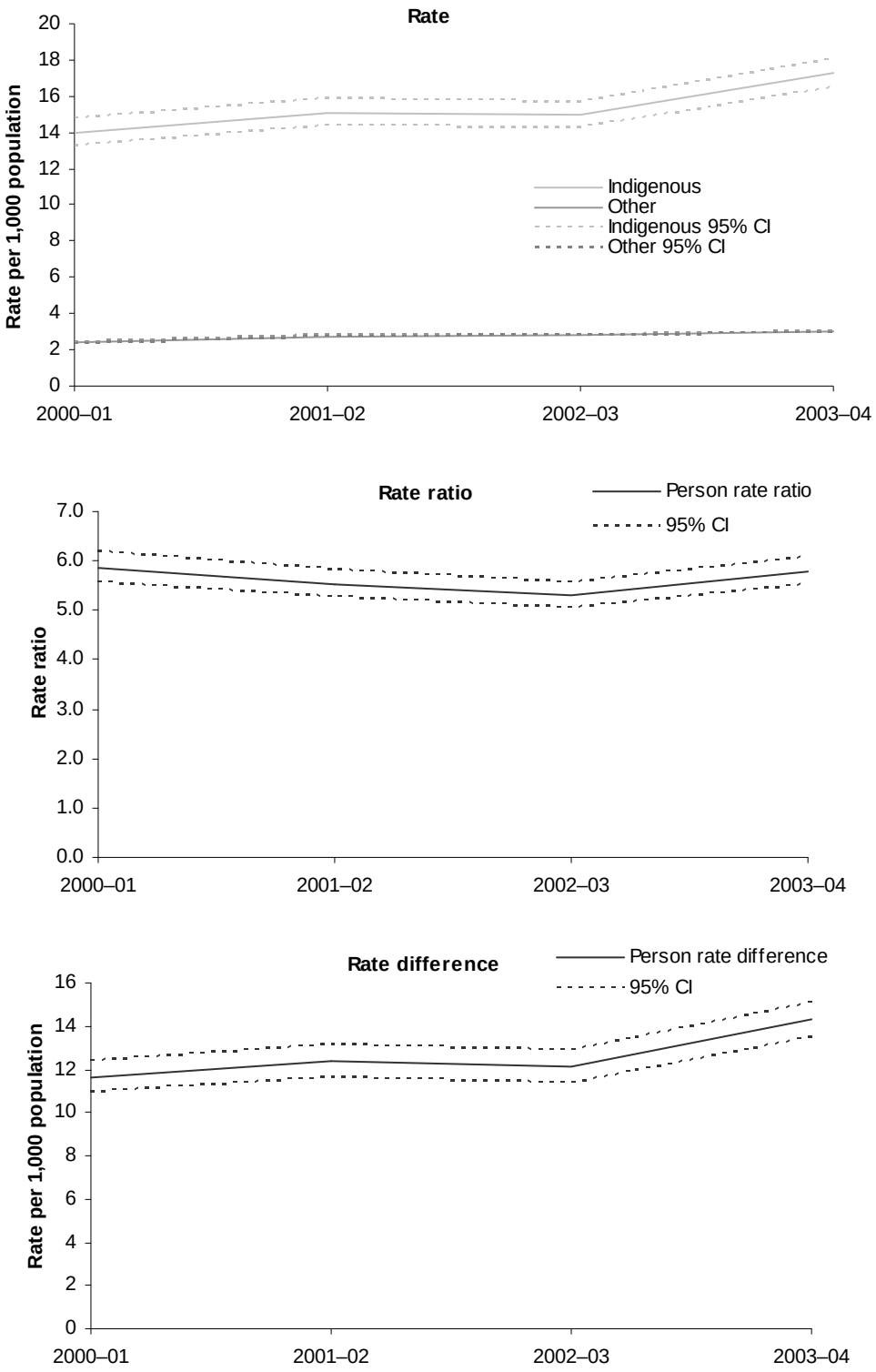
(b) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.

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

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

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

Source: AIHW analysis of AIHW National Hospital Morbidity Database.



Source: AIHW analysis of AIHW National Hospital Morbidity Database.

Figure 1.08.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians from diabetes, Qld, WA, SA and NT, 2000–01 to 2003–04

Sensitivity of hospitalisation trends to changes in identification

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification.
  - Under the constant identification scenario, the number of hospitalisations for the period under study were adjusted using the following identification factors:
    - Qld 80%
    - WA 94%
    - SA 90%
    - NT 98%
  - Under the increasing identification scenario, hospitalisations were adjusted by linearly increasing the identification through the period under study—from 74% in 2000–01 to 80% in 2003–04 for Queensland, from 92% to 94% for Western Australia, from 87% to 90% for South Australia, and from 96% to 98% for the Northern Territory.
  - Under the decreasing identification scenario, hospitalisations were adjusted by linearly decreasing the identification from 85% in 2000–01 to 80% in 2003–04 for Queensland, from 96% to 94% for Western Australia, from 93% to 90% for South Australia, and from 99% to 98% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgements about the largest plausible shifts in identification during the period; of course if any actual shift in identification were more extreme than has been posted under these scenarios, then the observed trends in hospitalisations might not persist.
- The observed increases in diabetes hospitalisation rates for Indigenous and other Australians during the period 2000–01 to 2003–04 remained statistically significant under all three identification scenarios except for the increase in rates for Indigenous males which was no longer significant under the increasing identification scenario. The observed increases in the rate difference between Indigenous and other Australian hospitalisation rates for diabetes remained significant under the constant and decreasing identification scenarios.

General practitioner encounters

Information about general practitioner encounters is available from the BEACH survey. Data for the five-year period 2000–01 to 2004–05 are presented in Table 1.08.8. Diabetes is the most common individual problem managed at GP encounters with Indigenous patients.

- In the period 2000–01 to 2004–05 there were 7,296 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 10,955 problems were managed. Of these, 5.1% (561) of problems were due to diabetes.
- Diabetes was managed at a rate of 7.7 per 100 GP encounters with Indigenous patients.
- After adjusting for differences in age distribution, diabetes was managed at encounters with Indigenous patients at three times the rate of encounters with other patients.
- Non-insulin-dependent diabetes (type 2) was the most common type of diabetes managed at encounters with Indigenous patients—at three times the rate of encounters with other patients.
- Insulin-dependent diabetes (type 1) was also managed at encounters with Indigenous patients at around three times the rate of encounters with other patients.
- Gestational diabetes was managed at GP encounters with Indigenous females at four times the rate of encounters with other females.

Table 1.08.8: Diabetes problems managed by general practitioners, by Indigenous status of patient, 2000–01 to 2004–05[a][b][c]

	Number		Per cent of total problems		Crude rate per 100 encounters						Age-standardised rate per 100 encounters[d]		
Problem managed	**Indigenous**	**Other[e]**	**Indigenous**	**Other[e]**	**Indigenous**	**95% LCL[f]**	**95% UCL[g]**	**Other[e]**	**95% LCL[f]**	**95% UCL[g]**	**Indigenous**	**Other[e]**	**Ratio[h]**
Diabetes: non-insulin-dependent (T90)	513	13,059	4.7	1.8	7.0	5.4	8.6	2.8	2.7	2.9	9.5	2.8	3.4*
Diabetes: insulin-dependent (T89)	41	1,311	0.4	0.2	0.6	0.4	0.7	0.3	0.3	0.3	0.7	0.3	2.5*
Total diabetes: non-gestational[i]	*554*	*14,370*	*5.0*	*2.0*	*7.6*	*5.9*	*9.3*	*3.1*	*3.0*	*3.2*	*10.2*	*3.1*	*3.3**
Gestational diabetes (W85)[j]	7	84	0.1	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.1	0.0	3.9*
All diabetes[i]	*561*	*14,454*	*5.1*	*2.0*	*7.7*	*6.0*	*9.4*	*3.1*	*3.0*	*3.2*	*10.3*	*3.1*	*3.3**
Total problems	**10,994**	**722,487**	**100.0**	**100.0**	**150.7**	**127.9**	**173.4**	**154.9**	**154.0**	**155.8**	**160.5**	**154.8**	**1.0**

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

(a) These survey results are likely to undercount the number of Indigenous Australians visiting doctors.

(b) Combined financial year data for five years.

(c) Data for Indigenous and other Australians have not been weighted.

(d) Directly age-standardised rate per 100 encounters.

(e) Includes non-Indigenous patients and patients for whom Indigenous status was 'not stated'.

(f) LCL = lower confidence interval.

(g) UCL = upper confidence interval.

(h) Rate ratio Indigenous:other.

(i) Includes multiple ICPC–2 or ICPC–2 PLUS codes.

(j) Proportions, rates and ratios are for females only.

Source: AIHW analysis of BEACH data.

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities, regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Survey.

In remote communities there were some modifications to the NATSIHS content in order to address language and cultural appropriateness in traditional communities, as well as to assist respondents in understanding the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the national publication (ABS 2006).

Hospital separation data

Separations

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

Indigenous status question

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

Under-identification

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

(continued)

Data quality issues (continued)

The following caveats have also been recommended:

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

Numerator and denominator

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

General practitioner data (BEACH)

Information about general practitioner encounters is available from the BEACH survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. In the BEACH survey 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners, but the extent of this undercount is not measurable.

References

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