

## 1.07 High blood pressure

The prevalence of high blood pressure/hypertension among Aboriginal and Torres Strait Islander Australians expressed as a rate by age group, age-standardised rate and ratio

### Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the Bettering the Evaluation and Care of Health survey and the AIHW 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 6-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 Australian GP Statistics and Classification Centre. 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.

Because of 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 5-year period 2002–03 to 2006–07, during which there were 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.5% of total GP encounters in the survey.

#### 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 six jurisdictions which 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. 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 Indigenous status 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 2-year period 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.

## Analyses

Age-standardised rates and ratios have been used 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

Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey on the prevalence of high blood pressure/ hypertension among Indigenous Australians are presented in Tables 1.07.1 and 1.07.2.

- In 2004–05, after adjusting for differences in age structures, approximately 14% of Indigenous males and 16% of Indigenous females reported high blood pressure/ hypertension compared with 10% of non-Indigenous males and females.
- High blood pressure/ hypertension was most prevalent among those aged 55 years and over for both population groups. Approximately 39% of Indigenous males and 46% of Indigenous females reported high blood pressure/ hypertension in this age group compared with 32% and 36% of non-Indigenous males and females respectively.
- In 2004–05, the prevalence of high blood pressure/ hypertension was higher among Indigenous Australians in remote areas (10% for males and females) than among Indigenous Australians in non-remote areas (6% for males and 7% for females).
- There was no significant change in the prevalence of high blood pressure/ hypertension among Indigenous Australians between 2001 and 2004–05.

**Table 1.07.1: Persons reporting high blood pressure/ hypertension, by Indigenous status, sex and age group, 2004–05<sup>(a)</sup>**

Age group	Males		Females	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
	<b>Per cent</b>			
0–14	— <sup>(b)</sup>	— <sup>(b)</sup>	— <sup>(b)</sup>	— <sup>(b)</sup>
15–24	1 <sup>(b)</sup>	— <sup>(b)</sup>	1 <sup>(c)</sup>	— <sup>(b)</sup>
25–34	4	3	5 <sup>*(c)</sup>	2 <sup>*(c)</sup>
35–44	14*	6*	11*	4*
45–54	22	15	24*	13*
55 years and over	39	32	46*	36*
<b>Total</b>	<b>7</b>	<b>10</b>	<b>8</b>	<b>12</b>
<b>Total standardised<sup>(d)</sup></b>	<b>14*</b>	<b>10*</b>	<b>16*</b>	<b>10*</b>
Total number	232,632	9,600,405	241,948	9,691,973

\* 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 and the National Health Survey 2004–05 consisting of persons ever told has condition, still current and long term, and ever told has condition, current and not long term.

(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) Age-standardised proportions.

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

**Table 1.07.2: Indigenous persons reporting high blood pressure/ hypertension, by sex and remoteness, 1995, 2001 and 2004–05**

	1995 <sup>(a)</sup>		2001		2004–05	
	Males	Females	Males	Females	Males	Females
	<b>Per cent</b>					
Remote	n.a.	n.a.	7	10	10	10
Non-remote	15	16	5	7	6	7
<b>Total</b>	<b>n.a.</b>	<b>n.a.</b>	<b>6</b>	<b>8</b>	<b>7</b>	<b>8</b>
Total number	131,616	133,800	217,893	225,012	232,362	241,948

(a) Remote data are not available for the 1995 National Health Survey.

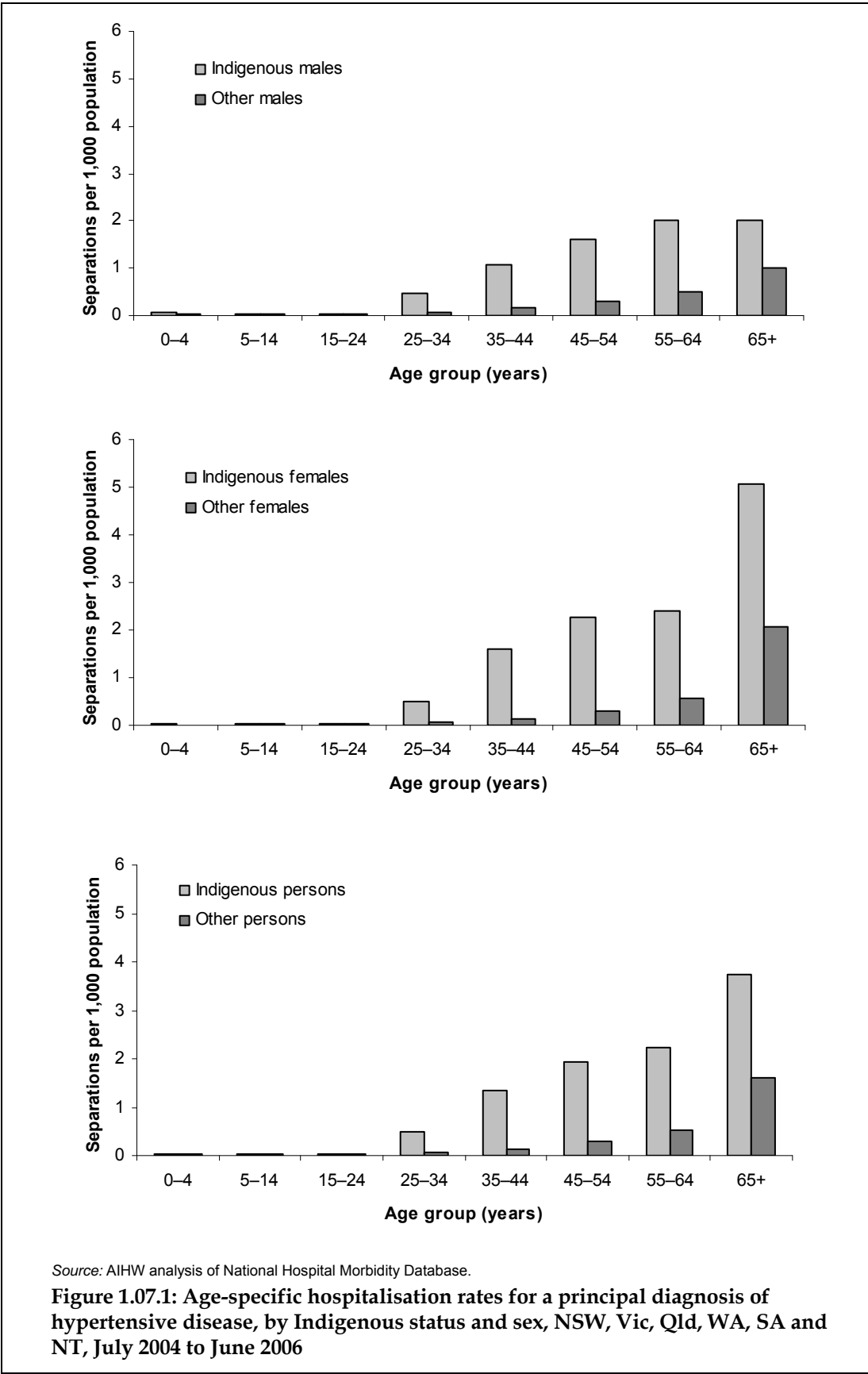
Sources: ABS and AIHW analysis of ABS 1995 National Health Survey (Indigenous supplement); 2001 National Health Survey (Indigenous supplement); 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

## **Hospitalisations**

- In the 2-year period July 2004 to June 2006 there were 13,982 hospitalisations for hypertensive disease in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of which 588 (4.2%) were hospitalisations of Aboriginal and Torres Strait Islander peoples.
- Hospitalisations for hypertensive disease accounted for 0.1% of total hospitalisations of Aboriginal and Torres Strait Islander peoples.

## **Hospitalisations by age and sex**

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, Indigenous males and females had higher hospitalisation rates for hypertensive disease than other males and females across all age groups (Figure 1.07.1).
- The greatest difference in rates occurred in the 25–34, 35–44 and 45–54 year age groups where Indigenous males were hospitalised at between 5 and 7 times the rate of other males in these age groups and Indigenous females were hospitalised at between 8 and 11 times the rates of other females in these age groups.
- Age-specific hospitalisation rates were much higher for Indigenous females than for Indigenous males.
- For both Indigenous and other Australian males and females, hospitalisation rates for hypertensive disease were highest in the 65 years and over age group.
- Approximately 39% of Indigenous Australians hospitalised for hypertensive disease were males (229) and 61% were females (359) (Table 1.07.3).



### **Overall hospitalisation rates**

Table 1.07.3 presents hospitalisations for the 2-year period July 2004 to June 2006 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined. As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data are included in the table. The Australia data are adjusted by applying a completeness factor of 89.4%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were around three to four times as many hospitalisations for hypertensive disease among Indigenous males and females as would be expected based on the rates for other males and females.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous persons were hospitalised for hypertensive disease at 4.1 times the rate of other Australians.

**Table 1.07.3: Hospitalisations of Indigenous persons for principal diagnosis of hypertensive disease, by sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006<sup>(a)(b)(c)(d)</sup>**

	Indigenous				Other <sup>(e)</sup>				Ratio <sup>(i)</sup>
	No.	No. per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	No.	No. per 1,000 <sup>(f)</sup>	LCL 95% <sup>(g)</sup>	UCL 95% <sup>(h)</sup>	
<b>NSW, Vic, Qld, WA, SA &amp; NT</b>									
Males	229	0.9	0.7	1.0	4,956	0.3	0.3	0.3	3.4*
Females	359	1.5	1.3	1.7	8,437	0.4	0.4	0.4	4.0*
Persons	588	1.3	1.1	1.4	13,394	0.3	0.3	0.3	3.8*
<b>Australia unadjusted<sup>(j)</sup></b>									
Males	230	0.8	0.7	1.0	5,129	0.3	0.3	0.3	3.2*
Females	359	1.5	1.3	1.7	8,721	0.4	0.4	0.4	3.9*
Persons	589	1.2	1.1	1.3	13,851	0.3	0.3	0.3	3.6*
<b>Australia adjusted<sup>(j)(k)</sup></b>									
Males	257	0.9	0.8	1.1	5,102	0.3	0.3	0.3	3.6*
Females	401	1.6	1.4	1.8	8,679	0.4	0.4	0.4	4.3*
Persons	658	1.3	1.2	1.5	13,782	0.3	0.3	0.3	4.1*

- (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 I10–I15.
- (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 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.
- (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.

Source: AIHW analysis of National Hospital Morbidity Database.

## **General practitioner encounters**

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year period 2002–03 to 2006–07 are presented in Table 1.07.4. Hypertension is the second most common individual problem managed at GP encounters with Aboriginal and Torres Strait Islander patients.

- In the period 2002–03 to 2006–07 there were a total of 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 11,219 problems were managed. Of these, 466 (4.2% of all problems managed) were for hypertension.
- Hypertension was managed at GP encounters at a rate of 6.2 per 100 encounters with Indigenous patients.
- After adjusting for differences in age distribution, hypertension was managed at GP encounters at similar rates with both Indigenous patients and other patients.

**Table 1.07.4: Hypertension<sup>(a)</sup> managed by general practitioners, by Indigenous status, 2002–03 to 2006–07<sup>(b)(c)(d)</sup>**

	Number		Crude rate (no. per 100 encounters)						Age-standardised rate (no. per 100 encounters) <sup>(e)</sup>		
	Indigenous	Other <sup>(f)</sup>	Indigenous	95% LCL <sup>(g)</sup>	95% UCL <sup>(h)</sup>	Other <sup>(f)</sup>	95% LCL <sup>(g)</sup>	95% UCL <sup>(h)</sup>	Indigenous	Other <sup>(f)</sup>	Ratio <sup>(i)</sup>
Males	207	18,531	6.7	5.3	8.2	9.5	9.2	9.7	9.2	9.2	1.0
Females	255	25,599	5.8	4.4	7.1	9.0	8.8	9.3	9.0	9.0	1.0
Persons	466	44,507	6.2	5.0	7.4	9.2	9.0	9.4	9.0	9.1	1.0

(a) ICD-10 codes: K86, K87.

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

(c) Combined financial year data for 5 years.

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

(e) Directly age-standardised rate (no. per 100 encounters) using the total encounters over the period 2002–03 to 2006–07 as the standard.

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

(g) LCL = lower confidence interval.

(h) UCL = upper confidence interval.

(i) Rate ratio Indigenous:other.

Source: AIHW analysis of BEACH survey of general practice, AGPSCC.

## **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 and 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 accommodate language and cultural appropriateness in traditional communities and help respondents understand 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 NATSIHS 2004–05 publication (ABS 2006).*

### **Hospital separations data**

#### **Separations**

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

#### **Indigenous status question**

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

#### **Under-identification**

*The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations of Aboriginal and Torres Strait Islander peoples. 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 data). It has therefore been recommended that reporting of Indigenous hospital separations 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%.*

*(continued)*

### **Data quality issues (continued)**

*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 from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from 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 from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from 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 Bettering the Evaluation and Care of Health (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.*

#### **High blood pressure**

*Data quality issues specific to this measure include:*

- *The definition of high blood pressure has changed over time and could be further adjusted.*
- *The issue of the most appropriate absolute risk assessment for high blood pressure in Aboriginal and Torres Strait Islander peoples has not yet been determined.*
- *The hospital statistics on hypertensive disease are significantly lower than the prevalence of hypertension in the population as there is very little hospitalisation for hypertensive disease.*

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