

1.11 HIV/AIDS, hepatitis C and sexually transmissible infections

The rate of notified sexually transmissible infections (STIs) for chlamydia, donovanosis, gonorrhoea, syphilis, hepatitis C and HIV/AIDS for Aboriginal and Torres Strait Islander people expressed as a rate by age group, gender, age-standardised rate and ratio

Data sources

Data are available from the National Notifiable Diseases Surveillance System held at the Department of Health and Ageing, and the National AIDS Registry and National HIV database held at the National Centre in HIV Epidemiology and Clinical Research (NCHECR).

National Notifiable Diseases Surveillance System (NNDSS)

A set of 56 diseases and conditions are notifiable nationally. Data on all these cases are forwarded to the NNDSS, managed by the Australian Government Department of Health and Ageing.

Identification of Indigenous notifications in all states and territories is incomplete, but three jurisdictions (Western Australia, South Australia and the Northern Territory) have been assessed as having adequate identification in 2001–2002 in the NNDSS. Data on Indigenous status for certain notifiable diseases are not available for the Australian Capital Territory, New South Wales or Tasmania.

National AIDS Registry and National HIV database

Notifications of HIV infections are forwarded to the NCHECR. Recording of Indigenous status in the NCHECR data is considered reliable in all states and territories.

Notifications for which Indigenous status was not reported have been included with notifications data for non-Indigenous people under the 'other' category.

Data are presented for the 3-year period 2004–2006 because notifications of some diseases are too small to present for a single year.

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.

Notification rates by age and sex

Chlamydia, syphilis, gonorrhoea, hepatitis C and donovanosis

Age-specific notification rates for chlamydia, syphilis, gonorrhoea and hepatitis C are presented in Table 1.11.1. Rates for donovanosis are not presented because of small numbers but are described in the text below.

- For the 3-year period 2004–2006 in Western Australia, South Australia and the Northern Territory, notification rates for chlamydia, syphilis, gonorrhoea and hepatitis C were higher among Indigenous males and females than among other males and females across all age groups.
- Rates were generally highest among Indigenous males and females aged 15–24 years and 25–34 years. In these age groups, chlamydia notification rates among Indigenous males and females were 5–7 times higher than rates for other males and females; syphilis notification rates were 49–199 times higher; gonorrhoea notification rates were 51–147 times higher and hepatitis C notification rates were 5–6 times higher than for other males and females of the same age.
- Age-specific rate ratios for chlamydia, syphilis and gonorrhoea were highest in the 0–14 years and 65 years and over age groups. This is likely to be due to the very small number of notifications among other Australians in these age groups.
- Age-specific rates for donovanosis were highest among those aged 25–34 years and 65 years and over, although the number of cases in each age group was very small.

HIV and AIDS

Age-specific notification rates for AIDS and HIV are presented in Table 1.11.2 below.

- For the period 2004–2006, notification rates for HIV were similar for Indigenous males and other males across most age groups. Over the same period, HIV notification rates were higher among Indigenous females than among other females across most age groups.
- Between 2004 and 2006, notification rates for AIDS were higher among Indigenous males than other males in the 15–24, 25–34, 35–44, 45–54 and 55–64 year age groups (rate ratios range 1.7 to 4.6). Indigenous females had higher notification rates than other females for AIDS in the 35–44 year age group (ratio of 2.4).
- HIV notification rates were highest among those aged 25–34 and 35–44 years in both the Indigenous and other Australian populations. AIDS notification rates were highest among those aged 35–44 years and 45–54 years in both the Indigenous and other Australian populations.
- HIV and AIDS notification rates were higher among males than females across all age groups in both population groups.

Table 1.11.1: Age-specific notification rates per 100,000 for chlamydia, syphilis, gonorrhoea and hepatitis C, by Indigenous status and sex, WA, SA and NT, 2004–2006^{(a)(b)(c)}

	Males			Females			Persons		
	Indigenous	Other ^(d)	Rate ratio ^(e)	Indigenous	Other ^(d)	Rate ratio ^(e)	Indigenous	Other ^(d)	Rate ratio ^{(e)(f)}
Chlamydia									
0–14	76.9	1.4	54.4*	396.2	13.8	28.8*	235.8	7.4	31.8*
15–24	3,240.1	598.1	5.4*	6,289.9	1,266.9	5.0*	4,823.5	925.3	5.2*
25–34	2,018.4	393.8	5.1*	2,514.7	360.0	7.0*	2,328.1	378.2	6.2*
35–44	853.4	106.6	8.0*	915.3	67.7	13.5*	912.0	88.3	10.3*
45–54	328.9	43.1	7.6*	261.1	13.2	19.8*	296.0	28.5	10.4*
55–64	126.7	24.8	5.1*	46.5	5.6	8.3*	89.1	15.4	5.8*
65+	n.p.	3.5	n.p.	n.p.	0.9	n.p.	50.4	2.0	24.6*
Syphilis									
0–14	6.9	n.p.	n.p.	25.4	0.5	51.0*	16.5	0.3	48.7*
15–24	374.0	4.9	75.8*	467.9	2.3	199.1*	437.7	3.7	118.9*
25–34	336.8	6.9	48.8*	279.1	5.2	53.7*	313.1	6.1	51.6*
35–44	282.2	9.6	29.5*	236.6	3.3	71.3*	259.9	6.5	40.2*
45–54	291.8	5.7	50.9*	241.8	1.8	135.1*	265.6	3.8	70.5*
55–64	316.8	7.1	44.8*	269.9	1.4	199.3*	291.9	4.3	68.6*
65+	394.0	3.5	114.2*	372.6	0.9	415.0*	388.8	2.0	190.0*
Gonorrhoea									
0–14	68.9	0.5	146.2*	387.7	2.3	169.0*	229.9	1.4	169.4*
15–24	4,508.5	64.7	69.7*	5,545.1	42.4	130.7*	5,117.7	54.6	93.7*
25–34	3,368.4	65.6	51.4*	2,728.0	18.6	146.6*	3,109.5	42.8	72.7*
35–44	1,548.6	46.2	33.5*	1,155.0	9.0	128.7*	1,386.1	28.2	49.1*
45–54	641.9	29.2	22.0*	338.5	2.8	120.3*	495.8	16.5	30.0*
55–64	232.3	14.5	16.0*	n.p.	1.2	n.p.	138.5	7.9	17.5*
65+	137.1	4.5	30.1*	n.p.	n.p.	n.p.	86.4	2.1	40.8*
Hepatitis C									
0–14	0.0	n.p.	n.p.	0.0	n.p.	n.p.	0.0	n.p.	n.p.
15–24	50.8	10.1	5.0*	35.7	7.9	4.5*	43.4	9.0	4.8*
25–34	96.2	15.5	6.2*	42.1	7.5	5.6*	69.0	11.6	6.0*
35–44	24.1	5.3	4.5*	31.1	2.3	13.3*	27.8	3.8	7.2*
45–54	n.p.	2.4	n.p.	29.0	1.7	17.5*	22.8	2.0	11.1*
55–64	0.0	n.p.	n.p.	0.0	0.0	n.p.	0.0	n.p.	n.p.
65+	0.0	0.0	n.p.	0.0	n.p.	n.p.	0.0	n.p.	n.p.

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

(a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Age-specific rates are calculated using the average Indigenous June population for the relevant years.

(c) Data are reported for Western Australia, South Australia and the Northern Territory. These three jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

(d) Includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

(e) Rate ratio Indigenous:other.

(f) Because of the very high rates of syphilis and gonorrhoea in the Indigenous population and low rates of these STIs in the other population, rate ratios are large and may vary between reports, as fairly minor changes in rates can result in large changes in the resulting ratios.

Source: AIHW analysis of NNDSS data.

Table 1.11.2: Age-specific notification rates per 100,000 for HIV and AIDS, by Indigenous status and sex, 2004–2006^{(a)(b)(c)}

	Males			Females			Persons		
	Indigenous	Other ^(d)	Rate ratio ^(e)	Indigenous	Other ^(d)	Rate ratio ^(e)	Indigenous	Other ^(d)	Rate ratio ^(e)
HIV									
0–14	0.0	0.1	n.p.	0.0	0.2	n.p.	0.0	0.1	n.p.
15–24	4.7	4.9	1.0	4.2	1.6	2.6*	4.5	3.3	1.3
25–34	18.0	17.3	1.0	3.6	3.5	1.0	10.6	10.4	1.0
35–44	16.2	20.1	0.8	4.1	1.8	2.3	9.8	10.9	0.9
45–54	3.4	10.2	0.3	1.6	0.7	2.2	2.4	5.4	0.5
55–64	3.2	5.5	0.6	0.0	0.5	0.0	1.5	3.0	0.5
65+	0.0	1.3	n.p.	0.0	0.0	n.p.	0.0	0.6	n.p.
AIDS									
0–14	0.0	0.0	n.p.	0.0	0.0	n.p.	0.0	0.0	n.p.
15–24	0.7	0.1	4.6	0.0	0.1	n.p.	0.3	0.1	3.4
25–34	5.7	1.9	2.9*	0.0	0.6	n.p.	2.8	1.3	2.2
35–44	9.2	5.0	1.9	1.0	0.4	2.4	4.9	2.7	1.8
45–54	8.5	3.3	2.5*	0.0	0.4	0.0	4.1	1.8	2.2
55–64	3.2	1.9	1.7	0.0	0.2	0.0	1.5	1.1	1.4
65+	0.0	0.5	n.p.	0.0	0.0	n.p.	0.0	0.2	n.p.

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

(a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Age-specific rates are calculated using the average Indigenous June population for the relevant years.

(c) Total of all state/territories excluding the Australian Capital Territory.

(d) Includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

(e) Rate ratio Indigenous:other.

Source: AIHW analysis of National AIDS Registry and National HIV database.

Notification rates by state/territory

Notification rates for chlamydia, syphilis, gonorrhoea and hepatitis C for the period 2004–2006 for Western Australia, South Australia and the Northern Territory are presented in Table 1.11.3, and notification rates for HIV and AIDS for all states and territories, except the Australian Capital Territory, are presented in Table 1.11.4.

Chlamydia

- For the period 2004–2006, there were 29,245 notifications of chlamydia in Western Australia, South Australia and the Northern Territory, 26% of which were notifications of Aboriginal and Torres Strait Islander peoples. In the Northern Territory, 63% of notifications for chlamydia were among Indigenous people. In Western Australia and South Australia, 22% and 10% of notifications were among Indigenous Australians respectively.
- In Western Australia, South Australia and the Northern Territory combined, notification rates of chlamydia among Indigenous males and females were six times those of other males and females.

- Notification rates for chlamydia among Indigenous males and females were particularly high in Western Australia where rates were around six times those of other males and females.

Syphilis

- For the period 2004–2006, there were 1,464 notifications of syphilis in Western Australia, South Australia and the Northern Territory combined, 73% of which were notifications of Aboriginal and Torres Strait Islander peoples. In the Northern Territory, 90% of notifications for syphilis were among Indigenous people. In Western Australia and South Australia, 57% and 22% of notifications were among Indigenous Australians respectively.
- In Western Australia, South Australia and the Northern Territory combined, notification rates for syphilis among Indigenous males and females were 53 and 115 times the rates for other males and females.
- Rates of syphilis among Indigenous Australians were markedly higher than among other Australians in Western Australia (59 times higher).

Gonorrhoea

- For the period 2004–2006, there were 11,105 notifications of gonorrhoea in Western Australia, South Australia and the Northern Territory combined, 79% of which were notifications of Aboriginal and Torres Strait Islander peoples. In the Northern Territory, 86% of notifications for gonorrhoea were among Indigenous people. In Western Australia and South Australia, 75% and 67% of notifications were among Indigenous Australians.
- In Western Australia, South Australia and the Northern Territory combined, notification rates of gonorrhoea among Indigenous males and females were 47 and 134 times the rates of other males and females respectively.
- Rates of gonorrhoea among Indigenous females were much higher than among other females in Western Australia and South Australia (124 and 270 times as high respectively).

Hepatitis C (incident)

- For the period 2004–2006, there were 530 notifications of hepatitis C (incident) in Western Australia, South Australia and the Northern Territory, 23% of which were notifications of Aboriginal and Torres Strait Islander peoples.
- In Western Australia, South Australia and the Northern Territory combined, Indigenous males and females were six and seven times more likely to contract hepatitis C as other males and females.
- In Western Australia, notification rates of hepatitis C among Indigenous males and females were 9 times those of other males and females. In South Australia, the rates among Indigenous males and females were 8 and 14 times those of other males and females respectively.

Donovanosis

- For the period 2004–2006, there were 27 notifications of donovanosis in Australia, 93% (25) of which were notifications of Aboriginal and Torres Strait Islander peoples. All of these recorded notifications took place in Queensland, Western Australia and the Northern Territory. Rates have not been calculated for these states and territories because of the small numbers of notifications.

HIV

- Over the period 2004–2006, there were 2,841 HIV notifications in Australia, 2.0% of which were notifications of Indigenous Australians.
- After adjusting for differences in age structure, notification rates for HIV were similar among Indigenous males and other males for the period 2004–06. HIV notification rates for Indigenous females were around 1.5 times those for other females over the same period.
- Of the states and territories for which rates could be calculated, Indigenous males in Western Australia and Victoria were approximately twice as likely to contract HIV as other males, and Indigenous females in Western Australia were approximately seven times as likely to contract HIV as other females.

AIDS

- Over the period 2004–2006, there were 610 cases of AIDS in Australia, 3.6% of which were notifications of Indigenous Australians.
- After adjusting for differences in age structure, notification rates for AIDS were higher among Indigenous males than among other males. Indigenous males were twice as likely to contract AIDS as other males.
- Of the states and territories for which numbers were large enough to calculate rates, notification rates for AIDS among Indigenous males in New South Wales and Queensland were 1.5 and 3.5 times the rates for other males in these jurisdictions respectively.

Table 1.11.3: Notification rates for chlamydia, syphilis, gonorrhoea and hepatitis C, by Indigenous status and sex, WA, SA and NT, 2004–2006^(a)

	No	Proportion (%)		Males			Females			Persons		
		Indig.	Other ^(c)	No. per 100,000 ^(b)		Ratio ^{(d)(e)}	No. per 100,000 ^(b)		Ratio ^{(d)(e)}	No. per 100,000 ^(b)		Ratio ^{(d)(e)}
				Indig.	Other ^(c)		Indig.	Other ^(c)		Indig.	Other ^(c)	
Chlamydia												
WA	15,688	21.7	78.3	949.5	171.8	5.5*	1,500.5	247.9	6.1*	1,222.0	208.3	5.9*
SA	8,258	9.6	90.4	607.9	138.1	4.4*	955.0	208.0	4.6*	779.2	172.0	4.5*
NT	5,299	62.7	37.3	1,083.5	322.6	3.4*	1,719.0	511.3	3.4*	1,456.7	431.7	3.4*
WA, SA & NT^(f)	29,245	25.7	74.3	945.7	164.7	5.7*	1,491.5	242.3	6.2*	1,239.4	202.9	6.1*
Syphilis												
WA	598	57.2	42.8	280.8	5.8	48.3*	228.7	2.7	83.7*	252.5	4.3	59.1*
SA	85	22.4	77.6	22.9	2.3	10.0*	21.3	0.7	29.8*	22.1	1.5	14.7*
NT	781	90.1	9.9	360.9	23.6	15.3*	379.9	9.6	39.5*	380.5	17.0	22.4*
WA, SA & NT^(f)	1,464	72.7	27.3	270.3	5.1	53.4*	250.9	2.2	115.1*	263.4	3.6	72.8*
Gonorrhoea												
WA	4,666	75.0	25.0	1,424.6	29.3	48.7*	1,262.5	10.2	124.2*	1,338.3	19.8	67.5*
SA	1,272	66.7	33.3	869.8	16.3	53.3*	817.3	3.0	269.7*	838.1	9.7	86.1*
NT	5,167	85.7	14.3	1,818.6	198.6	9.2*	1,992.0	99.0	20.1*	1,980.9	158.5	12.5*
WA, SA & NT^(f)	11,105	79.0	21.0	1,486.5	31.6	47.1*	1,465.7	11.0	133.8*	1,503.4	21.7	69.4*
Hepatitis C												
WA	354	26.3	73.7	49.6	5.5	9.0*	32.2	3.5	9.2*	40.9	4.5	9.0*
SA	170	15.9	84.1	34.2	4.5	7.6*	30.4	2.2	14.1*	32.7	3.4	9.8*
NT	6	0.0	100.0	0.0	n.p.	n.p.	0.0	n.p.	n.p.	0.0	1.2	n.p.
WA, SA & NT^(f)	530	22.6	77.4	27.2	4.9	5.5*	19.5	2.8	6.9*	23.4	3.9	6.0*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

- (a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.
 (b) Directly age-standardised using the Australian 2001 standard population.
 (c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.
 (d) Rate ratio Indigenous:other.
 (e) Because of the very high rates of syphilis and gonorrhoea in the Indigenous population and low rates of these STIs in the other population, rate ratios are large and may vary between reports, as fairly minor changes in rates can result in large changes in the resulting ratios.
 (f) Data are reported for Western Australia, South Australia and the Northern Territory. These three jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

Source: AIHW analysis of NNDS data.

Table 1.11.4: Notification rates for HIV and AIDS, by Indigenous status, sex and state/territory, 2004–2006^(a)

	No.	Proportion (%)		Males			Females			Persons		
		Indig.	Other ^(c)	No. per 100,000 ^(b)			No. per 100,000 ^(b)			No. per 100,000 ^(b)		
				Indig.	Other ^(c)	Ratio ^(d)	Indig.	Other ^(c)	Ratio ^(d)	Indig.	Other ^(c)	Ratio ^(d)
HIV												
NSW	1,203	1.2	98.8	5.1	10.7	0.5*	n.p.	1.5	n.p.	3.2	6.1	0.5
Vic	758	1.2	98.8	20.5	8.9	2.3*	n.p.	1.1	n.p.	9.9	5.0	2.0
Qld	486	3.1	96.9	8.2	7.2	1.1	n.p.	1.0	n.p.	4.1	4.1	1.0
WA	186	9.1	90.9	8.8	4.5	2.0	8.6	1.2	7.3*	8.7	2.9	3.0*
SA	166	1.2	98.8	n.p.	6.5	n.p.	0.0	0.9	n.p.	n.p.	3.7	n.p.
Tas	17	0.0	100.0	0.0	2.3	n.p.	0.0	n.p.	n.p.	0.0	1.2	n.p.
NT	25	4.0	96.0	n.p.	6.4	n.p.	0.0	2.9	n.p.	n.p.	4.8	n.p.
Aust.^(e)	2,841	2.0	98.0	6.6	8.4	0.8	2.0	1.2	1.6	4.2	4.8	0.9
AIDS												
NSW	289	2.4	97.6	3.5	2.6	1.4	n.p.	0.3	n.p.	2.0	1.4	1.4
Vic	166	2.4	97.6	n.p.	1.9	n.p.	0.0	0.3	n.p.	n.p.	1.1	n.p.
Qld	82	7.3	92.7	4.0	1.1	3.6*	0.0	0.2	n.p.	1.9	0.7	2.9*
WA	27	11.1	88.9	n.p.	0.7	n.p.	0.0	n.p.	n.p.	n.p.	0.4	n.p.
SA	35	2.9	97.1	n.p.	1.4	n.p.	0.0	n.p.	n.p.	n.p.	0.7	n.p.
Tas	5	0.0	100.0	0.0	0.7	n.p.	0.0	0.0	n.p.	0.0	0.3	n.p.
NT	6	16.7	83.3	n.p.	1.4	n.p.	0.0	n.p.	n.p.	n.p.	1.2	n.p.
Aust.^(e)	610	3.6	96.4	3.8	1.8	2.1*	n.p.	0.2	n.p.	1.9	1.0	1.9*

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

- (a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.
- (b) Directly age-standardised using the Australian 2001 standard population.
- (c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.
- (d) Rate ratio Indigenous:other.
- (e) Australia total excludes the Australian Capital Territory.

Source: AIHW analysis of National AIDS Registry and National HIV database.

HIV/AIDS by exposure categories

Table 1.11.5 presents HIV and AIDS notifications in Australia by exposure category over the period 2004–2006.

- For the period 2004–2006, the most common method of contracting HIV among Indigenous Australians was homosexual/bisexual contact (42%) followed by heterosexual contact (25%), and injecting drug use (20%). These were also the most common ways of contracting HIV among other Australians (67%, 20% and 3% respectively).
- Over the same period, the most common method of contracting AIDS among Indigenous Australians was male homosexual/bisexual contact (52%). This was also the most common way of contracting AIDS among other Australians (57%), followed by heterosexual contact (22%).
- Indigenous Australians were six times as likely to contract HIV through injecting drug use as other Australians. Indigenous Australians were less likely to contract HIV through male homosexual/bisexual contact as other Australians (ratio of 0.6).
- Indigenous Australians were around 1.5 times as likely to contract AIDS through male homosexual/bisexual contact than other Australians.

Table 1.11.5: Exposure categories for HIV/AIDS, by Indigenous status, 2004–2006^{(a)(b)}

Exposure category	Number		Per cent		No. per 100,000 ^(c)		Ratio ^(e)
	Indigenous	Other ^(d)	Indigenous	Other ^(d)	Indigenous	Other ^(d)	
HIV							
Male homosexual/bisexual contact	25	1,660	42.4	67.1	1.8	2.8	0.6
Male homosexual/bisexual contact and injecting drug use	n.p.	96	n.p.	3.9	n.p.	0.2	n.p.
Heterosexual contact	15	499	25.4	20.2	1.1	0.8	1.3
Injecting drug use	12	72	20.3	2.9	0.8	0.1	6.3*
Mother with/at risk of HIV infection	0	11	0.0	0.4	0.0	0.02	n.p.
Other ^(f)	n.p.	137	n.p.	5.5	n.p.	0.2	n.p.
Total	59	2,475	100.0	100.0	4.2	4.2	1.0
AIDS							
Male homosexual/bisexual contact	11	335	52.4	56.6	0.9	0.6	1.6
Male homosexual/bisexual contact and injecting drug use	n.p.	45	n.p.	7.6	n.p.	0.1	n.p.
Heterosexual contact	n.p.	132	n.p.	22.3	n.p.	0.2	n.p.
Injecting drug use	n.p.	32	n.p.	5.4	n.p.	0.1	n.p.
Mother with/at risk of HIV infection	0.0	11	0.0	0.4	0.0	0.0	n.p.
Other ^(f)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Total	21	592	100.0	100.0	1.8	1.0	1.8*

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

- (a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.
- (b) Total Australia data, excluding 2004 ACT data which was not available.
- (c) Directly age-standardised using the 2001 Australian standard population.
- (d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.
- (e) Rate ratio Indigenous:other.
- (f) Includes: Haemophilia/coagulation disorder, receipt of blood/tissue, and exposure category undetermined.

Source: AIHW analysis of National AIDS Registry and National HIV database.

Time series analysis

Notification rates, rate ratios and rate differences between Indigenous and other Australians for syphilis, chlamydia and gonorrhoea for the period 1994–1996 to 2005–2006, and hepatitis C (incident) for the period 1995–1996 to 2005–2006, are presented in the following tables and figures. HIV and AIDS notifications for the period 1994–1996 to 2005–2006 are also presented here. Data are presented in 2- to 3-year groupings because of the small number of notifications each year.

Chlamydia

- In Western Australia, South Australia and the Northern Territory combined there were significant increases in notification rates for chlamydia among Indigenous Australians during the period 1994–1996 to 2005–2006. The fitted trend line shows an average yearly increase in the rate of around 99 per 100,000 which is equivalent to a 188% increase in the rate over the period (Table 1.11.6). Significant increases in rates for chlamydia were evident for both Indigenous males and females.
- There were also significant increases in notification rates for chlamydia among other Australian males and females during the same period (447% increase for males and 344% increase for females) (Table 1.11.6).
- Notification rate ratios between Indigenous and other Australians for chlamydia showed significant declines over the 12-year period (Figure 1.11.1). The fitted trend line showed an average yearly decline in the ratio of around 0.4 which is equivalent to a 47% decline in the rate ratio over the period.
- Although rate ratios showed declines over the period, the difference in notification rates between Indigenous and other Australians increased significantly for both males and females.

Table 1.11.6: Crude and age-standardised notification rates, rate ratios and rate differences for chlamydia, WA, SA and NT, 1994–1996 to 2005–2006

	1994–1996	1997–1999	2000–2002	2003–2004	2005–2006	Annual change ^(a)	% change over period ^(b)
Indigenous crude rate (no. per 100,000)							
Males	414.8	579.5	767.5	1064.3	1190.1	76.3*	220.7
Females	846.2	1047.6	1413.7	1838.9	1974.0	114.7*	162.6
Persons	630.3	813.4	1091.7	1469.9	1616.3	98.7*	187.8
Indigenous age-standardised rate (no. per 100,000)							
Males	357.4	497.5	647.5	888.1	961.5	60.1*	201.9
Females	657.2	829.7	1113.1	1435.2	1515.2	87.6*	160.0
Persons	507.3	661.9	878.7	1171.0	1260.1	75.8*	179.4
Other Australian age-standardised rate (no. per 100,000)^(c)							
Males	35.5	58.0	91.1	131.4	176.7	13.2*	446.3
Females	64.3	86.4	132.0	191.4	260.9	18.4*	343.5
Persons	49.9	71.8	111.5	160.8	218.1	15.8*	379.0
Rate ratio^(d)							
Males	10.1	8.6	7.1	6.8	5.4	–0.4*	–49.8
Females	10.2	9.6	8.4	7.5	5.8	–0.4*	–47.5
Persons	10.2	9.2	7.9	7.3	5.8	–0.4*	–47.3
Rate difference^(e)							
Males	321.8	439.4	556.4	756.6	784.8	46.9*	175.0
Females	592.8	743.3	981.1	1243.7	1254.3	69.2*	140.1
Persons	457.4	590.1	767.2	1010.2	1041.9	60.1*	157.6

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2005–2006.

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

(b) Per cent change between 1994–1996 and 2005–2006 based on the annual rate of change over the period.

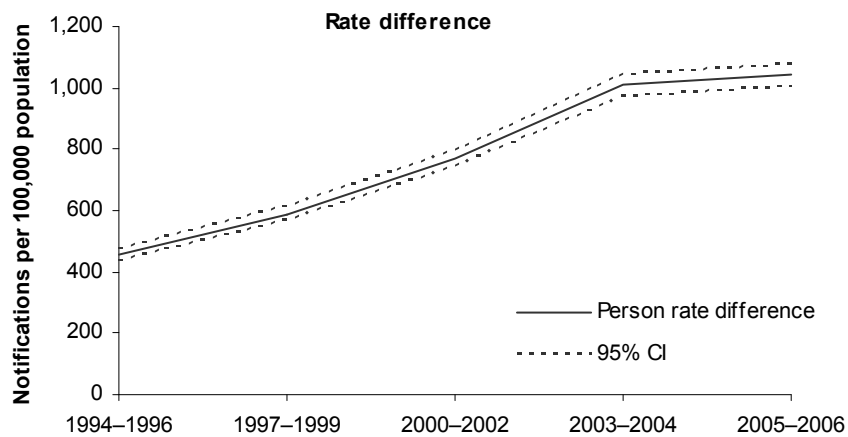
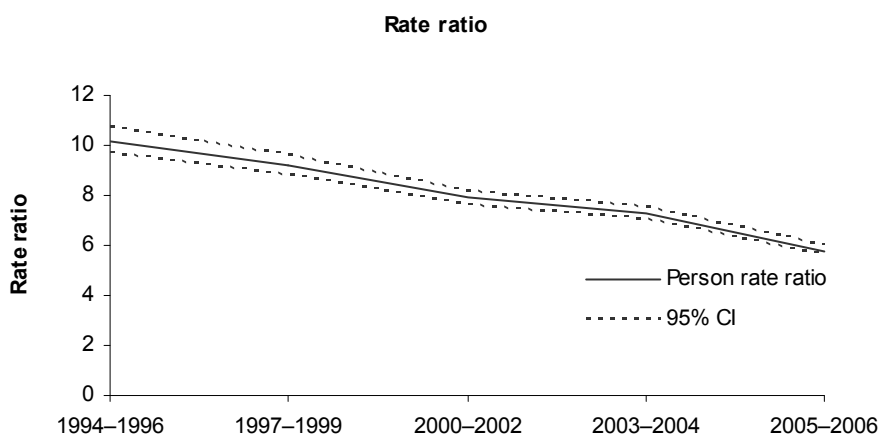
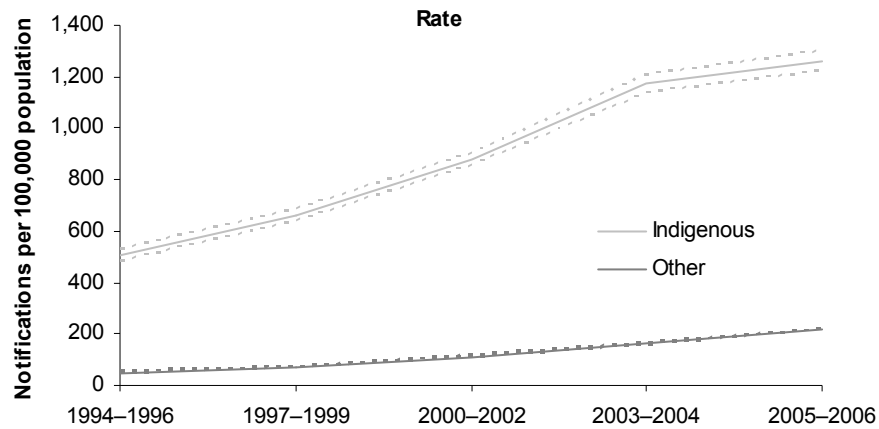
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

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

Source: AIHW analysis of NNDSS data.



Source: AIHW analysis of NNDSS data.

Figure 1.11.1: Age-standardised notification rates, rate ratios and rate differences for chlamydia, WA, SA and NT, 1994-1996 to 2005-2006

Syphilis

- Over the period 1994–1996 to 2005–2006 in Western Australia, South Australia and the Northern Territory combined, there were significant decreases in notification rates for syphilis among Indigenous Australians (from around 333 to 207 notifications per 100,000). The fitted trend line shows an average yearly decline in the rate of around 9 per 100,000 which is equivalent to a 33% reduction in the rate over the period (Table 1.11.7). These declines were significant for males but not for females.
- There were significant increases in notification rates for syphilis among other Australians males during the same period. The fitted trend line showed an average yearly increase in the rate of around 0.2 per 100,000 which was equivalent to a 99% increase in the rate over the period (Table 1.11.7; Figure 1.11.2).
- There was a significant decline in notification rate ratios between Indigenous and other Australians for syphilis over the 12-year period. The fitted trend showed an average yearly decline in the rate ratio of around 5 which was equivalent to a 47% reduction in the rate ratio over the period. These declines were statistically significant for males but not for females.

Table 1.11.7: Crude and age-standardised notification rates, rate ratios and rate differences for syphilis, WA, SA and NT, 1994–1996 to 2005–2006

	1994–1996	1997–1999	2000–2002	2003–2004	2005–2006	Annual change ^(a)	% change over period ^(b)
Indigenous crude rate (no. per 100,000)							
Males	337.2	257.7	308.7	254.2	190.3	–10.8*	–38.5
Females	328.2	241.0	294.6	254.4	209.0	–8.3	–30.2
Persons	333.2	249.6	301.6	255.0	206.6	–9.1*	–32.7
Indigenous age-standardised rate (no. per 100,000)							
Males	328.7	286.4	340.5	311.9	243.7	–5.0	–18.1
Females	296.9	231.5	289.1	275.9	229.3	–3.2	–12.9
Persons	311.6	256.9	313.5	292.4	240.5	–3.7	–14.2
Other Australian age-standardised rate (no. per 100,000)^(c)							
Males	2.7	3.7	4.7	4.3	5.3	0.2*	99.0
Females	2.0	1.5	2.2	1.7	2.3	0.0	15.6
Persons	2.3	2.7	3.5	3.0	3.8	0.1*	62.2
Rate ratio^(d)							
Males	122.9	76.4	72.6	72.2	46.0	–6.0*	–58.4
Females	149.8	151.2	131.9	166.4	100.1	–2.9	–23.3
Persons	132.6	96.5	89.6	98.0	63.3	–5.1*	–46.6
Rate difference^(e)							
Males	326.0	282.6	335.8	307.6	238.4	–5.2	–19.1
Females	295.0	230.0	286.9	274.2	227.0	–3.2	–13.1
Persons	309.2	254.2	310.0	289.5	236.7	–3.8	–14.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2005–2006.

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

(b) Per cent change between 1994–1996 and 2005–2006 based on the annual rate of change over the period.

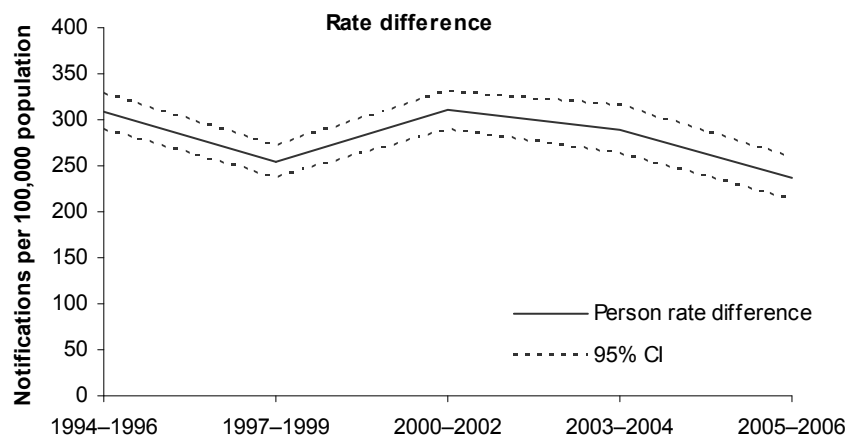
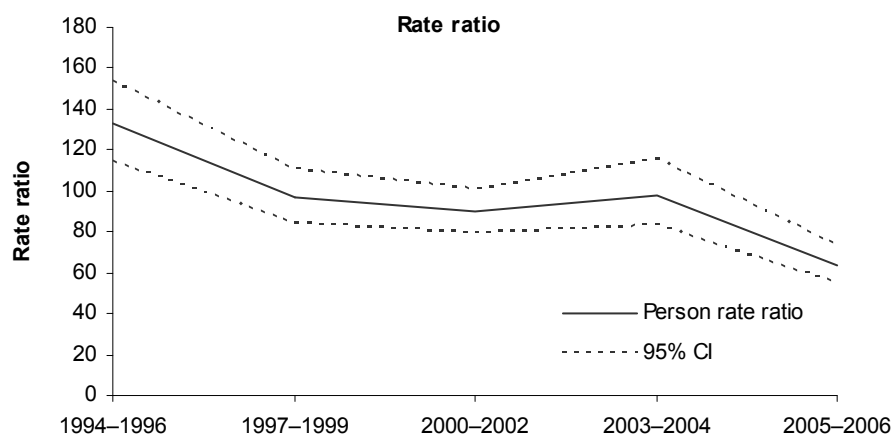
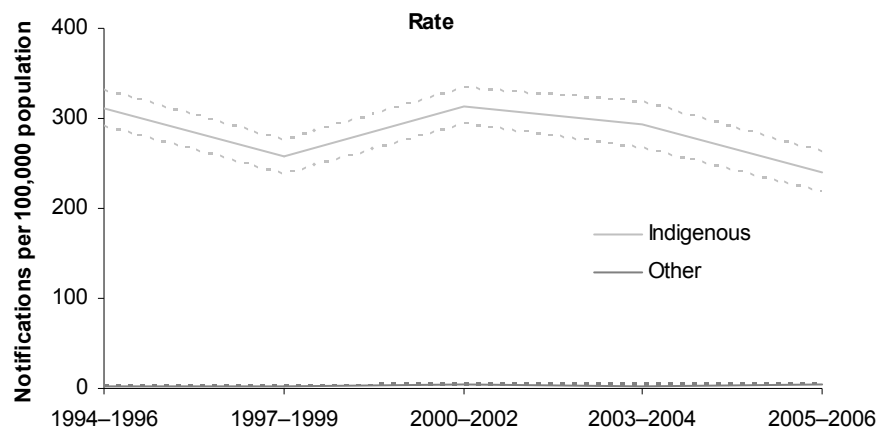
(c) ‘Other’ includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

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

Source: AIHW analysis of NNDSS data.



Source: AIHW analysis of NNDSS data.

Figure 1.11.2: Age-standardised notification rates, rate ratios and rate differences for syphilis, WA, SA and NT, 1994-1996 to 2005-2006

Gonorrhoea

- In Western Australia, South Australia and the Northern Territory combined, there were significant increases in notification rates for gonorrhoea among Indigenous Australians during the period 1994–1996 to 2005–2006. The fitted trend line shows an average yearly increase in the rate of around 69 per 100,000 which is equivalent to a 74% increase in the rate over the period (Table 1.11.8). There were significant increases in notification rates for both Indigenous males and females.
- There were also increases in notification rates for gonorrhoea among other Australians during the same period. Rates showed a significant increase for males (84% increase over the period) but not for females.
- Notification rate ratios between Indigenous and other Australians for gonorrhoea showed no significant changes for males or females over the 12-year period (Figure 1.11.3).
- There were significant increases in the notification rate differences between Indigenous and other Australians for gonorrhoea over the period, with an average yearly increase in the rate difference of around 51 per 100,000 (65% increase). These increases were statistically significant for both males and females.

Table 1.11.8: Crude and age-standardised notification rates, rate ratios and rate differences for gonorrhoea, WA, SA and NT, 1994–1996 to 2005–2006

	1994–1996	1997–1999	2000–2002	2003–2004	2005–2006	Annual change ^(a)	% change over period ^(b)
Indigenous crude rate (no. per 100,000)							
Males	1308.1	1257.5	1381.8	1500.8	1833.9	46.6*	42.8
Females	938.5	1371.9	1531.7	1678.3	1916.3	85.5*	109.3
Persons	1126.9	1315.4	1456.9	1608.3	1916.5	69.4*	73.9
Indigenous age-standardised rate (no. per 100,000)							
Males	1,168.0	1,114.6	1,207.4	1,255.8	1,575.0	34.0*	34.9
Females	761.2	1,113.7	1,234.1	1,314.8	1,518.0	64.9*	102.3
Persons	962.5	1,110.1	1,216.9	1,296.1	1,574.1	52.1*	64.9
Other Australian age-standardised rate (no. per 100,000)^(c)							
Males	18.5	26.0	30.3	32.3	32.0	1.3*	84.1
Females	7.7	16.1	15.8	12.3	11.1	0.2	24.7
Persons	13.3	21.2	23.5	22.5	22.0	0.8*	68.3
Rate ratio^(d)							
Males	63.2	42.9	39.9	38.9	49.2	-1.4	-25.7
Females	98.5	69.3	78.1	107.0	136.9	4.0	48.3
Persons	72.6	52.5	51.8	57.7	71.5	-0.1	-1.2
Rate difference^(e)							
Males	1,149.6	1,088.6	1,177.1	1,223.6	1,543.0	32.7*	34.1
Females	753.5	1,097.6	1,218.3	1,302.5	1,506.9	64.7*	103.1
Persons	949.2	1,089.0	1,193.4	1,273.6	1,552.0	51.3*	64.9

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2005–2006.

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

(b) Per cent change between 1994–1996 and 2005–2006 based on the annual rate of change over the period.

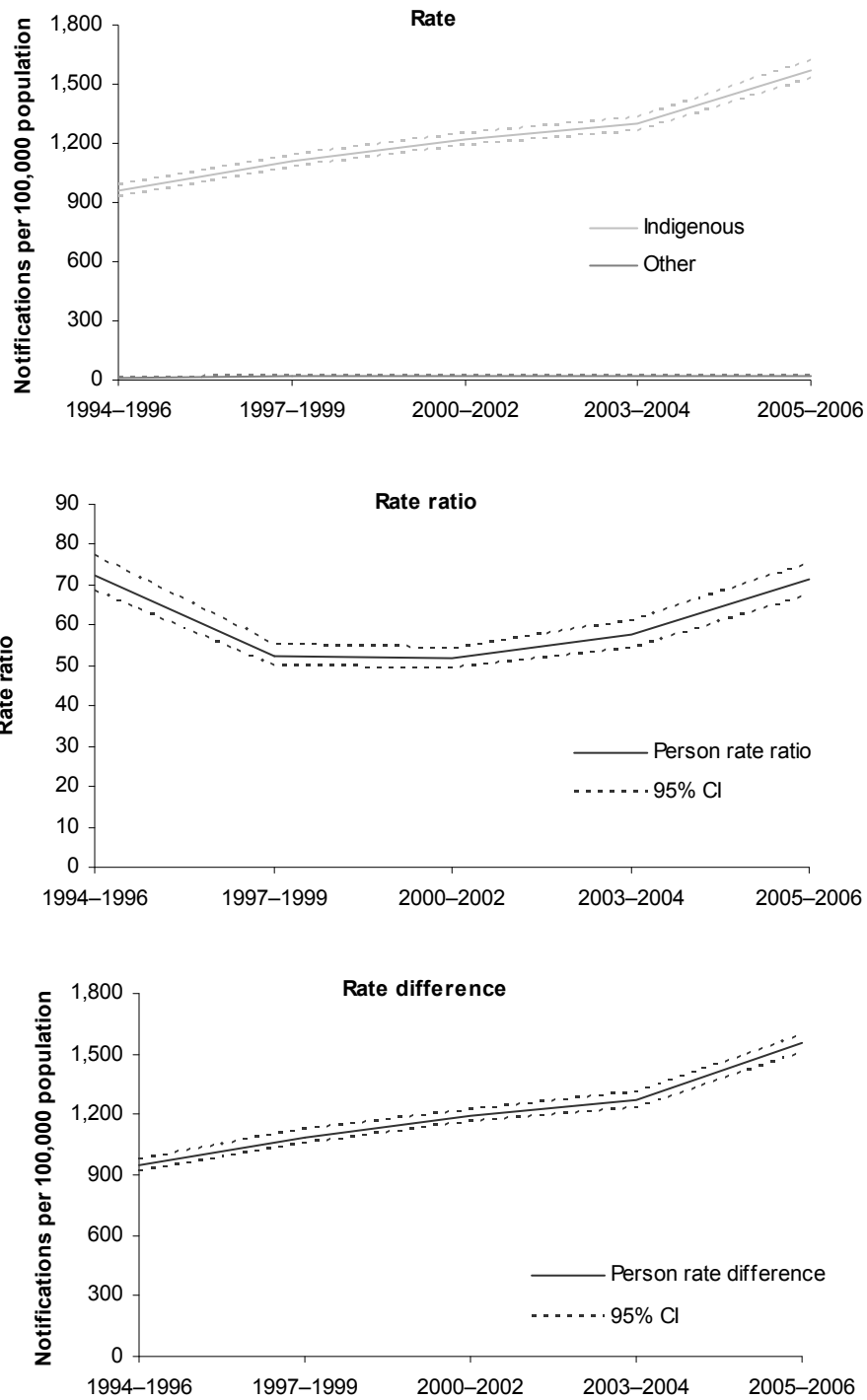
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

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

Source: AIHW analysis of NNDSS data.



Source: AIHW analysis of NNDSS data.

Figure 1.11.3: Age-standardised notification rates, rate ratios and rate differences for gonorrhoea, WA, SA and NT, 1994-1996 to 2005-2006

Hepatitis C (incident)

Time trends data for hepatitis C notifications are presented for the period 1997–1999 to 2005–2006, as complete and consistent data on hepatitis C notifications are not available before 1997 in the three states and territories.

- In Western Australia, South Australia and the Northern Territory combined, there was a significant increase in notification rates for hepatitis C among Indigenous females during the period 1997–1999 to 2005–2006. There was an average yearly increase in the rate of 1.1 per 100,000 which was equivalent to a 63% increase in the rate over the period (Table 1.11.9).
- There were small non-significant increases in the rate of hepatitis C notifications for other Australians over the same period.
- Notification rate ratios between Indigenous and other Australians for hepatitis C showed significant increases for both males and females over the period 1997–1999 to 2005–2006 (an increase of 119% for males and 135% for females). The rate difference between Indigenous and other Australian notifications for hepatitis C showed significant increases for females only.

Table 1.11.9: Crude and age-standardised notification rates, rate ratios and rate differences for hepatitis C (incident), WA, SA and NT, 1997–1999 to 2005–2006

	1997–1999	2000–2002	2003–2004	2005–2006	Annual change ^(a)	% change over period ^(b)
Indigenous crude rate (no. per 100,000)						
Males	16.2	27.5	40.9	22.6	1.5	85.3
Females	13.3	16.6	21.2	19.2	0.9*	62.5
Persons	14.7	22.0	31.0	20.9	1.2	74.8
Indigenous age-standardised rate (no. per 100,000)						
Males	14.1	24.1	35.4	20.8	1.4	91.9
Females	10.6	13.9	19.3	17.9	1.1*	95.6
Persons	12.3	18.9	27.4	19.4	1.3	94.3
Other Australian age-standardised rate (no. per 100,000)^(c)						
Males	5.6	6.3	6.3	4.6	–0.1	–16.9
Females	3.5	4.0	4.2	2.7	–0.1	–17.7
Persons	4.6	5.2	5.3	3.7	–0.1	–17.3
Rate ratio^(d)						
Males	2.5	3.8	5.6	4.5	0.3*	119.2
Females	3.0	3.5	4.6	6.5	0.5*	134.9
Persons	2.7	3.7	5.2	5.3	0.4*	126.2
Rate difference^(e)						
Males	8.5	17.8	29.1	16.2	1.5	164.4
Females	7.1	9.9	15.2	15.2	1.2*	151.5
Persons	7.7	13.7	22.1	15.7	1.4	160.7

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1995–1996 to 2005–2006.

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

(b) Per cent change between 1997–1999 and 2005–2006 based on the annual rate of change over the period.

(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

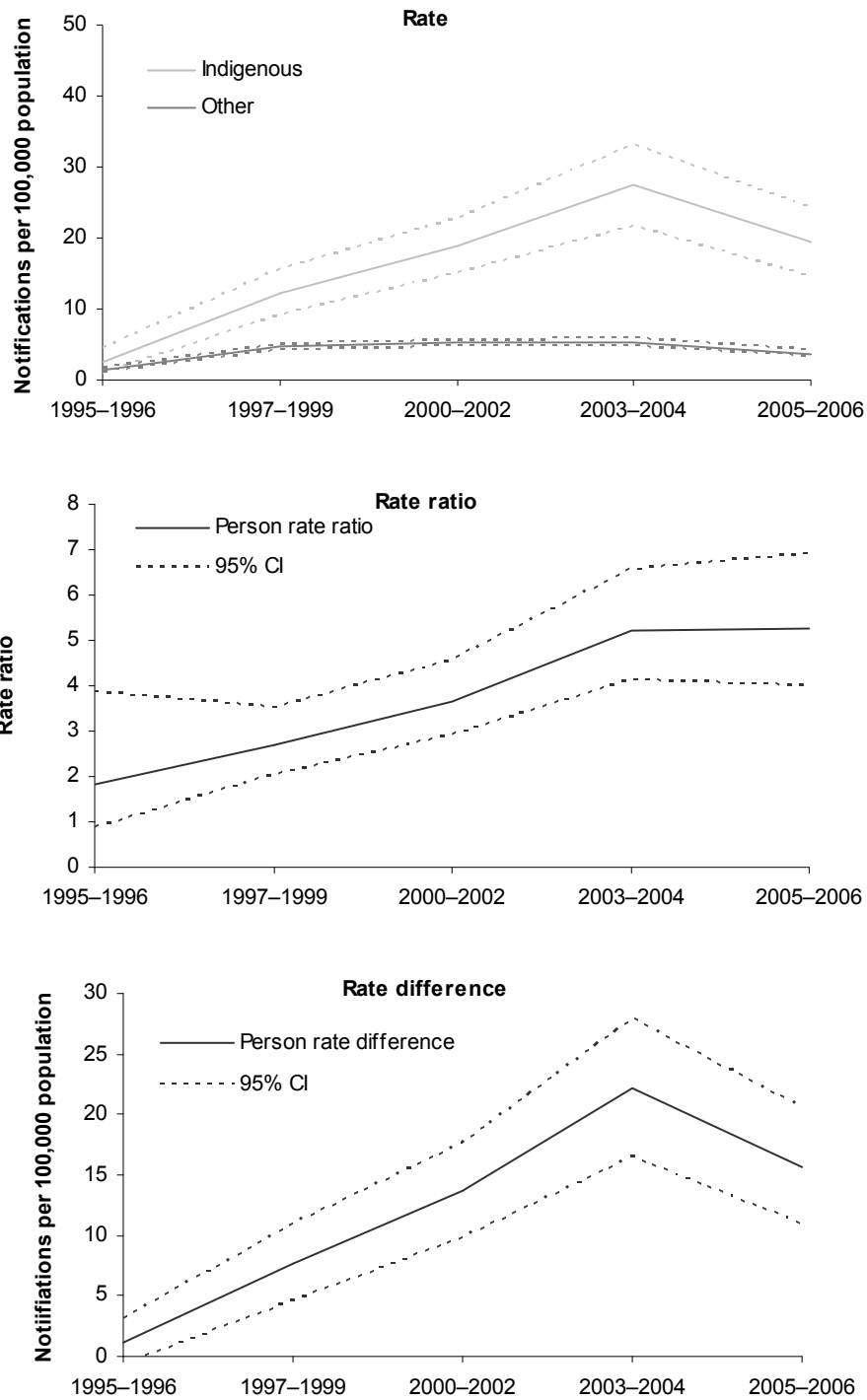
(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Rates differ from those presented in the 2006 edition of this report. This is because both incident and unspecified cases of hepatitis C were presented in the 2006 report whereas only hepatitis C incident cases are presented here.

Source: AIHW analysis of NNDSS data.



Source: AIHW analysis of NNDSS data.

Figure 1.11.4: Age-standardised notification rates, rate ratios and rate differences for hepatitis C (incident), WA, SA and NT, 1995-1996 to 2005-2006

HIV

- There were apparent increases in the rate of HIV notifications among Indigenous Australians over the period 1998–2000 to 2005–2006, but this trend was not significant (Table 1.11.10, Figure 1.11.5).
- Over the same period, there were significant increases in notification rates for HIV among other Australians. The fitted trend implies an average yearly increase in the rate of around 0.2 per 100,000 which is equivalent to a 36% increase in the rate over the period.
- There were no significant changes in the notification rate ratios and rate differences between Indigenous and other Australians for HIV between 1998–2000 and 2005–2006.

Table 1.11.10: Crude and age-standardised notification rates, rate ratios and rate differences for HIV^(a), 1998–2000 to 2005–2006

	1998–2000	2001–2002	2003–2004	2005–2006	Annual change ^(b)	% change over period ^(c)
Indigenous crude rate (no. per 100,000)	2.6	4.4	4.4	3.8	0.2	55.1
Indigenous age-standardised rate (no. per 100,000)	3.0	4.9	4.7	4.0	0.2	40.7
Other Australian age-standardised rate (no. per 100,000) ^(d)	3.8	4.2	4.5	4.9	0.2*	35.8
Rate ratio ^(e)	0.8	1.2	1.1	0.8	0.0	2.8
Rate difference ^(f)	–0.8	0.7	0.3	–0.9	0.0	17.3

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–2000 to 2005–2006.

(a) Data exclude cases diagnosed in the Australian Capital Territory.

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

(c) Per cent change between 1998–2000 and 2005–2006 based on the annual rate of change over the period.

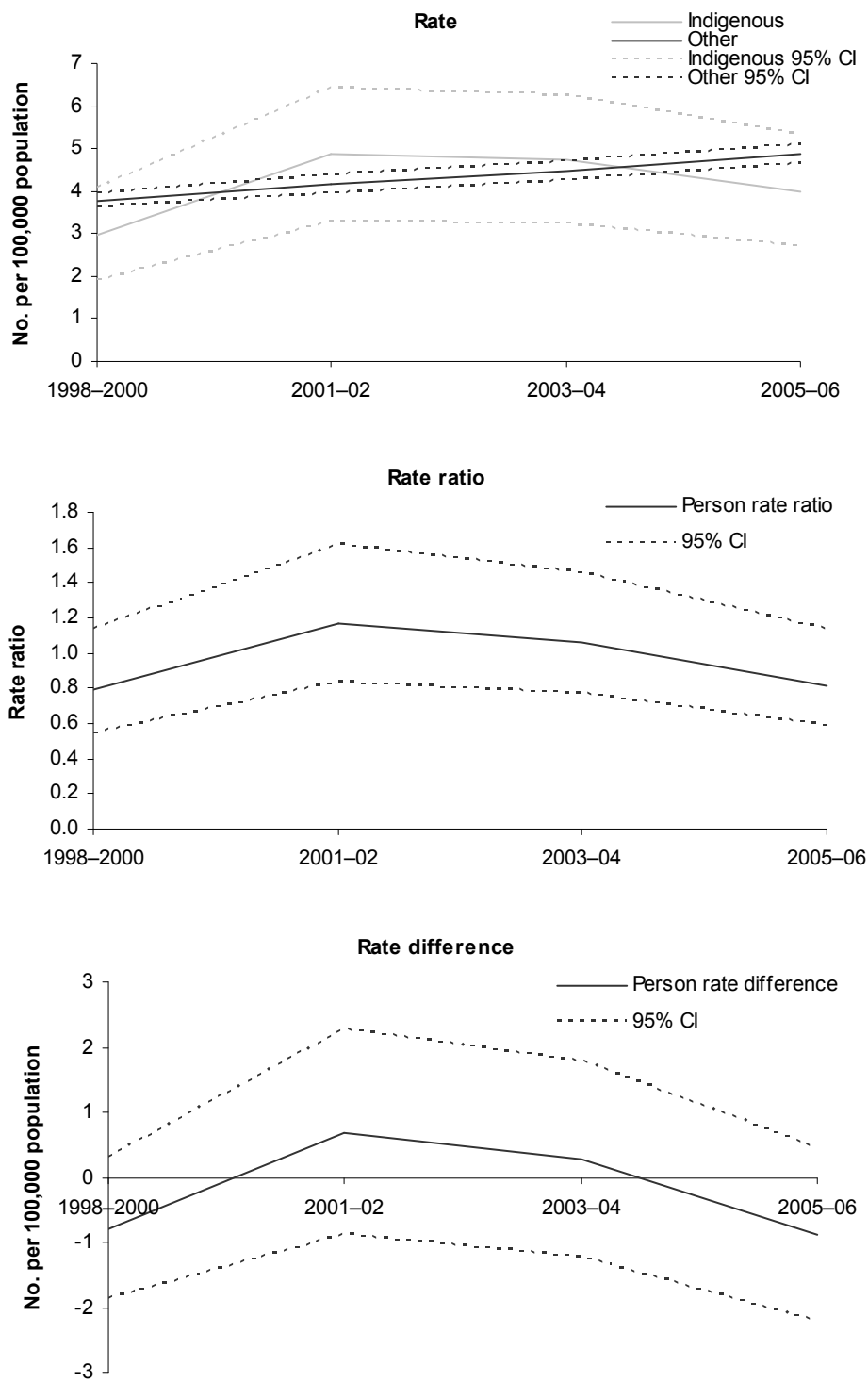
(d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(e) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(f) Notification rate for Indigenous Australians minus the notification rate for other Australians.

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

Source: AIHW analysis of NCHECR data.



Source: AIHW analysis of NCHECR data.

Figure 1.11.5: Age-standardised notification rates, rate ratios and rate differences for HIV, 1998-2000 to 2005-2006

AIDS

- There were no significant change in the rate of AIDS notifications among Indigenous Australians over the period 1998–2000 to 2005–2006 (Table 1.11.11, Figure 1.11.6).
- Over the period 1998–2000 to 2005–2006, there were significant declines in notification rates for AIDS among other Australians. The fitted trend implies an average yearly decline in the rate of around 0.1 per 100,000 which is equivalent to a 32% decline in the rate over the period.
- There were non significant increases in both notification rate ratios and rate differences between Indigenous and other Australians for AIDS between 1998–2000 and 2005–2006.

Table 1.11.11: Crude and age-standardised notification rates, rate ratios and rate differences for AIDS^(a), 1998–2000 to 2005–2006

	1998–2000	2001–2002	2003–2004	2005–2006	Annual change ^(b)	% change over period ^(c)
Indigenous crude rate (no. per 100,000)	1.4	1.4	2.5	1.0	0.0	–2.8
Indigenous age-standardised rate (no. per 100,000)	1.7	1.9	3.2	1.2	0.0	–1.5
Other Australian age-standardised rate (no. per 100,000) ^(d)	1.4	1.2	1.0	1.0	–0.1*	–32.0
Rate ratio ^(e)	1.2	1.6	3.0	1.1	0.1	41.6
Rate difference ^(f)	0.3	0.7	2.1	0.1	0.1	148.4

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–2000 to 2005–2006.

(a) Excludes cases diagnosed in the Australian Capital Territory.

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

(c) Per cent change between 1998–2000 and 2005–2006 based on the annual rate of change over the period.

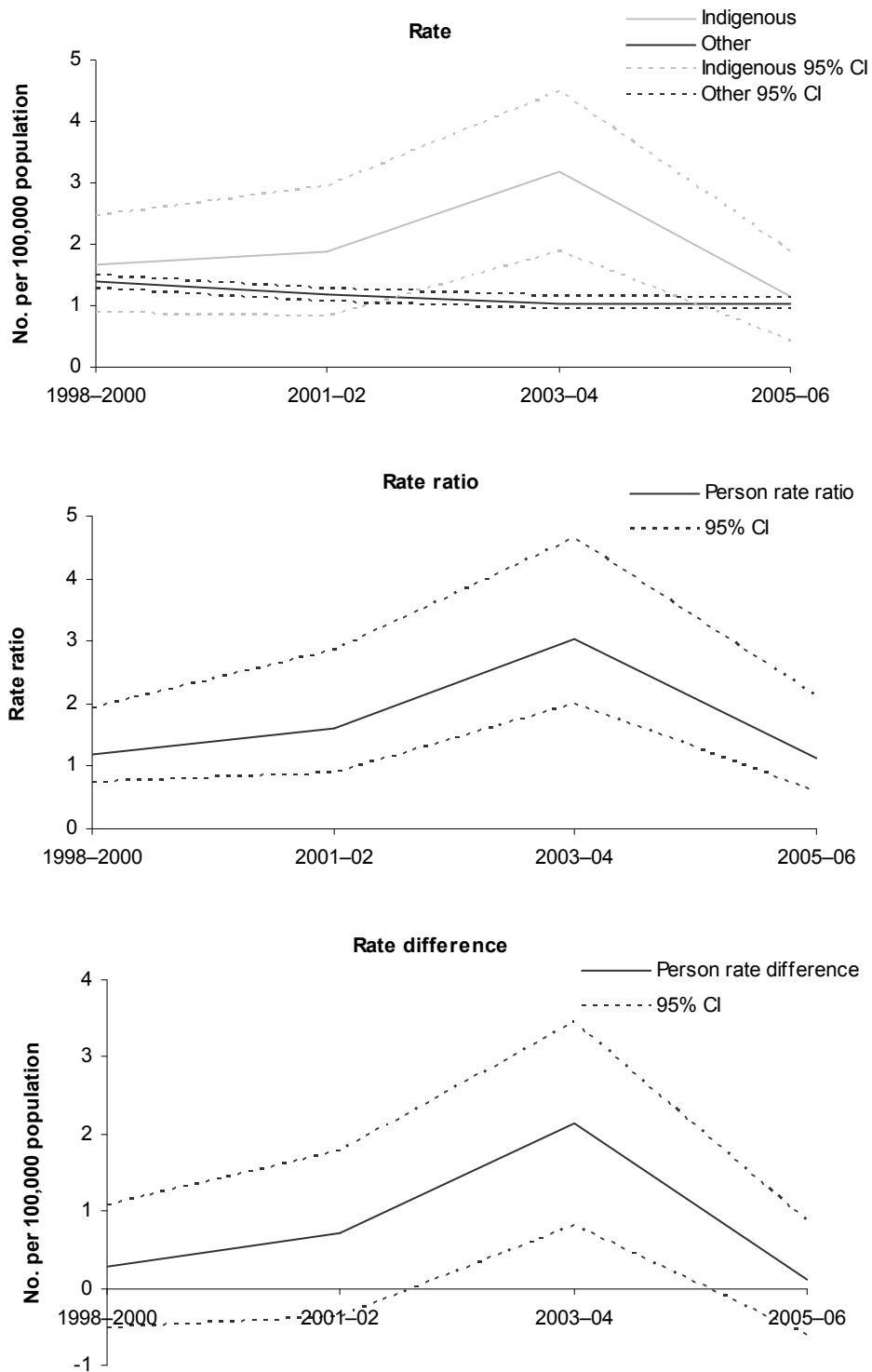
(d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(e) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(f) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

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

Source: AIHW analysis of NCHECR data.



Source: AIHW analysis of NCHECR data.

Figure 1.11.6: Age-standardised notification rates, rate ratios and rate differences for AIDS, 1998-2000 to 2005-2006

Sensitivity of trends in notifications 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 notifications for chlamydia, syphilis, gonorrhoea and hepatitis C for the period under study were adjusted using the following identification factors based on an assessment of Indigenous identification by the NNDSS in 2004:
 - Western Australia 64%
 - South Australia 89%
 - Northern Territory 92%.
 - The number of HIV/AIDS notifications for the period under study was adjusted using an 85% identification factor for Australia.
 - Under the increasing identification scenario, chlamydia, syphilis, gonorrhoea and hepatitis C notifications were adjusted by linearly increasing the identification through the period under study – from 54% in 1994 to 66% in 2006 for Western Australia, from 82% to 90% for South Australia, and from 87% to 93% for the Northern Territory. HIV/AIDS notifications were adjusted by linearly increasing the identification from 77% in 1998 to 85% in 2006.
 - Under the decreasing identification scenario, chlamydia, syphilis, gonorrhoea and hepatitis C notifications were adjusted by linearly decreasing the identification from 74% in 1994 to 62% in 2006 for Western Australia, from 96% to 88% for South Australia, and from 97% to 91% for the Northern Territory. HIV/AIDS notifications were adjusted by linearly decreasing the identification from 93% in 1998 to 85% in 2006.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in notifications might not persist.
- Of the aforementioned trends observed for chlamydia notifications, all remained statistically significant under all three identification scenarios.
- Of the aforementioned trends observed for syphilis notifications, the increase in rates for other Australian males and all persons only remained significant under the increasing identification scenario. The decline in rate ratios for males and all persons did not remain statistically significant under any identification scenario.
- Of the aforementioned trends observed for gonorrhoea notifications, all remained statistically significant under all three identification scenarios.
- The observed trends in hepatitis C notifications all remained significant under all three identification scenarios.
- The observed trends in HIV notifications remained statistically significant under all three identification scenarios.
- The observed trends in AIDS notifications remained statistically significant under all three identification scenarios.

Data quality issues

Notification data

Notifications

Notification statistics do not measure the incidence or prevalence of these infections in the community. Under-reporting of these infections can occur at a number of stages:

- *a person infected may not feel ill*
- *a person may not seek medical care*
- *a false negative result may occur*
- *there may be a positive test result but for some reason a notification may not occur*
- *the case may not be reported to the NNDSS.*

The level of under-reporting can vary by disease, jurisdiction and time. The method of surveillance can vary between jurisdictions with different requirements for notification by medical practitioners, laboratories and hospitals. The case definitions for surveillance also vary among jurisdictions. These can also change over time.

Notification statistics can provide insights into the health of the population which has been diagnosed with a notifiable illness and changes over time.

Indigenous status question

In the NNDSS, New South Wales, Queensland and Tasmania use the standard ABS question of Indigenous status. Other states and territories can provide data for the categories 'Indigenous', 'non-Indigenous' and 'not stated' but do not identify Torres Strait Islanders separately (AIHW & ABS 2006).

Under-identification

The incompleteness of Indigenous identification means the number of notifications recorded as Indigenous is an underestimate of Aboriginal and Torres Strait Islander notifications rates. In 2003, Indigenous status was reported for only 43% of sexually transmissible infections notifications nationally (DoHA 2005).

The accuracy of Indigenous identification in notifiable disease registries varies between the states and territories. Jurisdictional comparisons must be undertaken with care and it is not possible to provide reliable measures of change over time for most of these measures (SIMC 2004).

The identification of Indigenous notifications is incomplete in all states and territories, but three jurisdictions (Western Australia, South Australia and the Northern Territory) have been assessed as having adequate identification in 2001–2002 in the NNDSS. Data on Indigenous status for certain notifiable diseases are not available for the Australian Capital Territory, New South Wales or Tasmania. For HIV/AIDS the recording of Indigenous status in the NCHECR data is considered reliable (SIMC 2004).

(continued)

Data quality issues (continued)

Numerator and denominator

Rate and ratio calculations rely on good population estimates. The changes in the completeness of identification of Indigenous people in notification records may take place at different rates from changes in the identification of Indigenous people in the population estimates. Denominators used here are sourced from Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009 (ABS 2004).

References

- ABS (Australian Bureau of Statistics) 2004. Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009. ABS cat. no. 3238.0. Canberra: ABS.
- ABS & AIHW (Australian Institute of Health and Welfare) 2006. Recent developments in the collection of Aboriginal and Torres Strait Islander health and welfare statistics 2005. ABS cat. no. 4704.0.55.001, AIHW cat. no. IHW 15. Canberra: AIHW & ABS.
- DoHA (Department of Health and Ageing) 2005. Communicable disease intelligence, quarterly report, vol. 29, no. 1. Canberra: DoHA.
- SIMC (Statistical Information Management Committee) 2004. National summary of the 2001 and 2002 jurisdictional reports against the Aboriginal and Torres Strait Islander health performance indicators. AIHW cat. no. IHW 12. Canberra: AIHW.