

1.11 HIV/AIDS, hepatitis C and sexually transmissible infections

The rate of notified sexually transmissible infections 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 (NNDSS) 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.

While identification of Indigenous notifications in all states and territories is incomplete, 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 three-year period 2002–2004 as notifications of some diseases are too small to present for a single year.

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.

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 due to small numbers but are described in the text below.

- For the three-year period 2002–2004 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 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 6–9 times higher than rates for other males and females; syphilis notification rates were 71–176 times higher; gonorrhoea notification rates were 36–104 times higher and hepatitis C notification rates were 3–7 times higher than for other males and females of the same age.
- Age-specific rate ratios for the four diseases were generally 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, 35–44 and 45–54 years, 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 2002–2004, 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 2002 and 2004, notification rates for AIDS were higher among Indigenous males than other males in the 25–34, 35–44 and 45–54 year age groups (rate ratios of around 2) and seven times higher in the 15–24 year age group. Indigenous females had higher notification rates than other females for AIDS in the 15–24 and 35–44 year age groups (ratios of 30 and 14 respectively) (Table 1.11.2).
- For both HIV and AIDS, notification rates were highest among those aged 25–34 and 35–44 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, 2002–2004^{(a)(b)(c)}

	Males			Females			Persons		
	Indigenous	Other ^(d)	Rate ratio ^(e)	Indigenous	Other ^(d)	Rate ratio ^(e)	Indigenous	Other ^(d)	Rate ratio ^(e)
Chlamydia									
0–14	47.3	1.4	33.4*	320.9	10.8	29.6*	180.0	8.5	21.2*
15–24	2,756.8	442.6	6.2*	5,764.0	957.4	6.0*	4,243.5	693.2	6.1*
25–34	1,742.1	297.0	5.9*	2,261.9	262.1	8.6*	2,005.1	279.8	7.2*
35–44	765.8	80.4	9.5*	850.9	51.6	16.5*	810.1	66.1	12.3*
45–54	364.6	36.6	10.0*	261.1	12.4	21.1*	310.6	24.6	12.6*
55–64	57.0	15.6	3.7*	40.5	5.4	7.6*	48.3	10.6	4.6*
65+	17.7	3.8	4.7*	65.1	1.3	49.1*	45.0	2.4	18.8*
Syphilis									
0–14	6.9	0.0	—	39.2	0.0	197.3*	22.6	0.2	113.0*
15–24	563.5	6.7	83.7*	714.4	0.2	175.7*	638.1	5.4	118.2*
25–34	453.2	6.4	70.5*	381.4	4.1	93.7*	416.8	5.3	78.6*
35–44	318.5	8.6	37.1*	267.2	4.1	118.7*	291.8	5.4	54.0*
45–54	307.7	5.7	54.2*	182.8	2.2	158.5*	242.5	3.4	71.3*
55–64	342.2	4.1	82.6*	192.2	1.2	222.5*	262.7	2.5	105.1*
65+	335.7	2.6	127.5*	338.3	0.9	425.6*	337.2	1.6	210.8*
Gonorrhoea									
0–14	84.2	0.8	111.4*	204.5	3.6	57.2*	142.6	3.8	37.5*
15–24	3,947.0	70.1	56.3*	4,121.6	66.2	62.2*	4,065.2	68.3	59.5*
25–34	2,558.9	72.0	35.5*	2,351.9	22.6	104.2*	2,493.0	47.6	52.4*
35–44	1,352.7	44.3	30.5*	1,048.8	10.0	104.9*	1,225.5	27.2	45.1*
45–54	478.6	29.9	16.0*	360.3	2.2	166.7*	425.0	16.2	26.2*
55–64	251.0	13.3	18.9*	182.1	1.0	175.7*	230.6	7.3	31.6*
65+	123.7	4.0	31.3*	65.1	0.1	491.1*	89.9	1.8	49.9*
Hepatitis C									
0–14	1.2	0.1	12.2*	0.0	0.0	—	0.6	0.0	—
15–24	69.6	16.2	4.3*	42.3	13.2	3.2*	56.1	14.8	3.8*
25–34	124.8	17.7	7.0*	45.0	9.3	4.8*	84.4	13.6	6.2*
35–44	17.9	5.5	3.3*	16.5	3.5	4.7*	17.2	4.5	3.8*
45–54	17.1	1.7	10.0*	10.4	1.4	7.2*	13.6	1.6	8.5*
55–64	0.0	0.2	—	0.0	0.2	—	0.0	0.2	—
65+	0.0	—	—	0.0	0.1	—	0.0	0.1	—

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

(a) Calender year reporting. Data are presented in three-year groupings due to 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 this 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.

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, 2002–2004^{(a)(b)}

	Males			Females			Persons		
	Indigenous	Other ^(c)	Rate ratio ^(d)	Indigenous	Other ^(c)	Rate ratio ^(d)	Indigenous	Other ^(c)	Rate ratio ^(d)
HIV									
0–14	—	0.9	—	—	0.1	—	0.0	0.1	—
15–24	4.4	4.8	0.9	3.7	1.4	2.7*	4.0	3.1	1.3
25–34	17.1	18.1	0.9	6.2	2.5	2.4*	11.4	10.4	1.1
35–44	16.6	17.7	0.9	9.7	1.3	7.7*	13.0	9.5	1.4
45–54	10.7	9.1	1.2	5.1	0.6	7.9*	7.8	4.9	1.6
55–64	3.5	4.3	0.8	—	0.5	—	1.7	2.5	0.7
65+	—	1.3	—	—	0.1	—	—	0.7	—
AIDS									
0–14	—	—	—	—	—	—	—	—	—
15–24	0.7	0.1	7.3	0.7	—	28.9*	0.7	0.1	11.6*
25–34	6.7	2.7	2.4*	—	0.4	—	3.2	1.6	2.0
35–44	11.9	5.1	2.3*	4.3	0.3	14.4*	7.9	2.7	2.9*
45–54	9.0	3.6	2.5*	1.7	0.2	7.0	5.2	2.0	2.7*
55–64	3.5	2.0	1.8	—	0.1	—	1.7	1.1	1.6
65+	—	0.7	—	—	—	—	—	0.3	—

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

(a) Calender year reporting. Data are presented in three-year groupings due to small numbers each year.

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

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

(d) 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 2002–2004 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 are presented in Table 1.11.4.

Chlamydia

- For the period 2002–2004, there were 22,151 notifications for chlamydia in Western Australia, South Australia and the Northern Territory, 28% of which were notifications of Aboriginal and Torres Strait Islander peoples. In the Northern Territory, 64% of notifications for chlamydia were among Indigenous people. In Western Australia and South Australia, 24% and 9% 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 seven and eight times those of other males and females respectively.

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

Syphilis

- For the period 2002–2004, there were 1,635 notifications for syphilis in Western Australia, South Australia and the Northern Territory, 79% of which were notifications of Aboriginal and Torres Strait Islander peoples. In the Northern Territory, 87% of notifications for syphilis were among Indigenous people. In Western Australia and South Australia, 66% and 57% 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 67 and 157 times the rates for other males and females.
- Rates of syphilis among Indigenous Australians were markedly higher than among other Australians in Western Australia and South Australia (72 and 62 times higher respectively).

Gonorrhoea

- For the period 2002–2004, there were 9,288 notifications for gonorrhoea in Western Australia, South Australia and the Northern Territory combined, 72% of which were notifications of Aboriginal and Torres Strait Islander people. In the Northern Territory, 81% of notifications for gonorrhoea were among Indigenous people. In Western Australia and South Australia, 70% and 46% 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 38 and 81 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 (77 and 198 times as high respectively).

Hepatitis C (incident)

- For the period 2002–2004, there were 646 notifications for hepatitis C (incident) in Western Australia, South Australia and the Northern Territory, 20% 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 four 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 eight and five times those of other males and females respectively. In South Australia, the rates among Indigenous males and females were 12 and nine times those of other males and females respectively.

Donovanosis

- For the period 2002–2004, there were 42 notifications for donovanosis in Australia, 98% (41) 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 due to the small numbers of notifications.

HIV

- Over the period 2002–2004, there were 2,615 HIV notifications in Australia, 2.6% 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 2002–04. HIV notification rates for Indigenous females were around four 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 were around four times as likely to contract HIV as other males, and Indigenous females in Western Australia were approximately 30 times as likely to contract HIV as other females.

AIDS

- Over the period 2002–2004, there were 649 cases of AIDS in Australia, 4.6% of which were notifications of Indigenous Australians.
- After adjusting for differences in age structure, notification rates for AIDS were higher among Indigenous males and females than among other males and females. Indigenous males were twice as likely to contract AIDS as other males, and Indigenous females were almost six times as likely to contract AIDS as other females.
- 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 two and three 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, Qld, WA, SA and NT, 2002–2004^(a)

	No.	Proportion (%)		Males			Females			Persons		
		Indig.	Other ^(c)	Rate per 100,000 ^(b)		Ratio ^(d)	Rate per 100,000 ^(b)		Ratio ^(d)	Rate per 100,000 ^(b)		Ratio ^(d)
				Indig.	Other ^(c)		Indig.	Other ^(c)		Indig.	Other ^(c)	
Chlamydia												
WA	11,221	23.9	76.1	801.4	123.4	6.5*	1,271.8	175.6	7.2*	1,035.2	149.7	6.9*
SA	6,219	9.2	90.8	438.1	105.1	4.2*	742.9	162.7	4.6*	587.8	133.0	4.4*
NT	4,711	63.9	36.1	995.7	287.1	3.5*	1,726.8	459.7	3.8*	1,354.3	366.4	3.7*
WA, SA & NT^(e)	22,151	28.3	71.7	816.2	123.3	6.6*	1,357.3	181.9	7.5*	1,083.7	152.2	7.1*
Syphilis												
WA	554	65.5	34.5	272.1	4.8	56.3*	216.9	1.8	123.4*	242.6	3.4	72.4*
SA	76	56.6	43.4	41.2	1.1	37.7*	52.6	0.4	125.5*	46.9	0.8	62.4*
NT	1,005	87.4	12.6	471.3	35.2	13.4*	488.6	19.0	25.7*	480.0	27.7	17.3*
WA, SA & NT^(e)	1,635	78.5	21.5	313.8	4.7	67.0*	294.2	1.9	157.0*	303.2	3.3	91.5*
Gonorrhoea												
WA	4,278	69.7	30.3	1,262.2	29.6	42.7*	1,140.6	14.8	77.2*	1,197.3	22.8	52.4*
SA	882	46.1	53.9	437.4	19.5	22.4*	452.9	2.3	198.4*	441.5	11.0	40.2*
NT	4,128	80.8	19.2	1,566.7	193.0	8.1*	1,639.5	146.9	11.2*	1,601.8	173.3	9.2*
WA, SA & NT^(e)	9,288	72.4	27.6	1,241.1	32.9	37.7*	1,219.8	15.1	81.0*	1,228.0	24.4	50.3*
Hepatitis C												
WA	460	21.3	78.7	59.3	7.8	7.6*	26.6	4.9	5.4*	42.8	6.4	6.7*
SA	184	17.4	82.6	47.6	4.1	11.7*	28.2	3.0	9.3*	37.8	3.6	10.6*
NT	n.p.	0.0	100.0	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
WA, SA & NT^(e)	646	20.1	79.9	33.4	5.9	5.6*	16.4	3.9	4.2*	24.8	4.9	5.0*

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

- (a) Calender year reporting. Data are presented in three-year groupings due to 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) 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 this 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, 2002–2004^(a)

	No.	Proportion (%)		Males			Females			Persons		
		Indig.	Other ^(c)	Rate per 100,000 ^(b)			Rate per 100,000 ^(b)			Rate per 100,000 ^(b)		
				Indig.	Other ^(c)	Ratio ^(d)	Indig.	Other ^(c)	Ratio ^(d)	Indig.	Other ^(c)	Ratio ^(d)
HIV												
NSW	1,241	1.2	98.8	6.6	11.3	0.6*	n.p.	1.2	n.p.	4.0	6.3	0.6*
Vic	638	1.4	98.6	17.5	7.8	2.2*	n.p.	0.8	n.p.	10.4	4.3	2.4*
Qld	414	3.9	96.1	8.7	6.4	1.4*	n.p.	0.9	n.p.	5.2	3.6	1.4*
WA	149	12.8	87.2	21.3	4.8	4.4*	28.5	0.9	30.1*	25.2	2.9	8.7*
SA	125	4.8	95.2	n.p.	3.8	n.p.	n.p.	0.4	n.p.	3.3	2.1	1.6*
Tas	10	0.0	100.0	n.p.	1.1	n.p.	n.p.	n.p.	n.p.	n.p.	0.8	n.p.
ACT	17	0.0	100.0	n.p.	5.9	n.p.	n.p.	n.p.	n.p.	n.p.	3.7	n.p.
NT	21	19.0	81.0	n.p.	2.4	n.p.	n.p.	1.2	n.p.	n.p.	1.8	n.p.
Aust.	2,615	2.6	97.4	7.4	7.8	0.9*	3.5	0.9	3.8*	5.4	4.4	1.2*
AIDS												
NSW	337	3.6	96.4	7.4	3.1	2.4*	n.p.	0.2	n.p.	3.6	1.7	2.1*
Vic	131	0.8	99.2	n.p.	1.7	n.p.	n.p.	0.2	n.p.	n.p.	0.9	n.p.
Qld	103	8.7	91.3	5.0	1.5	3.3*	n.p.	0.2	n.p.	3.0	0.9	3.5*
WA	33	12.1	87.9	n.p.	1.2	n.p.	n.p.	n.p.	n.p.	n.p.	0.6	n.p.
SA	28	7.1	82.9	n.p.	0.7	n.p.	n.p.	n.p.	n.p.	n.p.	0.4	n.p.
Tas	n.p.	0.0	100.0	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
ACT	7	0.0	100.0	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
NT	6	33.3	65.7	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	0.5	n.p.
Aust.	649	4.6	95.4	4.4	2.0	2.2*	1.0	0.2	6.1*	2.6	1.1	2.5*

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

(a) Calender year reporting. Data are presented in three-year groupings due to 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.

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 2002–2004.

- For the period 2002–2004, the most common method of contracting HIV among Indigenous Australians was heterosexual contact (44%), followed by male homosexual/bisexual contact (32%) and heterosexual contact and injecting drug use (16%). For other Australians, the most common method of HIV contraction was male homosexual/bisexual contact (66%), followed by heterosexual contact (12%) and male homosexual/bisexual contact and injecting drug use (4%).
- Over the same period, the most common method of contracting AIDS among Indigenous Australians was male homosexual/bisexual contact (57%), followed by heterosexual contact (26.7%). These were also the most common ways of contracting AIDS among other Australians (64% and 13% respectively).
- Indigenous Australians were five times as likely to contract HIV through heterosexual contact and 11 times as likely to contract HIV through heterosexual contact and 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 twice as likely to contract AIDS through male homosexual/bisexual contact and five times as likely to contract AIDS through heterosexual contact as other Australians.

Table 1.11.5: Exposure categories for HIV/AIDS, by Indigenous status, 2002–2004^(a)

Exposure category	Number		Per cent		Rate per 100,000 ^(b)		Ratio ^(d)
	Indigenous	Other ^(c)	Indigenous	Other ^(c)	Indigenous	Other ^(c)	
HIV							
Male homosexual/bisexual contact	22	1,677	31.9	65.9	1.7	2.9	0.6*
Male homosexual/bisexual contact and injecting drug use	n.p.	95	5.8	3.7	n.p.	0.2	n.p.
Heterosexual contact	30	293	43.5	11.5	2.5	0.5	5.0*
Heterosexual contact and injecting drug use	11	40	15.9	1.6	0.7	0.1	10.5*
Injecting drug use	0	31	0.0	1.2	—	0.1	—
Mother with/at risk of HIV infection	0	5	0.0	0.2	—	—	—
Other ^(e)	n.p.	194	0.0	7.6	n.p.	0.3	n.p.
Total^(f)	69	2,546	100.0	100.0	5.4	4.4	1.2*
AIDS							
Male homosexual/bisexual contact	17	393	56.7	63.5	1.5	0.7	2.2*
Male homosexual/bisexual contact and injecting drug use	n.p.	41	6.7	6.6	n.p.	0.1	n.p.
Heterosexual contact	8	78	26.7	12.6	0.7	0.1	5.1*
Heterosexual contact and injecting drug use	n.p.	15	6.7	2.4	n.p.	—	n.p.
Injecting drug use	n.p.	15	3.3	2.4	n.p.	—	n.p.
Other ^(e)	0	62	0.0	10.0	—	0.1	—
Total^(f)	30	619	100.0	100.0	2.6	1.1	2.5*

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

(a) Calendar year reporting. Data are presented in three-year groupings due to small numbers each year.

(b) Directly age standardised using the 2001 Australian 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) Includes: person from high HIV prevalence country, no sexual contact, sexual exposure not known, haemophilia/coagulation disorder and blood transfusion, blood products or tissue.

(f) Includes exposure category not stated.

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 2003–2004, and hepatitis C for the period 1995–1996 to 2003–2004, are presented in the tables and figures below. HIV and AIDS notifications for the period 1994–1996 to 2003–2004 are also presented here. Data are presented in two- to three-year groupings due to 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 2003–2004. The fitted trend line shows an average yearly increase in the rate of around 78 per 100,000 (Table 1.11.6, Figure 1.11.1). Significant increases in rates for chlamydia were evident for both Indigenous males and females.
- There were also significant increases in notification rates for syphilis among other Australian males and females during the same period.
- Notification rate ratios between Indigenous and other Australians for syphilis showed significant declines over the 10-year period. The fitted trend line showed an average yearly decline in the ratio of around 0.3.
- Although rate ratios showed declines over the period, the difference in notification rates between Indigenous and other Australians increased for both males and females, obtaining statistical significance.

Table 1.11.6: Age-standardised notification rates, rate ratios and rate differences for chlamydia, WA, SA and NT, 1994–1996 to 2003–2004.

	1994–1996	1997–1999	2000–2002	2003–2004	Annual change ^(a)
Indigenous rate per 100,000					
Males	347.9	488.8	656.7	903.5	63.9*
Females	648.0	818.5	1,126.4	1,430.4	92.7*
Persons	497.6	651.9	890.1	1,162.0	77.8*
Other Australian rate per 100,000^(b)					
Males	35.9	58.3	91.1	131.8	11.2*
Females	63.0	84.4	129.1	188.8	14.9*
Persons	50.2	72.2	111.0	161.6	13.0*
Rate ratio^(c)					
Males	9.7	8.4	7.2	6.9	-0.3*
Females	12.9	11.3	10.1	8.9	-0.5*
Persons	9.9	9.0	8.0	7.2	-0.3*
Rate difference^(d)					
Males	311.9	430.5	565.6	771.7	52.7*
Females	597.8	746.3	1,014.4	1,268.8	79.7*
Persons	447.4	579.7	779.1	1,000.3	64.8*

* Represents results with statistically significant increases or declines at the $p < .05$ level over the period 1994–1996 to 2003–2004.

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

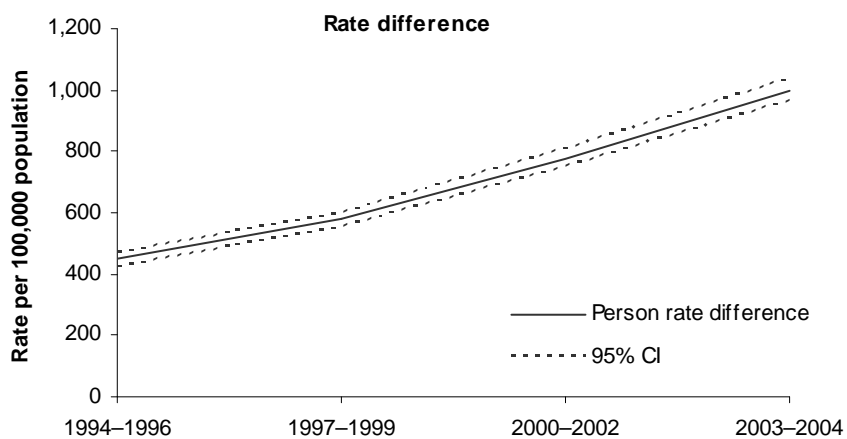
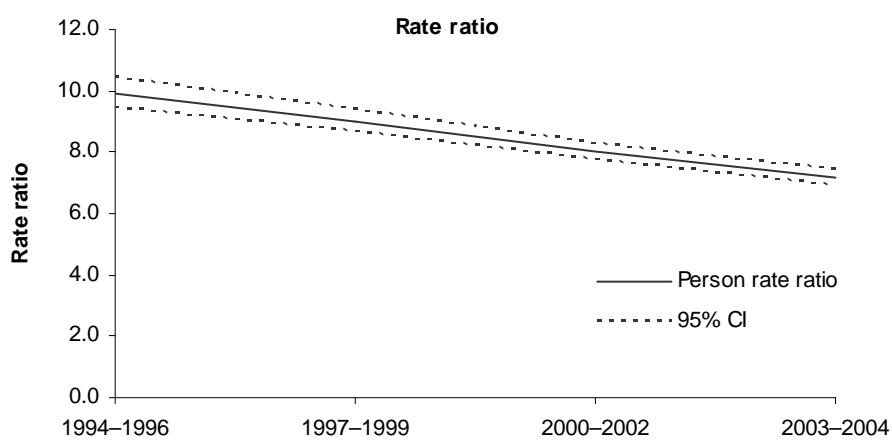
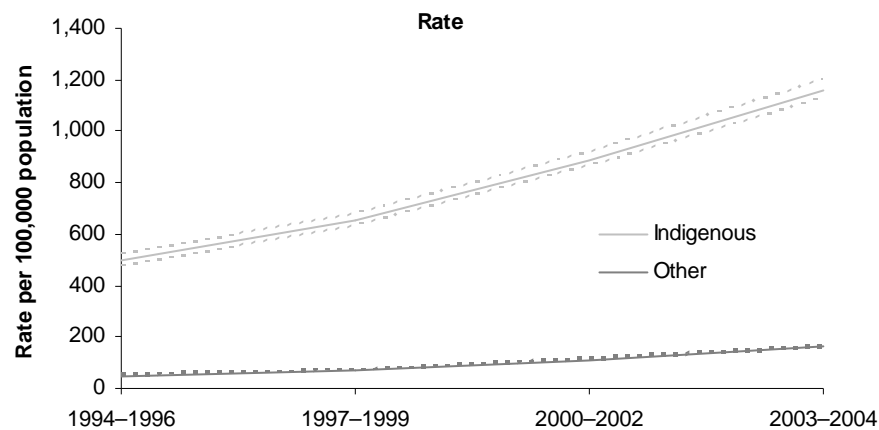
(b) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

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

(d) 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 2003-2004

Syphilis

- In Western Australia, South Australia and the Northern Territory combined, there were apparent increases in notification rates for syphilis among Indigenous males and females during the period 1994–1996 to 2003–2004, however these increases were not statistically significant (Table 1.11.7, Figure 1.11.2).
- 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.
- Notification rate ratios between Indigenous and other Australians for syphilis showed declines over the 10-year period, however, statistical significance was only obtained for males.
- There was little change in the notification rate differences between Indigenous and other Australians for syphilis over the period 1994–1996 to 2003–2004.

Table 1.11.7: Age-standardised notification rates, rate ratios and rate differences for syphilis, WA, SA and NT, 1994–1996 to 2003–2004

	1994–1996	1997–1999	2000–2002	2003–2004	Annual change ^(a)
Indigenous rate per 100,000					
Males	326.4	285.1	336.4	309.7	0.1
Females	294.4	230.2	288.8	275.7	0.1
Persons	308.6	255.6	311.5	290.9	0.1
Other Australian rate per 100,000^(b)					
Males	2.7	3.8	4.8	4.3	0.2*
Females	2.0	1.5	2.2	1.7	0.0
Persons	2.3	2.7	3.5	3.0	0.1
Rate ratio^(c)					
Males	121.9	75.7	69.5	71.3	-5.7*
Females	126.5	86.5	80.3	91.7	-4.0
Persons	132.7	96.0	87.8	96.7	-4.2
Rate difference^(d)					
Males	323.7	281.3	331.6	305.3	-0.1
Females	292.0	227.6	285.2	272.7	-0.1
Persons	306.3	252.9	308.0	287.9	0.0

* Represents results with statistically significant increases or declines at the $p < .05$ level over the period 1994–1996 to 2003–2004.

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

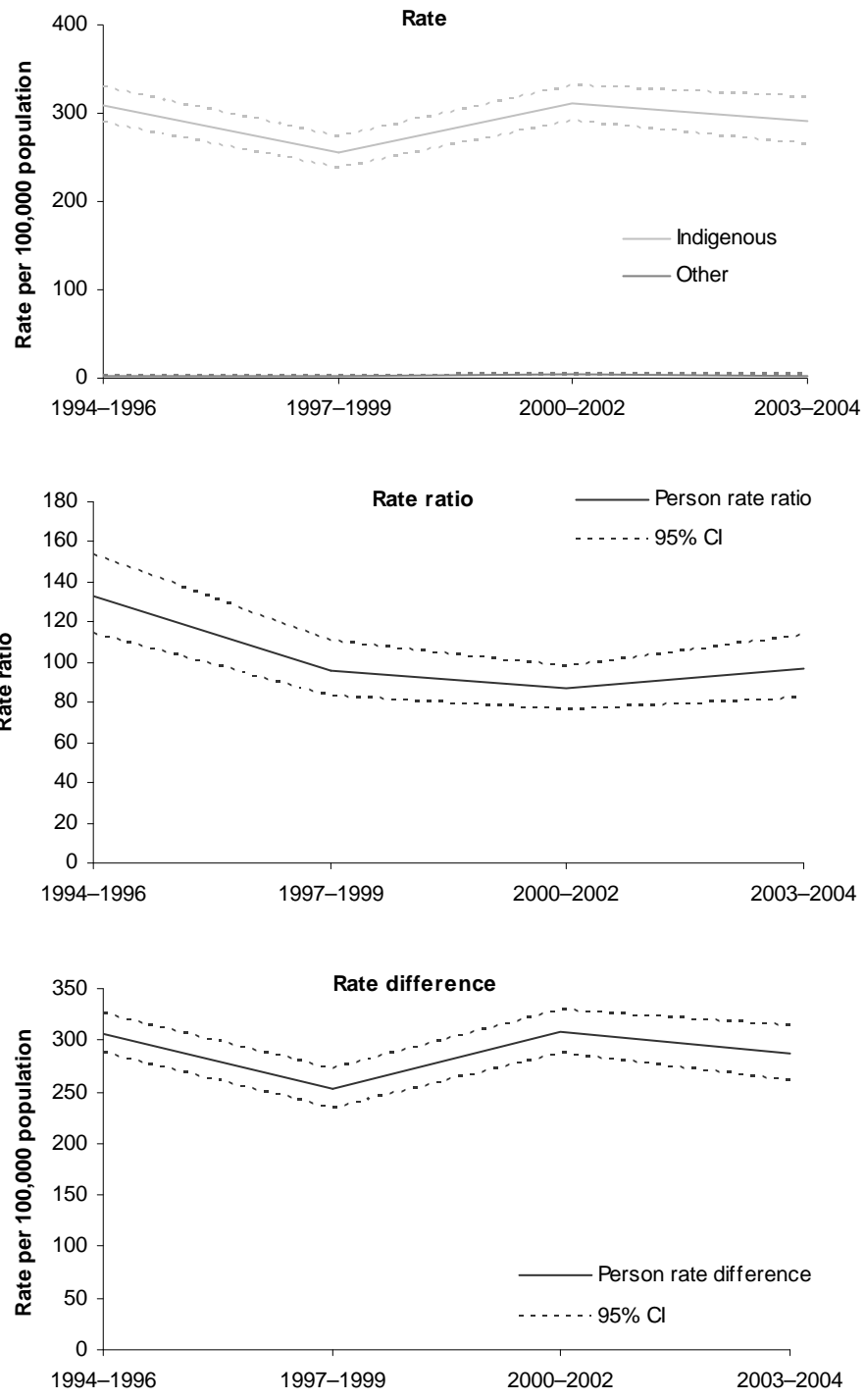
(b) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

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

(d) Notification rate for Indigenous Australians divided by 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 2003-2004

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 2003–2004. The fitted trend line shows an average yearly increase in the rate of around 42 per 100,000 (Table 1.11.8, Figure 1.11.3). There were significant increases in notification rates for both Indigenous males and females.
- There were also significant increases in notification rates for gonorrhoea among other Australians during the same period. Rates showed a significant increase for males but not for females.
- Notification rate ratios between Indigenous and other Australians for gonorrhoea showed significant declines for males over the 10-year period, with an average yearly decline in the ratio of around 2.6.
- 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 41 per 100,000. These increases were statistically significant for females but not for males.

Table 1.11.8: Age-standardised notification rates, rate ratios and rate differences for gonorrhoea, WA, SA and NT, 1994–1996 to 2003–2004

	1994–1996	1997–1999	2000–2002	2003–2004	Annual change ^(a)
Indigenous rate per 100,000					
Males	1,168.0	1,114.9	1,243.8	1,292.8	17.5*
Females	761.6	1,113.7	1,252.9	1,338.1	66.2*
Persons	960.5	1,109.7	1,242.9	1,309.0	41.6*
Other Australian rate per 100,000^(b)					
Males	18.5	25.9	31.0	32.5	1.7*
Females	7.7	16.1	16.0	12.3	0.5
Persons	13.2	21.0	23.0	22.5	1.1*
Rate ratio^(c)					
Males	63.2	43.1	40.6	39.8	-2.6*
Females	57.8	52.9	53.7	59.5	0.2
Persons	72.9	52.8	53.3	58.2	-1.6
Rate difference^(d)					
Males	1,149.6	1,089.0	1,213.2	1,260.3	15.8
Females	748.4	1,092.6	1,229.6	1,315.6	65.1*
Persons	947.3	1,088.7	1,219.6	1,286.5	40.5*

* Represents results with statistically significant increases or declines at the p<.05 level over the period 1994–1996 to 2003–2004.

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

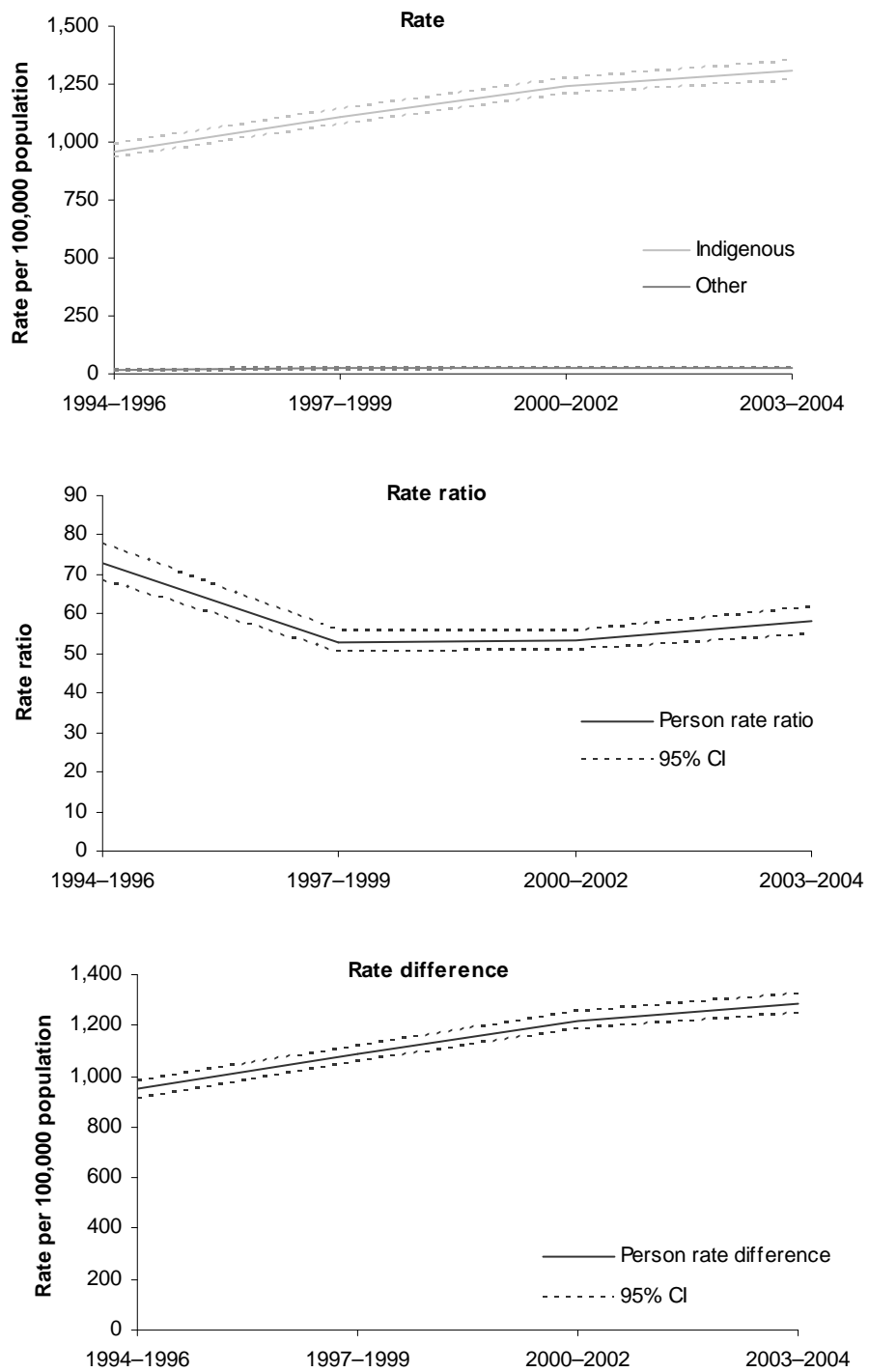
(b) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

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

(d) 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 2003-2004

Hepatitis C (incident)

Time trends data for hepatitis C notifications are presented for the period 1995–1996 to 2003–2004 as data were not available in South Australia for 1994.

- In Western Australia, South Australia and the Northern Territory combined, there were significant increases in notification rates for hepatitis C among Indigenous Australians during the period 1995–1996 to 2003–2004. The fitted trend line shows an average yearly increase in the rate of around 8.6 per 100,000 (Table 1.11.9, Figure 1.11.4). The increases in notification rates were significant for both Indigenous males and females.
- There were significant declines in the rate of hepatitis C notifications for other Australians over the same period, with an average yearly decline in the rate of 1.7 per 100,000. These declines were significant for males but not for females.
- Notification rate ratios and rate differences between Indigenous and other Australians for hepatitis C showed significant increases for both males and females over the period 1995–1996 to 2003–2004. This reflects a relative and absolute increase in the gap between notification rates for Indigenous and other Australians for hepatitis C.

Table 1.11.9: Age-standardised notification rates, rate ratios and rate differences for hepatitis C (incident), WA, SA and NT, 1995–1996 to 2003–2004

	1995–1996	1997–1999	2000–2002	2003–2004	Annual change ^(a)
Indigenous rate per 100,000					
Males	115.8	117.7	160.0	180.3	8.8*
Females	56.1	81.1	116.6	120.8	8.5*
Persons	85.9	99.0	137.8	149.7	8.6*
Other Australian rate per 100,000^(b)					
Males	93.5	81.4	82.2	66.3	-2.9*
Females	46.0	44.9	47.7	41.0	-0.4
Persons	69.8	63.2	65.0	53.7	-1.7*
Rate ratio^(c)					
Males	1.2	1.4	1.9	2.7	0.2*
Females	0.8	1.3	1.8	2.2	0.2*
Persons	1.2	1.6	2.1	2.8	0.2*
Rate difference^(d)					
Males	22.4	36.2	77.8	114.0	11.7*
Females	-13.7	17.8	51.5	67.1	10.2*
Persons	16.1	35.8	72.8	96.0	10.3*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1995–1996 to 2003–2004.

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

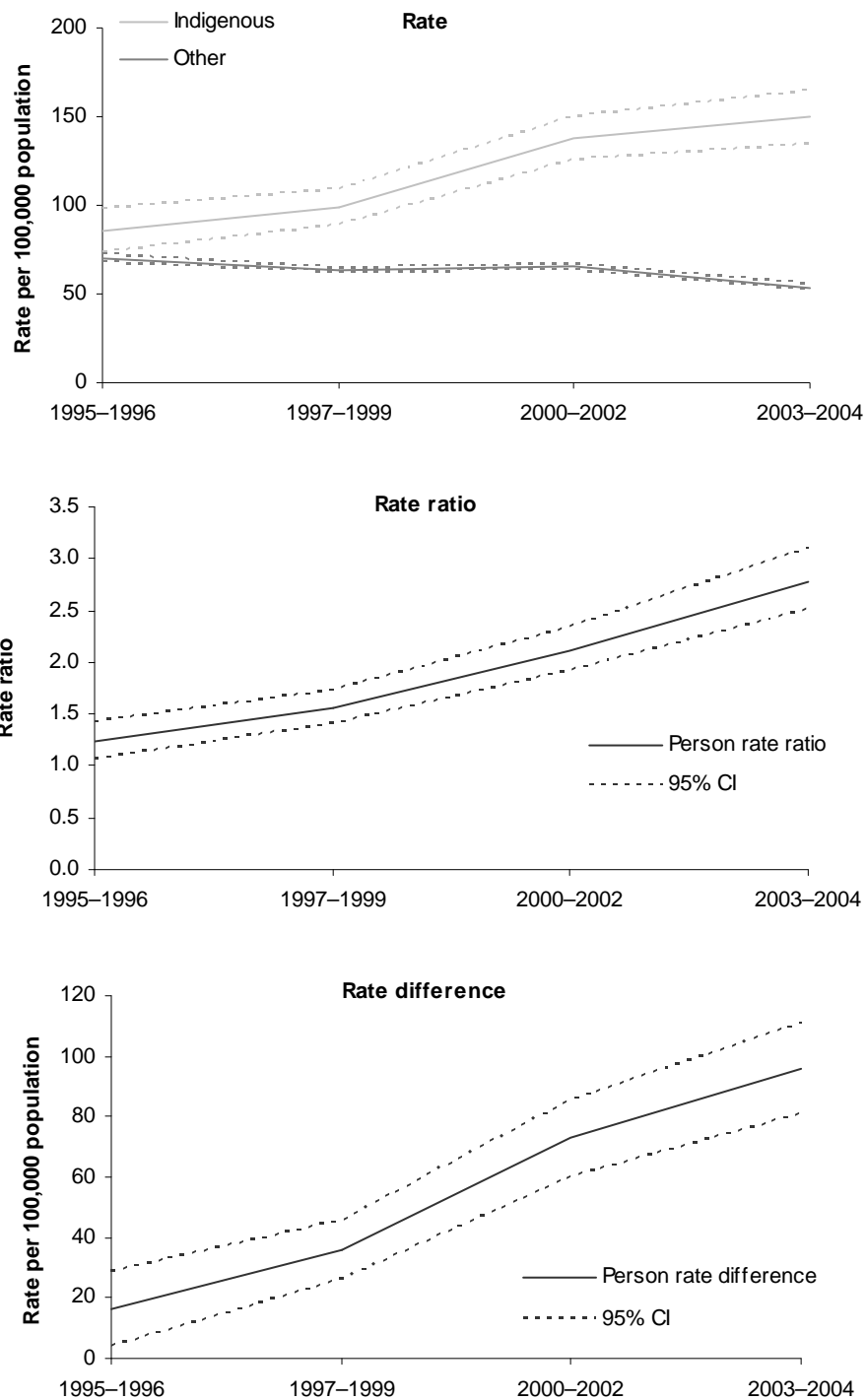
(b) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

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

(d) 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 1.11.4: Age-standardised notification rates, rate ratios and rate differences for hepatitis C, WA, SA and NT, 1995-1996 to 2003-2004

HIV

- There were no significant changes in the rate of HIV notifications among Indigenous Australians or other Australians over the period 1994–1996 to 2003–2004 (Table 1.11.10, Figure 1.11.5).
- There were significant declines in the notification rate ratios and non-significant declines in the rate difference between Indigenous and other Australians for HIV between 1994–1996 and 2003–2004.

Table 1.11.10: Age-standardised notification rates, rate ratios and rate differences for HIV^(a), 1994–1996 to 2003–2004

	1994–1996	1997–1999	2000–2002	2003–2004	Annual change ^(b)
Indigenous rate per 100,000	5.2	4.4	4.5	5.0	0.0
Other Australian rate per 100,000 ^(c)	3.8	3.5	3.8	4.1	0.0
Rate ratio ^(d)	1.4	1.3	1.2	1.2	-0.02*
Rate difference ^(e)	1.4	0.9	0.7	0.9	-0.1

* Represents results with statistically significant increases or declines at the $p < .05$ level over the period 1994–1996 to 2003–2004.

(a) Data exclude cases diagnosed in the Australian Capital Territory and Victoria prior to 1 June 1998.

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

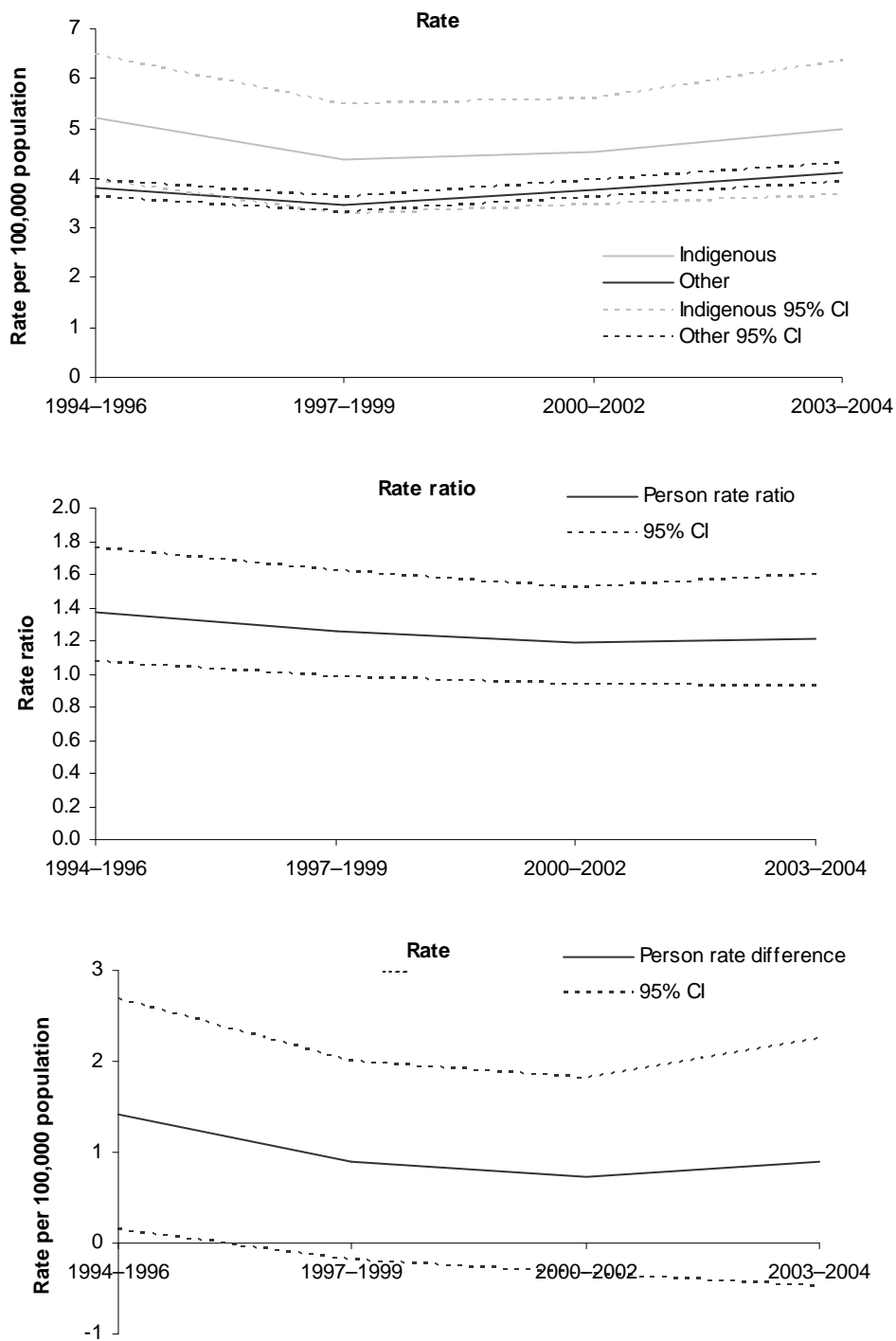
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(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: 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, 1994-1996 to 2003-2004

AIDS

- There were no significant changes in the rate of AIDS notifications among Indigenous Australians over the period 1994–1996 to 2003–2004 (Table 1.11.11, Figure 1.11.6).
- Over the same period, 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 0.3 per 100,000.
- There were significant increases in both notification rate ratios and rate differences between Indigenous and other Australians for AIDS between 1994–1996 and 2003–2004. This reflects both a relative and absolute increase in the gap between notification rates for Indigenous and other Australians for AIDS over the period 1994–1996 to 2003–2004.

Table 1.11.11: Age-standardised notification rates, rate ratios and rate differences for AIDS^(a), 1994–1996 to 2003–2004

	1994–1996	1997–1999	2000–2002	2003–2004	Annual change ^(b)
Indigenous rate per 100,000	2.6	1.6	1.7	2.9	0.0
Other Australian rate per 100,000 ^(c)	3.5	1.5	1.2	1.0	-0.3*
Rate ratio ^(d)	0.7	1.1	1.4	3.0	0.3*
Rate difference ^(e)	-1.0	0.1	0.5	1.9	0.3*

* Represents results with statistically significant increases or declines at the $p < .05$ level over the period 1994–1996 to 2003–2004.

(a) Excludes cases diagnosed in the Australian Capital Territory and Victoria prior to 1 June 1998.

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

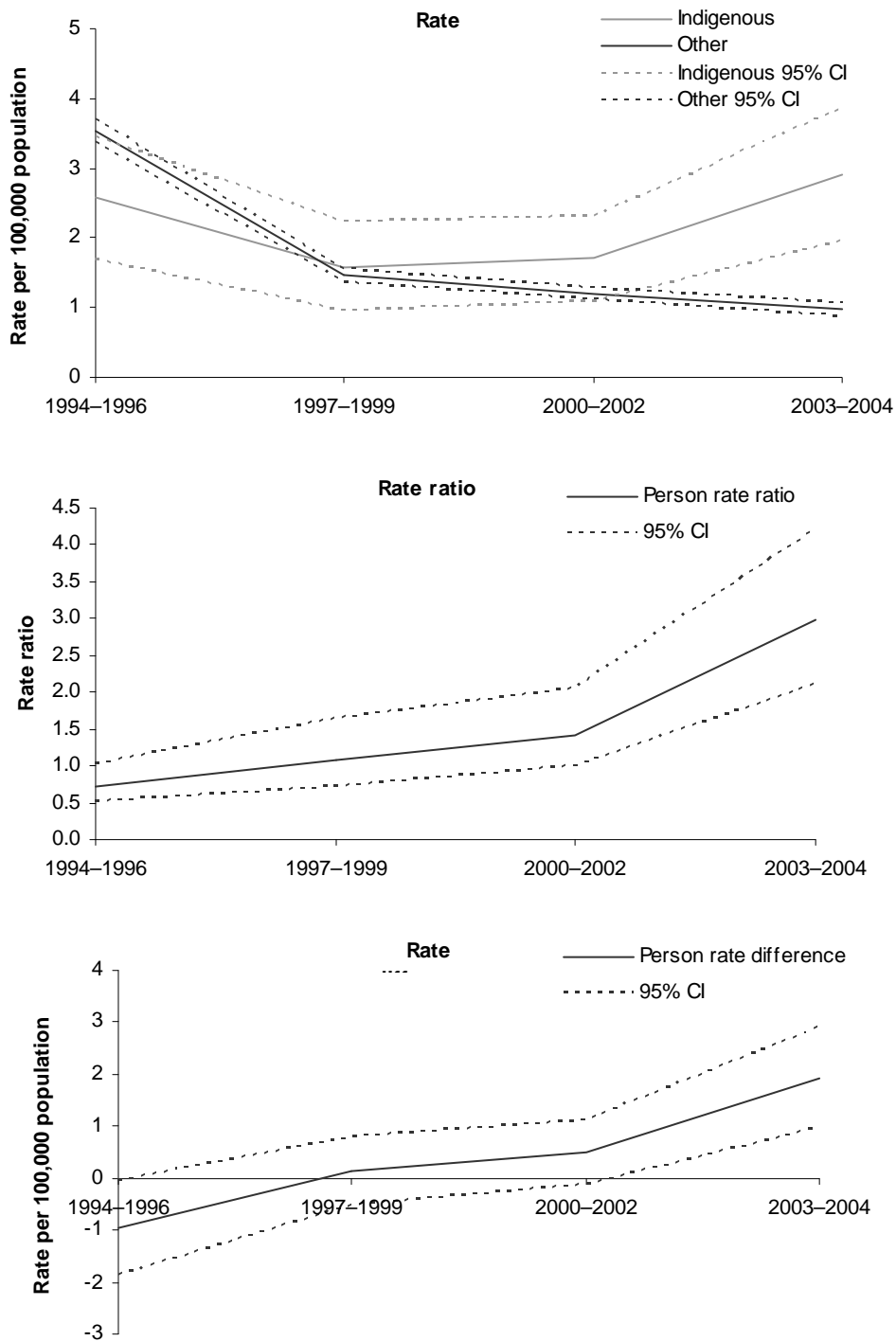
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

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

(e) Notification rate for Indigenous Australians 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, 1994-1996 to 2003-2004

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:
 - WA 64%
 - SA 89%
 - NT 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 64% in 2004 for Western Australia, from 82% to 89% for South Australia, and from 87% to 92% for the Northern Territory. HIV/ AIDS notifications were adjusted by linearly increasing the identification from 75% in 1994 to 85% in 2004.
 - Under the decreasing identification scenario, chlamydia, syphilis, gonorrhoea and hepatitis C notifications were adjusted by linearly decreasing the identification from 74% in 1994 to 64% in 2004 for Western Australia, from 96% to 89% for South Australia, and from 97% to 92% for the Northern Territory. HIV/ AIDS notifications were adjusted by linearly decreasing the identification from 95% in 1994 to 85% in 2004.
- 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 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, none remained statistically significant under any identification scenario.
- Of the aforementioned trends observed for gonorrhoea notifications, the increase in rates for Indigenous females and persons and the increase in the rate difference for females and persons remained significant under all three identification scenarios. The increase in rates for Indigenous males remained significant under the decreasing identification scenario. The increase in rates for other Australian males remained significant under the constant and increasing identification scenarios and the increase in rates for other Australian persons remained significant under the increasing identification scenario. The decline in rate ratios for males did not remain statistically significant under any identification scenario.
- The observed trends in hepatitis C notifications all remained significant under all three identification scenarios.

- The decline in the rate ratio between Indigenous and other Australian HIV notification rates remained statistically significant under the constant and increasing 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*
- *they 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 by 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 transmittable 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).

While the identification of Indigenous notifications is incomplete in all states and territories, 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 than changes in the identification of Indigenous people in the population estimates. Denominators used here are sourced from the ABS's Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009 (ABS 2004).

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