



Report on Sexually Transmitted Infections in Canada: 2009

*Centre for Communicable Diseases and Infection Control
Infectious Disease Prevention and Control Branch
Public Health Agency of Canada*



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Report on Sexually Transmitted Infections in Canada: 2009

*Centre for Communicable Diseases and Infection Control
Infectious Disease Prevention and Control Branch
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Information to the Readers of the Report on Sexually Transmitted Infections in Canada: 2009

The Centre for Communicable Diseases and Infection Control, Infectious Disease Prevention and Control Branch, Public Health Agency of Canada (PHAC) is pleased to present the 2009 edition of the *Report on Sexually Transmitted Infections in Canada*. This document provides an overview of reported cases and trends in the three nationally reportable bacterial sexually transmitted infections (STIs): chlamydia, gonorrhoea, and infectious syphilis by age, sex, and location for Canada for each infection. The surveillance data presented are drawn from reports submitted to PHAC by provincial and territorial epidemiological units.

This report consists of four sections. Sections one to three correspond to the three nationally reportable bacterial STIs. Each section summarizes major findings and trends in the respective infection, and the embedded tables and figures are updated from those in earlier publications of these data. Similar to the 2008 edition of the *Report on Sexually Transmitted Infections in Canada*, this report includes a section on rates of reported congenital syphilis cases across Canada. The fourth section features an international comparison of the reported STI rates between Canada and the United States, Australia, and the United Kingdom. Technical notes and explanatory details specific to provincial or territorial surveillance data are presented at the end of this report.

The publication of this report would not have been possible without the collaboration of all provinces and territories, whose continuous contribution to national STI surveillance is appreciated and gratefully acknowledged.

This report and other national surveillance and research on STIs, hepatitis C and other blood-borne infections are also available at: http://www.phac-aspc.gc.ca/sti-its-surv-epi/nat_surv-eng.php.

Any comments and suggestions that would improve the usefulness of future publications are appreciated and should be sent to the attention of the Centre for Communicable Diseases and Infection Control at ph-sp-info@phac-aspc.gc.ca.

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Executive Summary

Sexually transmitted infections (STIs) continue to be a significant and increasing public health concern in Canada. Reported rates of chlamydia, gonorrhoea and syphilis have been rising since 1997. This report outlines the trends in these three nationally notifiable STIs, providing an overview of the descriptive epidemiology of these infections in Canada with a focus on the past decade (2000 to 2009). Longer term secular trends are presented for context.

Chlamydia continues to be the most commonly reported STI in Canada. Reported rates of chlamydia infections have increased by 71.3% since 2000. Since 1997, a steady increase in reported rates has been observed in both sexes and across all age groups, with the highest relative increase among males. Similar to the 2008 report findings, females remain disproportionately affected by chlamydia infection. In 2009, the reported rate among women was almost twice as high as that of their male counterparts, and 86.0% of reports among females were for those under the age of 30. Geographic variation was observed with the highest chlamydia rates reported in Nunavut, the Northwest Territories and Yukon.

Although the overall reported rate of gonorrhoea has increased by 64.7% since 2000, in 2009, for the first time since 2005, the reported gonorrhoea rates in both males and females dropped by more than 10% from the previous year. The majority of reported cases were among those under 30 years of age. Females between the ages of 15 to 24 and males between the ages of 20 to 24 accounted for the highest reported rates of gonorrhoea. The older male population, particularly those over the age of 60, experienced a very high relative increase in the rate of reported cases, although reported rates remained low in this group compared to other age groups. Like chlamydia, the distribution of reported cases of gonorrhoea varied geographically across Canada with highest rates reported in the Northwest Territories followed by Nunavut and Manitoba.

The overall reported rate of infectious syphilis has increased by 782.1% since 2000. Reported rates of infection were highest among males aged 25 to 39; the highest rates in females were reported among those between 20 and 29 years of age. Over the past decade, multiple outbreaks were reported across the country among both the men who have sex with men (MSM) and heterosexual populations.

Reported Cases and Rates (per 100,000 population) of Chlamydia, Gonorrhoea, and Infectious Syphilis, 2000, 2008 and 2009

YEAR	CHLAMYDIA		GONORRHEA		INFECTIOUS SYPHILIS	
	Cases	Rates	Cases	Rates	Cases	Rates
2000	46,439	150.9	6,189	20.1	174	0.6
2008	82,919	248.8	12,723	38.2	1,482	4.4
2009	87,210	258.5	11,178	33.1	1,683	5.0

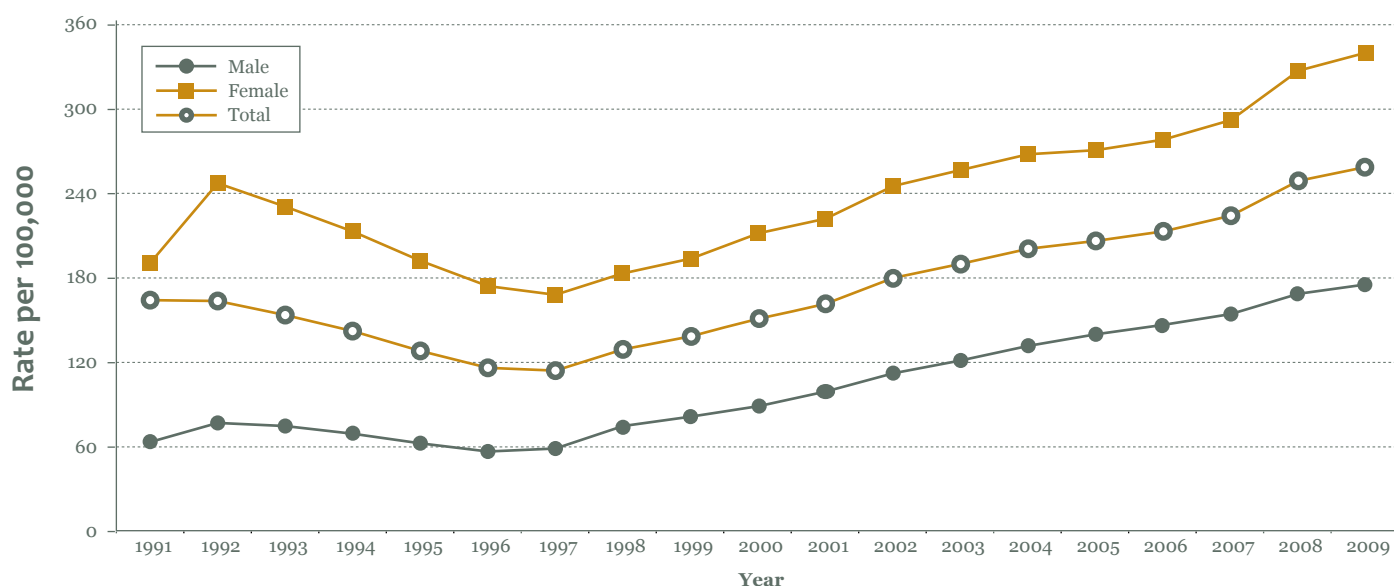
Chlamydia (*Chlamydia trachomatis*)

Infections caused by the bacterium *Chlamydia trachomatis* have been nationally notifiable since 1990 and are the most commonly reported bacterial sexually transmitted infection (STI) in Canada. Asymptomatic infections are common in men and women; in the absence of screening, undiagnosed infections in sexually active individuals contribute to the spread of chlamydia. Complications associated with untreated and recurring chlamydial infections include pelvic inflammatory disease, which can lead to chronic pelvic pain, ectopic pregnancy and infertility in women; in men, these complications are rare cases of epididymo-orchitis and infertility¹. Untreated chlamydia in pregnant women can be transmitted to their newborns, causing neonatal conjunctivitis or pneumonia. As with other STIs, chlamydia increases the risk of HIV acquisition and transmission by recruiting target cells for HIV to the genital tract and by increasing the shedding of HIV-infected cells².

Since 2000, reported rates of chlamydia infections in Canada increased consistently over time

- ▶ Reported rates of chlamydia had decreased steadily until 1997, when this trend reversed (Figure 1). In 2009, 87,210 cases of chlamydia were reported. Between 2000 and 2009, the reported national chlamydia rate reached 258.5 per 100,000 – a 71.3% relative increase from the rate of 150.9 per 100,000 in 2000.
- ▶ Reported rates of chlamydia increased consistently over time in both males and females between 2000 and 2009. In males, rates increased by 97.1% from 88.9 to 175.2 per 100,000, and in females, rates increased by 60.7% from 211.6 to 339.9 per 100,000 (Figure 1). In both males and females, the rates have increased across all age groups, with the highest relative increases in those 30 years of age and up during that period.
- ▶ Consistent with historical trends, the reported rate in women remained twice as high as that in men in 2009 (Figure 1).
- ▶ Between 2008 and 2009, the relative increase in the reported chlamydia rate was 3.9% - a relatively smaller rise compared to the 11.1% annual increase between 2007 and 2008. In both males and females, the highest annual rates increases were observed in the youngest and the oldest age groups. In males, the highest relative increase in the annual rate was observed in those aged 10-14 (32.8%), which was followed by the increases in those 60+ (17.1%) and 15-19 (10.2%). In females, the highest relative rate increase was in those 60+ (48.4%), followed by increases in the 40-59 (15.2%) and 10-14 (12.2%) age groups.

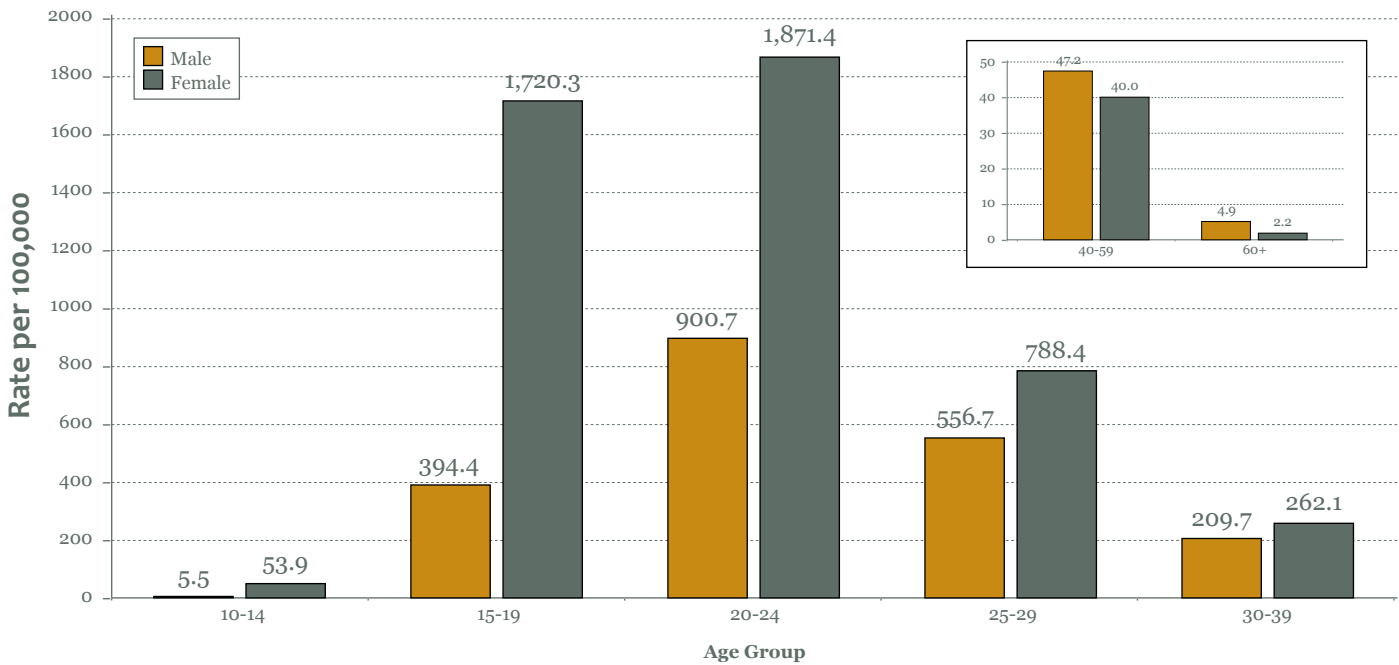
Figure 1: Reported Overall and Sex-Specific Rates of Chlamydia, 1991 to 2009, Canada



During 2009, reported rates of chlamydia continued to be highest in the younger population, particularly among females

- ▶ In absolute terms, and similar to the reported gonorrhea infections, the majority of reported chlamydial infections (82.2%) in 2009 were among individuals less than 30 years old. This stands in contrast to infectious syphilis, for which the same age group accounted for only 29.3% of reported cases.
- ▶ Similar to findings of the 2008 STI report, the highest reported rates of chlamydia were in 20 to 24 year olds, although the rate in females (1,871.4 per 100,000) was more than twice as high as that in males (900.7 per 100,000) in this age group (Figure 2).
- ▶ The ratio of male-to-female rates increased with age; in the 40-59 and 60+ age groups, reported rates were higher in men than in women. (Figure 2).

Figure 2: Reported Rates of Chlamydia by Sex and Age Group, 2009, Canada

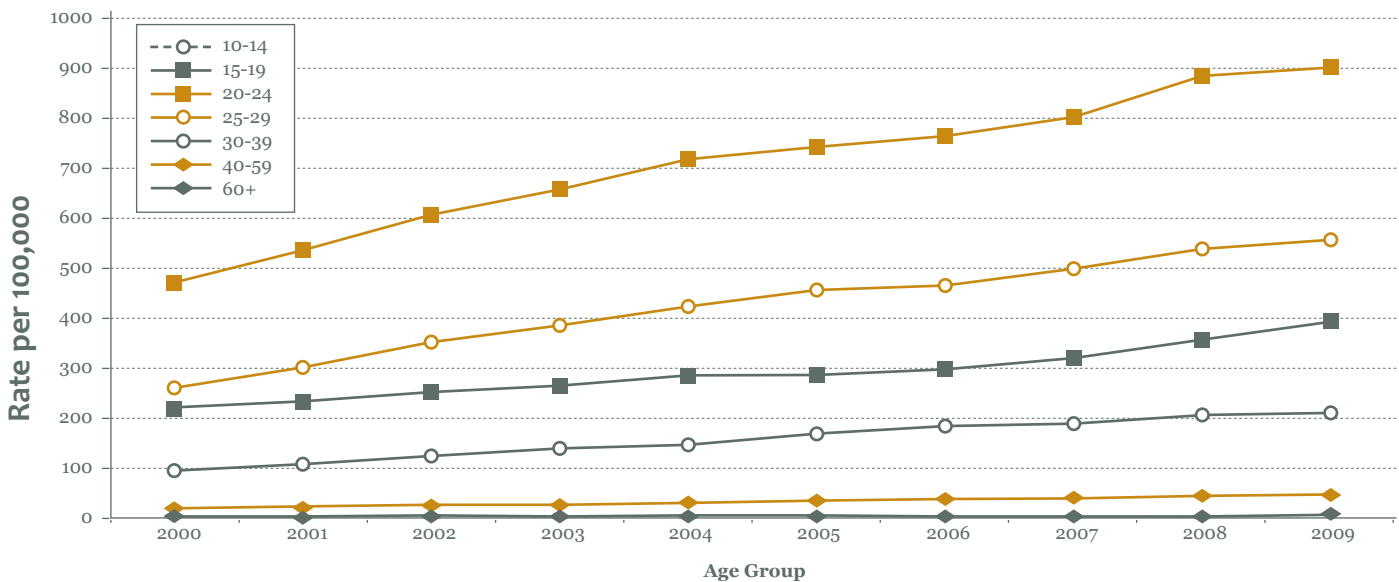


Reported rates of chlamydia increased across age groups in both males and females aged 15 and older. There has been a relative increase in reported chlamydia rates among older Canadians

► In males, between 2000 and 2009, the greatest absolute increase in reported rates of chlamydia was seen in 20 to 24 year olds. The rate increased from 470.4 per 100,000 in 2000 to 900.7 per 100,000 in 2009 (Figure 3).

During the same time period, the highest relative rate increase (148.3%) was observed in males of 60+ years of age: the rate has grown from 2.0 to 4.9 per 100,000.

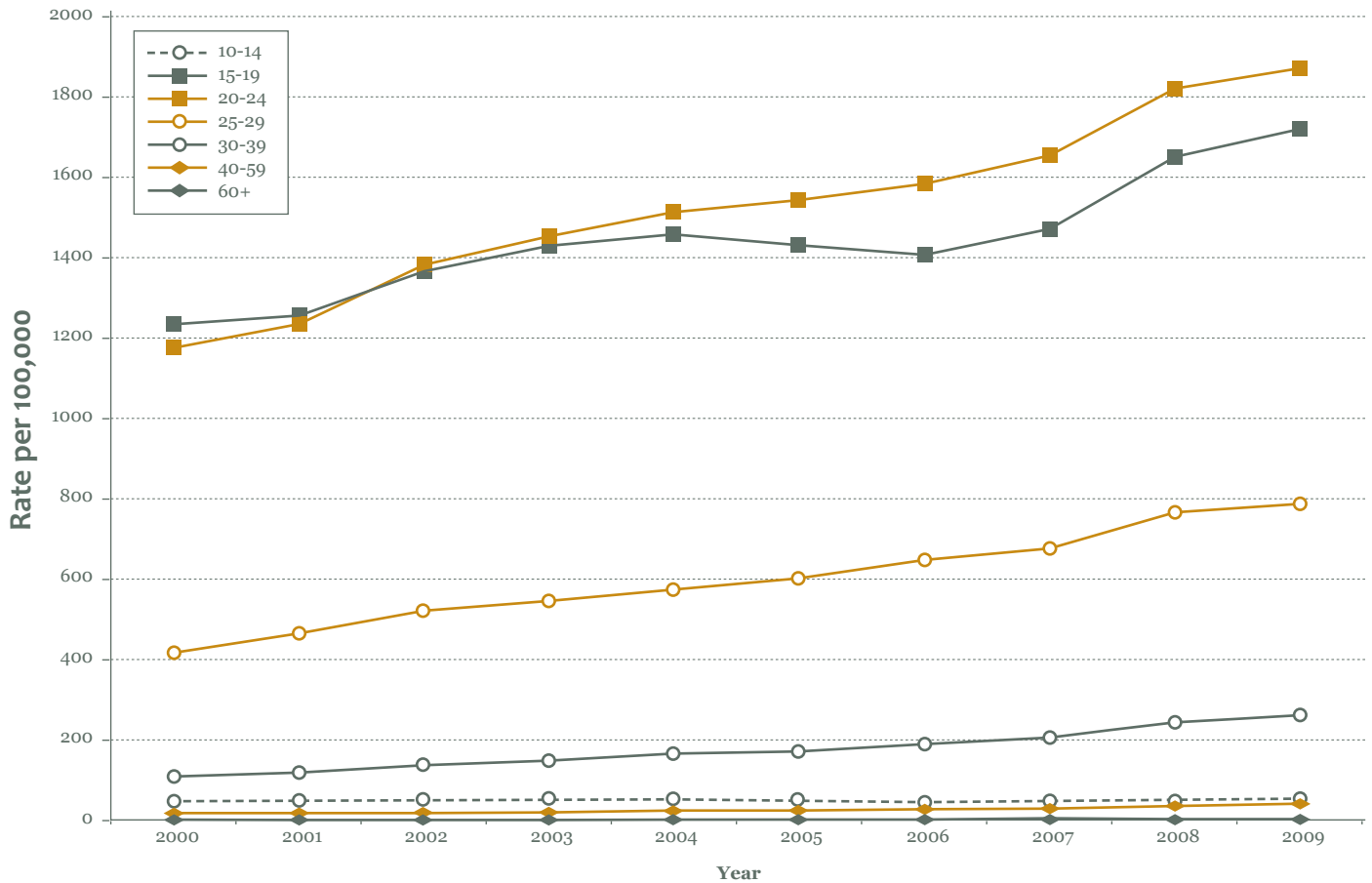
Figure 3: Reported Rates of Chlamydia in Males by Age Group, 2000 to 2009, Canada



► In females, between 2000 and 2009, the greatest absolute increase in reported rates of chlamydia was seen in 20 to 24 year olds (Figure 4). The rate increased from 1,175.7 per 100,000 in 2000 to 1,871.4 per 100,000 in

2009. During the same time period, the highest relative rate increase (141.6%) was observed in females aged 40-59 years: the rate has grown from 16.6 to 40.0 per 100,000.

Figure 4: Reported Rates of Chlamydia in Females by Age Group, 2000 to 2009, Canada



► Although reported rates of chlamydia in male and female youth of 10-14 years of age remained low compared to other age groups, substantial increases were observed since 2000, especially in male youth. Between 2000

and 2009, reported rates in 10-14 year olds increased by 90.8% in males (from 2.9 to 5.5 per 100,000) and by 13.5% in females (from 47.5 to 53.9 per 100,000).

The majority of cases in 2009 occurred in the most populated provinces in Canada, while reported rates of chlamydia were highest in the northern territories.

► Reported chlamydia rates continue to be highest in Nunavut, the Northwest Territories and Yukon (Table 1).
 ► Between 2000 and 2009, the highest relative increase in reported chlamydia rates occurred in the Northwest Territories (97.7%), Alberta (83.7%) and Manitoba (80.7%) (Table 1). Prince Edward Island was the only jurisdiction in Canada to report a decrease in chlamydia

in this time period, from 167.3 per 100,000 in 2000 to 143.3 per 100,000 in 2009.
 ► Between 2008 and 2009, the national reported chlamydia rate increased by 3.9%. At the provincial/territorial level, the rate change ranged from an increase of 17.5% in the Northwest Territories to a decrease of 11.5% in Newfoundland and Labrador (Table 1).

Table 1: Reported Cases and Rates¹ of Chlamydia by Province/Territory, 2000, 2008 and 2009, Canada

JURISDICTION	NUMBER OF CASES			RATES PER 100,000 ²			RATE CHANGE (%)	
	2000	2008	2009	2000	2008	2009	2000-2009	2008-2009
<i>Canada</i>	46,439	82,919	87,210	150.9	248.8	258.5	71.3	3.9
BC	6,191	10,766	11,197	152.5	245.6	251.3	64.8	2.3
AB	6,001	12,047	13,506	199.4	335.0	366.2	83.7	9.3
SK	2,936	5,203	4,839	287.3	513.3	469.7	63.5	-8.5
MB	3,263	6,965	6,288	284.7	577.5	514.6	80.7	-10.9
ON	14,603	26,245	28,760	125.0	202.9	220.1	76.1	8.5
QC	8,678	15,043	15,880	117.6	194.0	202.8	72.4	4.5
NB	1,243	1,389	1,569	164.6	185.9	209.3	27.2	12.6
NS	1,405	2,033	1,994	149.3	217.1	212.5	42.4	-2.1
PE	231	193	202	167.3	138.4	143.3	-14.4	3.5
NL	554	596	530	103.1	117.7	104.1	1.0	-11.5
YT	146	232	215	477.4	699.4	638.9	33.8	-8.7
NT	484	870	1,016	1,183.2	1,989.9	2,338.9	97.7	17.5
NU	704	1,337	1,214	2,567.6	4,227.9	3,772.2	46.9	-10.8

¹ Rate change calculated using unrounded values.

² Bolded values indicate rates and rate changes above the national average.

► Similar to 2008 data, the female-to-male chlamydia rate ratio remained unchanged during 2009; the reported rate of chlamydia among women was almost twice as high (1.9) as that reported among men. Across the country, the female-to-male rate ratio ranged from 1.6 in Prince Edward Island to 3.2 in

Newfoundland and Labrador (Table 2).

► Between 2000 and 2009, the female-to-male rate ratio significantly decreased from 2.4 to 1.9. ($p < 0.0001$) suggesting a movement towards parity among females and males (Table 2).

Table 2: Female-to-Male Ratio of Reported Rates of Chlamydia by Province/Territory, 2000, 2008 and 2009, Canada

JURISDICTION	FEMALE-TO-MALE CHLAMYDIA RATE RATIO		
	2000	2008	2009
<i>Canada</i>	2.4	1.9	1.9
BC	2.6	1.9	1.9
AB	2.6	2.0	2.1
SK	2.0	1.8	1.9
MB	2.3	1.9	1.9
ON	2.0	1.8	1.8
QC	2.9	2.2	2.2
NB	2.7	2.4	2.2
NS	3.6	2.6	2.6
PE	2.3	2.2	1.6
NL	4.3	2.8	3.2
YT	2.4	1.8	2.1
NT	2.6	1.6	1.7
NU	2.3	2.0	2.0

Lymphogranuloma venereum

Lymphogranuloma venereum (LGV) is an STI caused by *Chlamydia trachomatis* serovars L1, L2 and L3 that target lymph tissue, causing invasive infections. Complications of untreated infection can be severe and include destruction of rectal and genital tissue; uncommonly, meningoencephalitis, hepatitis and death can occur.⁷ Until 2003, LGV, which has been endemic in parts of Africa, Asia, South America and the Caribbean region, was relatively uncommon in Canada¹. However, outbreaks of LGV have been reported in men who have sex with men in European countries³⁻⁵, the United States⁶ and Canada⁷ with data suggesting that the infection may be becoming ‘endemic’ in this population⁸.

As of December 31, 2009, 112 cases of LGV had been reported to PHAC with 65 confirmed and 47 probable cases according to the national LGV case definition⁹. Figure 5 outlines the cumulative LGV case reports to PHAC by year of report.

Figure 5: Cumulative Number of LGV Case Reports to PHAC by Year of Report

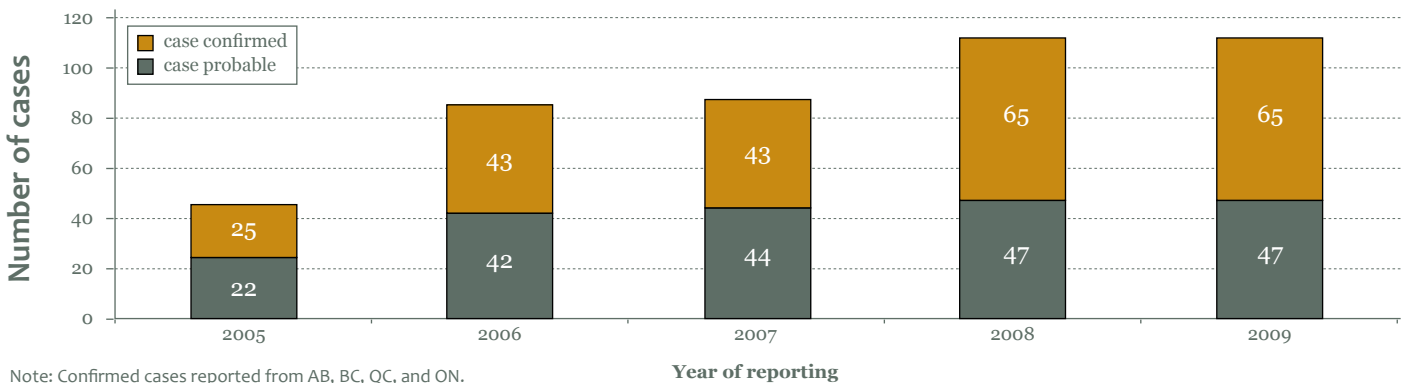
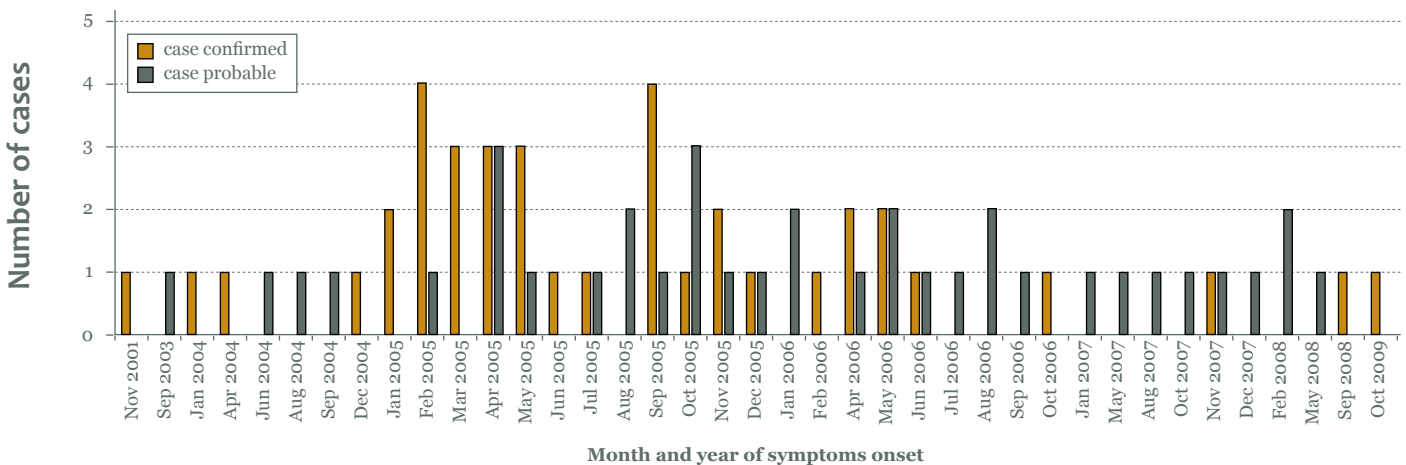


Figure 6 presents the distribution of reported LGV cases by date of symptom onset or clinical presentation. The earliest report of symptom onset was November 2001 and the latest was in October 2009.

Figure 6: Epidemic Curve for 76 Reported LGV Cases with Known Date of Symptom Onset, Canada



All confirmed cases were reported in males. Most of the cases have reported recent sex, often unprotected, with male partners primarily in bathhouses, though sex in a private residence and Internet partnering have also been commonly reported. Risk practices, such as fisting, sharing of sex toys, and rectal use of crystal methamphetamines have been identified in a small number of cases (Table 3).

Table 3: Summary of Recent Sexual History for Reported Confirmed and Probable Cases of LGV, Canada

FEATURE	No. OF CASES ¹ (%)
Sexual contact within 60 days before interview or before symptom onset Not using a condom	85/90 (94.4) 30/36 (83.3)
Gender of sexual partners Female (no. of partners: 1-3) Male (no. of partners: 1-50)	4/82 (4.9) 83/84 (98.8)
Type of contact Anal sex Receptive Insertive Oral sex Receptive Insertive Vaginal sex Fisting Sharing sex toys Rectal enema Rectal drug use Rimming, unprotected anal 'rubbing' and receptive unprotected anal fingering	40/45 (88.9) 26/35 (74.3) 25/36 (69.4) 38/44 (86.4) 28/36 (77.8) 26/34 (76.5) 5/50 (10.0) 4/37 (10.8) 5/32 (15.6) 7/36 (19.4) 1/34 (2.9) 3/25 (12.0)
Circumstances of contact Bathhouse Private residence Internet partnering "Rave" and "circuit party" Sex trade	42/67 (62.7) 17/37 (45.9) 13/38 (34.2) 2/34 (5.9) 1/34 (2.9)
Sex with partner with known LGV infection	8/51 (15.7)
Sex while traveling outside reporting jurisdiction Within Canada (Vancouver, BC, Calgary, AB, London, Toronto, Ottawa, ON, Montreal, QC) Outside of Canada (Asia: Manila; Caribbean region: Peurta Vallarta, Varadero, Jamaica; Europe: Amsterdam, Berlin, Brussels, Paris, Prague; USA: Boston) Non-Canadian resident (diagnosed in Canada while traveling in Canada and US)	18/60 (30.0) 6/15 (40.0) 8/15 (53.3) 1/15 (6.7)
Reported sharing injecting paraphernalia	4/46 (8.7)

1. Includes cases for whom data were available for each item.

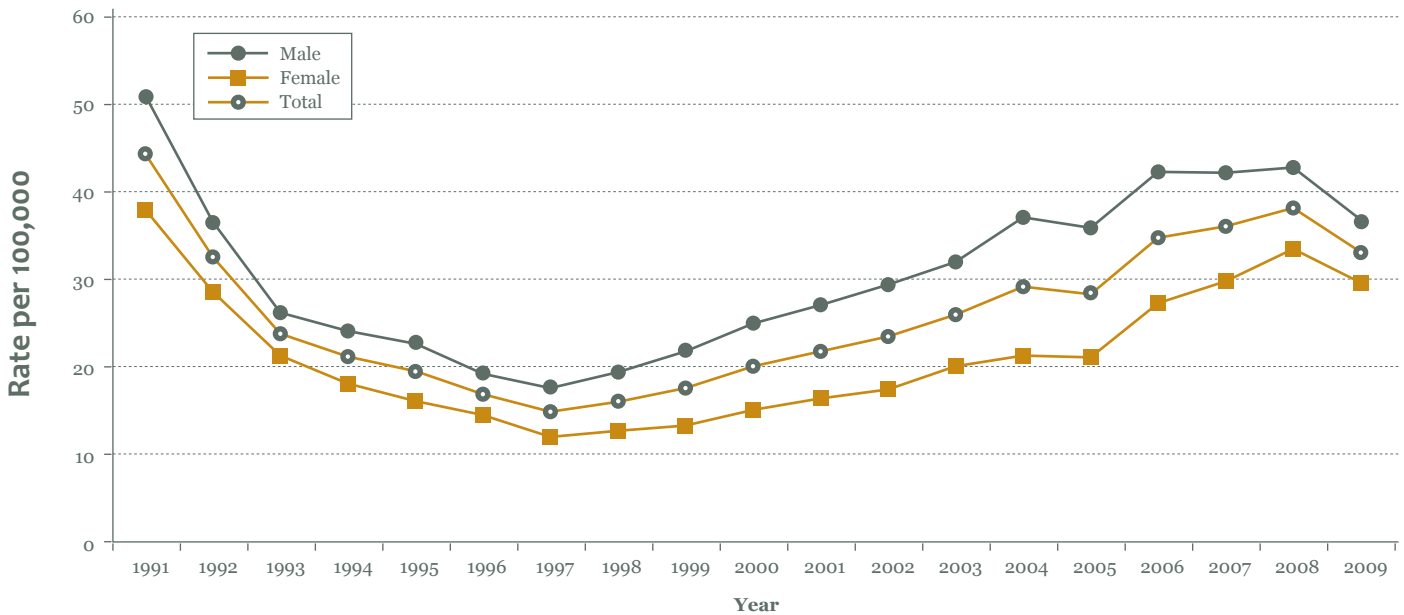
Gonorrhoea (*Neisseria gonorrhoeae*)

Gonorrhoea, an infection caused by *Neisseria gonorrhoeae*, has been nationally notifiable since 1924 and remains the second most commonly reported bacterial STI in Canada. Untreated infections can lead to complications for both sexes, with more severe consequences for women. A serious, common complication affecting women is pelvic inflammatory disease often causing chronic abdominal pain, infertility, and ectopic pregnancy. In men, untreated infections can result in epididymitis and rare cases of infertility. An uncommon complication of gonorrhoea is the spread of infection to the blood stream and joints¹⁰. Like other STIs, gonorrhoea can increase the risk of HIV acquisition and transmission, possibly by increasing the concentration of HIV target cells in genital secretions and viral shedding thereby increasing the risk of acquiring and/or transmitting the virus².

Reported gonorrhoea rates in Canada decreased between 2008 and 2009, however rates remain high in both sexes, and the longer term trend is that of a steady increase

- ▶ From 1991 to 1997, reported rates of gonorrhoea infection among males and females decreased dramatically; following 1997, sex-specific rates increased at a gradual pace until 2008. In 2009, 11,178 cases of gonorrhoea infections were reported nationally, corresponding to a rate of 33.1 per 100,000. In addition, the overall gonorrhoea rate decreased by 13.2% from 2008, with decreases in both males and females (Figure 7).
- ▶ Between 2000 and 2009, reported rates increased in both sexes. Rates in females increased by 95.2% (from 15.1 to 29.6 per 100,000) and in males by 45.9% (from 25.1 to 36.7 per 100,000) (Figure 7).
- ▶ Between 2008 and 2009, the reported rate has fallen in females and males by 11.6% and 14.6%, respectively.

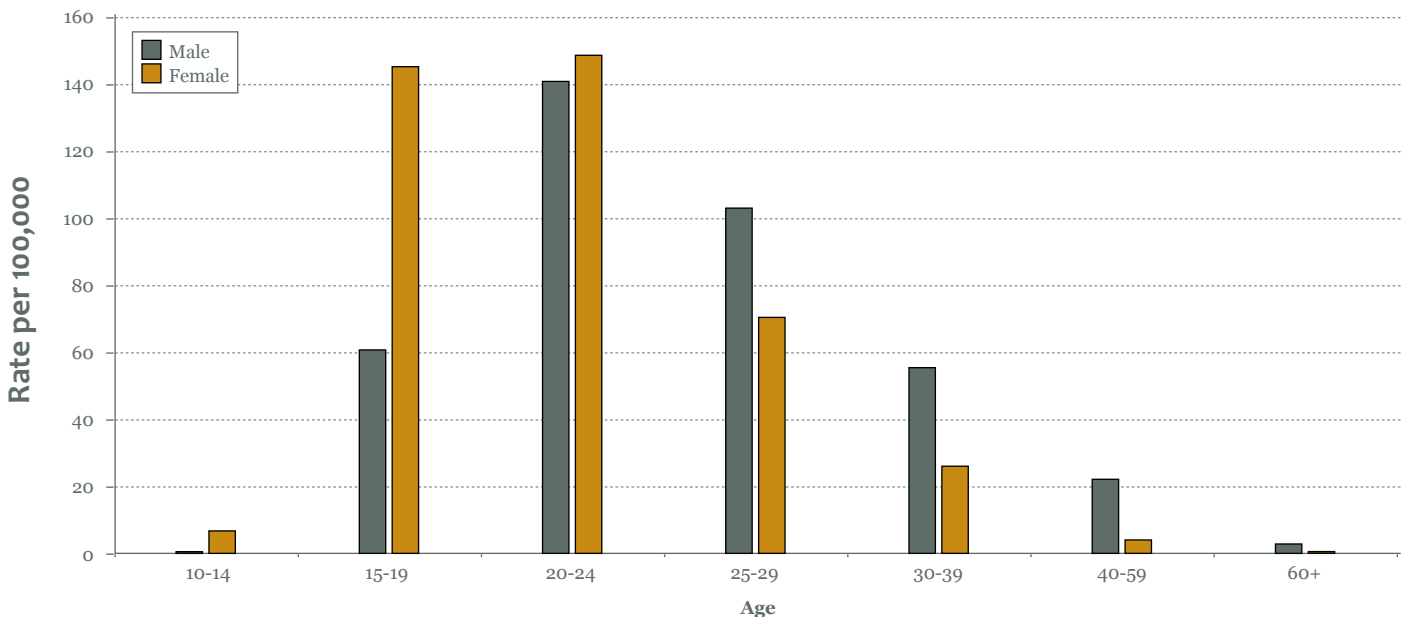
Figure 7: Reported Overall and Sex-Specific Rates of Gonorrhea, 1991 to 2009, Canada



Similar to the findings of the 2008 STI surveillance report, the reported rates of gonococcal infections in 2009 were highest in the younger population

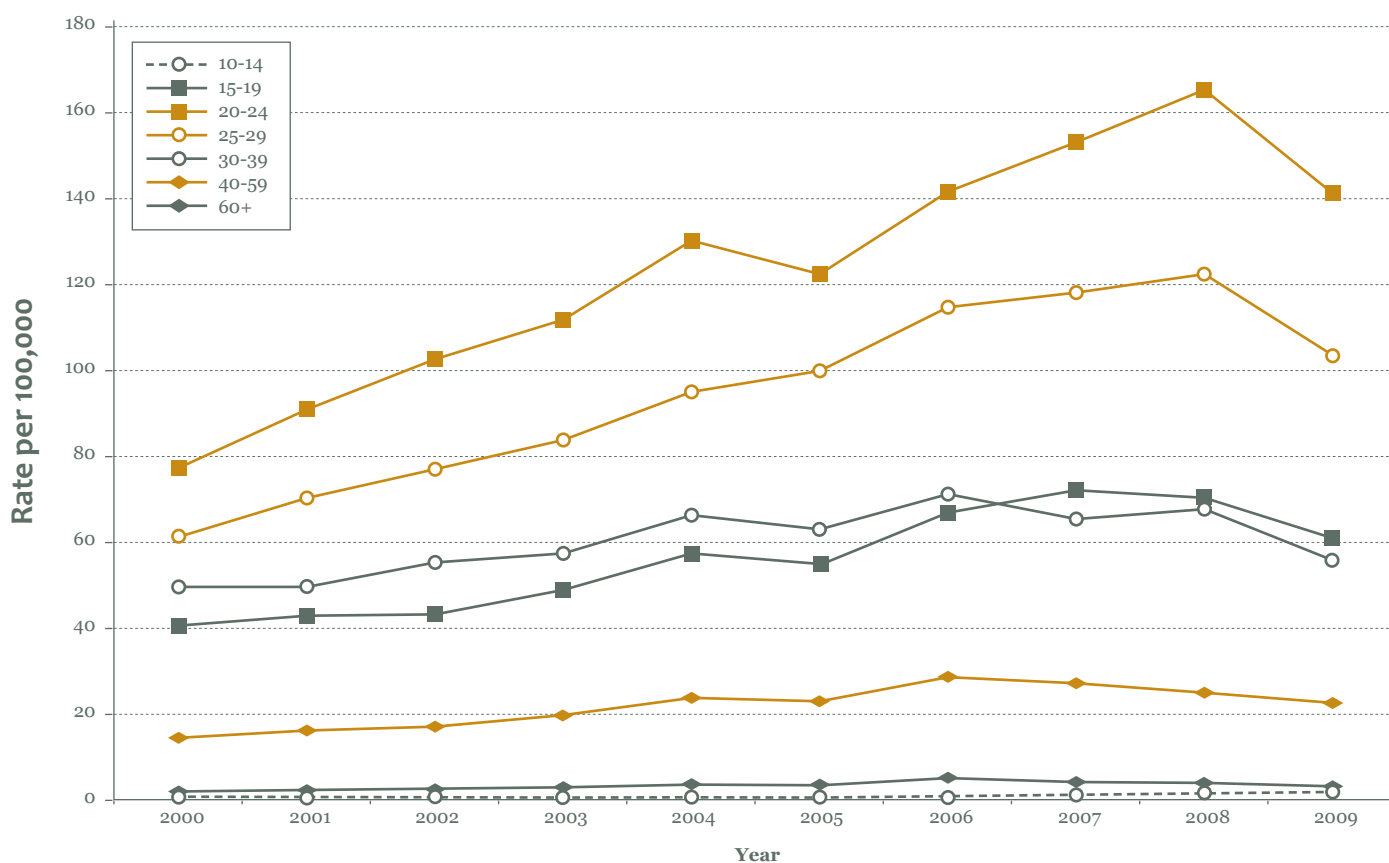
- ▶ Similar to the reported chlamydia infections, people under 30 years of age accounted for the majority (69.8%) of reported cases of gonorrhea in 2009. This stands in contrast to infectious syphilis, for which the same age group accounted for only 29.3% of reported cases.
- ▶ The highest reported rate of gonorrhea infections in women was in 20 to 24 year olds (149.0 per 100,000) and 15 to 19 year olds (145.6 per 100,000). The highest reported rate in men was in 20 to 24 year olds (141.2 per 100,000) followed by 25 to 29 year olds (103.4 per 100,000) (Figure 8).

Figure 8: Reported Rates of Gonorrhea by Sex and Age Group, 2009, Canada



- ▶ From 2000 to 2009, the greatest absolute increase in reported rates of gonorrhoea infections in females was observed in the group of 20 to 24 year olds (Figure 10). The rate increased from 71.8 per 100,000 in 2000 to 149.0 per 100,000 in 2009. During the same time period, the highest relative rate increase (192.8%) was observed in females aged 30-39 years: the rate has grown from 9.0 to 26.4 per 100,000.
- ▶ Similarly, in males, the highest absolute increase in reported gonorrhoea rates was found in 20-24 year olds (Figure 9). The rate increased from 77.3 per 100,000 in 2000 to 141.2 per 100,000 in 2009. The highest relative increase (82.6%) was also observed in males 20-24 years old.
- ▶ From 2008 to 2009, the cumulative and age-specific gonorrhoea rates by sex decreased substantially. In males, the absolute rate decreased by 14.6 per 100,000 and in females, the rate decreased by 15.1 per 100,000.
- ▶ In males, from 2008 to 2009, the cumulative rate decreased from 42.9 to 36.7 per 100,000. The most pronounced relative rate decrease was observed in 10-14 year olds (by 49.0%) and in those 60 and older (by 20.8%). In males aged 20-24 years – the group with the highest 10-year relative increase in gonorrhoea rates – the relative rate decrease was 14.6% (from 165.3 to 141.2 per 100,000) (Figure 9).

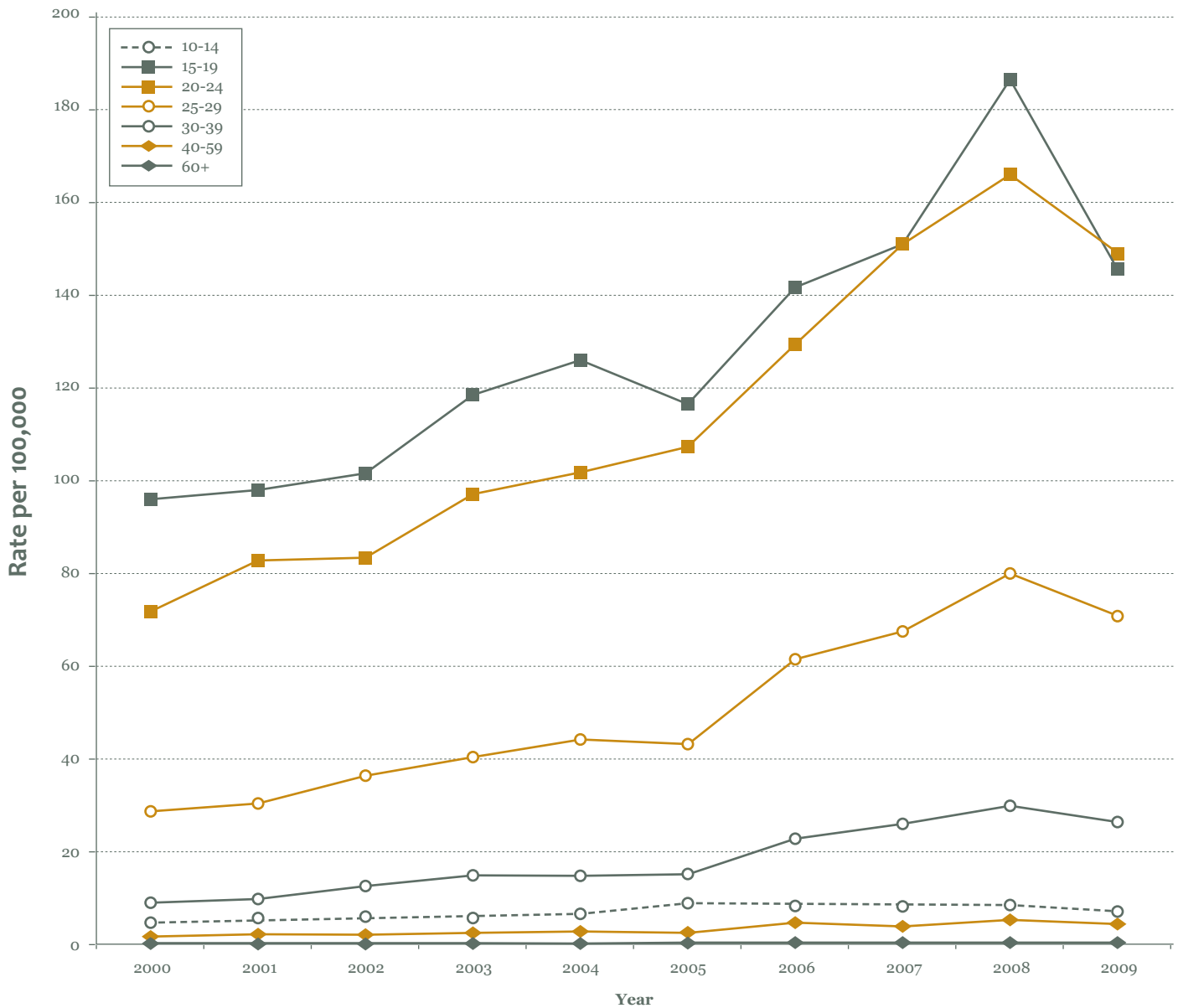
Figure 9: Reported Rates of Gonorrhoea in Males by Age Group, 2000 to 2009, Canada



- ▶ In females, from 2008 to 2009, the reported rate of gonorrhoea decreased from 34.8 to 29.6 per 100,000. The most pronounced relative rate decrease was observed in 15-19 year olds (by 21.9%) and in 10-14 year olds (by 17.4%). Females aged 60 and up were the only age group whose rates increased from 2008 to 2009.

The relative increase was by 19.4%, i.e. from 0.37 to 0.45 per 100,000. In females aged 30-39 years – the group with the highest (192.8%) 10-year relative increase in gonorrhoea rates – the relative rate decrease was 11.4% (from 29.9 to 26.4 per 100,000) (Figure 10).

Figure 10: Reported Rates of Gonorrhoea in Females by Age Group, 2000 to 2009, Canada



The majority of cases in 2009 occurred in the most populated provinces in Canada while reported rates of gonorrhoea infections were highest in the Northern and Prairie regions

- ▶ In 2009, the highest number of gonorrhoea cases was reported in Ontario, followed by Québec and Alberta. However, reported rates were highest in the Northwest Territories and Nunavut, followed by Saskatchewan, Manitoba, and Yukon Territory (Table 4).
- ▶ Between 2000 and 2009, the greatest relative increase in reported rates was observed in New Brunswick, with an increase of 376.4%, although the overall number of reported cases rose only from 11 to 52 (Table 4).
- ▶ Between 2008 and 2009, the reported gonorrhoea rate dropped by 13.2%. The most pronounced relative rate decrease was observed in Newfoundland and Labrador and Saskatchewan (by 36%), which were followed by Alberta and Manitoba (29% and 27% reduction accordingly). During that period, New Brunswick and Nunavut reported highest relative increases in reported gonorrhoea rates (48% and 40% accordingly).

Table 4: Reported Cases and Rates¹ of Gonorrhoea by Province/Territory, 2000, 2008, and 2009, Canada

JURISDICTION	NUMBER OF CASES			RATES PER 100,000 ²			RATE CHANGE (%)	
	2000	2008	2009	2000	2008	2009	2000-2009	2008-2009
<i>Canada</i>	6,189	12,723	11,178	20.1	38.2	33.1	64.7	-13.2
BC	708	1,484	1,349	17.4	33.9	30.3	73.6	-10.6
AB	586	2,126	1,547	19.5	59.1	42.0	115.4	-29.0
SK	465	1,334	875	45.5	131.6	84.9	86.7	-35.5
MB	658	1,378	1,022	57.4	114.3	83.6	45.7	-26.8
ON	2,794	3,867	3,541	23.9	29.9	27.1	13.3	-9.4
QC	670	1,655	1,885	9.1	21.3	24.1	165.1	12.8
NB	11	35	52	1.5	4.7	6.9	376.4	48.1
NS/PE*	57	151	127	5.3	14.0	11.8	121.0	-16.1
NL	5	14	9	0.9	2.8	1.8	90.0	-36.0
YT	5	17	15	16.3	51.2	44.6	172.6	-13.0
NT	135	299	240	330.0	683.9	552.5	67.4	-19.2
NU	95	363	516	346.5	1,147.9	1,603.3	362.8	39.7

¹ Rate change calculated using unrounded values.

² Bolded rates indicate rates above national average.

* The rate change cannot be quantified.

Note: Due to small counts, NS and PE Cases and Rates have been combined.

► In 2009, the national female-to-male rate ratio was 0.8 meaning that reported gonorrhoea rates were slightly higher among males than females (Table 5). However, this average masks variations across the country. In five jurisdictions (Nova Scotia/Prince Edward Island,

Manitoba, Saskatchewan and Yukon Territory), more cases were reported in females than males. Between 2000 and 2009, the rate ratio changed significantly from 0.6 to 0.8 ($p=0.008$) suggesting a trend in rates reaching towards parity in males and females.

Table 5: Female-to-Male Ratio of Reported Rates of Gonorrhoea by Province/Territory, 2000, 2008 and 2009, Canada

JURISDICTION	FEMALE-TO-MALE GONORRHEA RATE RATIO		
	2000	2008	2009
<i>Canada</i>	0.6	0.8	0.8
BC	0.3	0.6	0.6
AB	0.7	0.8	1.0
SK	1.0	1.4	1.4
MB	0.8	1.2	1.2
ON	0.7	0.7	0.8
QC	0.2	0.6	0.5
NB	0.1	0.9	0.9
NS/PE	0.7	1.0	1.2
NL	0.2	0.0	0.3
YT	0.7	1.5	0.9
NT	1.2	1.0	1.2
NU	1.2	1.0	0.9

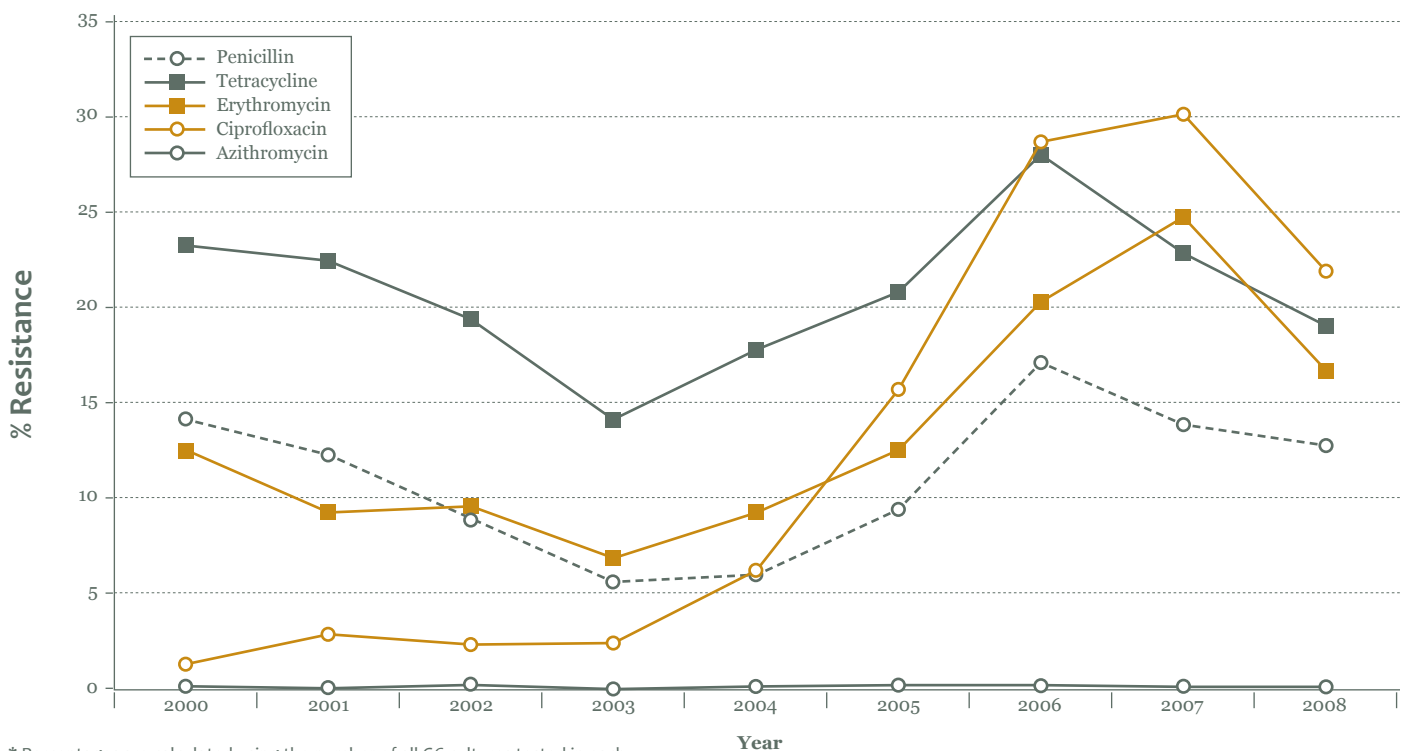
Note: Due to small counts, the NS and PE rate ratio has been combined.

Gonorrhea Antimicrobial Resistance

Uncomplicated gonorrhea can be treated with single dose oral or injectable antibiotics. The challenge arises when resistant strains are treated with antibiotics to which the bacteria have decreased susceptibility. When this occurs, there is increased likelihood of transmission due to treatment failure and the development of adverse sequelae unless the resistant organism is identified and treated appropriately. Gonococcal resistance to penicillin, erythromycin and tetracycline is long established, while ciprofloxacin resistance has developed more recently. None of these antibiotics are currently recommended as preferred treatments by the *Canadian Guidelines on Sexually Transmitted Infections*¹.

- ▶ Canadian gonococcal resistance surveillance is a collaborative effort between the National Microbiology Laboratory (NML) at PHAC and provincial and territorial laboratories.
- ▶ Submission to the NML of gonococcal isolates that have decreased susceptibility to at least one antibiotic is voluntary and not standardized across the country.
- ▶ There is an increasing trend to diagnose gonorrhea (as well as chlamydia) using urine specimens analyzed with Nucleic Acid Amplification Test (NAAT), as the specimen is easier to obtain and is more acceptable to patients, and the laboratory test is more sensitive, yielding fewer false negatives than culturing traditional genital specimens (swabs). This shift in diagnostic techniques has created challenges in monitoring resistance as specimens available for testing are becoming more limited.
- ▶ Antibiotics tested for gonococcal resistance at the NML include penicillin, tetracycline, spectinomycin, erythromycin, azithromycin, ciprofloxacin, cefixime and ceftriaxone.
- ▶ Using the most current data available for 2008, 22.0% of cultured strains demonstrated resistance to ciprofloxacin, down from 30.2% in 2007 (Figure 11).
- ▶ In 2008, 0.1% of cultured strains demonstrated resistance to azithromycin.

Figure 11: Antimicrobial Susceptibility of *Neisseria gonorrhoeae* Strains Tested in Canada, 2000 to 2008



* Percentages are calculated using the number of all GC cultures tested in each jurisdiction, including susceptible and resistance cultures, as the denominator. There are no resistant strains for spectinomycin, cefixime, and ceftriaxone.

Syphilis (*Treponema pallidum*)

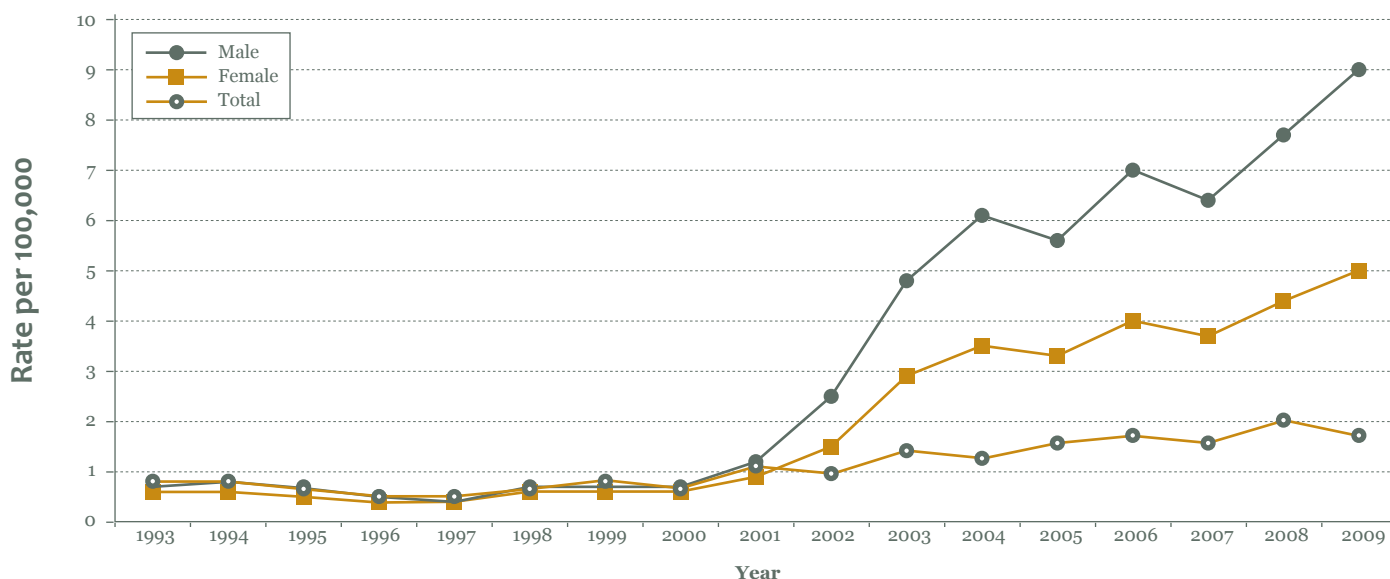
Syphilis, an infection caused by the bacterium *Treponema pallidum*, has been nationally notifiable since 1924. If left untreated, it progresses through stages named primary, secondary, latent and tertiary syphilis. Primary, secondary, and early latent syphilis (less than one year after the point of infection) are considered infectious. As such, only these stages comprising infectious syphilis are of major public health significance and are included in national reports. Untreated syphilis can result in serious complications causing damage to the central nervous system, cardiovascular system, eyes, skin and other internal organs and may even be fatal¹. Individuals infected with syphilis are also at an increased risk of contracting HIV; those co-infected with both pathogens are more likely to transmit HIV to their sexual partners².

Congenital syphilis is caused by the vertical transmission of *Treponema pallidum* from an infected mother to her fetus. Congenital syphilis may not be diagnosed until later in life, as the disease can often be asymptomatic or may present with symptoms that are not identified in the first few weeks. Only early congenital syphilis cases (diagnosed in infants less than 2 years of age) are currently reported nationally.

From 1993 to 2000, reported rates of infectious syphilis were relatively stable and similar between genders (Figure 12). Reported rates started to climb sharply in 2001, more so in men than in women

- ▶ In 2009, 1,683 cases of infectious syphilis were reported to PHAC, corresponding to a rate of 5.0 per 100,000. The overall relative increase in reported syphilis rates was 782.1% since 2000 (0.6 per 100,000) (Figure 12). Between 2008 and 2009, the overall relative increase was 19.3%.
- ▶ Historically, a greater number of cases have been reported in men than in women. In 2009, men accounted for 89.2% of all reported cases.
- ▶ Between 2000 and 2009, reported rates of infectious syphilis increased in both males and females, but more so in males; the rate in men increased by 1,098.8% (from 0.7 to 9.0 per 100,000) and in women increased by 175.6% (from 0.4 to 1.1 per 100,000) (Figure 12).

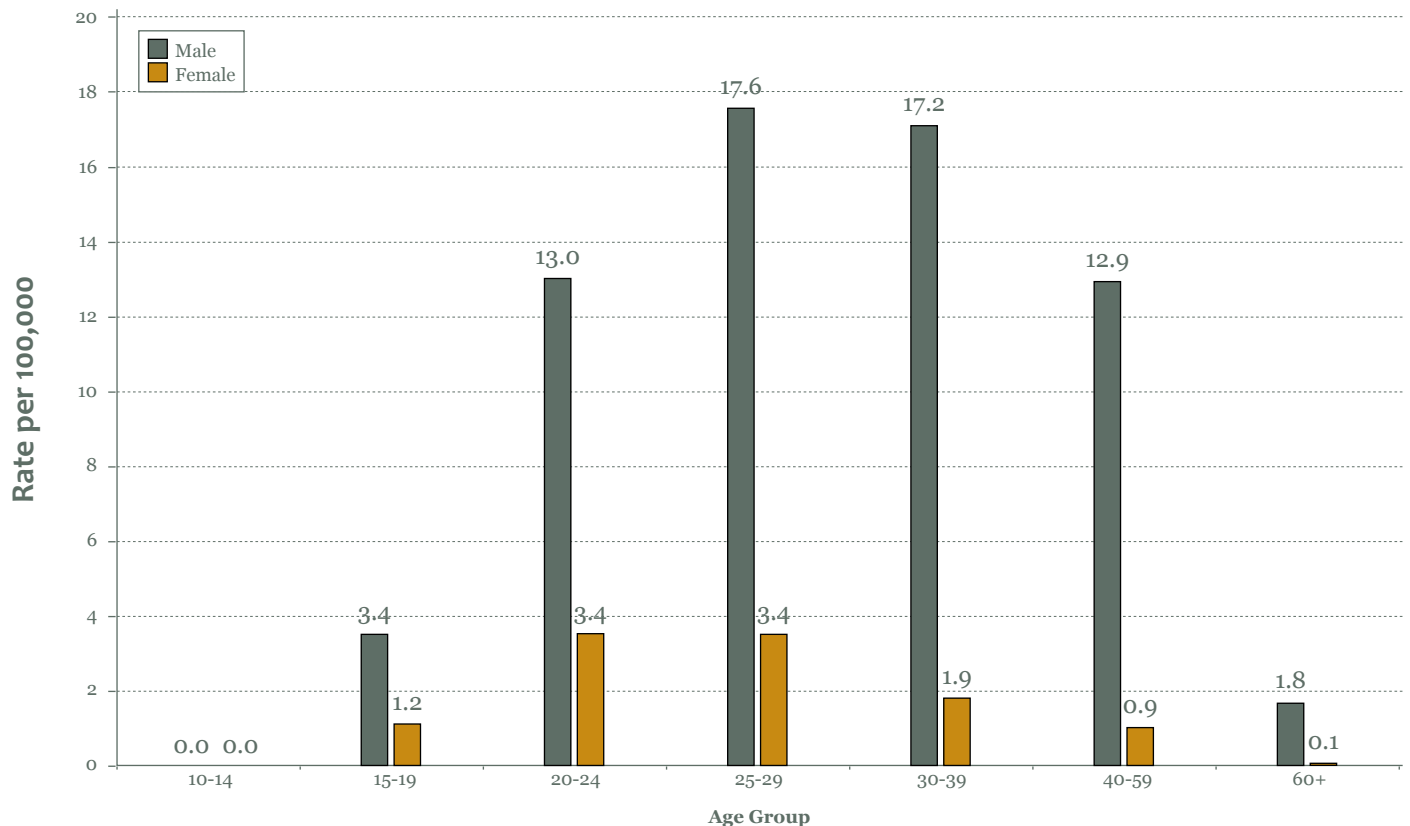
Figure 12: Reported Overall and Sex-Specific Rates of Infectious Syphilis, 1993 to 2009, Canada



Unlike chlamydia and gonorrhea, reported rates of infectious syphilis were highest in a slightly older population

- ▶ Similar to reported findings in 2008, people aged 30 and older accounted for 70.7% of all reported cases in 2009.
- ▶ In men, the highest reported rate of infectious syphilis was in those aged 25 to 29 and 30 to 39 (17.6 and 17.2 per 100,000 accordingly) (Figure 13). These two age groups accounted for 40.2% of reported cases in men in 2009.
- ▶ In women, the highest reported rate was in 20 to 24 and 25-29 year olds (3.4 per 100,000 for each age group) (Figure 13).

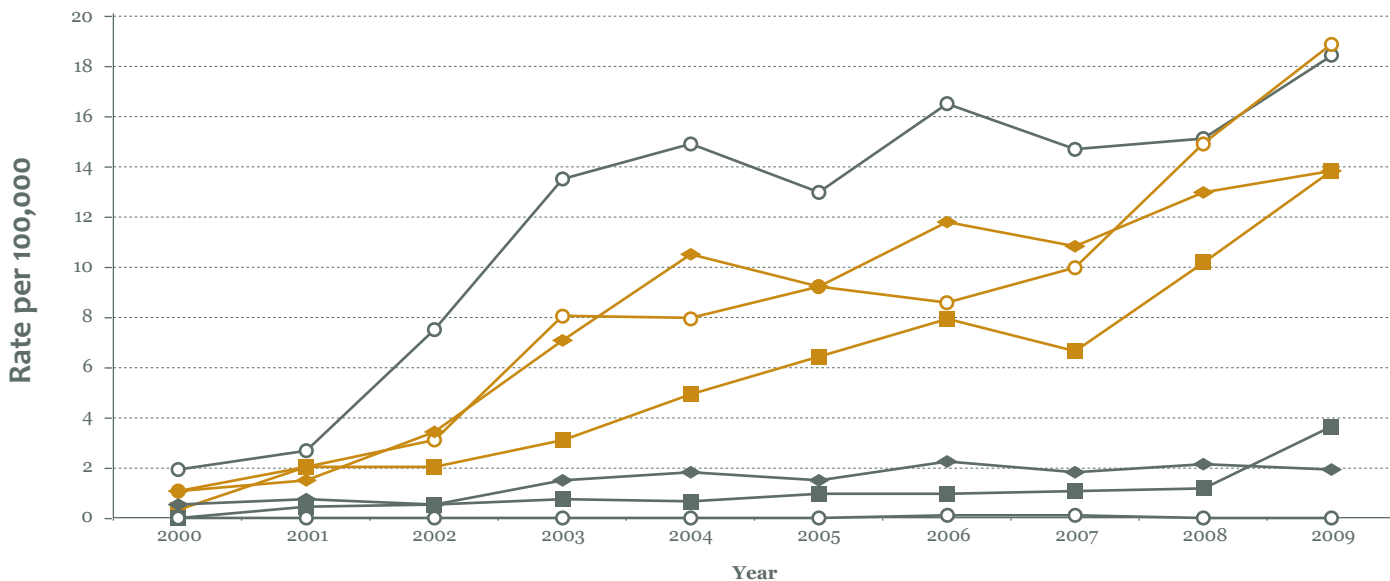
Figure 13: Reported Rates of Infectious Syphilis by Sex and Age Group, 2009, Canada



In 2009, while the highest rates of infectious syphilis were reported in males aged 25 to 29 and 30 to 39 years old, the greatest increases were observed in men aged 20 to 29

- ▶ Between 2000 and 2009, the greatest absolute increase in reported rates of infectious syphilis in males was in 25 to 29 year olds. The rate increased from 1.1 per 100,000 in 2000 to 17.6 per 100,000 in 2009 (Figure 14). This increase was closely followed by the rise in absolute rates in males aged 30-39 (from 1.8 per 100,000 in 2000 to 17.2 per 100,000 in 2009).
- ▶ In the past decade, reported rates of infectious syphilis have increased in males of 20-24 years similarly to the increase observed in males aged 40-59 years, i.e. from 0.3 to 13.0 and from 1.0 to 12.9 per 100,000 accordingly. (Figure 14). In relative terms, during the past decade, the highest increase was observed in males aged 20-24 years – the rate increased by 4,517.3%, which was followed by increases in the 25-29 (by 1,470.5%) and 40-59 (by 1,143.8%) age groups.
- ▶ Between 2008 and 2009, in males, the relative increase in reported rates was 23.5%, reflecting a continuing trend of increasing rates.

Figure 14: Reported Rates of Infectious Syphilis in Males by Age Group, 2000 to 2009, Canada

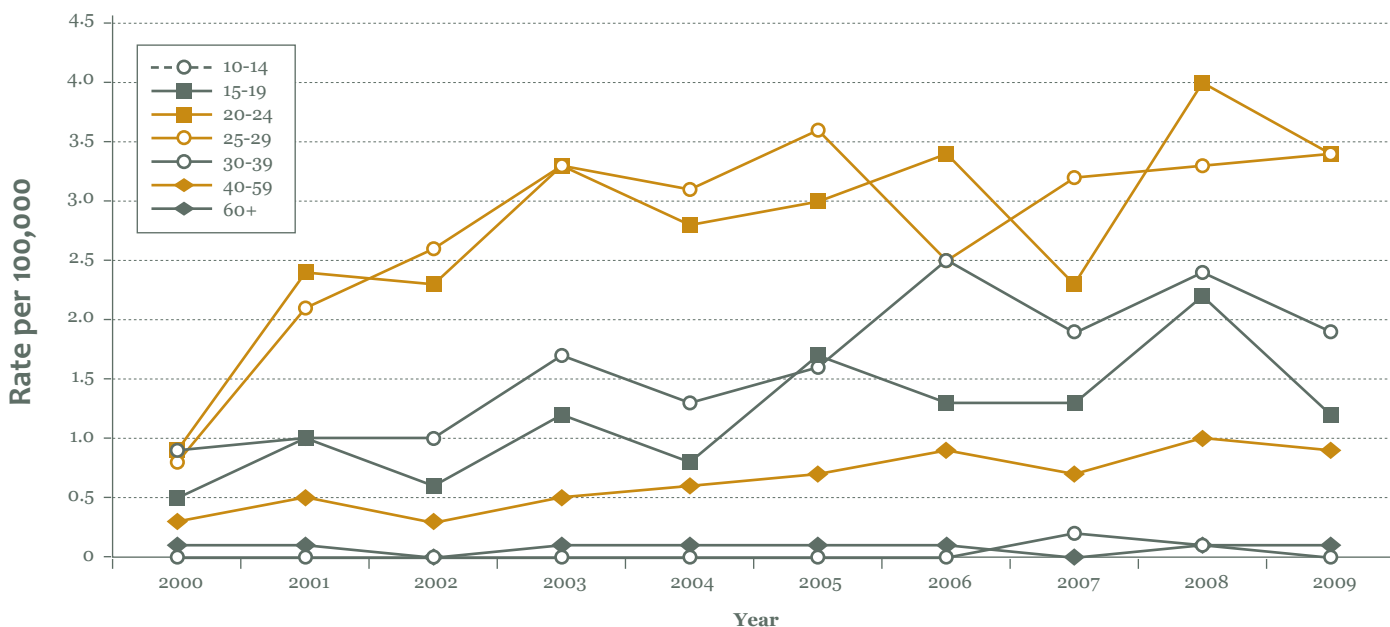


- ▶ Between 2000 and 2009, in females, the greatest absolute increase in reported rates of infectious syphilis was in 25 to 29 year olds (Figure 15). The rate increased from 0.8 per 100,000 in 2000 to 3.4 per 100,000 in 2009.
- ▶ A very similar rate increase was observed in 20 to 24 year olds, with reported infectious syphilis rate

rising from 0.9 to 3.4 per 100,000. In relative terms, the highest increase in females was observed in those aged 25-29 years – rate increased by 338.1%, which was followed by increases in the 20-24 (by 281.5%) and 40-59 (by 181.0%) age groups.

- ▶ Between 2008 and 2009, in females, the reported rate decreased by 5.9% overall.

Figure 15: Reported Rates of Infectious Syphilis in Females by Age Group, 2000 to 2009, Canada



The majority of reported cases of infectious syphilis were concentrated in Canada's most populous provinces. However, the highest reported rate was in NWT due to a recent outbreak¹⁹

- ▶ In 2009, the highest rate of infectious syphilis was in the Northwest Territories (94.4 per 100,000), followed by Yukon Territory (8.9 per 100,000) (Table 6).
- ▶ Between 2000 and 2009, the largest increase in reported rates of infectious syphilis was in Québec, with an increase of 4,934.9% (Table 6).
- ▶ During the same period, outbreaks of infectious syphilis were reported across Canada, including Vancouver, Edmonton, Calgary, Winnipeg, Toronto, Ottawa, Montréal, Yukon and the Northwest Territories¹²⁻²⁰.
- ▶ Between 2008 and 2009, the reported syphilis rate increased by 19.3%. The highest relative rate increase was observed in Nova Scotia/PEI (378.6%), followed by Saskatchewan (88.6%) and Ontario (58.5%). During this period, Newfoundland and Labrador reported the most pronounced relative decrease in syphilis rates (62.7%) (Table 6).

Table 6: Reported Cases and Rates¹ of Infectious Syphilis by Province/Territory, 2000, 2008, and 2009, Canada

JURISDICTION	NUMBER OF CASES			RATES PER 100,000 ²			RATE CHANGE (%)	
	2000	2008	2009	2000	2008	2009	2000-2009	2008-2009
<i>Canada</i>	174	1,482	1,683	0.6	4.2	5.0	782.1	19.3
BC	95	328	216	2.3	7.5	4.8	107.1	-35.2
AB	15	244	271	0.5	6.8	7.3	1,374.3	8.3
SK	1	12	23	0.1	1.2	2.2	2,181.8	88.6
MB	1	13	8	0.1	1.1	0.7	650.2	-39.3
ON	43	444	711	0.4	3.4	5.4	1,378.4	58.5
QC	7	369	374	0.1	4.8	4.8	4,934.9	0.4
NB	0	6	9	0.0	0.8	1.2	*	49.5
NS/PE	1	5	24	0.1	0.5	2.2	*	378.6
NL	0	8	3	0.0	1.6	0.6	*	-62.7
YT	11	0	3	36.0	0.0	8.9	-75.2	*
NT	0	53	41	0.0	121.2	94.4	*	-22.1
NU	0	0	0	0.0	0.0	0.0	*	*

¹ Rate change calculated using unrounded values.

² Bolded rates indicate rates above national average.

* The rate change cannot be quantified.

Note: Due to small counts, NS and PE Cases and Rates have been combined.

- ▶ The male-to-female rate ratio increased from 1.9 in 2000 to 8.4 in 2009, reflecting that disproportionately more reported cases were in males than females and that this disparity increased over time (Table 7).

Table 7: Male-to-Female Ratio of Reported Rates of Infectious Syphilis by Province/Territory, 2000, 2008 and 2009, Canada

JURISDICTION	MALE-TO-FEMALE SYPHILIS RATE RATIO		
	2000	2008	2009
<i>Canada</i>	1.9	6.4	8.4
BC	1.7	7.1	6.8
AB	6.4	1.4	2.0
SK	*	2.0	2.3
MB	*	3.4	*
ON	2.1	13.7	32.2
QC	2.6	45.7	21.3
NB	*	5.2	8.3
NS/PE	*	*	24.3
NL	*	3.1	*
YT	1.6	*	*
NT	*	1.3	1.2
NU	*	*	*

Note: Due to small counts, the NS and PE rate ratio has been combined.

Congenital Syphilis

- Data from recent years suggest an increase in reported cases and corresponding rates of congenital syphilis and can be linked to jurisdictions that have reported outbreaks of syphilis in heterosexual partnerships²⁰ (Table 8).

Table 8: Reported Cases and Rates of Confirmed Early Congenital Syphilis¹, 2000 to 2009, Canada

YEAR	TOTAL REPORTED CASES	RATE (per 100,000 live births) ²	NUMBER OF REPORTED CASES ¹												
			BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	YT	NT	NU
2000	2	0.610	1	0	0	0	0	1	0	0	0	0	0	0	0
2001	1	0.300	1	0	0	0	0	0	0	0	0	0	0	0	0
2002	3	0.912	0	1	1	0	1	0	0	0	0	0	0	0	0
2003	2	0.597	0	0	0	0	0	2	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	8	2.338	3	5	0	0	0	0	0	0	0	0	0	0	0
2006	7	1.974	2	4	0	0	1	0	0	0	0	0	0	0	0
2007	8	2.175	2	5	0	0	1	0	0	0	0	0	0	0	0
2008	6	1.602	2	2	0	0	1	0	0	0	0	0	0	1	0
2009	10	2.629	2	7	0	0	0	0	0	0	0	0	0	1	0

¹ Refers to laboratory confirmed case of early congenital syphilis (within 2 years of birth)

² Source: Statistics Canada, Canadian Vital Statistics, Birth Database

International Comparison

To provide an international perspective for the trends highlighted in this report, STI rates and rate ratios in Canada were compared to those in other western countries with similar population health status and well-established public health infrastructures. Countries selected for comparison are the United States, Australia, and United Kingdom. Statistics presented below are either drawn from published health reports or provided directly by respective national health departments. Differences in case numbers and reported rates need to be interpreted with caution due to differences in case definitions, reporting sources, screening programs and screening rates, age groupings and other factors.

Chlamydia

- ▶ Similar to Canada, chlamydia is the most commonly reported bacterial STI in all three countries of comparison. In 2009, in males, reported rates of chlamydia ranged from 219.3 per 100,000 in the United States to 281.5 per 100,000 in the United Kingdom. In females, corresponding rates varied from 336.0 per 100,000 in Australia to 592.2 in the United States (Table 9).
- ▶ Between 2008 and 2009, chlamydia rates increased in both males and females in all three countries of comparison. In Australia, in males, the chlamydia rate increased by 6.5% and in females by 4.2%. In the United Kingdom, in males, the chlamydia rate increased by 5.1% and in females by 8.2%. In the United States, the chlamydia rate in males increased by 4.8% and in females by 2.2%. In Canada, the corresponding rate increases were 3.8% in males and 3.9% in females (Table 9). In all countries, highest rates were reported in the younger populations: 15 to 24 years old in women and 20 to 24 years old in men.
- ▶ The highest female-to-male reported rate ratio for chlamydia was in the United States (2.7), while the lowest rate ratio was observed in Australia (1.4). Notwithstanding inter-country differences in reported chlamydia rate ratios, females accounted for the majority of all reported cases. (Table 9). A comparison of chlamydia rate ratio changes demonstrates that trends in Canada are closer to the trends in the United States than in Australia or the United Kingdom.

Table 9: Reported Sex-Specific Rates and Rate Ratios of Chlamydia in Canada, Australia, the United Kingdom and the United States, 2000, 2008 and 2009

COUNTRY	REPORTED RATES (per 100,000) OF CHLAMYDIA AND FEMALE-TO-MALE (F:M) RATE RATIOS								
	2000			2008			2009		
	Female	Male	F:M	Female	Male	F:M	Female	Male	F:M
Canada	211.6	88.9	2.4	327.1	168.7	1.9	339.9	175.2	1.9
Australia	104.6	71.6	1.5	322.6	221.2	1.5	336.0	235.6	1.4
United Kingdom	124.7	99.7	1.3	378.0	267.8	1.4	409.0	281.5	1.5
United States	484.8	126.6	3.8	579.4	209.3	2.8	592.2	219.3	2.7

Source: Centre for Communicable Diseases and Infection Control, Infectious Disease Prevention and Control Branch, Public Health Agency of Canada for Canadian statistics. National Notifiable Disease Surveillance, Department of Health and Ageing for Australian statistics²¹. HIV and Sexually Transmitted Infections Department, Health Protection Agency for United Kingdom statistics²². Division of STD Prevention, Centers for Disease Control and Prevention for American statistics²³.

Gonorrhoea

- ▶ Similar to the findings of the 2008 STI surveillance report, reported rates of gonococcal infections were higher in the United States than in other countries, although the biggest reductions in reported gonorrhoea rates in both males and females between 2000 and 2009 were also observed in the United States (Table 10).
- ▶ In the United States, similar to Canada, rates in both males and females decreased between 2008 and 2009. The relative rate reduction for males in the United States was 10.0% (14.6% in Canada), while in females the rate decreased by 11.4% (15.1% in Canada). During the same period, in the United Kingdom, the reported rate in

males increased by 7.3% and by 1.8% in females. In Australia, the rate increased in males by 6.2%, but decreased in females by 3.6%.

- ▶ In the United States, as in Canada, reported rates of gonorrhoea were similar in men and women (i.e. around 1.0), while in Australia and the United Kingdom, reported rates were twice as high in males as in females; the

male-to-female rate ratio ranged from 0.9 in the United States to 2.2 in the United Kingdom (Table 10).

- ▶ Consistent across countries, the highest rates were reported in young men aged 20 to 24. Among women, highest rates were reported in a younger group of 15 to 24 year olds in each of the countries.

Table 10: Reported Sex-Specific Rates and Rate Ratios of Gonorrhoea in Canada, Australia, the United Kingdom and the United States, 2000, 2008 and 2009

COUNTRY	REPORTED RATES (per 100,000) OF GONORRHEA AND MALE-TO-FEMALE (M:F) RATE RATIOS								
	2000			2008			2009		
	Male	Female	M:F	Male	Female	M:F	Male	Female	M:F
Canada	25.1	15.1	1.7	42.9	33.5	1.3	36.7	29.6	1.2
Australia	41.7	19.9	2.1	46.7	24.8	1.9	49.6	23.9	2.1
United Kingdom	50.6	21.1	2.4	35.7	17.1	2.1	38.3	17.4	2.2
United States	166.7	153.8	1.1	102.1	118.5	0.9	91.9	105.5	0.9

Source: Centre for Communicable Diseases and Infection Control, Infectious Disease Prevention and Control Branch, Public Health Agency of Canada for Canadian statistics. National Notifiable Disease Surveillance, Department of Health and Ageing for Australian statistics²¹. HIV and Sexually Transmitted Infections Department, Health Protection Agency for United Kingdom statistics²². Division of STD Prevention, Centers for Disease Control and Prevention for the US statistics²³.

Syphilis

- ▶ As with chlamydia, the case definition for syphilis varied across countries. In both the United States and the United Kingdom, only primary and secondary infectious syphilis cases were reported. In Australia and Canada, early latent cases are also included in reporting. Furthermore, there are notable differences in the definition of early latent syphilis between these four countries. Early latent syphilis is defined as an asymptomatic individual with syphilis who has acquired the infection in the past two years (for United Kingdom and Australia) and one year for Canada and the United States.
- ▶ In all four countries, men accounted for the overwhelming majority of reported cases of infectious syphilis. The disparity in reported rates between men and women varied by country; the male-to-female rate ratio ranged from 5.6 in the United States to 10.0 in Australia (Table 11).
- ▶ In all four countries of comparison, infectious syphilis rates increased in males, but decreased in females between 2008 and 2009. In males, the relative rate increase was 0.9% in Australia, 1.5% in the United Kingdom and 4% in the United States as compared to a 23.5% increase in Canada. In females, the rate decreased by 21.4% in Australia, by 12.5% in the United Kingdom and by 6.7% in the United States as compared to 5.9% relative rate decrease in Canada.
- ▶ Among men, highest rates varied: 25 to 39 year olds in Canada, 25 to 44 year olds in Australia and the United Kingdom. In the United States, highest rates were reported among 20 to 29 year olds.
- ▶ Among women, highest rates were reported in younger populations: 20 to 29 year olds in Canada, the United States, and Australia, and 16 to 24 year olds in the United Kingdom.

Table 11: Reported Sex-Specific Rates and Rate Ratios of Infectious Syphilis (Primary, Secondary, Early Latent Syphilis) in Canada and Australia and Primary and Secondary Syphilis in the United Kingdom and the United States, 2000, 2008 and 2009

COUNTRY	REPORTED RATES (per 100,000) OF INFECTIOUS SYPHILIS AND MALE-TO-FEMALE (M:F) RATE RATIOS								
	2000			2008			2009		
	Male	Female	M:F	Male	Female	M:F	Male	Female	M:F
Canada	0.7	0.4	1.9	7.3	1.1	6.4	9.0	1.1	8.4
Australia	3.9	2.7	1.4	10.9	1.4	7.8	11.0	1.1	10.0
United Kingdom	0.9	0.2	4.2	6.8	0.8	8.5	6.9	0.7	9.9
United States	3.3	2.1	1.6	7.5	1.5	5.0	7.8	1.4	5.6

Source: Centre for Communicable Diseases and Infection Control, Infectious Disease Prevention and Control Branch, Public Health Agency of Canada for Canadian statistics. National Notifiable Disease Surveillance, Department of Health and Ageing for Australian statistics²¹. HIV and Sexually Transmitted Infections Department, Health Protection Agency for United Kingdom statistics²². Division of STD Prevention, Centers for Disease Control and Prevention for the US statistics²³.

+ Includes reported cases of primary, secondary and early latent syphilis. NB: The definition for early latent syphilis varies between the four countries. Early latent syphilis is defined as an asymptomatic individual with syphilis who has acquired the infection in the past two years (for UK and Australia) and one year for Canada and the US

^ Includes only reported cases of primary and secondary syphilis cases.

Appendix A: Technical Notes

Case reporting: Currently, some jurisdictions report to the Public Health Agency of Canada (PHAC) using aggregate case counts instead of case-by-case reporting. Selected variables submitted by all 13 jurisdictions are: age at diagnosis, year of diagnosis, province/territory of diagnosis, and sex. As such, national reporting is limited to analyses of these variables. National case definitions are available at: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/index-eng.php>

Reporting delay: A time delay may occur between when a person is tested positive for a sexually transmitted infection (STI) and when the report is received at PHAC. This time lag is referred to as reporting delay. In cases where there are discrepancies between data reported by PHAC and those reported by individual provinces and territories, provincial/territorial data should be considered to be more accurate as they are the most current. The 2009 data presented in this report are subject to change.

Underreporting: The number of reported cases likely underestimates the true burden of infection in a given population for a variety of reasons. For example, many people who are infected with STIs do not exhibit symptoms and therefore may not present to a healthcare practitioner for testing.

Annual trends: Observed trends must be interpreted with caution since there are a number of factors that contribute to changes:

- ▶ Rates based on small numbers are more prone to fluctuation over time; and
- ▶ There may be changes to testing patterns due to improved diagnostic capabilities, improved duplicate removal, and reporting delay.

Population data source: Statistics Canada, Demography Division, Demographic Estimates Section, July Population Estimates, 1997-2005 final intercensal estimates, 2006 final postcensal estimates, 2007-2008 updated postcensal estimates, 2009 preliminary postcensal estimates.

Appendix B: Overview of STI Surveillance in Canada

In Canada, national routine surveillance is generally conducted according to longstanding standard operating procedures by the provinces/territories and PHAC. As part of the plan to develop more formal processes, the first of a series of data sharing agreements was signed between Ontario and PHAC in 2007.

Provinces and territories collect and manage surveillance data using a variety of mechanisms (e.g. paper-based reporting, proprietary databases, iPHIS) and submit these data to PHAC on a regular basis. The content of the various data submissions depends on each jurisdiction's ability to collect the data elements, privacy legislation, and technological capacity. Data are submitted in a variety of formats, e.g. line-listed electronic, paper-based case reports, or aggregate data, and entered or directly loaded (depending on format) into the national Canadian Notifiable Disease Surveillance System (CNDSS) by PHAC personnel.

Extracts from CNDSS are used as the basis of national data tables and surveillance reports. Tables containing data for each province or territory are sent to their respective jurisdiction for verification. Small discrepancies between PHAC and provincial or territorial numbers are expected as a result of comparing dynamic databases and differences of 5% or less are not corrected at the national level, however larger differences (>5%) require further investigation and national figures are updated accordingly. If a jurisdiction revises data during the verification process, a re-submission of data to CNDSS is required.

Upon validation of provincial and territorial data, PHAC's Centre for Communicable Diseases and Infection Control staff members recreate data tables and post them to the PHAC website. Finalized data tables also form the basis of annual surveillance reports, which provide a more in-depth analysis and interpretation of the data trends. These data are used by public health planners, academics and media, both nationally and internationally.

Appendix C: Reported Cases and Rates of Chlamydia, Gonorrhea and Infectious Syphilis by Age Group and Sex

Table 12: Reported Cases and Rates¹ of Chlamydia by Age Group and Sex, 1991 to 2009²

YEAR	SEX	CHLAMYDIA												
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+	NS	Total	
1991	Cases	Male	9	5	1	37	1,753	3,480	1,853	1,141	334	22	200	8,835
		Female	17	13	12	530	10,259	9,489	3,657	1,926	410	26	579	26,918
		Unspecified	0	0	0	1	8	10	5	0	1	0	10,191	10,216
		Total	26	18	13	568	12,020	12,979	5,515	3,067	745	48	10,970	45,969
1991	Rates	Male	4.3	0.6	0.1	3.8	176.9	327.6	145.9	46.2	10.4	1.1		63.6
		Female	8.6	1.7	1.3	57.3	1,095.1	925.0	295.6	78.4	12.9	1.0		190.4
		Unspecified												
		Total	6.4	1.2	0.7	29.9	623.4	621.6	220.0	62.2	11.7	1.1		164.0
1992	Cases	Male	24	7	3	32	2,047	4,290	2,122	1,423	400	34	429	10,811
		Female	23	16	14	605	13,235	12,466	4,550	2,407	526	58	1,463	35,363
		Unspecified	0	1	0	0	9	18	6	3	0	1	153	191
		Total	47	24	17	637	15,291	16,774	6,678	3,833	926	93	2,045	46,365
1992	Rates	Male	11.6	0.9	0.3	3.2	206.6	406.8	172.4	56.6	12.2	1.7		76.9
		Female	11.7	2.1	1.5	64.5	1,412.1	1,225.6	378.7	96.3	16.1	2.3		247.1
		Unspecified												
		Total	11.7	1.5	0.9	33.0	793.0	809.7	274.6	76.4	14.1	2.1		163.4
1993	Cases	Male	9	4	6	51	2,077	4,132	2,250	1,490	451	27	124	10,621
		Female	18	11	11	600	12,744	12,012	4,558	2,542	500	40	343	33,379
		Unspecified	0	0	0	0	4	1	2	3	0	0	12	22
		Total	27	15	17	651	14,825	16,145	6,810	4,035	951	67	479	44,022
1993	Rates	Male	4.5	0.5	0.6	5.1	208.9	395.3	189.9	58.1	13.3	1.3		74.7
		Female	9.4	1.4	1.2	63.0	1,355.0	1,194.2	394.4	100.0	14.8	1.6		230.5
		Unspecified												
		Total	6.9	0.9	0.9	33.3	766.2	787.2	291.0	79.0	14.1	1.5		153.4
1994	Cases	Male	20	2	4	33	1,914	3,859	2,022	1,544	460	38	110	10,006
		Female	27	13	13	577	11,567	11,282	4,165	2,669	589	40	234	31,176
		Unspecified	0	0	0	0	5	16	9	5	0	0	18	53
		Total	47	15	17	610	13,486	15,157	6,196	4,218	1,049	78	362	41,235
1994	Rates	Male	10.1	0.2	0.4	3.2	190.0	372.7	177.0	59.4	13.2	1.9		69.6
		Female	14.4	1.6	1.4	59.8	1,215.5	1,131.8	373.6	103.8	16.8	1.5		212.8
		Unspecified												
		Total	12.2	0.9	0.9	30.8	688.4	745.9	274.5	81.6	15.0	1.7		142.0
1995	Cases	Male	24	8	3	21	1,721	3,478	1,848	1,484	398	33	69	9,085
		Female	32	5	10	466	10,704	10,496	3,745	2,312	459	31	191	28,451
		Unspecified	0	0	0	0	2	2	1	0	1	0	9	15
		Total	56	11	13	487	12,427	13,976	5,594	3,796	858	64	269	37,551
1995	Rates	Male	12.2	0.7	0.3	2.0	168.7	338.5	166.4	56.6	11.0	1.6		62.5
		Female	17.2	0.6	1.0	47.9	1,111.1	1,060.2	345.4	89.4	12.6	1.2		192.0
		Unspecified												
		Total	14.7	0.7	0.7	24.4	626.4	692.7	254.9	72.9	11.8	1.4		127.9
1996	Cases	Male	9	1	0	23	1,524	3,128	1,745	1,372	436	22	57	8,317
		Female	14	9	14	435	9,752	9,439	3,549	2,134	530	26	160	26,062
		Unspecified	0	0	0	0	6	5	1	2	0	0	6	20
		Total	23	10	14	458	11,282	12,572	5,295	3,508	966	48	223	34,399
1996	Rates	Male	4.6	0.1	0.0	2.2	147.2	305.5	159.6	52.3	11.7	1.0		56.6
		Female	7.5	1.2	1.4	44.5	997.1	956.7	331.7	82.6	14.1	1.0		174.0
		Unspecified												
		Total	6.0	0.6	0.7	22.8	560.5	625.3	244.7	67.3	12.9	1.0		115.9
1997	Cases	Male	7	0	0	18	1,510	3,260	1,783	1,559	484	21	72	8,714
		Female	15	3	10	378	9,588	9,170	3,458	2,103	512	33	136	25,406
		Unspecified	1	0	0	0	4	4	1	0	1	0	13	24
		Total	23	3	10	396	11,102	12,434	5,242	3,662	997	54	221	34,144
1997	Rates	Male	3.8	0.0	0.0	1.7	144.7	316.1	164.3	59.8	12.5	1.0		58.7
		Female	8.7	0.4	1.0	38.5	971.3	924.1	325.8	81.9	13.2	1.2		167.8
		Unspecified												
		Total	6.5	0.2	0.5	19.6	546.7	614.5	244.2	70.8	12.8	1.1		113.9

YEAR	SEX	CHLAMYDIA											NS	Total
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+			
1998	Cases	Male	8	0	3	36	1,934	4,094	2,338	1,934	609	32	53	11,041
		Female	12	7	12	413	10,599	10,087	3,857	2,299	509	29	132	27,956
		Unspecified	1	0	0	0	4	4	4	2	0	0	22	37
		Total	21	7	15	449	12,537	14,185	6,199	4,235	1,118	61	207	39,034
1998	Rates	Male	4.5	0.0	0.3	3.5	183.8	394.1	217.0	75.1	15.2	1.5		73.7
		Female	7.1	0.9	1.2	42.0	1,063.7	1,011.8	366.4	90.7	12.7	1.1		183.1
		Total	6.1	0.5	0.7	22.2	612.0	696.8	291.0	82.9	13.9	1.2		129.0
1999	Cases	Male	15	3	3	31	1,976	4,702	2,538	2,198	722	49	50	12,287
		Female	11	7	9	429	11,428	10,740	4,040	2,371	616	20	142	29,813
		Unspecified	0	0	0	0	12	7	3	1	1	0	17	41
		Total	26	10	12	460	13,416	15,449	6,581	4,570	1,339	69	209	42,141
1999	Rates	Male	8.7	0.4	0.3	3.0	186.7	446.3	237.0	86.4	17.5	2.2		81.4
		Female	6.7	1.0	0.9	43.5	1,138.3	1,064.6	386.1	94.8	14.8	0.7		193.6
		Total	7.7	0.7	0.6	22.7	650.6	749.1	310.8	90.6	16.2	1.4		138.2
2000	Cases	Male	11	2	1	30	2,335	5,013	2,786	2,366	875	45	75	13,539
		Female	9	6	6	474	12,454	11,993	4,365	2,692	708	29	132	32,868
		Unspecified	0	0	0	0	4	9	5	1	1	0	12	32
		Total	20	8	7	504	14,793	17,015	7,156	5,059	1,584	74	219	46,439
2000	Rates	Male	6.4	0.3	0.1	2.9	219.4	470.4	260.6	94.2	20.6	2.0		88.9
		Female	5.5	0.8	0.6	47.5	1,234.3	1,175.7	417.9	109.0	16.6	1.0		211.6
		Total	6.0	0.8	0.3	24.6	713.5	815.7	338.5	101.5	18.6	1.4		150.9
2001	Cases	Male	14	0	0	38	2,545	5,769	3,172	2,636	951	51	66	15,242
		Female	26	5	3	503	12,905	12,716	4,755	2,872	754	30	159	34,728
		Unspecified	0	0	0	1	28	42	16	7	1	0	12	107
		Total	40	5	3	542	15,478	18,527	7,943	5,515	1,706	81	237	50,077
2001	Rates	Male	8.2	0.0	0.0	3.6	233.9	534.9	301.5	107.1	21.7	2.2		99.2
		Female	16.1	0.7	0.3	49.6	1,256.0	1,235.1	466.2	118.8	17.1	1.0		221.9
		Total	12.1	0.4	0.1	26.1	731.6	878.9	383.3	113.1	19.4	1.6		161.4
2002	Cases	Male	4	1	1	26	2,768	6,625	3,721	2,998	1,178	69	60	17,451
		Female	8	1	6	537	14,109	14,461	5,368	3,297	833	24	132	38,776
		Unspecified	0	0	0	1	2	7	4	1	0	0	24	39
		Total	12	2	7	564	16,879	21,093	9,093	6,296	2,011	93	216	56,266
2002	Rates	Male	2.4	0.1	0.1	2.4	253.1	606.0	352.1	123.5	26.2	2.9		112.3
		Female	5.0	0.1	0.6	52.1	1,366.2	1,382.4	522.5	138.5	18.4	0.8		245.1
		Total	3.7	0.1	0.4	26.7	793.8	986.0	436.2	131.0	22.3	1.7		179.5
2003	Cases	Male	5	1	0	25	2,911	7,296	4,094	3,292	1,252	72	62	19,010
		Female	14	2	2	570	14,778	15,451	5,663	3,458	876	26	103	40,943
		Unspecified	0	0	0	1	3	4	3	3	4	0	12	30
		Total	19	3	2	596	17,692	22,751	9,760	6,753	2,132	98	177	59,983
2003	Rates	Male	3.0	0.1	0.0	2.3	265.9	656.5	385.5	138.7	27.1	2.9		121.3
		Female	8.7	0.3	0.2	54.6	1,429.6	1,453.3	546.8	148.5	18.8	0.9		256.5
		Total	5.8	0.2	0.1	27.9	831.2	1,046.3	465.3	143.6	23.0	1.8		189.6
2004	Cases	Male	8	0	2	23	3,142	8,089	4,543	3,386	1,526	95	41	20,855
		Female	10	3	7	559	15,171	16,388	6,042	3,784	1,071	47	61	43,143
		Unspecified	0	0	0	0	5	11	8	2	2	0	12	40
		Total	18	3	9	582	18,318	24,488	10,593	7,172	2,599	142	114	64,038
2004	Rates	Male	4.6	0.0	0.2	2.1	284.8	717.0	423.4	145.8	32.2	3.8		131.8
		Female	6.1	0.4	0.8	53.5	1,458.0	1,518.3	574.9	166.0	22.5	1.5		267.7
		Total	5.3	0.2	0.5	27.2	854.5	1,109.3	498.8	155.8	27.4	2.5		200.5
2005	Cases	Male	7	0	1	23	3,207	8,466	4,947	3,832	1,746	103	31	22,363
		Female	7	2	5	538	15,124	16,825	6,426	3,844	1,143	48	59	44,021
		Unspecified ³	0	0	0	0	7	10	7	2	1	0	33	60
		Total	14	2	6	561	18,338	25,301	11,380	7,678	2,890	151	123	66,444
2005	Rates	Male	4.0	0.0	0.1	2.1	286.5	741.5	456.3	167.7	36.0	4.0		139.9
		Female	4.2	0.3	0.5	51.9	1,431.1	1,543.1	602.9	171.3	23.5	1.5		270.6
		Total	4.1	0.1	0.3	26.4	842.7	1,133.5	529.3	169.5	29.8	2.6		206.1

YEAR	SEX	CHLAMYDIA												
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+	NS	Total	
2006	Cases	Male	6	0	2	27	3,394	8,802	5,116	4,152	1,931	129	28	23,587
		Female	12	6	12	459	15,124	17,398	7,042	4,225	1,305	56	53	45,692
		Unspecified ³	0	0	0	0	13	11	11	3	3	0	27	68
		Total	18	6	14	486	18,531	26,211	12,169	8,380	3,239	185	108	69,347
	Rates	Male	3.3	0.0	0.2	2.5	298.6	763.3	465.3	183.3	39.2	4.8		146.1
		Female	7.1	0.9	1.4	44.8	1,407.0	1,583.8	648.8	189.6	26.4	1.7		278.1
Total		5.1	0.4	0.8	23.2	837.9	1,164.0	557.0	186.5	32.9	3.1		212.9	
2007	Cases	Male	16	0	1	36	3,689	9,328	5,604	4,264	2,071	146	28	25,183
		Female	10	2	9	486	16,035	18,313	7,508	4,601	1,401	64	56	48,485
		Unspecified ³	0	0	0	1	18	18	10	8	3	1	43	102
		Total	26	2	10	523	19,742	27,659	13,122	8,873	3,475	211	127	73,770
	Rates	Male	8.7	0.0	0.1	3.4	321.1	801.2	498.9	188.2	41.8	5.2		154.3
		Female	5.7	0.3	1.0	48.4	1,471.6	1,654.4	677.4	205.9	28.2	1.9		292.0
Total		7.2	0.1	0.6	25.4	882.0	1,217.8	588.0	197.2	35.0	3.4		224.0	
2008	Cases	Male	13	0	1	43	4,141	10,368	6,210	4,682	2,276	122	20	27,876
		Female	12	1	4	472	18,161	20,281	8,707	5,487	1,736	53	53	54,967
		Unspecified ³	0	0	0	0	16	23	12	6	5	0	14	76
		Total	25	1	5	515	22,318	30,672	14,929	10,175	4,017	175	87	82,919
	Rates	Male	6.8	0.0	0.1	4.2	357.9	883.6	538.5	205.6	45.6	4.2		168.7
		Female	6.7	0.1	0.5	48.0	1,650.9	1,820.8	767.2	243.8	34.7	1.5		327.1
Total		6.8	0.1	0.3	25.6	988.8	1,341.0	652.5	224.7	40.2	2.7		248.8	
2009	Cases	Male	9	3	1	56	4,549	10,742	6,600	4,806	2,376	148	21	29,311
		Female	4	8	14	519	18,902	21,125	9,164	5,956	2,014	78	29	57,813
		Unspecified ³	0	0	0	0	9	26	24	11	8	0	8	86
		Total	13	11	15	575	23,460	31,893	15,788	10,773	4,398	226	58	87,210
	Rates	Male	4.7	0.4	0.1	5.5	394.4	900.7	556.7	209.7	47.2	4.9		175.2
		Female	2.2	1.1	1.6	53.9	1,720.3	1,871.4	788.4	262.1	40.0	2.2		339.9
Total		3.4	0.8	0.8	29.1	1,041.7	1,373.8	672.4	236.0	43.7	3.4		258.5	

1 Rate per 100,000 population. Population estimates provided by Statistics Canada. (Source: Statistics Canada. Demography Division, Demographic Estimates Section. July Population Estimates. 1997-2005 final intercensal estimates, 2006 final postcensal estimates, 2007-2008 updated postcensal estimates, 2009 preliminary postcensal estimates.)

2 2009 data are preliminary and changes are anticipated. Data were verified with provinces and territories as of November, 2010.

3 Unspecified sex includes transgender cases.

Source: Hepatitis C and STI Surveillance and Epidemiology Section, Community Acquired Infections Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, 2010.

Note: Small variability may exist between data reported by the provinces/territories and the Public Health Agency of Canada. Provincial/territorial data are definitive should a discrepancy exist.

Table 13: Reported Cases and Rates¹ of Gonorrhoea by Age Group and Sex, 1991 to 2009²

YEAR	SEX	GONORRHEA											NS	Total
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+			
1991	Cases	Male	4	0	0	22	576	1,141	897	831	344	41	3,230	7,086
		Female	2	12	3	109	1,082	958	454	319	93	5	2,315	5,352
		Unspecified	0	0	0	0	0	1	0	0	0	0	18	19
		Total	6	12	3	131	1,658	2,100	1,351	1,150	437	46	5,563	12,457
1991	Rates	Male	1.9	0.0	0.0	2.3	58.1	107.4	70.6	33.6	10.7	2.1		51.0
		Female	1.0	1.6	0.3	11.8	115.5	93.4	36.7	13.0	2.9	0.2		37.9
		Unspecified												
		Total	1.5	0.8	0.2	6.9	86.0	100.6	53.9	23.3	6.8	1.0		44.4
1992	Cases	Male	8	0	1	19	781	1,485	1,175	1,138	428	51	62	5,148
		Female	7	9	6	140	1,644	1,195	582	381	85	12	32	4,093
		Unspecified	0	0	0	0	2	2	4	1	1	0	2	12
		Total	15	9	7	159	2,427	2,682	1,761	1,520	514	63	96	9,253
1992	Rates	Male	3.9	0.0	0.1	1.9	78.8	140.8	95.5	45.3	13.0	2.6		36.6
		Female	3.6	1.2	0.6	14.9	175.4	117.5	48.4	15.2	2.6	0.5		28.6
		Unspecified												
		Total	3.7	0.6	0.4	8.2	125.9	129.5	72.4	30.3	7.8	1.4		32.6
1993	Cases	Male	1	1	3	8	596	1,013	884	845	323	26	38	3,738
		Female	0	11	3	88	1,185	997	402	298	79	4	19	3,086
		Unspecified	0	0	1	1	2	0	0	0	0	1	3	8
		Total	1	12	7	97	1,783	2,010	1,286	1,143	402	31	60	6,832
1993	Rates	Male	0.5	0.1	0.3	0.8	59.9	96.9	74.6	33.0	9.5	1.3		26.3
		Female	0.0	1.4	0.3	9.2	126.0	99.1	34.8	11.7	2.3	0.2		21.3
		Unspecified												
		Total	0.3	0.7	0.4	5.0	92.2	98.0	54.9	22.4	5.9	0.7		23.8
1994	Cases	Male	3	0	1	10	433	796	821	971	386	34	23	3,478
		Female	1	4	3	83	947	817	363	293	92	7	35	2,645
		Unspecified	0	0	0	0	2	2	1	4	0	0	35	44
		Total	4	4	4	93	1,382	1,615	1,185	1,268	478	41	93	6,167
1994	Rates	Male	1.5	0.0	0.1	1.0	43.0	76.9	71.9	37.3	11.0	1.7		24.2
		Female	0.5	0.5	0.3	8.6	99.5	82.0	32.6	11.4	2.6	0.3		18.1
		Unspecified												
		Total	1.0	0.2	0.2	4.7	70.5	79.5	52.5	24.5	6.8	0.9		21.2
1995	Cases	Male	3	2	0	9	425	769	710	980	360	36	28	3,322
		Female	1	4	2	75	888	761	347	243	51	1	12	2,385
		Unspecified	0	0	0	0	2	0	2	1	1	0	2	8
		Total	4	6	2	84	1,315	1,530	1,059	1,224	412	37	42	5,715
1995	Rates	Male	1.5	0.2	0.0	0.9	41.7	74.8	63.9	37.4	10.0	1.7		22.9
		Female	0.5	0.5	0.2	7.7	92.2	76.9	32.0	9.4	1.4	0.0		16.1
		Unspecified												
		Total	1.0	0.4	0.1	4.2	66.3	75.8	48.3	23.5	5.7	0.8		19.5
1996	Cases	Male	1	2	1	5	345	688	614	820	320	26	23	2,845
		Female	2	3	2	64	844	652	320	210	60	2	9	2,168
		Unspecified	0	0	0	0	0	1	0	4	0	0	5	10
		Total	3	5	3	69	1,189	1,341	934	1,034	380	28	37	5,023
1996	Rates	Male	0.5	0.2	0.1	0.5	33.3	67.2	56.1	31.3	8.6	1.2		19.4
		Female	1.1	0.4	0.2	6.5	86.3	66.1	29.9	8.1	1.6	0.1		14.5
		Unspecified												
		Total	0.8	0.3	0.1	3.4	59.1	66.7	43.2	19.9	5.1	0.6		16.9
1997	Cases	Male	0	0	0	2	333	599	570	765	337	23	17	2,646
		Female	0	0	2	56	716	578	235	184	42	4	5	1,822
		Unspecified	0	0	0	0	0	2	0	2	0	1	4	9
		Total	0	0	2	58	1,049	1,179	805	951	379	26	26	4,477
1997	Rates	Male	0.0	0.0	0.0	0.2	31.9	58.1	52.5	29.3	8.7	1.1		17.8
		Female	0.0	0.0	0.2	5.7	72.5	58.2	22.1	7.2	1.1	0.1		12.0
		Unspecified												
		Total	0.0	0.0	0.1	2.9	51.7	58.3	37.5	18.4	4.9	0.6		14.9
1998	Cases	Male	0	0	3	5	327	665	571	898	406	32	14	2,921
		Female	3	5	3	51	799	575	245	196	53	5	3	1,938
		Unspecified	0	0	0	0	0	2	0	0	0	0	7	9
		Total	3	5	6	56	1,126	1,242	816	1,094	459	37	24	4,868
1998	Rates	Male	0.0	0.0	0.3	0.5	31.1	64.0	53.0	34.9	10.2	1.5		19.5
		Female	1.8	0.7	0.3	5.2	80.2	57.7	23.3	7.7	1.3	0.2		12.7
		Unspecified												
		Total	0.9	0.3	0.3	2.8	55.0	61.0	38.3	21.4	5.7	0.7		16.1

YEAR	SEX	GONORRHEA													
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+	NS	Total		
1999	Cases	Male	1	0	1	2	337	737	597	1,077	518	45	7	3,322	
		Female	0	4	5	49	798	636	293	193	71	2	3	2,054	
		Unspecified	0	0	0	0	1	0	0	1	0	0	3	5	
1999	Total		1	4	6	51	1,136	1,373	890	1,271	589	47	13	5,381	
		Rates	Male	0.6	0.0	0.1	0.2	31.8	70.0	55.7	42.4	12.6	2.0		22.0
			Female	0.0	0.6	0.5	5.0	79.5	63.0	28.0	7.7	1.7	0.1		13.3
Total	0.3		0.3	0.3	2.5	55.1	66.6	42.0	25.2	7.1	0.9		17.8		
2000	Cases	Male	1	1	0	6	432	824	656	1,246	612	46	5	3,829	
		Female	1	1	0	47	969	732	300	223	71	6	3	2,353	
		Unspecified	0	0	0	0	1	0	0	0	3	0	3	7	
2000	Total		2	2	0	53	1,402	1,556	956	1,469	686	52	11	6,189	
		Rates	Male	0.6	0.1	0.0	0.6	40.6	77.3	61.4	49.6	14.4	2.0		25.1
			Female	0.6	0.1	0.0	4.7	96.0	71.8	28.7	9.0	1.7	0.2		15.1
Total	0.6		0.1	0.0	2.6	67.6	74.6	45.2	29.5	8.0	1.0		20.1		
2001	Cases	Male	0	0	0	4	467	980	740	1,224	704	53	4	4,176	
		Female	3	0	3	58	1,007	852	310	236	96	4	2	2,571	
		Unspecified	0	0	0	0	2	2	1	3	0	0	1	9	
2001	Total		3	0	3	62	1,476	1,834	1,051	1,463	800	57	7	6,756	
		Rates	Male	0.0	0.0	0.0	0.4	42.9	90.9	70.3	49.7	16.1	2.3		27.2
			Female	1.9	0.0	0.3	5.7	98.0	82.8	30.4	9.8	2.2	0.1		16.4
Total	0.9		0.0	0.1	3.0	69.8	87.0	50.7	30.0	9.1	1.1		21.8		
2002	Cases	Male	0	0	0	8	472	1,122	814	1,341	767	60	5	4,589	
		Female	2	2	3	62	1,049	872	374	301	97	4	4	2,770	
		Unspecified	0	0	0	0	0	1	0	2	1	0	2	6	
2002	Total		2	2	3	70	1,521	1,995	1,188	1,644	865	64	11	7,365	
		Rates	Male	0.0	0.0	0.0	0.7	43.2	102.6	77.0	55.3	17.0	2.5		29.5
			Female	1.3	0.3	0.3	6.0	101.6	83.4	36.4	12.6	2.1	0.1		17.5
Total	0.6		0.1	0.2	3.3	71.5	93.3	57.0	34.2	9.6	1.2		23.5		
2003	Cases	Male	0	0	0	5	535	1,242	890	1,362	906	73	12	5,025	
		Female	1	2	0	59	1,225	1,032	418	346	117	7	3	3,210	
		Unspecified	0	0	0	0	1	1	0	1	0	1	2	6	
2003	Total		1	2	0	64	1,761	2,275	1,308	1,709	1,023	81	17	8,241	
		Rates	Male	0.0	0.0	0.0	0.5	48.9	111.8	83.8	57.4	19.6	3.0		32.1
			Female	0.6	0.3	0.0	5.7	118.5	97.1	40.4	14.9	2.5	0.2		20.1
Total	0.3		0.1	0.0	3.0	82.7	104.6	62.4	36.3	11.0	1.5		26.0		
2004	Cases	Male	0	0	0	7	632	1,469	1,019	1,539	1,121	93	8	5,888	
		Female	1	0	1	69	1,311	1,099	465	337	134	5	0	3,422	
		Unspecified	0	0	0	0	0	0	3	1	1	0	2	7	
2004	Total		1	0	1	76	1,943	2,568	1,487	1,877	1,256	98	10	9,317	
		Rates	Male	0.0	0.0	0.0	0.6	57.3	130.2	95.0	66.3	23.7	3.7		37.2
			Female	0.6	0.0	0.1	6.6	126.0	101.8	44.2	14.8	2.8	0.2		21.2
Total	0.3		0.0	0.1	3.5	90.6	116.3	70.0	40.8	13.2	1.7		29.2		
2005	Cases	Male	0	0	0	7	614	1,398	1,083	1,439	1,110	93	5	5,749	
		Female	2	1	2	92	1,231	1,170	460	341	127	10	4	3,440	
		Unspecified ³	0	0	0	0	2	3	2	2	0	0	1	10	
2005	Total		2	1	2	99	1,847	2,571	1,545	1,782	1,237	103	10	9,199	
		Rates	Male	0.0	0.0	0.0	0.6	54.9	122.4	99.9	63.0	22.9	3.6		36.0
			Female	1.2	0.2	0.2	8.9	116.5	107.3	43.2	15.2	2.6	0.3		21.1
Total	0.6		0.1	0.1	4.7	84.9	115.2	71.9	39.3	12.7	1.8		28.5		
2006	Cases	Male	0	1	0	5	760	1,633	1,261	1,613	1,406	139	26	6,844	
		Female	4	3	6	85	1,523	1,422	668	507	232	14	15	4,479	
		Unspecified ³	0	0	0	0	1	4	2	2	1	0	1	11	
2006	Total		4	4	6	90	2,284	3,059	1,931	2,122	1,639	153	42	11,334	
		Rates	Male	0.0	0.1	0.0	0.5	66.9	141.6	114.7	71.2	28.6	5.2		42.4
			Female	2.4	0.4	0.7	8.3	141.7	129.4	61.5	22.8	4.7	0.4		27.3
Total	1.1		0.3	0.3	4.3	103.3	135.9	88.4	47.2	16.6	2.6		34.8		

YEAR	SEX	GONORRHEA											NS	Total
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+			
2007	Cases	Male	0	0	0	12	828	1,782	1,326	1,482	1,343	116	23	6,912
		Female	1	5	10	82	1,640	1,671	748	582	194	13	9	4,955
		Unspecified ³	0	0	0	0	0	2	0	3	0	0	1	6
		Total	1	5	10	94	2,468	3,455	2,074	2,067	1,537	129	33	11,873
2007	Rates	Male	0.0	0.0	0.0	1.1	72.1	153.1	118.1	65.4	27.1	4.2		42.3
		Female	0.6	0.7	1.1	8.2	150.5	151.0	67.5	26.0	3.9	0.4		29.8
		Unspecified ³	0.3	0.4	0.6	4.6	110.3	152.1	92.9	45.9	15.5	2.1		36.1
		Total	0.0	0.0	0.4	1.6	70.6	165.3	122.4	67.7	24.9	4.0		42.9
2008	Cases	Male	0	0	4	16	817	1,940	1,412	1,542	1,243	117	1	7,092
		Female	0	4	6	98	1,829	1,836	906	669	260	13	2	5,623
		Unspecified ³	0	0	0	0	1	2	1	1	1	0	2	8
		Total	0	4	10	114	2,647	3,778	2,319	2,212	1,504	130	5	12,723
2008	Rates	Male	0.0	0.0	0.4	1.6	70.6	165.3	122.4	67.7	24.9	4.0		42.9
		Female	0.0	0.6	0.7	10.0	166.3	164.8	79.8	29.7	5.2	0.4		33.5
		Unspecified ³	0.0	0.3	0.6	5.7	117.3	165.2	101.4	48.8	15.0	2.0		38.2
		Total	0.5	0.0	0.0	0.8	61.1	141.2	103.4	55.8	22.5	3.2		36.7
2009	Cases	Male	1	0	0	8	705	1,684	1,226	1,278	1,132	96	6	6,136
		Female	0	8	5	68	1,600	1,682	823	601	223	16	3	5,029
		Unspecified ³	0	0	0	0	3	4	1	2	0	0	3	13
		Total	1	8	5	76	2,308	3,370	2,050	1,881	1,355	112	12	11,178
2009	Rates	Male	0.5	0.0	0.0	0.8	61.1	141.2	103.4	55.8	22.5	3.2		36.7
		Female	0.0	1.1	0.6	7.1	145.6	149.0	70.8	26.4	4.4	0.4		29.6
		Unspecified ³	0.3	0.5	0.3	3.8	102.5	145.2	87.3	41.2	13.5	1.7		33.1
		Total	0.5	0.0	0.0	0.8	61.1	141.2	103.4	55.8	22.5	3.2		36.7

1 Rate per 100,000 population. Population estimates provided by Statistics Canada. (Source: Statistics Canada. Demography Division, Demographic Estimates Section. July Population Estimates. 1997-2005 final intercensal estimates, 2006 final postcensal estimates, 2007-2008 updated postcensal estimates, 2009 preliminary postcensal estimates.)

2 2009 data are preliminary and changes are anticipated. Data were verified with provinces and territories as of November, 2010.

3 Unspecified sex includes transgender cases.

Source: Hepatitis C and STI Surveillance and Epidemiology Section, Community Acquired Infections Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, 2010.

Note: Small variability may exist between data reported by the provinces/territories and the Public Health Agency of Canada. Provincial/territorial data are definitive should a discrepancy exist.

Table 14: Reported Cases and Rates¹ of Infectious Syphilis² by Age Group and Sex, 1993 to 2009³

YEAR	SEX	INFECTIOUS SYPHILIS ²												
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+	NS	Total	
1993	Cases	Male	0	0	0	0	2	14	16	30	29	6	0	97
		Female	1	0	0	0	13	24	10	15	7	6	0	76
		Unspecified	0	0	0	0	1	0	0	1	1	0	1	4
		Total	1	0	0	0	16	38	26	46	37	12	1	177
1993	Rates	Male	0.0	0.0	0.0	0.0	0.2	1.3	1.4	1.2	0.9	0.3		0.7
		Female	0.5	0.0	0.0	0.0	1.4	2.4	0.9	0.6	0.2	0.2		0.5
		Unspecified	0.3	0.0	0.0	0.0	0.8	1.9	1.1	0.9	0.5	0.3		0.6
		Total												
1994	Cases	Male	0	0	0	0	3	15	19	31	32	12	0	112
		Female	0	0	0	0	9	17	14	15	11	15	0	71
		Unspecified	0	0	0	0	0	1	1	1	0	1	1	5
		Total	0	0	0	0	12	33	34	47	43	18	1	188
1994	Rates	Male	0.0	0.0	0.0	0.0	0.3	1.4	1.7	1.2	0.9	0.6		0.8
		Female	0.0	0.0	0.0	0.0	0.9	1.7	1.3	0.6	0.3	0.2		0.5
		Unspecified	0.0	0.0	0.0	0.0	0.6	1.6	1.5	0.9	0.6	0.4		0.6
		Total												
1995	Cases	Male	0	0	0	0	1	16	13	31	27	6	1	95
		Female	0	0	0	0	9	11	10	14	8	0	0	52
		Unspecified	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	10	27	23	45	35	6	1	147
1995	Rates	Male	0.0	0.0	0.0	0.0	0.1	1.6	1.2	1.2	0.7	0.3		0.7
		Female	0.0	0.0	0.0	0.0	0.9	1.1	0.9	0.5	0.2	0.0		0.4
		Unspecified	0.0	0.0	0.0	0.0	0.5	1.3	1.0	0.9	0.5	0.1		0.5
		Total												
1996	Cases	Male	0	0	0	0	3	7	12	28	20	3	1	74
		Female	0	0	0	0	6	8	12	12	5	2	0	45
		Unspecified	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	9	15	24	40	25	5	1	119
1996	Rates	Male	0.0	0.0	0.0	0.0	0.3	0.7	1.1	1.1	0.5	0.1		0.5
		Female	0.0	0.0	0.0	0.0	0.6	0.8	1.1	0.5	0.1	0.1		0.3
		Unspecified	0.0	0.0	0.0	0.0	0.4	0.7	1.1	0.8	0.3	0.1		0.4
		Total												
1997	Cases	Male	0	0	0	0	1	3	8	26	26	1	0	65
		Female	0	0	0	0	3	8	13	17	8	1	0	50
		Unspecified	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	4	11	21	43	34	2	0	115
1997	Rates	Male	0.0	0.0	0.0	0.0	0.1	0.3	0.7	1.0	0.7	0.0		0.4
		Female	0.0	0.0	0.0	0.0	0.3	0.8	1.2	0.7	0.2	0.0		0.3
		Unspecified	0.0	0.0	0.0	0.0	0.2	0.5	1.0	0.8	0.4	0.0		0.4
		Total												
1998	Cases	Male	0	0	0	0	2	4	13	41	39	11	0	110
		Female	0	0	0	0	6	8	10	26	14	3	0	67
		Unspecified	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	8	12	23	67	53	14	0	177
1998	Rates	Male	0.0	0.0	0.0	0.0	0.2	0.4	1.2	1.6	1.0	0.5		0.7
		Female	0.0	0.0	0.0	0.0	0.6	0.8	0.9	1.0	0.3	0.1		0.4
		Unspecified	0.0	0.0	0.0	0.0	0.4	0.6	1.1	1.3	0.7	0.3		0.6
		Total												
1999	Cases	Male	0	0	0	0	1	13	11	36	41	11	0	113
		Female	0	0	0	0	8	12	14	19	22	3	0	78
		Unspecified	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	9	25	25	55	63	14	0	191
1999	Rates	Male	0.0	0.0	0.0	0.0	0.1	1.2	1.0	1.4	1.0	0.5		0.7
		Female	0.0	0.0	0.0	0.0	0.8	1.2	1.3	0.8	0.5	0.1		0.5
		Unspecified	0.0	0.0	0.0	0.0	0.4	1.2	1.2	1.1	0.8	0.3		0.6
		Total												
2000	Cases	Male	0	0	0	0	0	3	12	44	44	11	0	114
		Female	0	0	0	0	5	9	8	23	13	2	0	60
		Unspecified	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	5	12	20	67	57	13	0	174
2000	Rates	Male	0.0	0.0	0.0	0.0	0.0	0.3	1.1	1.8	1.0	0.5		0.7
		Female	0.0	0.0	0.0	0.0	0.5	0.9	0.8	0.9	0.3	0.1		0.4
		Unspecified	0.0	0.0	0.0	0.0	0.2	0.6	0.9	1.3	0.7	0.3		0.6
		Total												

YEAR	SEX	INFECTIOUS SYPHILIS ²											NS	Total		
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+					
2001	Cases	Male	0	0	0	0	4	21	20	62	60	16	1	184		
		Female	0	0	0	0	10	25	21	23	22	2	0	103		
		Unspecified	0	0	0	0	0	0	0	0	0	0	0	0		
2001	Total	0	0	0	0	14	46	41	85	82	18	1	287			
		Rates	0.0	0.0	0.0	0.0	0.4	1.9	1.9	2.5	1.4	0.7		1.2		
		Female	0.0	0.0	0.0	0.0	1.0	2.4	2.1	1.0	0.5	0.1		0.7		
2001	Total	0.0	0.0	0.0	0.0	0.7	2.2	2.0	1.7	0.9	0.3		0.9			
		2002	Cases	Male	0	0	0	0	6	21	31	170	146	12	0	386
				Female	0	0	0	0	6	24	27	23	14	1	0	95
Unspecified	0			0	0	0	0	0	0	0	0	0	0	0		
2002	Total	0	0	0	0	12	45	58	194	160	13	0	482			
		Rates	0.0	0.0	0.0	0.0	0.5	1.9	2.9	7.0	3.2	0.5		2.5		
		Female	0.0	0.0	0.0	0.0	0.6	2.3	2.6	1.0	0.3	0.0		0.6		
2002	Total	0.0	0.0	0.0	0.0	0.6	2.1	2.8	4.0	1.8	0.2		1.5			
		2003	Cases	Male	0	0	0	0	8	32	80	298	307	33	0	758
				Female	0	0	0	0	12	35	34	40	23	4	0	148
Unspecified	0			0	0	0	0	0	0	0	0	0	0	0		
2003	Total	0	0	0	0	20	68	115	338	330	37	0	908			
		Rates	0.0	0.0	0.0	0.0	0.7	2.9	7.5	12.6	6.6	1.4		4.8		
		Female	0.0	0.0	0.0	0.0	1.2	3.3	3.3	1.7	0.5	0.1		0.9		
2003	Total	0.0	0.0	0.0	0.0	0.9	3.1	5.5	7.2	3.6	0.7		2.9			
		2004	Cases	Male	0	0	0	0	7	52	79	322	466	42	1	969
				Female	0	0	0	0	8	30	33	30	28	4	0	133
Unspecified	0			0	0	0	0	0	0	0	1	0	1	2		
2004	Total	0	0	0	0	15	82	112	352	495	46	2	1,104			
		Rates	0.0	0.0	0.0	0.0	0.6	4.6	7.4	13.9	9.8	1.7		6.1		
		Female	0.0	0.0	0.0	0.0	0.8	2.8	3.1	1.3	0.6	0.1		0.8		
2004	Total	0.0	0.0	0.0	0.0	0.7	3.7	5.3	7.6	5.2	0.8		3.5			
		2005	Cases	Male	0	0	0	0	10	68	94	276	415	37	0	900
				Female	0	0	0	0	18	33	38	35	36	3	0	163
Unspecified ⁴	0			0	0	0	0	1	0	0	0	0	0	1		
2005	Total	0	0	0	0	28	102	132	311	451	40	0	1,064			
		Rates	0.0	0.0	0.0	0.0	0.9	6.0	8.7	12.1	8.6	1.4		5.6		
		Female	0.0	0.0	0.0	0.0	1.7	3.0	3.6	1.6	0.7	0.1		1.0		
2005	Total	0.0	0.0	0.0	0.0	1.3	4.6	6.1	6.9	4.6	0.7		3.3			
		2006	Cases	Male	0	0	0	1	10	85	88	350	542	55	0	1,131
				Female	0	0	0	0	14	37	27	56	42	4	0	180
Unspecified ⁴	0			0	0	0	0	0	0	0	0	0	0	0		
2006	Total	0	0	0	1	24	122	115	406	584	59	0	1,311			
		Rates	0.0	0.0	0.0	0.1	0.9	7.4	8.0	15.4	11.0	2.1		7.0		
		Female	0.0	0.0	0.0	0.0	1.3	3.4	2.5	2.5	0.9	0.1		1.1		
2006	Total	0.0	0.0	0.0	0.0	1.1	5.4	5.3	9.0	5.9	1.0		4.0			
		2007	Cases	Male	0	0	0	1	12	72	105	311	499	46	1	1,047
				Female	0	0	0	2	14	26	35	43	37	1	0	158
Unspecified ⁴	0			0	0	0	0	0	0	1	0	0	0	1		
2007	Total	0	0	0	3	26	98	140	355	538	47	1	1,206			
		Rates	0.0	0.0	0.0	0.1	1.0	6.2	9.3	13.7	10.1	1.7		6.4		
		Female	0.0	0.0	0.0	0.2	1.3	2.3	3.2	1.9	0.7	0.0		1.0		
2007	Total	0.0	0.0	0.0	0.1	1.2	4.3	6.3	7.9	5.4	0.8		3.7			
		2008	Cases	Male	1	0	0	0	13	111	160	322	602	57	0	1,266
				Female	0	0	0	1	24	44	37	55	48	3	0	212
Unspecified ⁴	0			0	0	0	0	0	0	2	1	0	1	4		
2008	Total	1	0	0	1	37	155	197	379	651	60	1	1,482			
		Rates	0.5	0.0	0.0	0.0	1.1	9.5	13.9	14.1	12.1	2.0		7.7		
		Female	0.0	0.0	0.0	0.1	2.2	4.0	3.3	2.4	1.0	0.1		1.3		
2008	Total	0.3	0.0	0.0	0.0	1.6	6.8	8.6	8.4	6.5	0.9		4.4			

YEAR	SEX	INFECTIOUS SYPHILIS ²												
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+	NS	Total	
2009	Cases	Male	0	0	0	0	39	155	209	394	648	55	1	1,501
		Female	1	0	0	0	13	38	39	44	43	3	0	181
		Unspecified ⁴	0	0	0	0	0	0	0	0	1	0	0	1
		Total	1	0	0	0	52	193	248	438	692	58	1	1,683
	Rates	Male	0.0	0.0	0.0	0.0	3.4	13.0	17.6	17.2	12.9	1.8		9.0
		Female	0.5	0.0	0.0	0.0	1.2	3.4	3.4	1.9	0.9	0.1		1.1
		Total	0.3	0.0	0.0	0.0	2.3	8.3	10.6	9.6	6.9	0.9		5.0

1 Rate per 100,000 population. Population estimates provided by Statistics Canada. (Source: Statistics Canada. Demography Division, Demographic Estimates Section. July Population Estimates. 1997-2005 final intercensal estimates, 2006 final postcensal estimates, 2007-2008 updated postcensal estimates, 2009 preliminary postcensal estimates.)

2 Infectious syphilis includes primary, secondary and early latent stages.

3 2009 data are preliminary and changes are anticipated. Data were verified with provinces and territories as of November, 2010.

4 Unspecified sex includes transgender cases.

Source: Hepatitis C and STI Surveillance and Epidemiology Section, Community Acquired Infections Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, 2010.

Note: Small variability may exist between data reported by the provinces/territories and the Public Health Agency of Canada. Provincial/territorial data are definitive should a discrepancy exist.

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