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Sexually Transmitted Infections and Sexual Health in Ottawa 2011

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Design

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This report is one of a series of health status reports published by Ottawa Public Health. These comprehensive reports are an important part of the public health mandate to report on population health status and provide the evidence necessary to identify trends and health issues of public health significance in Ottawa. Local evidence helps tailor planning and decision making to enhance the health of the Ottawa population.

This particular report is an epidemiological overview of all reportable sexually transmitted infections (STIs) in Ottawa. The data support the Ontario Public Health Standards requirement to monitor sexually transmitted infections and blood-borne infections over time, and to identify emerging trends and priority populations. The Ontario Public Health Standards' goals related to sexually transmitted infections include:

- To prevent or reduce the burden of sexually transmitted infections
- To promote healthy sexuality

Most sexually transmitted infections are laboratory-reportable, meaning that reports come directly from laboratories without the need of a report by a healthcare provider. Exceptions include AIDS and chancroid because they are based on clinical case definitions.

The most common reportable STIs (e.g., chlamydia) can cause pelvic inflammatory disease (PID), infertility or damage to other internal organs. Many can be passed on to babies born of infected women, with mild to severe outcomes. Individuals infected often are not aware of their infection; for example, 70% of women infected with chlamydia and 50% of infected men have no symptoms.

Sexually transmitted infectious agents are found in body fluids such as semen and vaginal secretions, and in some cases, breast milk and saliva. Transmission occurs primarily from person to person through sexual contact; however, vertical transmission from mother to newborn is also possible.

Summary of findings

There were 2926 reported cases of reportable STIs in Ottawa in 2010.

The most commonly reported STI in Ottawa is chlamydia, which accounted for almost 80% of all STIs reported in 2010. Gonorrhea and syphilis (infectious and late latent) have also been on the rise in Ottawa since 2001. During the same time, HIV and hepatitis B reports have decreased.

For women, chlamydia was the most commonly reported STI in 2010. Men reported more gonorrhea, hepatitis, HIV and syphilis (infectious and late latent).

Table 1: Highest incidence of STIs by age group in 2010

Age group	Highest rates of infection reported for
20 to 24 years	Chlamydia, gonorrhea
25 to 29	HIV
30 to 34	Chronic hepatitis B
35 to 39	Acute hepatitis B
40 to 44	Infectious syphilis

Executive summary

The most common risk factors related to the STIs in this report were (in descending order of overall frequency):

1. No condom used

2. Sex with opposite sex

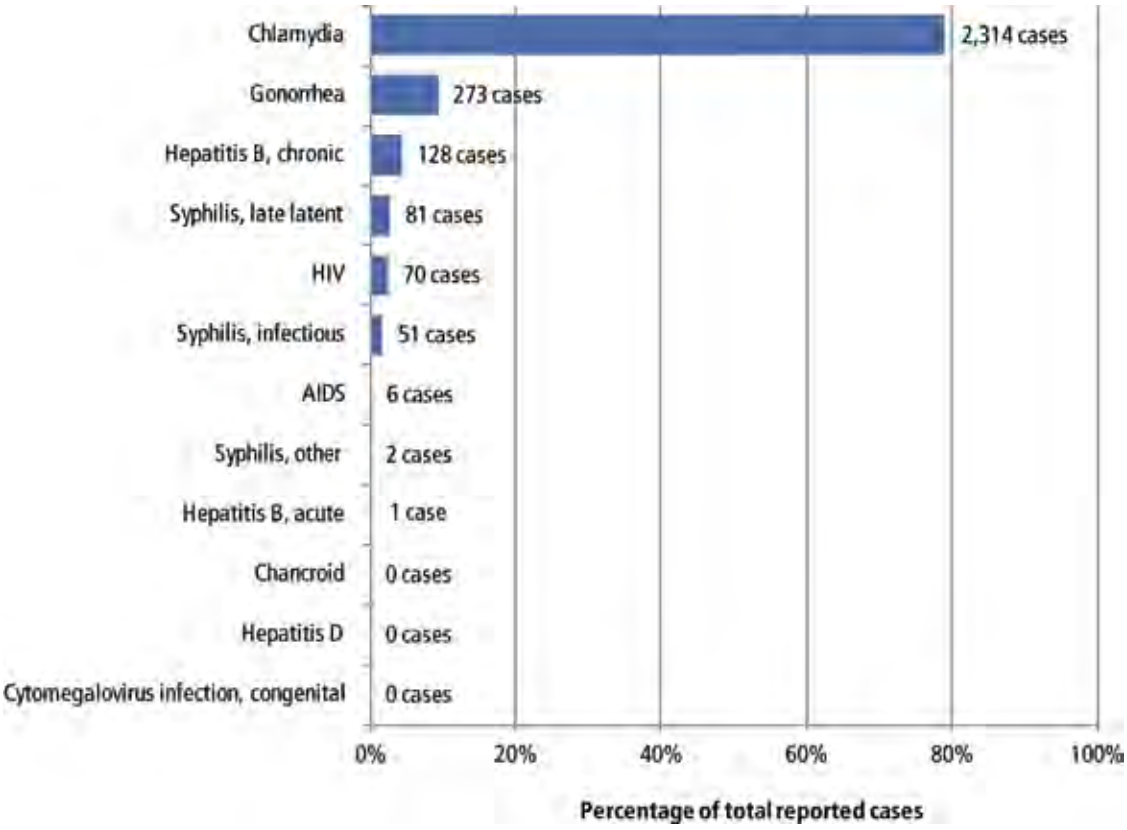
3. New sex contact in past two months

4. More than one sex contact in last six months

5. Sex with same sex

In 2009, 42% of 15- to 29-year-olds at risk of an STI reported not using a condom the last time they had sex.[1]

Figure 1: Reported cases (% of all cases) of sexually transmitted infections, Ottawa, 2010



Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Guide to this report

This report addresses all reportable STIs as defined by the Ontario Public Health Standards, Infection Disease Protocol. Provincial case definitions for all diseases are detailed in the Ontario Public Health Standards, Infectious Disease Protocol, Appendix B – Provincial Case Definitions. This document is available online at:

www.health.gov.on.ca/english/providers/program/pubhealth/oph_standards/ophs/progstds/idprotocol/appendixb/appendix_b.pdf

Infections for which there were no cases reported in 2010 (e.g., chancroid, congenital cytomegalovirus, hepatitis D virus) are listed in the summary chart (Figure 1) but not discussed in detail. This also applies to infections such as AIDS for which surveillance is incomplete.

Sexually transmitted infectious agents (e.g., human papillomavirus (HPV), herpex simplex virus (HSV), Human T-cell Lymphocytic Virus (HTLV), *Trichomonas vaginalis*) are of public health significance but are not reportable and therefore not included in this report.

Some infections that are transmitted primarily in non-sexual ways can also be transmitted sexually. These include hepatitis C virus and several enteric infections. For more information on hepatitis C, please see the April 2011 *Epidemiology Scan*, available at:

http://www.ottawa.ca/calendar/ottawa/citycouncil/obh/2011/06-20/Document%201.htm

For more information on the enteric infections, please see the report *Enteric Disease in Ottawa 2011*, available at:

http://www.ottawa.ca/doc_repository/reports/enteric_report_2011_en.pdf

Data presentation

Each disease section includes a summary listing important characteristics of the disease, and any significant changes in incidence over time or by age/sex.

The following tables and graphs are included in the report.

Summary table

This "at a glance" review includes such epidemiological indicators as number of cases, overall incidence, male and female incidence, and age at time of infection. A 5- and 10-year mean for all indicators was calculated by analyzing the data from 2005–2009 and 2000–2009, respectively, and calculating a mean for each indicator. This provides a benchmark for a 2010 comparison.

Incidence per 100,000 by year, Ottawa and the rest of Ontario, 2001–2010

This figure compares the incidence of infection over a 10-year period compared with the rest of Ontario (Ontario less Ottawa) over the same time (where available). The incidence from the rest of Ontario was calculated by subtracting the number of Ottawa cases from the total number of Ontario cases.

Note: The Ontario rate (not included in the report) is not the same as the rest of Ontario rate.

Incidence per 100,000 by age and sex, Ottawa, 2010

This figure compares the incidence of infection among 12 age groups (0–9, 10–14, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–64, and 65+) and sex (male and female).

Incidence per 100,000 by sex and year, Ottawa, 2001–2010

This figure compares the incidence of infection among males, females, and males and females combined over a 10-year time period.

Risk factors by sex, Ottawa, 2010

This table lists risk factors self-reported during case follow-up. Cases may report more than one risk factor.

Data sources

Most of the Ottawa data included in this report were extracted from the integrated Public Health Information System (iPHIS), which is a secure province-wide, integrated data and surveillance system required for reporting and managing communicable diseases and outbreaks in Ontario. iPHIS was implemented in Ontario in 2005 and replaced the Reportable Disease Information System (RDIS). Pre-2005 data were migrated from the RDIS database to iPHIS to facilitate complete longitudinal comparisons.

Provincial data are also extracted from iPHIS by the Ontario Ministry of Health and Long-Term Care and made available to public health units on the public health portal (www.publichealthontario.ca – password required).

The data that are entered into iPHIS are obtained from laboratory reports, hospital reports, physician interviews and in-depth interviews with cases.

Some of the hepatitis B data come from the Enhanced Hepatitis Strain Surveillance System (EHSSS) overseen by the Public Health Agency of Canada (PHAC).

Data limitations

For the most part, surveillance for these infections is based on laboratory reporting. To be reported to Ottawa Public Health, cases must seek medical attention and provide a sample for testing. Some of these infections may be asymptomatic and as a result, affected individuals might not seek medical attention. Therefore, data may be underestimated or unrepresentative of actual incidence of infections in the community.

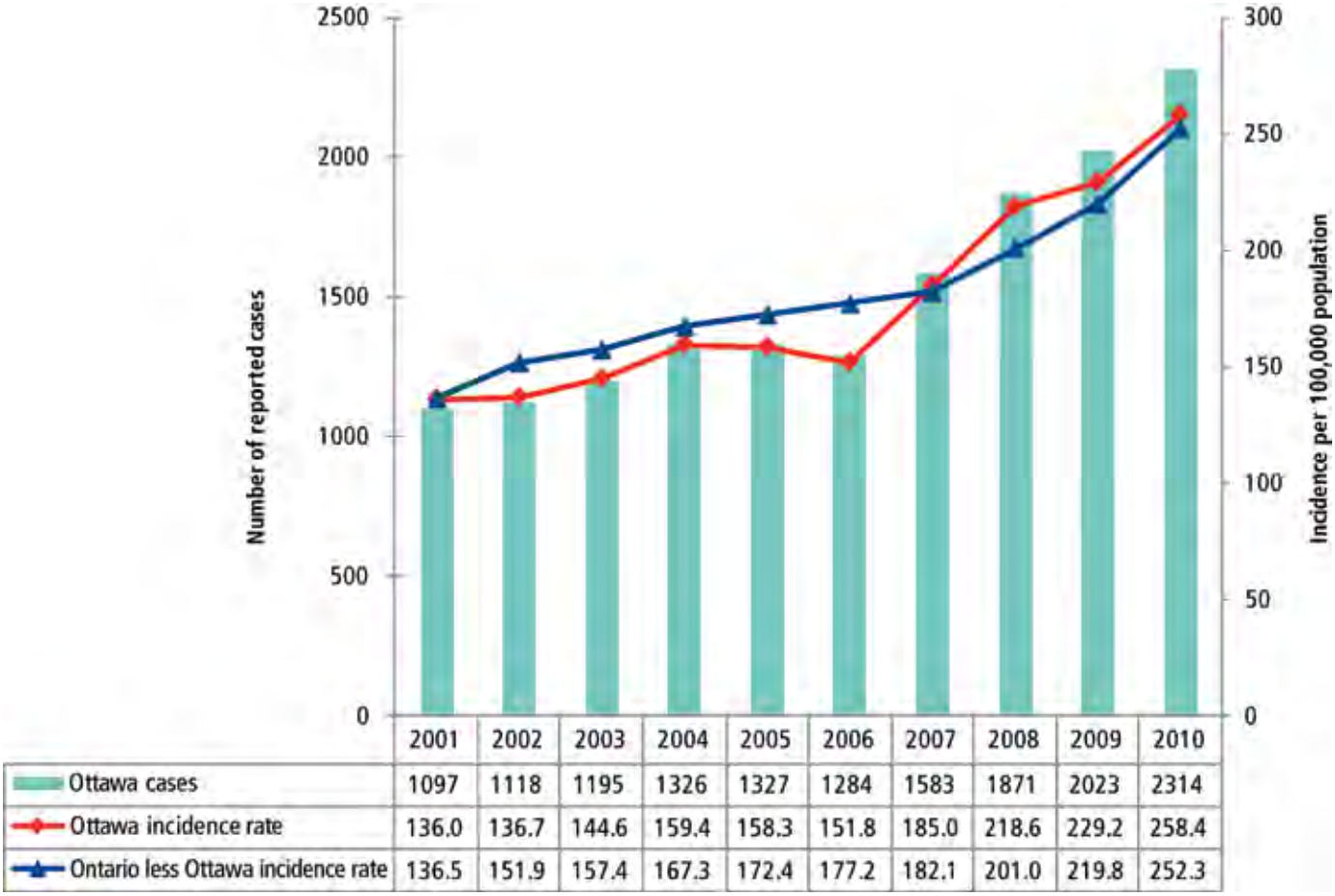
Chlamydia

The incidence of chlamydia has more than doubled over 10 years in Ottawa and Ontario. Between 2009 and 2010 alone, the number of cases increased by 14% (from 2023 to 2314). Young people 15–29 years had the highest incidence of infection, particularly young women, who accounted for 54% (n=1242) of all reported cases in 2010. Chlamydia infection is most strongly associated with failure to use condoms and having a new sexual partner in the past two months.

Table 2: Chlamydia summary data, Ottawa

	2010	5-year period (2005–2009)	10-year period (2000–2009)
	Total	**Average per period**	
Number of reported cases	2314	1618	1389
Incidence rate (per 100,000)			
Overall	258.4	188.6	165.5
Female	315.7	220.2	177.0
Male	198.0	154.5	125.3
Age at illness (years)	**Summary statistics**		
Mean	25	25	25
Median	23	23	23
Range	11–66	13–93	5–93

Figure 2: Incidence per 100,000 of chlamydia by year, Ottawa and the rest of Ontario, 2001–2010



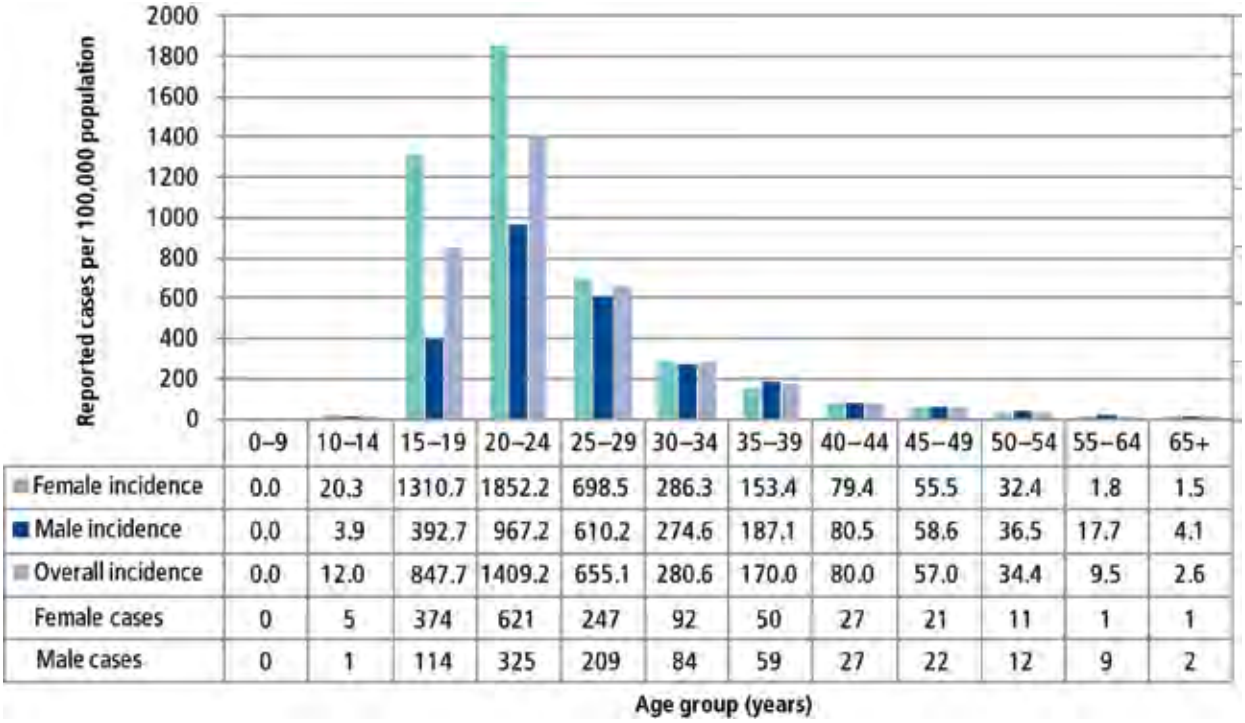
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ottawa cases	1097	1118	1195	1326	1327	1284	1583	1871	2023	2314
Ottawa incidence rate	136.0	136.7	144.6	159.4	158.3	151.8	185.0	218.6	229.2	258.4
Ontario less Ottawa incidence rate	136.5	151.9	157.4	167.3	172.4	177.2	182.1	201.0	219.8	252.3

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Several factors could cause an increase in chlamydia cases reported:

- Availability of more acceptable urine and cervical specimen tests with improved sensitivity in the late nineties
- Increased awareness among clinicians and patients
- Increased screening of asymptomatic patients
- Higher levels of risky sexual behaviour, resulting in higher rates of transmission and cases[2]

Figure 3: Incidence per 100,000 of chlamydia by age and sex, Ottawa, 2010

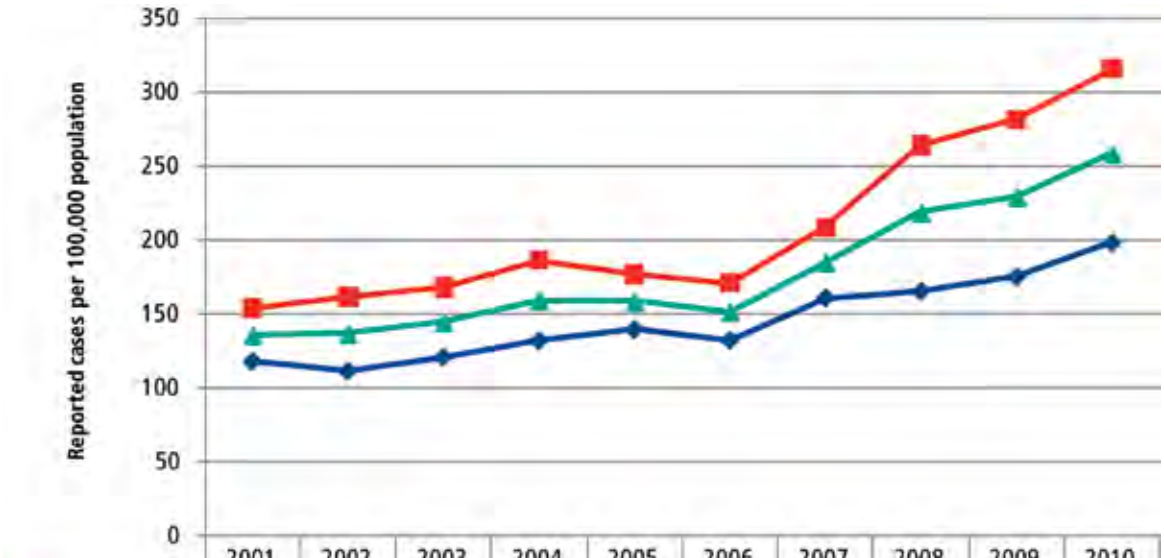


	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–64	65+
Female incidence	0.0	20.3	1310.7	1852.2	698.5	286.3	153.4	79.4	55.5	32.4	1.8	1.5
Male incidence	0.0	3.9	392.7	967.2	610.2	274.6	187.1	80.5	58.6	36.5	17.7	4.1
Overall incidence	0.0	12.0	847.7	1409.2	655.1	280.6	170.0	80.0	57.0	34.4	9.5	2.6
Female cases	0	5	374	621	247	92	50	27	21	11	1	1
Male cases	0	1	114	325	209	84	59	27	22	12	9	2

Age group (years)

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 4: Incidence per 100,000 of chlamydia by sex and year, Ottawa, 2001–2010

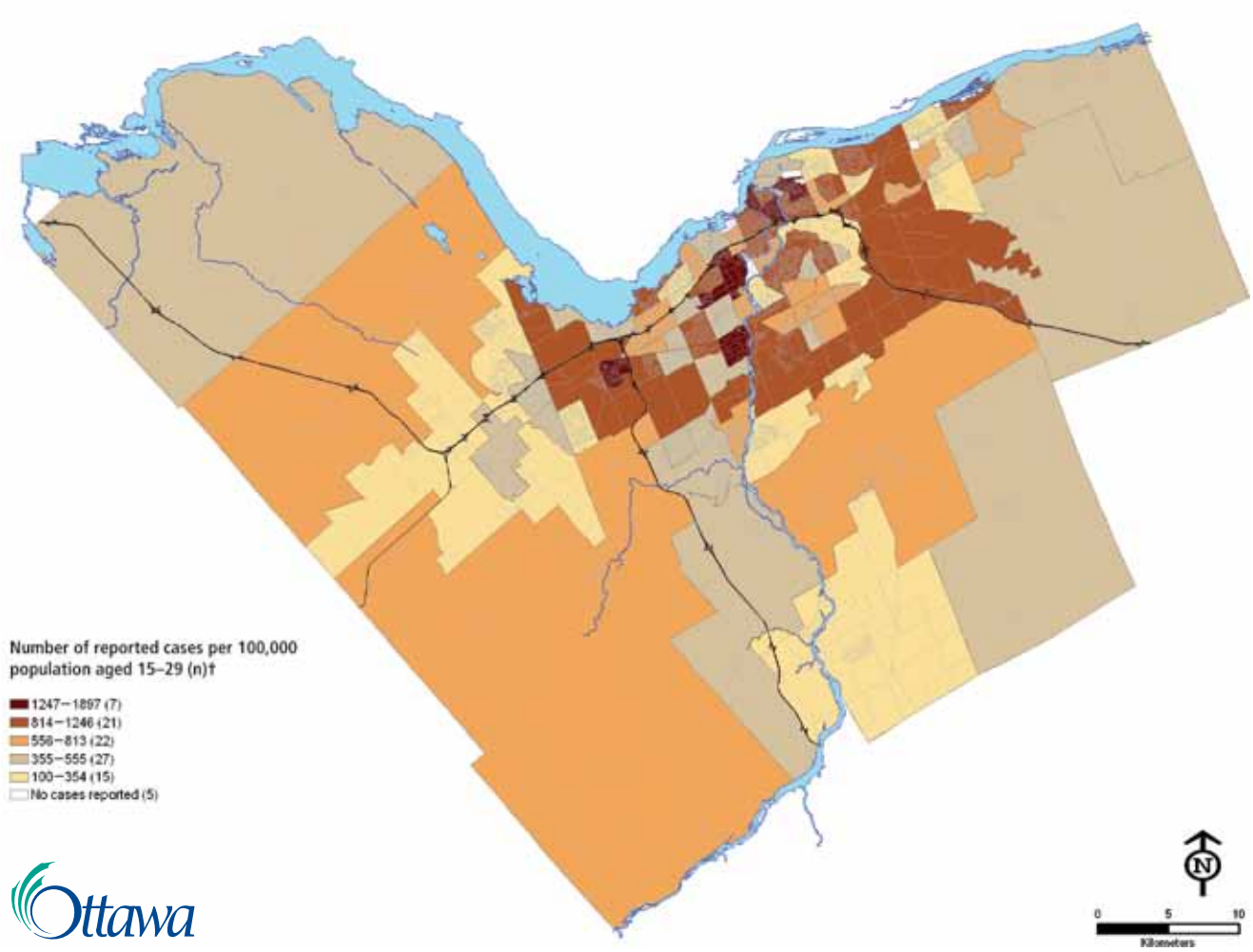


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Female rates	153.8	161.4	167.9	186.1	176.7	170.7	208.2	263.9	281.2	315.7
Male rates	117.7	111.2	120.5	131.6	139.3	132.1	160.7	165.2	175.0	198.0
Overall rates	136.0	136.7	144.6	159.4	158.3	151.8	185.0	218.6	229.2	258.4

Year

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 5: Map of reported cases* of chlamydia per 1000,000 population by neighbourhood, 15- to 29-year-olds, Ottawa, 2010



Data source: Chlamydia cases from integrated Public Health Information System (iPHIS). Ontario Ministry of Health and Long-Term Care, extracted June 20, 2011. Population from Statistics Canada 2006 Census.
* Based on postal codes for 1476 cases. Cases with no postal code recorded (n=404) or postal code outside of Ottawa (m=16) are not included.
†Number of neighbourhoods.

Chlamydia cases are reported across the entire city. In 2010, 92 of the 97 neighbourhoods in Ottawa reported chlamydia cases among 15- to 29-year-olds. The three neighbourhoods that reported the most cases were Centretown (76 cases), Sandy Hill–Ottawa East (72 cases), and Orleans Avalon–Notting Gate–Fallingbrook–Gardenway South (67 cases).

The highest rates of reported cases of chlamydia among 15- to 29-year-olds were (in descending order): Byward Market, Vanier South, Sandy Hill–Ottawa East, Vanier North, Civic Hospital–Central Park, Bells Corners East, and Hunt Club South Industrial.

Table 3: Risk factors for reported cases of chlamydia by sex, Ottawa, 2010

Reported risk factor	Number of cases (%)		
	Female	**Male**	**Overall**
Sex with opposite sex	1095 (98%)	595 (91%)	1690 (95%)
No condom used	1044 (93)	619 (95)	1663 (94)
New contact in past 2 months	377 (34)	290 (44)	667 (38)
More than one sexual contact in last 6 months	206 (18)	236 (36)	442 (25)
Judgement impaired by alcohol/drugs	79 (7)	89 (14)	168 (9)
Contact visiting from outside province	81 (7)	69 (11)	150 (8)
Condom breakage	44 (4)	46 (7)	90 (5)
Partner has multiple sex partners	59 (5)	26 (4)	85 (5)
Sex with same sex	14 (1)	61 (9)	75 (4)
Pregnant	59 (5)	NA	59 (NA)
Met sex partner through internet	12 (1)	17 (3)	29 (2)
Travel outside province	14 (1)	13 (2)	27 (2)
Total with known risk factor	**1118 (77)**	**655 (76)**	**1773 (77)**
Number missing or unknown risk factor	332 (23)	209 (24)	541 (23)
Total cases	**1450**	**864**	**2314**

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data notes: Cases may report more than one risk factor. Only risk factors reported by 1% or more of cases overall are listed above.
NA = Not applicable.

Gonorrhea

Ottawa reported more cases of gonorrhea (273) in 2010 than it has in the last 10 years—25% more than in 2009 (n=218). A similar trend was seen in the rest of Ontario.

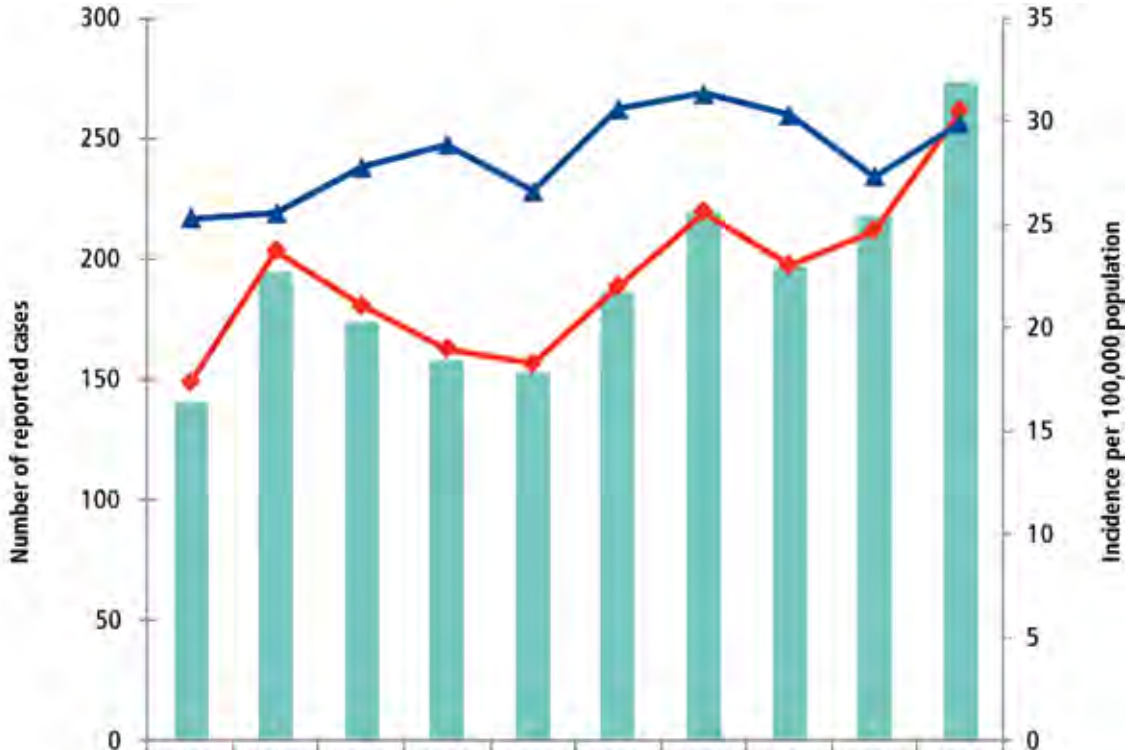
Although two-thirds of reported cases were females in the 15- to 19-year-old group, males accounted for 64% of reported cases in all other age groups. Males 20 to 24 years had the highest reported incidence of gonorrhea.

Table 4: Gonorrhea summary data, Ottawa

	2010	5-year period (2005–2009)	10-year period (2000–2009)
	Total	**Average per period**	
Number of reported cases	273	195	175
Incidence rate (per 100,000)			
Overall	30.5	22.7	20.8
Female	25.3	16.6	14.3
Male	36.0	28.9	24.8
Age at illness (years)	**Summary statistics**		
Mean	27	28	28
Median	24	25	25
Range	14–65	14–67	14–67

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 6: Incidence per 100,000 of gonorrhea by year, Ottawa and the rest of Ontario, 2001–2010



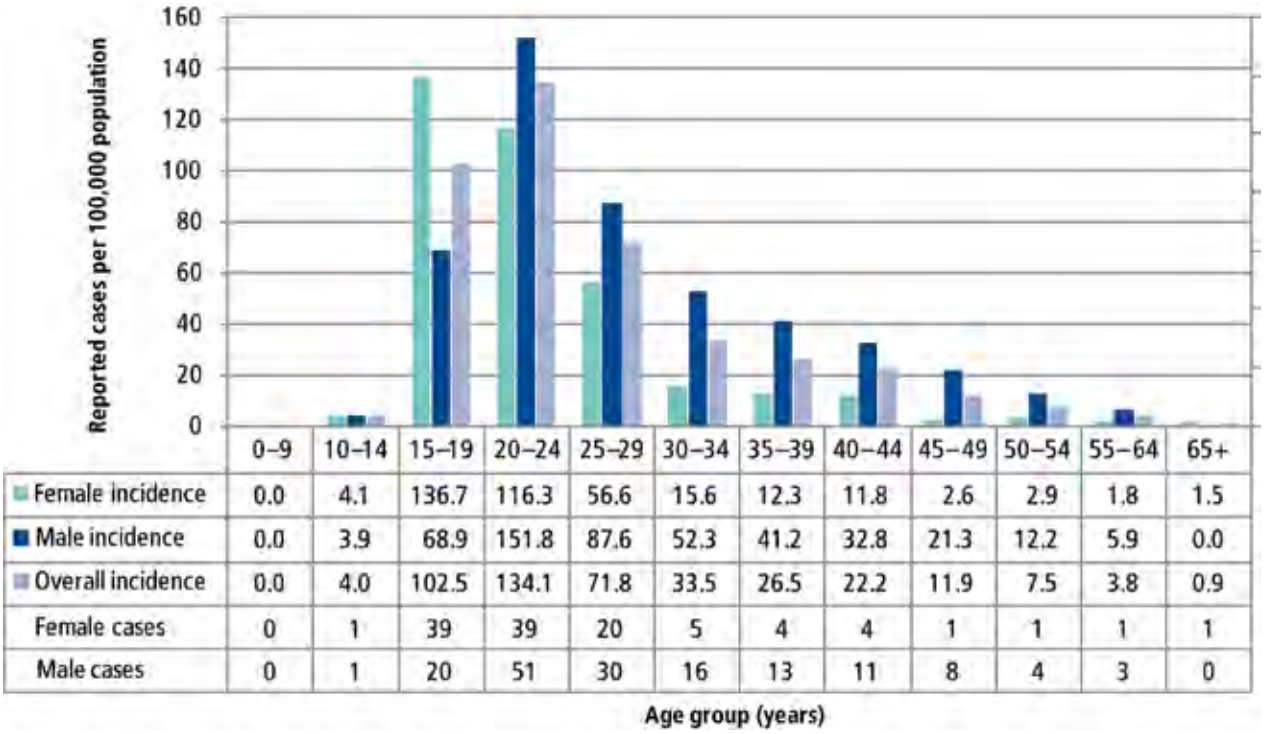
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ottawa cases	140	194	174	158	153	186	219	197	218	273
Ottawa incidence rate	17.4	23.7	21.1	19.0	18.3	22.0	25.6	23.0	24.7	30.5
Ontario less Ottawa incidence rate	25.3	25.5	27.7	28.9	26.6	30.6	31.3	30.3	27.3	29.9

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Several factors could explain the increase in gonorrhea reported:

- Availability of more acceptable urine and cervical specimen tests with improved sensitivity in the late nineties
- Increased awareness among clinicians and patients
- Increased screening of asymptomatic patients
- Higher levels of risky sexual behaviour resulting in higher rates of transmission and cases[2]

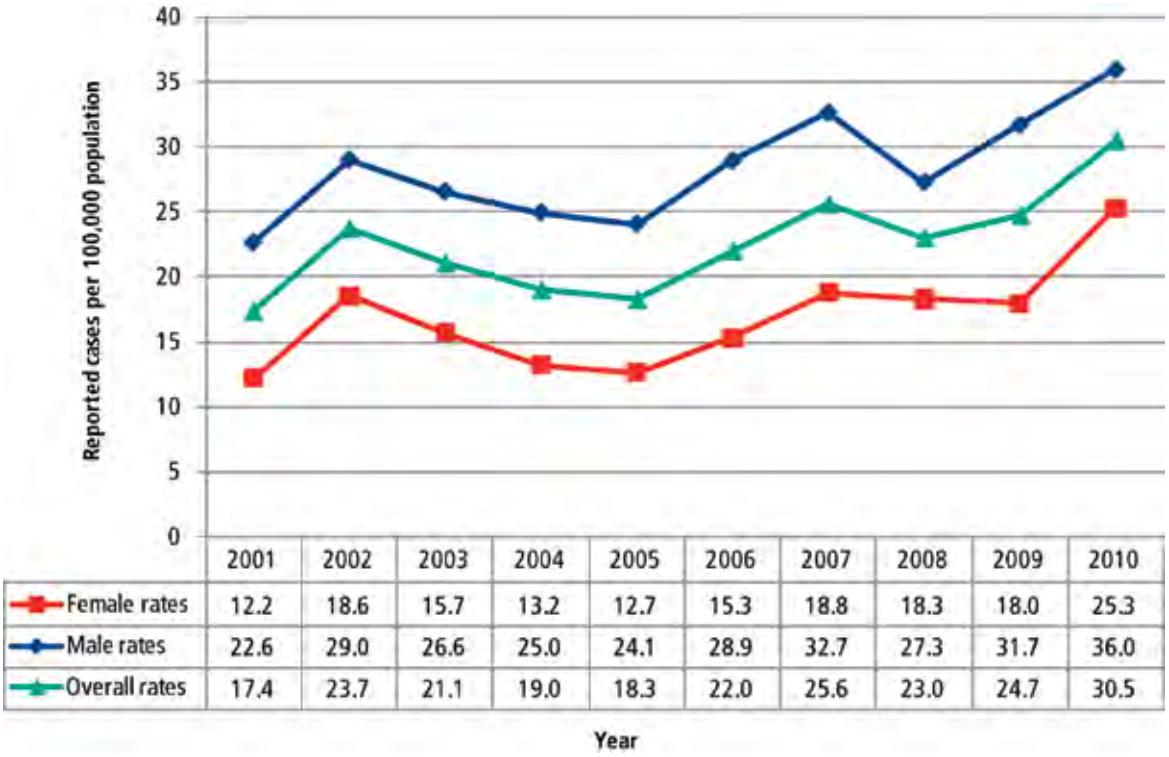
Figure 7: Incidence per 100,000 of gonorrhea by age and sex, Ottawa, 2010



	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–64	65+
Female incidence	0.0	4.1	136.7	116.3	56.6	15.6	12.3	11.8	2.6	2.9	1.8	1.5
Male incidence	0.0	3.9	68.9	151.8	87.6	52.3	41.2	32.8	21.3	12.2	5.9	0.0
Overall incidence	0.0	4.0	102.5	134.1	71.8	33.5	26.5	22.2	11.9	7.5	3.8	0.9
Female cases	0	1	39	39	20	5	4	4	1	1	1	1
Male cases	0	1	20	51	30	16	13	11	8	4	3	0

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 8: Incidence per 100,000 of gonorrhea by sex and year, Ottawa, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Female rates	12.2	18.6	15.7	13.2	12.7	15.3	18.8	18.3	18.0	25.3
Male rates	22.6	29.0	26.6	25.0	24.1	28.9	32.7	27.3	31.7	36.0
Overall rates	17.4	23.7	21.1	19.0	18.3	22.0	25.6	23.0	24.7	30.5

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Table 5: Risk factors for reported cases of gonorrhea by sex, Ottawa, 2010

Reported risk factor	Number of cases (%)		
	Female	**Male**	**Overall**
No condom used	99 (95%)	133 (91%)	232 (93%)
Sex with opposite sex	103 (99)	100 (68)	203 (81)
More than one sex contact in last 6 months	39 (38)	81 (55)	120 (48)
New contact in past 2 months	39 (38)	81 (55)	120 (48)
Sex with same sex	4 (4)	50 (34)	54 (22)
Judgement impaired by alcohol/drugs	14 (13)	25 (17)	39 (16)
Contact visiting from outside province	7 (7)	25 (17)	32 (13)
Condom breakage	7 (7)	15 (10)	22 (9)
Partner has multiple sex partners	7 (7)	9 (6)	16 (6)
Pregnant	7 (7)	NA	7 (NA)
Sex trade worker	6 (6)	0 (0)	6 (2)
Met partner through internet	0 (0)	5 (3)	5 (2)
Sex with sex trade worker	0 (0)	5 (3)	5 (2)
Repeat STI	2 (2)	2 (1)	4 (2)
Travel outside province	1 (1)	3 (2)	4 (2)
Met partner at a bath house	0 (0)	3 (2)	3 (1)
Contact is HIV positive	0 (0)	3 (2)	3 (1)
Met partner at other social venue	2 (2)	0 (0)	2 (1)
Shared sex toys	2 (2)	0 (0)	2 (1)
Underhoused/homeless	2 (2)	0 (0)	2 (1)
Total with known risk factor	**104 (90)**	**146 (93)**	**250 (92)**
Number missing or unknown risk factor	12 (10)	11 (7)	23 (8)
Total cases	**116**	**157**	**273**

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data notes: Cases may report more than one risk factor. Only risk factors reported by 1% or more of cases overall are listed above.
NA = Not applicable.

Hepatitis B

The incidence of both acute and chronic hepatitis B declined in the last 10 years. This can be attributed to the universal vaccination program introduced in Ontario in 1994, which has cut incidence in individuals younger than 20 years old.

Since 2002, Ottawa has had lower rates of acute hepatitis B than the rest of Ontario.

Immigrant populations have a higher risk of infection: 25% of acute cases and 85% of chronic carriers were born outside Canada, compared with approximately 20% for the general Ottawa population.

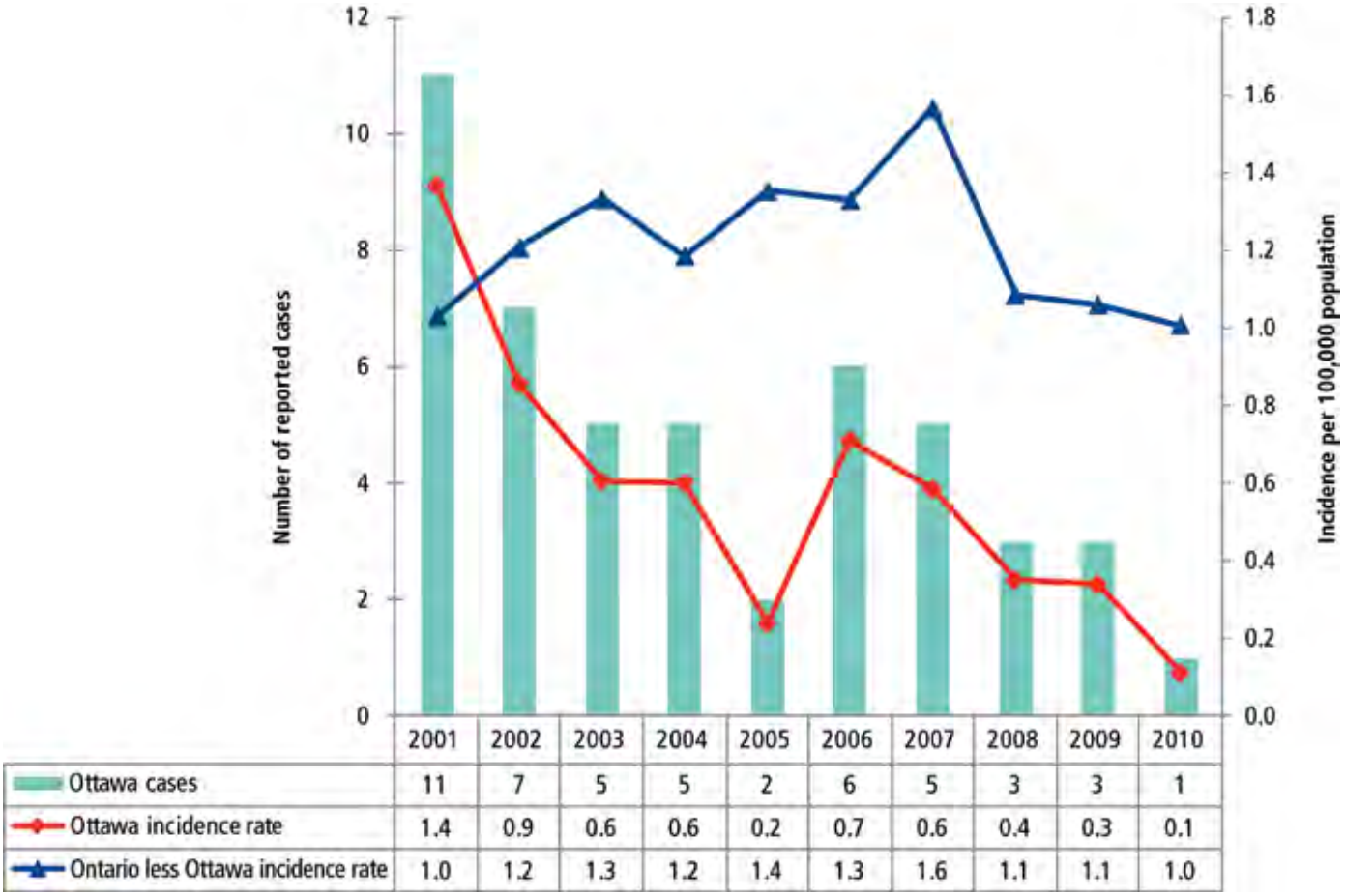
None of the cases reported multiple sex partners or a partner with known hepatitis B infection.

Table 6: Hepatitis B summary data, Ottawa

	2010		5-year period (2005–2009)		10-year period (2000–2009)	
	Total		Average per period			
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Number of reported cases	1	128	4	158	6	190
Incidence rate (per 100,000)						
Overall	0.1	14.3	0.4	18.5	0.7	22.9
Female	0.0	13.1	0.2	16.3	0.3	16.7
Male	0.2	15.6	0.7	20.7	0.9	22.5
Age at illness (years)	Summary statistics					
Mean	NA	40	40	37	37	38
Median	NA	36	37	35	35	36
Range	NA	11–86	21–69	1–85	19–77	1–93

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data note: NA = not applicable.

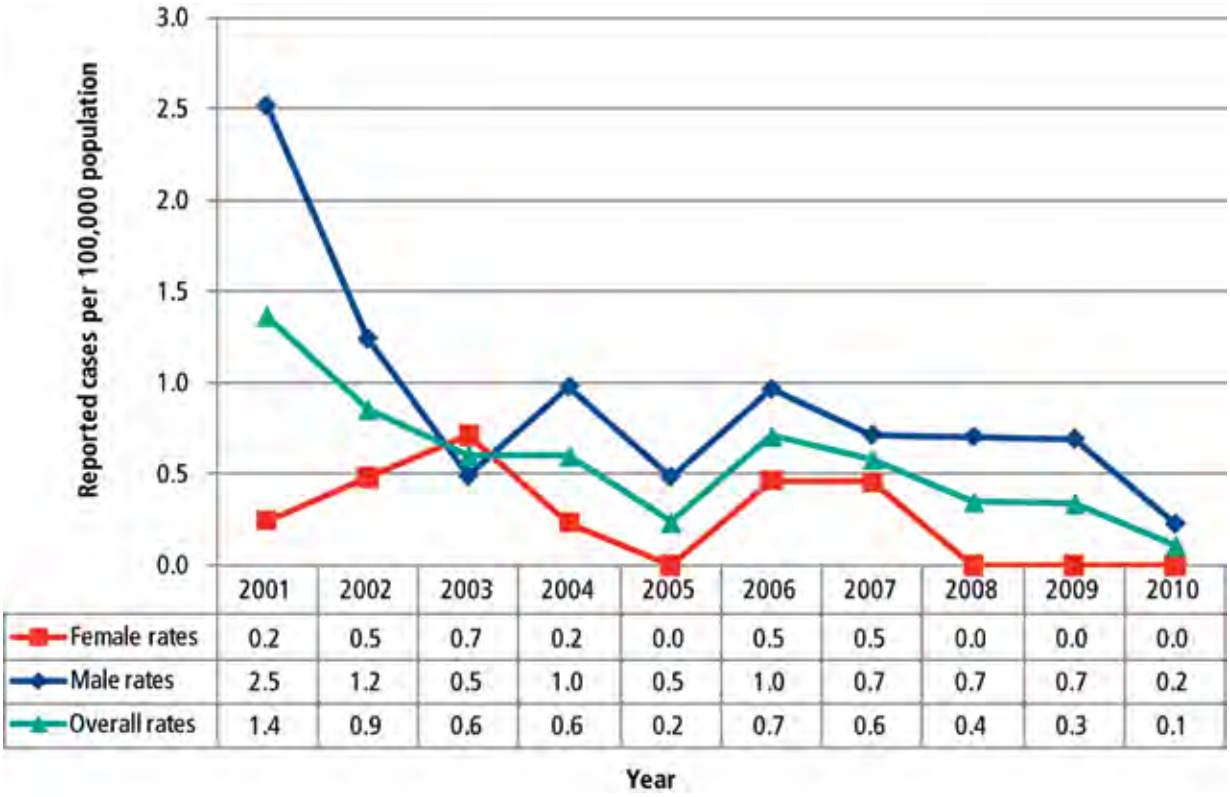
Figure 9: Incidence per 100,000 of acute hepatitis B by year, Ottawa and the rest of Ontario, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ottawa cases	11	7	5	5	2	6	5	3	3	1
Ottawa incidence rate	1.4	0.9	0.6	0.6	0.2	0.7	0.6	0.4	0.3	0.1
Ontario less Ottawa incidence rate	1.0	1.2	1.3	1.2	1.4	1.3	1.6	1.1	1.1	1.0

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 10: Incidence per 100,000 of acute hepatitis B by sex and year, Ottawa, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Female rates	0.2	0.5	0.7	0.2	0.0	0.5	0.5	0.0	0.0	0.0
Male rates	2.5	1.2	0.5	1.0	0.5	1.0	0.7	0.7	0.7	0.2
Overall rates	1.4	0.9	0.6	0.6	0.2	0.7	0.6	0.4	0.3	0.1

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

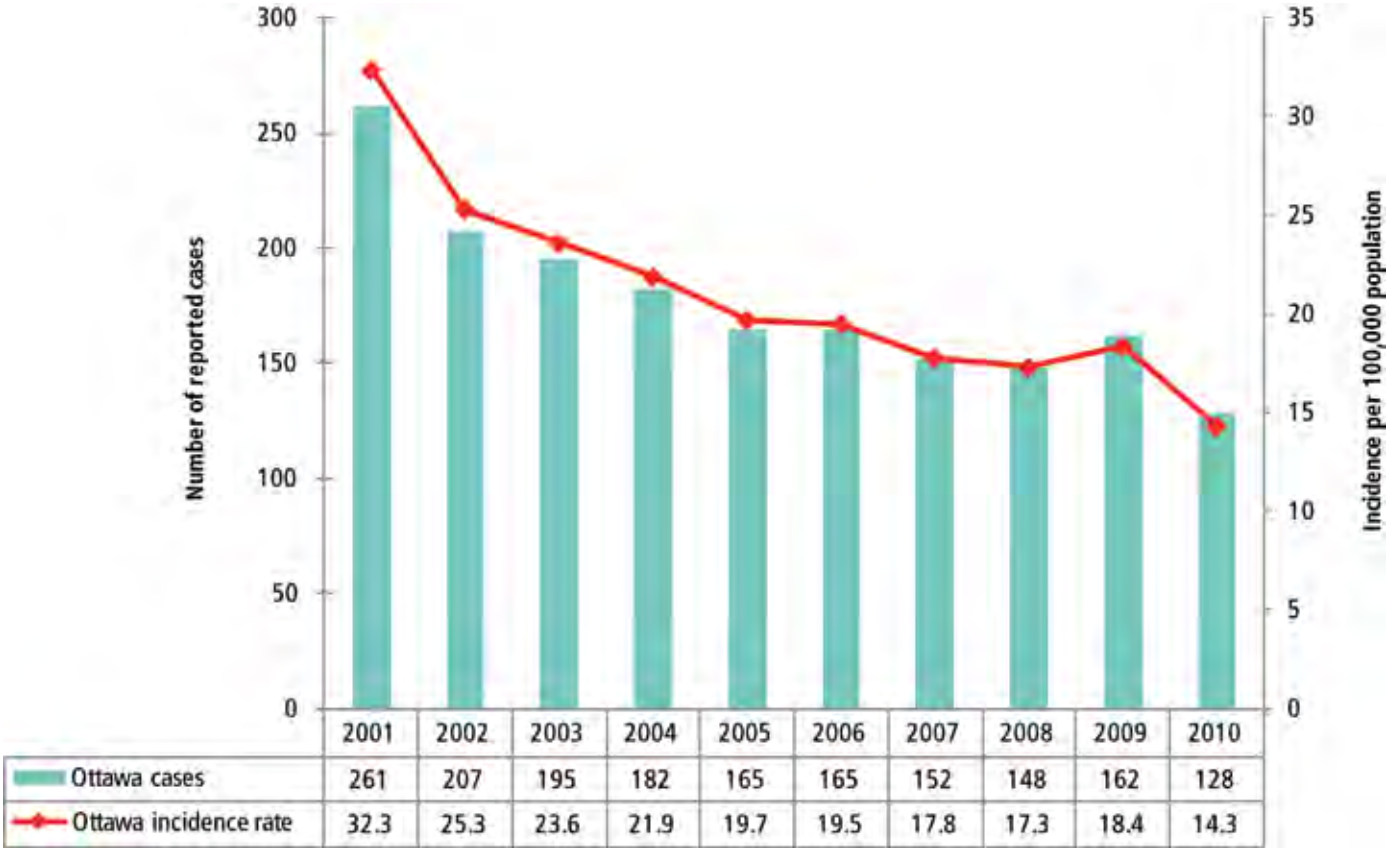
Acute hepatitis B: risk factors for reported cases

Unlike chronic infections, which could have been contracted years or decades before diagnosis, acute hepatitis is the result of recent exposure. The Enhanced Hepatitis Strain Surveillance System (EHSSS) overseen by the Public Health Agency of Canada (PHAC) requires Ottawa Public Health case managers to survey people presenting with acute and chronic hepatitis C and B about risk factors. By focusing on acute cases, public health managers can get a better picture of how and where hepatitis is being transmitted.

In 2011, Ottawa Public Health gained access to the EHSSS data collected during 2003–2010. OPH learned that:

- In the previous five years (2006–2010, n=20), all cases of acute hepatitis B diagnoses were in persons 20 years or older.
- 25% of cases were born outside Canada, proportionately higher than the overall percentage of people in Ottawa born outside Canada (approximately 20%).
- None of the cases reported multiple sex partners or a partner with known hepatitis B infection.

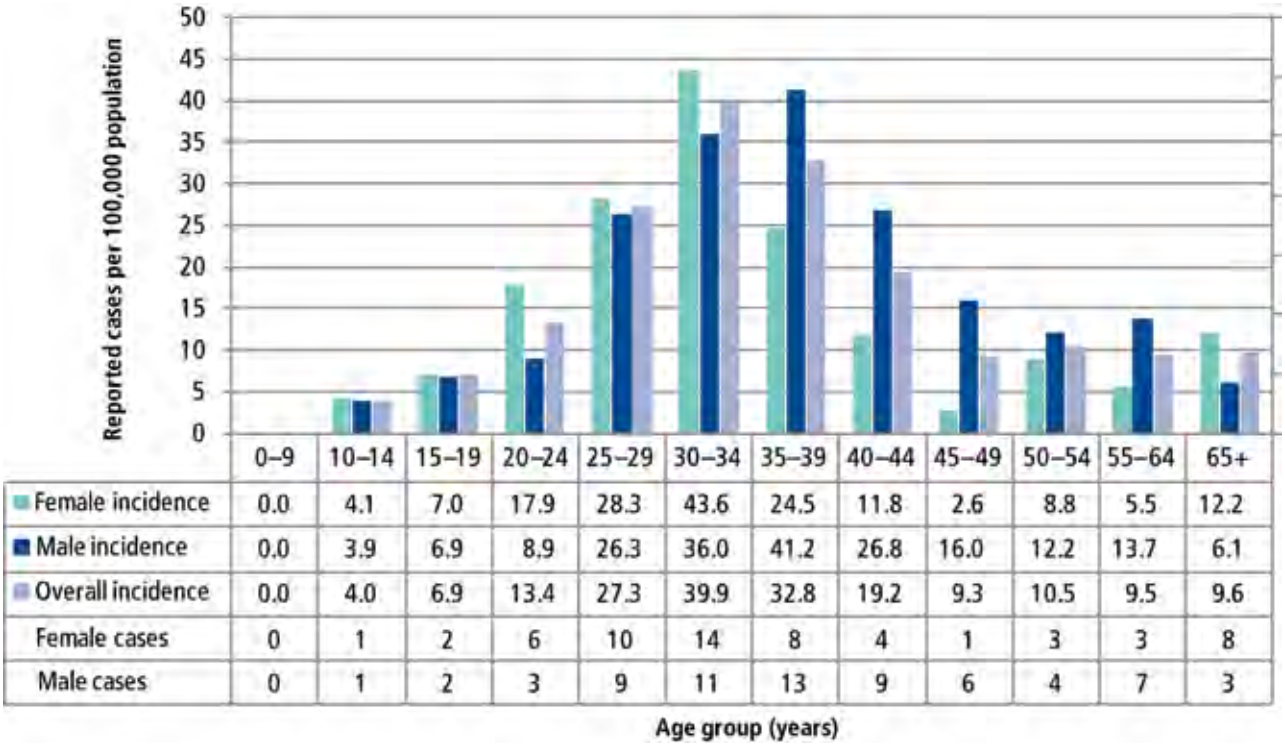
Figure 11: Incidence per 100,000 of chronic hepatitis B by year, Ottawa, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ottawa cases	261	207	195	182	165	165	152	148	162	128
Ottawa incidence rate	32.3	25.3	23.6	21.9	19.7	19.5	17.8	17.3	18.4	14.3

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data note: Provincial rates were not available for comparison.

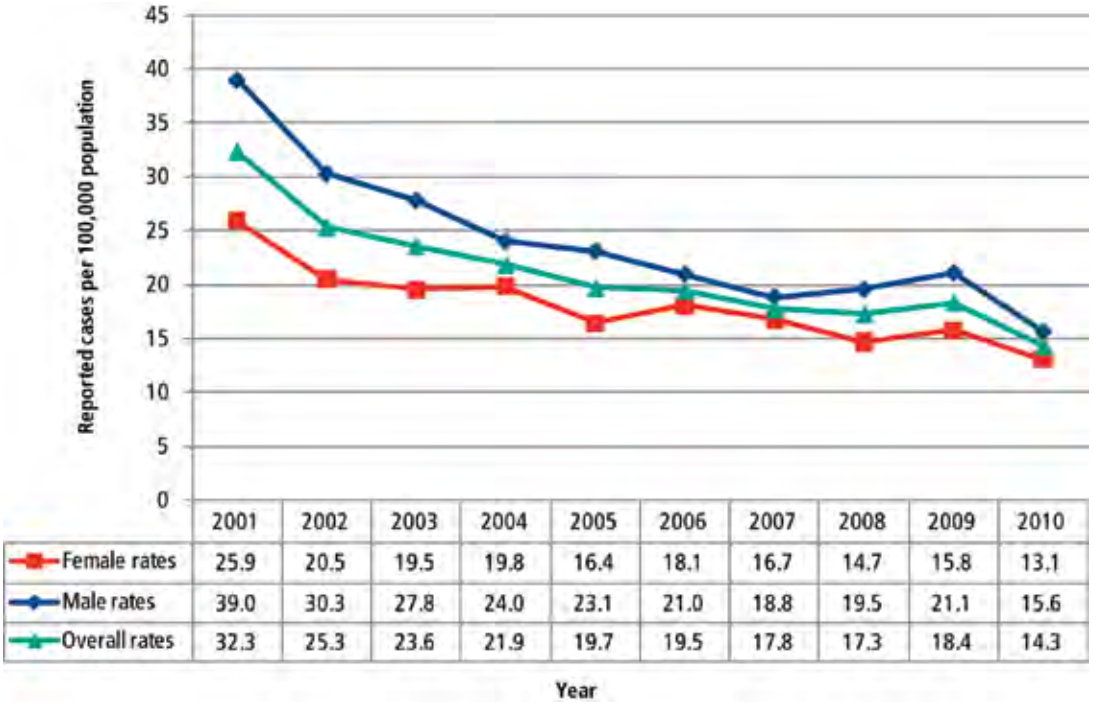
Figure 12: Incidence per 100,000 of chronic hepatitis B by age and sex, Ottawa, 2010



	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–64	65+
Female incidence	0.0	4.1	7.0	17.9	28.3	43.6	24.5	11.8	2.6	8.8	5.5	12.2
Male incidence	0.0	3.9	6.9	8.9	26.3	36.0	41.2	26.8	16.0	12.2	13.7	6.1
Overall incidence	0.0	4.0	6.9	13.4	27.3	39.9	32.8	19.2	9.3	10.5	9.5	9.6
Female cases	0	1	2	6	10	14	8	4	1	3	3	8
Male cases	0	1	2	3	9	11	13	9	6	4	7	3

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 13: Incidence per 100,000 of chronic hepatitis B by sex and year, Ottawa, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Female rates	25.9	20.5	19.5	19.8	16.4	18.1	16.7	14.7	15.8	13.1
Male rates	39.0	30.3	27.8	24.0	23.1	21.0	18.8	19.5	21.1	15.6
Overall rates	32.3	25.3	23.6	21.9	19.7	19.5	17.8	17.3	18.4	14.3

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Chronic hepatitis B: risk factors for reported cases

Being born outside of Canada is the strongest risk factor for chronic hepatitis B. Of 116 people who had chronic hepatitis B and reported risk factors, 83% of males and 89% of females were born in another country.

HIV/AIDS

Although the overall trend for HIV/AIDS in Ottawa shows a slow decrease in incidence, there was a 4% uptick in male cases between 2009 and 2010 (from 67 to 70 cases).

HIV/AIDS in this city is a predominately male disease. The 2010 rate for males was 3.3 times that reported for females. It is most prevalent in men 25 to 29 years old and 35 to 39 years old, particularly for "men who have sex with men" (MSM).

MSM continues to be the most frequently reported exposure category for men with HIV and accounts for 65% of all males who reported an exposure category.

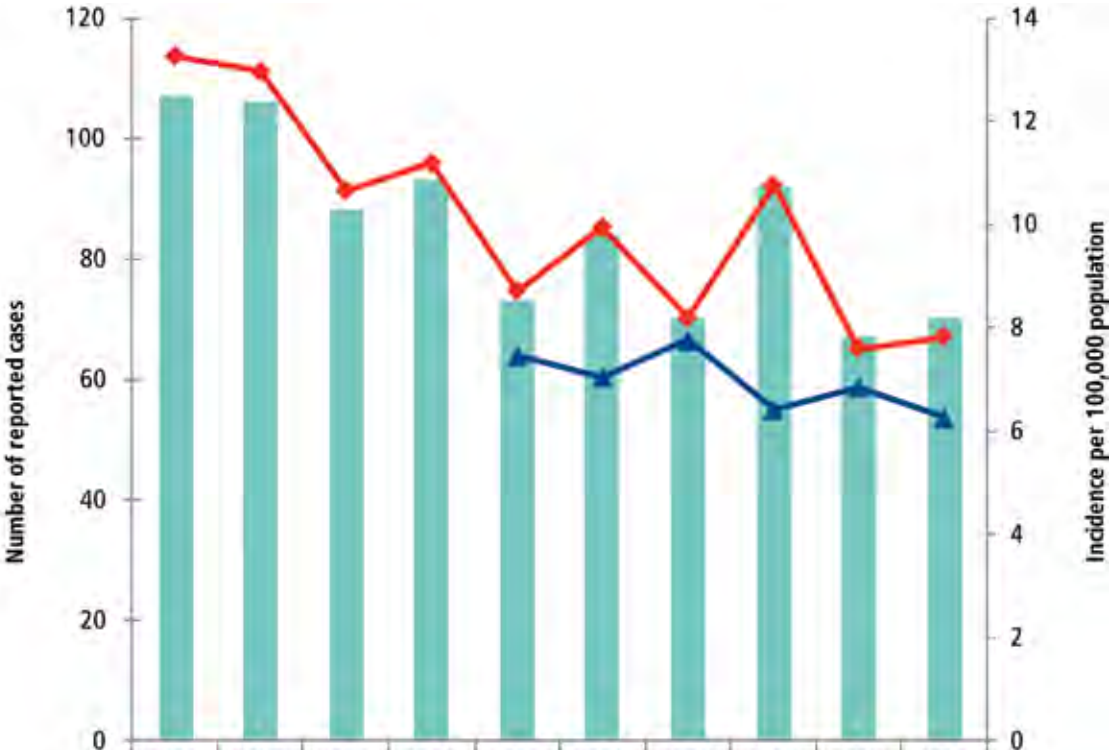
For women, coming from an HIV-endemic country was the most frequently reported exposure category (57%) for those who reported one.

Table 7: HIV/AIDS summary data, Ottawa

	2010	5-year period (2005–2009)	10-year period (2000–2009)
	Total	**Average per period**	
Number of reported cases	70	77	88
Incidence rate (per 100,000)			
Overall	7.8	9.0	10.6
Female	3.7	4.6	5.0
Male	12.1	13.6	13.8
Age at illness (years)	**Summary statistics**		
Mean	39	38	37
Median	37	38	38
Range	7–69	3–72	0–85

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

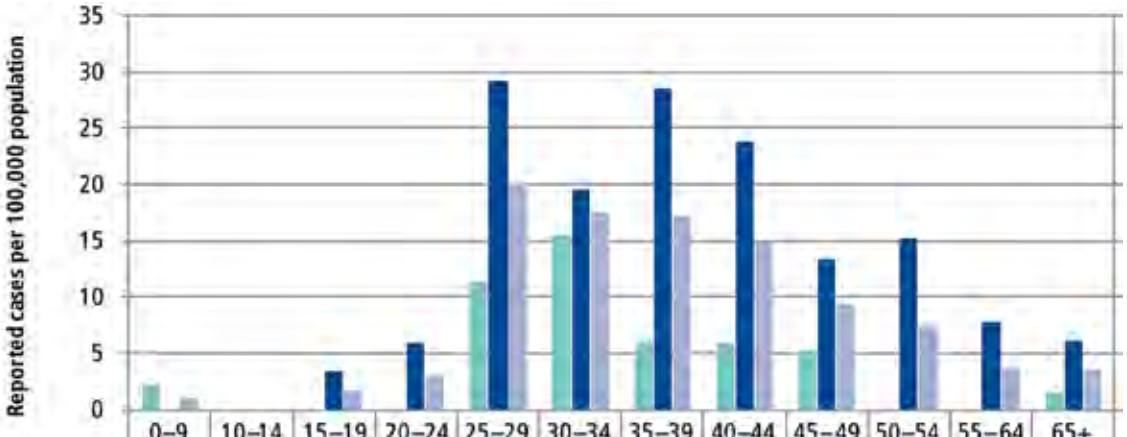
Figure 14: Incidence per 100,000 of HIV/AIDS by year, Ottawa and the rest of Ontario, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ottawa cases	107	106	88	93	73	84	70	92	67	70
Ottawa incidence rate	13.3	13.0	10.6	11.2	8.7	9.9	8.2	10.7	7.6	7.8
Ontario less Ottawa incidence rate					7.5	7.0	7.8	6.4	6.9	6.2

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data note: No provincial data available for 2001–2004.

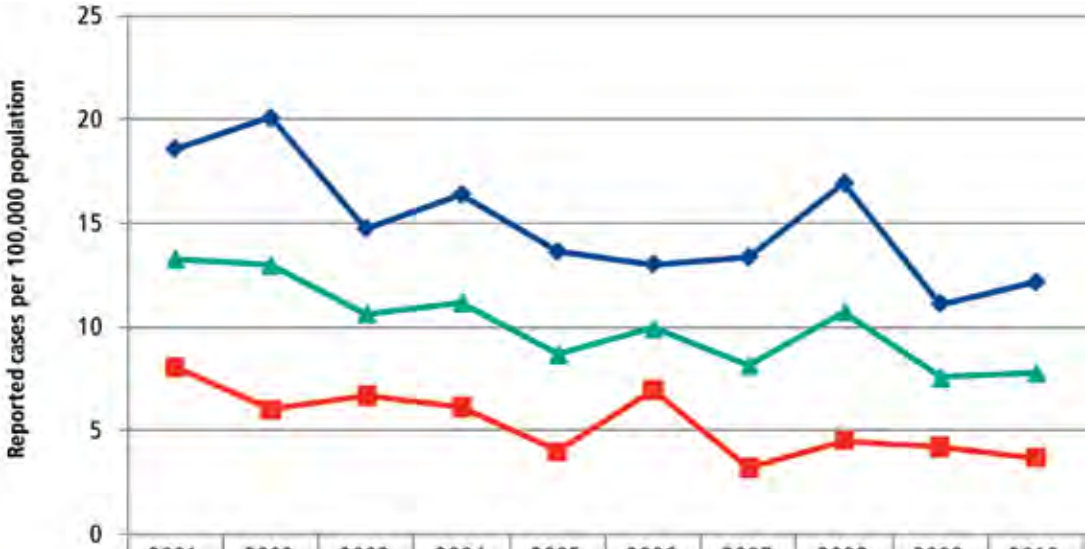
Figure 15: Incidence per 100,000 of HIV/AIDS by age and sex, Ottawa, 2010



	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–64	65+
Female incidence	2.1	0.0	0.0	0.0	11.3	15.6	6.1	5.9	5.3	0.0	0.0	1.5
Male incidence	0.0	0.0	3.4	6.0	29.2	19.6	28.5	23.9	13.3	15.2	7.9	6.1
Overall incidence	1.1	0.0	1.7	3.0	20.1	17.5	17.2	14.8	9.3	7.5	3.8	3.5
Female cases	1	0	0	0	4	5	2	2	2	0	0	1
Male cases	0	0	1	2	10	6	9	8	5	5	4	3

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 16: Incidence per 100,000 of HIV/AIDS by sex and year, Ottawa, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Female rates	8.1	6.0	6.7	6.1	4.0	7.0	3.2	4.5	4.2	3.7
Male rates	18.6	20.1	14.8	16.4	13.6	13.0	13.4	16.9	11.1	12.1
Overall rates	13.3	13.0	10.6	11.2	8.7	9.9	8.2	10.7	7.6	7.8

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Table 8: Exposure categories for reported cases of HIV by sex, Ottawa, 2010

Exposure category	Number of cases (%)		
	Female	**Male**	**Overall**
Men who have sex with men (MSM)	NA	24 (60%)	24 (NA)
MSM & Illicit drug use (IDU)	NA	2 (5)	2 (NA)
IDU	0 (0)	4 (10)	4 (7)
Perinatal	1 (7)	0 (0)	1 (2)
Received blood product	1 (7)	1 (3)	2 (4)
HIV-endemic	8 (57)	3 (8)	11 (20)
Heterosexual, partner at risk	3 (21)	1 (3)	4 (7)
Heterosexual contact	1 (7)	3 (8)	4 (7)
Other	0 (0)	2 (5)	2 (4)
Total with known exposure category	**14 (82)**	**40 (75)**	**54 (77)**
Missing or unknown exposure category	3 (18)	13 (25)	16 (23)
Total cases	**17**	**53**	**70**

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data notes:
NA = Not applicable.
Cases may report more than one risk but are counted in the exposure category considered to be the highest risk. The exposure categories are listed in descending order of risk. See glossary for explanation of exposure categories.

Table 9: Risk factors for reported cases of HIV by sex, Ottawa, 2010

Reported risk factor	Number of cases (%)		
	Female	Male	Overall
No condom used	7 (50%)	25 (63%)	32 (59%)
Sex with opposite sex	12 (86)	20 (50)	32 (59)
Sex with same sex	0 (0)	26 (65)	26 (48)
Travel outside province	4 (29)	20 (50)	24 (44)
Judgement impaired by alcohol/drugs	3 (21)	16 (40)	19 (35)
Travel to or live in a country where HIV is endemic	9 (64)	7 (18)	16 (30)
Condom breakage	3 (21)	12 (30)	15 (28)
Contact is HIV positive	5 (36)	9 (23)	14 (26)
Partner has multiple sex partners	1 (7)	12 (30)	13 (24)
Non medical, non occupational exposures (e.g., acupuncture, tattoo, body piercing, breast milk)	5 (36)	8 (20)	13 (24)
More than one sex contact in last 6 months	0 (0)	12 (30)	12 (22)
Partner is from country where heterosexual transmission of HIV predominates	7 (50)	4 (10)	11 (20)
Met partner at a bath house	0 (0)	10 (25)	10 (19)
Contact visiting from outside province	0 (0)	10 (25)	10 (19)
Met partner through internet	2 (14)	8 (20)	10 (19)
New contact in past 2 months	1 (7)	6 (15)	7 (13)
IDU (see glossary)	0 (0)	6 (15)	6 (11)
Anonymous sex*	1 (14)	1 (5)	2 (7)
Encounter following major event	0 (0)	4 (10)	4 (7)
Occupation exposure to potentially HIV-contaminated blood, body fluids	4 (29)	0 (0)	4 (7)
Shared sex toys	1 (7)	3 (8)	4 (7)
Shared needle/drug equipment	0 (0)	3 (8)	3 (6)

Reported risk factor	Number of cases (%)		
	Female	Male	Overall
Contact lived in or visited a country where HIV is endemic	2 (14)	1 (3)	3 (6)
Invasive surgical/dental/ocular procedures in Canada	2 (14)	1 (3)	3 (6)
Sex with sex trade worker	0 (0)	3 (8)	3 (6)
Total with known risk factor	**14 (82)**	**40 (75)**	**54 (77)**
Missing or unknown risk factor	3 (18)	13 (25)	16 (23)
Total cases	**17**	**53**	**70**

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data notes: Cases may report more than one risk factor.
Only risk factors reported by 5% or more of cases overall are listed above.
*This risk factor was asked of cases starting in June 2010; therefore, only cases reported after June 11, 2010 are included in the denominator for these risk factors.

Syphilis, infectious *(Primary, secondary, early latent syphilis and infectious neurosyphilis)*

Like the rest of Ontario, Ottawa reported more cases of infectious syphilis in 2010 (51 cases) than in any year since 2001. Forty-nine Ottawa residents reported infectious syphilis in 2010 (2 clients had repeat infections); 8 of the 49 clients (16%) had reports of previous infectious syphilis in Ottawa since 2000.

Almost all of these cases were in men (96%; n=49) and 45% (n=22) of these were 35 to 49 years old.

Of the 46 male cases with a known risk factor, 91% (n=42) reporting having "sex with same sex". This is consistent with provincially reported cases since the beginning of the syphilis outbreak in 2002. There is no evidence that the outbreak has spread into the female population in Ottawa.

Since 2002, the percentage of syphilis-HIV co-infected cases has ranged between 13 and 41%. In 2010, 27% of infectious syphilis cases were co-infected with HIV/AIDS compared to 40 to 44% across Ontario from 2008 to 2010.[3]

Many co-infected cases are diagnosed with HIV and syphilis in the same year. In Ottawa, 43% of co-infected syphilis cases in 2010 had an HIV diagnosis in the same year; the rest were diagnosed between 1998 and 2008.

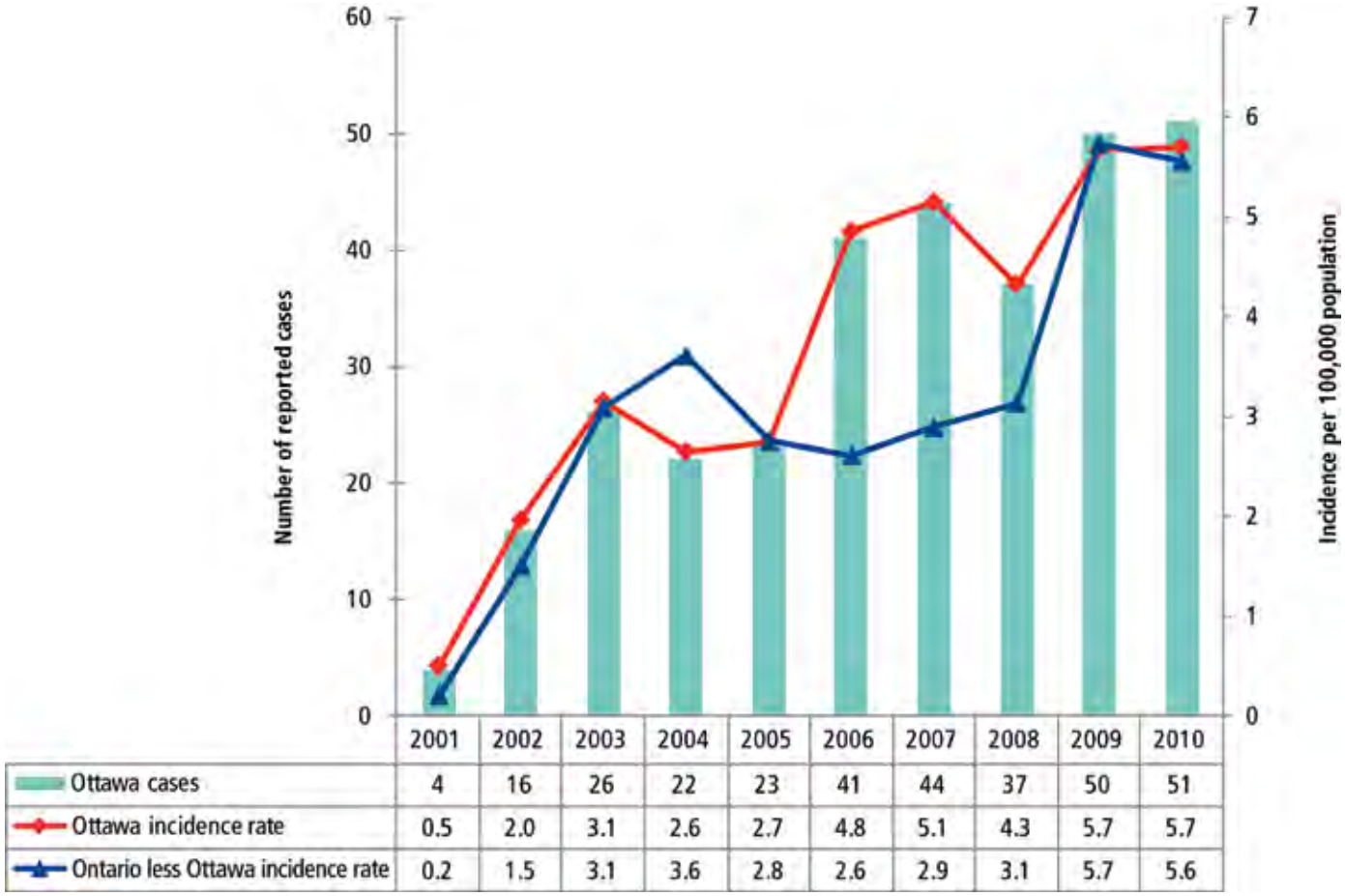
Table 10: Infectious syphilis summary data, Ottawa

	2010	5-year period (2005–2009)	10-year period (2000–2009)
	Total	**Average per period**	
Number of reported cases	51	39	26.4
Incidence rate (per 100,000)			
Overall	5.7	4.5	3.1
Female	0.4	0.3	0.3
Male	11.2	9.0	6.0
Age at illness (years)	**Summary statistics**		
Mean	42	40	40
Median	43	42	42
Range	19–64	17–64	17–64

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Syphilis, infectious

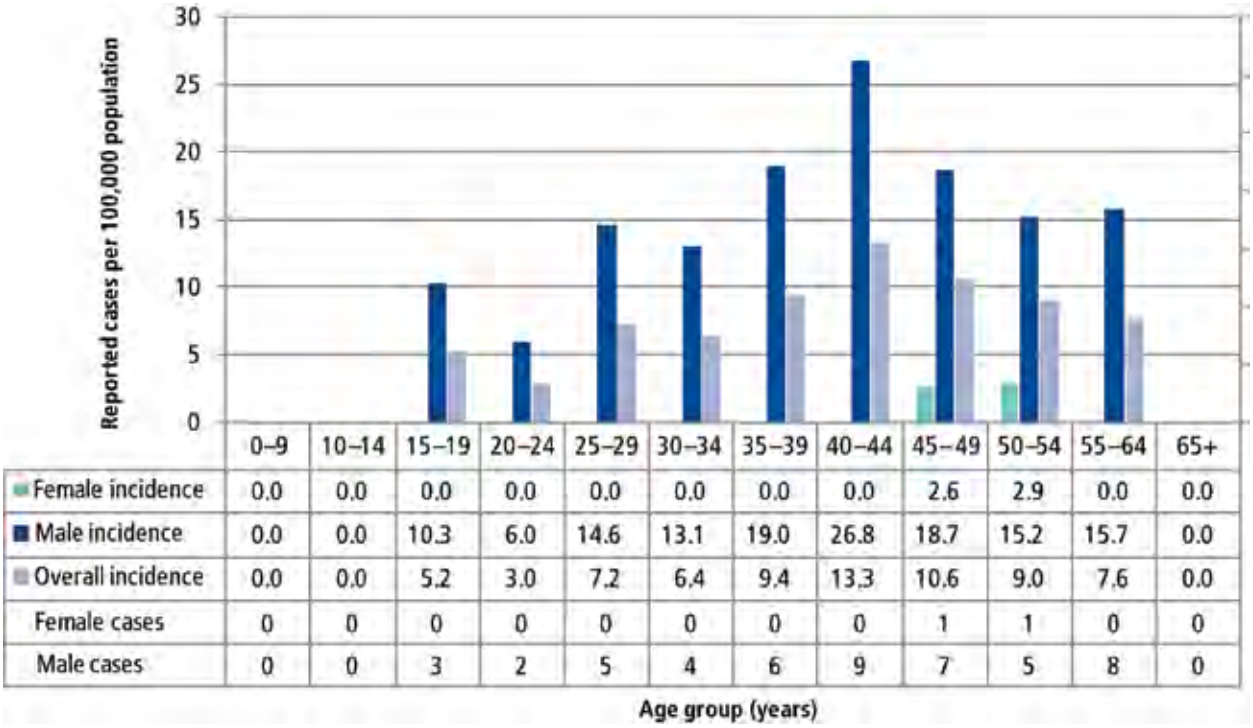
Figure 17: Incidence per 100,000 of infectious syphilis by year, Ottawa and the rest of Ontario, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ottawa cases	4	16	26	22	23	41	44	37	50	51
Ottawa incidence rate	0.5	2.0	3.1	2.6	2.7	4.8	5.1	4.3	5.7	5.7
Ontario less Ottawa incidence rate	0.2	1.5	3.1	3.6	2.8	2.6	2.9	3.1	5.7	5.6

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

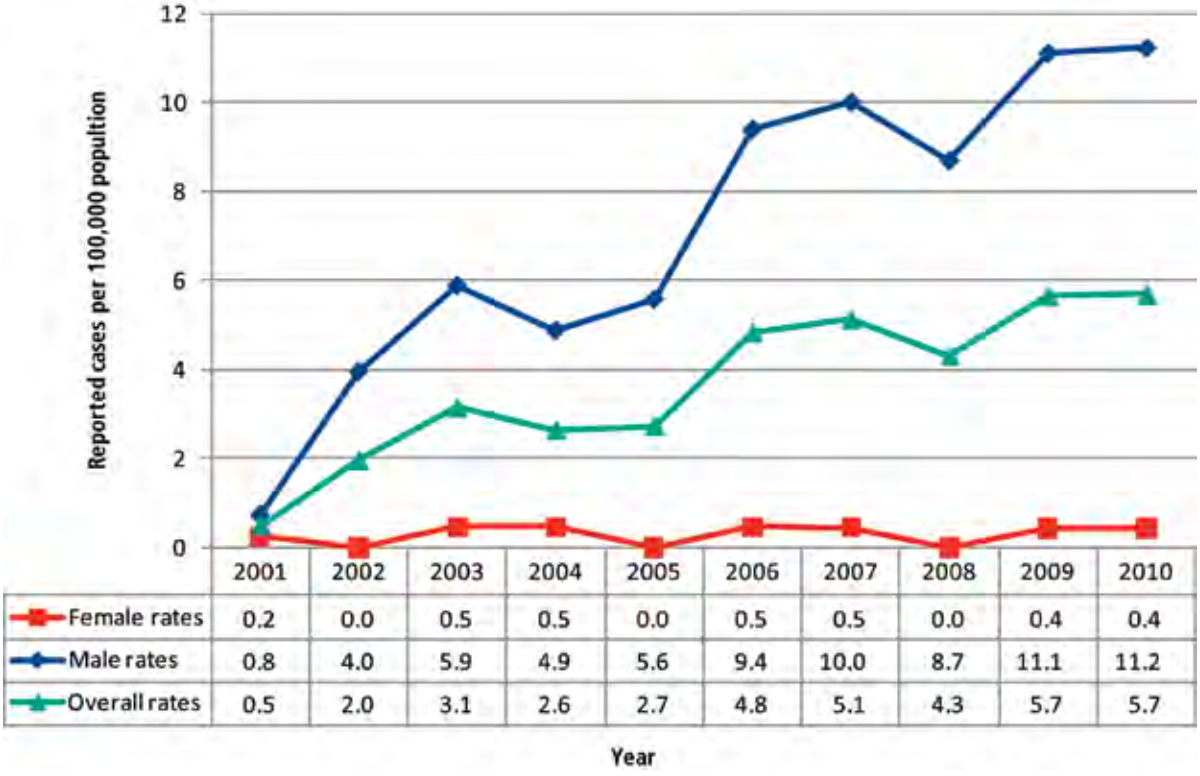
Figure 18: Incidence per 100,000 of infectious syphilis by age and sex, Ottawa, 2010



	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–64	65+
Female incidence	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.9	0.0	0.0
Male incidence	0.0	0.0	10.3	6.0	14.6	13.1	19.0	26.8	18.7	15.2	15.7	0.0
Overall incidence	0.0	0.0	5.2	3.0	7.2	6.4	9.4	13.3	10.6	9.0	7.6	0.0
Female cases	0	0	0	0	0	0	0	0	1	1	0	0
Male cases	0	0	3	2	5	4	6	9	7	5	8	0

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 19: Incidence rate per 100,000 of infectious syphilis by sex and year, Ottawa, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Female rates	0.2	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.4	0.4
Male rates	0.8	4.0	5.9	4.9	5.6	9.4	10.0	8.7	11.1	11.2
Overall rates	0.5	2.0	3.1	2.6	2.7	4.8	5.1	4.3	5.7	5.7

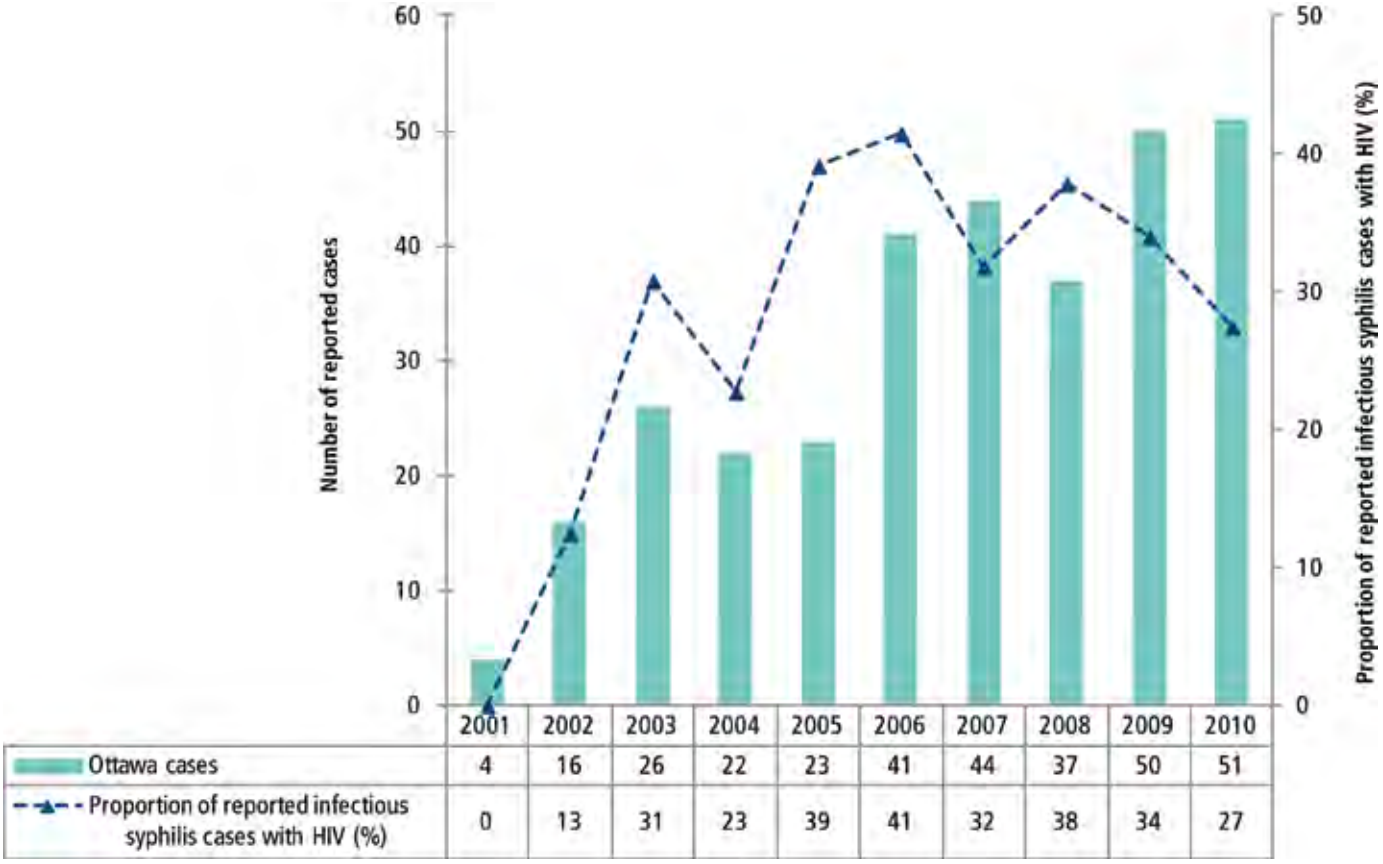
Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Table 11: Risk factors for reported cases of infectious syphilis by sex, Ottawa, 2010

Reported risk factor	Number of cases (%)		
	Female	**Male**	**Overall**
No condom used	2 (100%)	44 (96%)	46 (96%)
Sex with same sex	0 (0)	42 (91)	42 (88)
New contact in past 2 months	0 (0)	22 (48)	22 (46)
More than one sex contact in last 6 months	0 (0)	18 (39)	18 (38)
Met partner at a bath house	0 (0)	9 (20)	9 (19)
Met partner through internet	0 (0)	9 (20)	9 (19)
Sex with opposite sex	2 (100)	6 (13)	8 (17)
Contact is HIV positive	0 (0)	6 (13)	6 (13)
Travel outside province	0 (0)	6 (13)	6 (13)
Partner has multiple sex partners	0 (0)	4 (9)	4 (8)
Anonymous sex	0 (0)	2 (4)	2 (4)
Contact visiting from outside province	0 (0)	1 (2)	1 (2)
Repeat STI	0 (0)	1 (2)	1 (2)
Total with known risk factor	**2 (100)**	**46 (94)**	**48 (94)**
Missing or unknown risk factor	0 (0)	3 (6)	3 (6)
Total cases	**2**	**49**	**51**

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data notes: Cases may report more than one risk factor. Only risk factors reported by 1% or more of cases overall are listed above.

Figure 20: Incidence of infectious syphilis and HIV co-infections by year, Ottawa, 2001–2010.



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ottawa cases	4	16	26	22	23	41	44	37	50	51
Proportion of reported infectious syphilis cases with HIV (%)	0	13	31	23	39	41	32	38	34	27

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted August 10, 2011
Data note: Please see "syphilis-HIV co-infection" in the glossary for details of calculation.

Repeat infections

Of the 48 Ottawa residents reporting infectious syphilis in 2010, two clients had repeat infections and eight (16%) had had previous infectious syphilis since 2000.

Syphilis, late latent

Although late latent syphilis is the result of sexual transmission, this stage of syphilis is not itself sexually transmissible. Late latent syphilis develops in about 15% of people who have not been treated for infectious syphilis. It can appear many years after the infection was first acquired.

The number of reported cases of late latent syphilis is increased 31% from 62 cases in 2009 to 81 cases in 2010. This increase is partly due to the introduction of a more sensitive enzyme immunoassay (EIA) in August 2005. Since then, OPH has observed substantial increases in late latent syphilis reports, with a peak in reports in 2007.

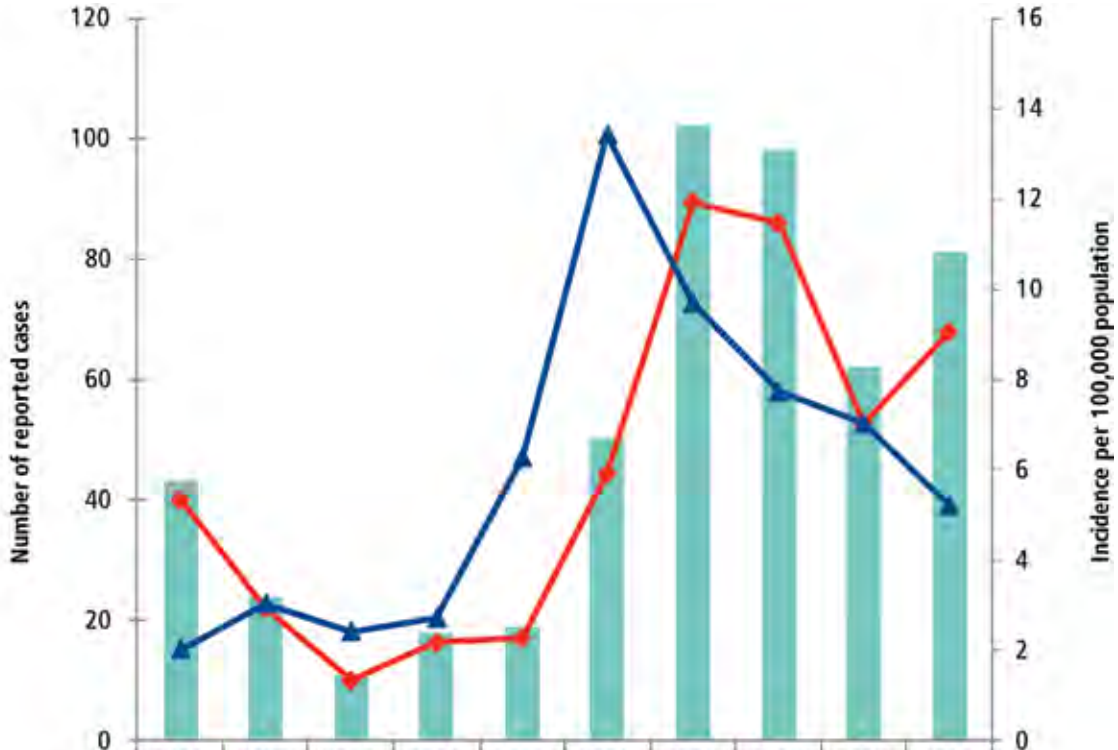
Table 12: Late latent syphilis summary data, Ottawa

	2010	5-year period (2005–2009)	10-year period (2000–2009)
	Total	**Average per period**	
Number of reported cases	81	66.2	45.9
Incidence rate (per 100,000)			
Overall	9.0	7.7	5.4
Female	8.1	6.2	4.0
Male	10.1	9.2	6.1
Age at illness (years)	**Summary statistics**		
Mean	55	53	53
Median	57	52	52
Range	21–88	20–94	16–99

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Syphilis, late latent

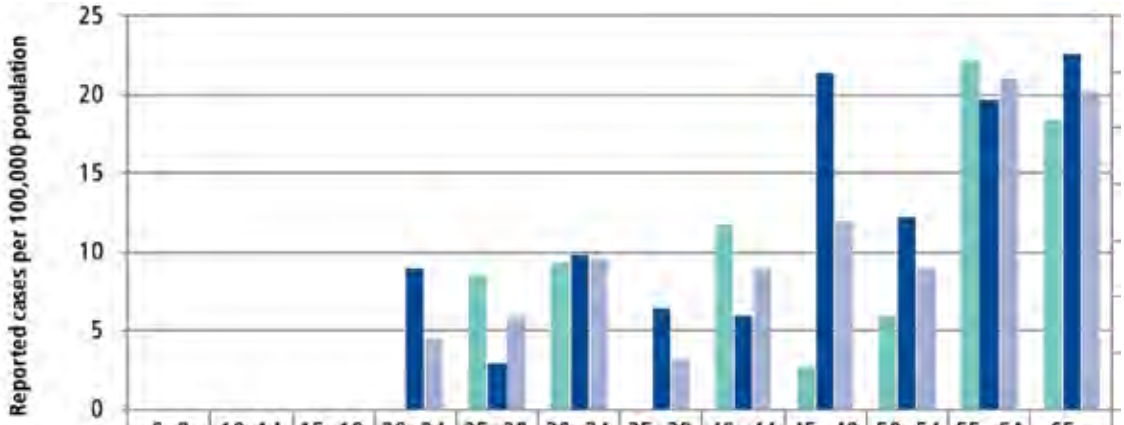
Figure 21: Incidence per 100,000 of late latent syphilis by year, Ottawa and the rest of Ontario, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ottawa cases	43	24	11	18	19	50	102	98	62	81
Ottawa incidence rate	5.3	2.9	1.3	2.2	2.3	5.9	11.9	11.4	7.0	9.0
Ontario less Ottawa incidence rate	2.0	3.0	2.4	2.7	6.3	13.4	9.7	7.7	7.0	5.2

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 22: Incidence per 100,000 of late latent syphilis by age and sex, Ottawa, 2010

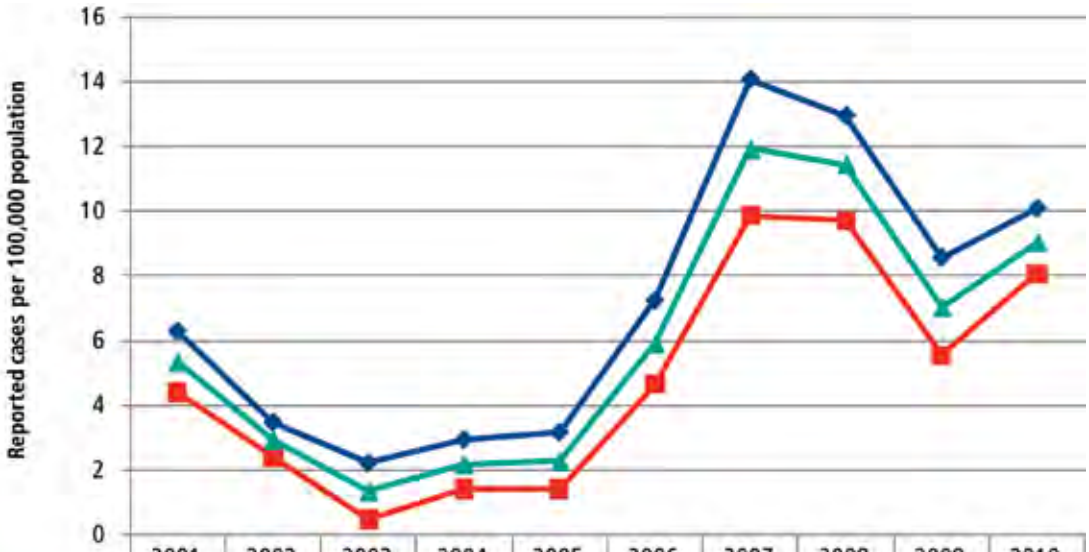


	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–64	65+
Female incidence	0.0	0.0	0.0	0.0	8.5	9.3	0.0	11.8	2.6	5.9	22.2	18.3
Male incidence	0.0	0.0	0.0	8.9	2.9	9.8	6.3	6.0	21.3	12.2	19.6	22.5
Overall incidence	0.0	0.0	0.0	4.5	5.7	9.6	3.1	8.9	11.9	9.0	20.9	20.1
Female cases	0	0	0	0	3	3	0	4	1	2	12	12
Male cases	0	0	0	3	1	3	2	2	8	4	10	11

Age group (years)

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Figure 23: Incidence rates of late latent syphilis by sex and year, Ottawa, 2001–2010



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Female rates	4.4	2.4	0.5	1.4	1.4	4.6	9.9	9.7	5.5	8.1
Male rates	6.3	3.5	2.2	2.9	3.2	7.2	14.1	12.9	8.6	10.1
Overall rates	5.3	2.9	1.3	2.2	2.3	5.9	11.9	11.4	7.0	9.0

Year

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011

Table 13: Risk factors for reported cases of late latent syphilis by sex, Ottawa, 2010

Reported risk factor	Number of cases (%)		
	Female	**Male**	**Overall**
Sex with opposite sex	4 (44%)	7 (50%)	11 (48%)
No condom used	2 (22)	7 (50)	9 (39)
Travel outside province	2 (22)	6 (43)	8 (35)
Sex with same sex	1 (11)	4 (29)	5 (22)
Encounter following major event	1 (11)	0 (0)	1 (4)
HIV positive	1 (11)	0 (0)	1 (4)
New contact in past 2 months	0 (0)	1 (7)	1 (4)
Total with known risk factor	**9 (20)**	**14 (38)**	**23 (28)**
Missing or unknown risk factor	35 (80)	23 (62)	58 (72)
Total cases	**44**	**37**	**81**

Data source: integrated Public Health Information System (iPHIS), Ottawa Public Health, extracted June 20, 2011
Data notes: Cases may report more than one risk factor. Only risk factors reported by 1% or more of cases overall are listed above.

Sexual behaviours

The Canadian Community Health Survey (CCHS) asked several questions regarding sexual activity in Ottawa. Following are some salient findings that speak to the risk of acquiring STIs:

- In 2009, 42% (± 16%) of 15- to 29-year-olds in Ottawa reported that they had not used a condom the last time they had had sex (among those not married, or married/common law but have had more than one partner in the past year).
- In 2009, 53% (± 14%) of 15- to 19-year-olds reported that they had had sexual intercourse.
- In 2007/2008, 37% (± 9%) of 15- to 29-year-olds who have had sex reported that they had had more than one sexual partner in the past 12 months.

Data source: Canadian Community Health Survey 2007/2008 and 2009. Statistics Canada, distributed by Ontario Ministry of Health and Long-Term Care.

Glossary

Age at illness

The case's age at episode date.

Age range

The youngest case age and the eldest case age within the reporting time period. When the minimum age is under the age of one year, the age is represented as "<1".

Episode date

Episode date is a calculated field and represents the earliest date of the following: date of onset of symptoms, laboratory specimen collection date, or date reported to public health. One exception is the episode date for HIV, which is recorded as the date the infection was reported to Ottawa Public Health.

Female incidence

Total number of new female cases reported with an episode date in the calendar year of report divided by the number of males residing in Ottawa according to the census projection of 2010.

Five-year mean

A total from the five-year time period divided by five (the number of years within the time period).

Incidence per 100,000

Total number of new cases reported with an episode date in the calendar year of the report divided by the number of people residing in Ottawa according to the census projection of 2010.

Male incidence

Total number of new male cases reported with an episode date in the calendar year of report divided by the number of males residing in Ottawa according to the census projection of 2010.

Number of cases

Number of confirmed infections reported to Ottawa Public Health with an episode date in the calendar year of the report.

Risk factor

An aspect of someone's behaviour or lifestyle, a characteristic that a person was born with, or an event that he or she has been exposed to. Risk factors listed in iPHIS are intended to collect initial information on what makes an individual more likely to acquire the infection and/or have a more serious outcome.

Ten-year mean

A total from the ten-year time period divided by 10 (the number of years within the time period).

Glossary

Chlamydia and gonorrhea

Confirmed case

Epidemiologically linked cases of chlamydia and gonorrhea (no positive lab result) were previously considered confirmed, but as of April 2009 are no longer reportable. Therefore the number of confirmed cases after April 2009 may be expected to decrease. For these infections, comparisons should not be made to historical values in this report without considering this change.

HIV/AIDS

Syphilis-HIV co-infection

For 2001–2009, syphilis-HIV co-infections included any client diagnosed with HIV anywhere, at any time before or up to one year after the diagnosis of infectious syphilis as HIV may take longer to test and diagnose. This method of calculation is consistent with the way that provincial data is presented. For 2010, syphilis-HIV co-infections included any client diagnosed with HIV anywhere, at any time before or up to one year after the diagnosis of syphilis up to June 30, 2011.

Serosorting

This HIV risk factor refers to the practice of choosing sexual contacts that have the same HIV status.

Strategic positioning

This HIV risk factor refers to the practice of engaging in insertive or receptive anal intercourse depending on one's HIV status in an attempt to decrease the risk of transmission of HIV.

HIV exposure categories

Heterosexual contact

This HIV exposure category includes cases whose only reported risk factor is sex with an opposite sex partner and nothing is known about the HIV-related risk factor(s) associated with the partner.

Heterosexual, partner at risk

This HIV exposure category includes cases who report sex with an opposite sex partner that has received blood or blood products, is homosexual or bisexual, has lived in or visited a country where HIV is endemic, has multiple sex partners, is HIV positive, or shares needles or drug equipment.

HIV-endemic

This HIV exposure category includes cases that lived in or visited countries where HIV is endemic (see http://www.phac-aspc.gc.ca/publicat/epiu-aepi/epi-1205/app_a-eng.php for list).

IDU

Illicit drug use. This HIV exposure category includes cases that report either using intranasal or injection illicit drugs, or sharing needles or drug equipment, but are not MSM.

Glossary

Men who have sex with men (MSM)

This HIV exposure category includes men who report sex with same sex but do not use illicit drugs.

MSM—Illicit Drug Use (IDU)

This HIV exposure category includes MSM who also report either using intranasal or injection illicit drugs or sharing needles or drug equipment.

Other

This HIV exposure category includes cases who report occupational, non-occupational or non-medical exposure to blood or body fluids; or tattoo or piercing.

Perinatal

This HIV exposure category includes cases that were born to an HIV case.

References

[1] Canadian Community Health Survey 2007/2008 and 2009. Statistics Canada, distributed by Ontario Ministry of Health and Long-Term Care.

[2] Lee C, Whelan M. Repeat Bacterial Sexually Transmitted Infections. Public Health Ontario. Presented July 5, 2011. Available online at: www.oahpp.ca/about/calendar/documents/Repeat%20STIs%20for%20PHO%20Rounds.0507.pdf

[3] Raju S, Whelan, M. Syphilis in Ontario. Ministry of Health and Long-Term Care. Presented May 11, 2011.

Additional Information

Toronto Public Health. Sexually Transmitted and Bloodborne Diseases: Communicable Diseases in Toronto, 2009. Available online at: www.toronto.ca/health/cdc/communicable_disease_surveillance/statistics_and_reports/annual_reports/pdf/2009/2009_sti_annual_report.pdf

Ontario Ministry of Health and Long-Term Care. iPHIS Risk Factor Guide. February 2011. Available online at (password required): https://www.publichealthontario.ca/portal/server.pt/gateway/PTARGS_0_33273_10344_1544_16373_43/docman/download/115852/0/0/0/DRAFT%20Risk%20Factor%20Guide%202011%2002%2011.pdf