

Sexually Transmitted and Bloodborne Diseases

**Communicable Diseases
in Toronto**

2008

Sexually Transmitted and Bloodborne Diseases

These are diseases caused by infectious agents that are found in body fluids such as blood, semen, vaginal secretions, breast milk, and saliva. Transmission occurs primarily from person to person through sexual contact. Other modes of transmission include direct entry into the blood system through other means such as needle use or transfusions, perinatal transmission from mother to infant and, in the case of hepatitis B, through household contact. This group of diseases is the most frequently reported in Toronto. Relative proportions of each disease within this grouping, and their ranking are listed below. □

Table 1.1: Number and proportion of reported cases of sexually transmitted and bloodborne diseases. Toronto, 2008

Ranking	Reportable disease	Number of cases	Proportion of cases (%)
1	Chlamydia	7393	55
2	Gonorrhea	1685	13
3	Hepatitis B carriers	1209	9
4	Hepatitis C	1077	8
5	HIV	558	4
6	Syphilis, late latent	545	4
7	Hepatitis B unclassified reports*	496	4
8	Syphilis, infectious	331	2
9	AIDS	82	(<1)
10	Hepatitis B cases	28	(<1)
11	Syphilis, other†	21	(<1)
12	Ophthalmia neonatorum	2	(<1)
13	Cytomegalovirus infection, congenital	1	(<1)
14	Hepatitis D	1	(<1)
	Total	13429	100

Rare reportable diseases not summarized in this section are chancroid and congenital syphilis.

*Unclassified hepatitis B reports are for clients whose laboratory results indicate positive hepatitis B virus markers, but are lacking sufficient evidence to be classified as cases or carriers. These reports are most likely carriers.

†Excludes infectious, late latent and congenital syphilis.

Select highlights

Chlamydia

- Chlamydia is the most frequently reported of all reportable diseases in both males and females in Toronto in all age groups from 15 to 49 years. Among sexually transmitted infections, 55% of all Toronto case reports in 2008 were chlamydia cases (Table 1.1).
- The overall number of cases of chlamydia reported in Toronto increased 5% from 7016 in 2007 to 7393 in 2008 (Figure 1.1). This continues to follow the trend of increasing chlamydia rates that has been seen in Toronto, the rest of Ontario and all of Canada since 1997. Some of this increase may be attributed to greater detection of asymptomatic cases of genital chlamydia infections through screening programs following the introduction of highly sensitive and less invasive urine testing for chlamydia in 1994.
- Chlamydia rates are highest among young adults. In females, 77% of reported cases are in the 15 to 29 year age groups. In males, 60% of reported cases occur in the 15 to 29 age groups (Figure 1.2). In 2008, rates of reported chlamydia decreased in females and males aged 15 to 19, however rates in females increased almost 10% in each of the 5-year age groups from 20 to 39.
- The increase over the past four years in Toronto has been driven almost entirely by increased rates among females, which have increased 20% since 2005. In comparison, the rates of reported cases among males have been stable over the same period, increasing by only 1% overall (Figure 1.3).

Gonorrhoea

- In Toronto, the overall gonorrhoea rate (Figure 1.4) and the rates for both males and females (Figure 1.6) decreased by almost 7% from 2007 to 2008. This is in contrast to the gonorrhoea rate in the rest of Ontario, which increased by 3% over the same period (Figure 1.4).
- The majority of reported gonorrhoea cases (62%) occurred in young adults aged 15 to 29 (Figure 1.5). However, most of the observed decrease in the overall rates was due to decreased rates among both males and females aged 15 to 24 years.

Hepatitis B

- The number of acute cases of hepatitis B reported in 2008 was comparable to that seen in 2007 and 2006, and remains below the previous 5-year and 10-year average numbers.

Hepatitis C

- The number of reported hepatitis C cases in 2008 was 1077. Although this number is higher than the 1050 cases reported in 2007, it is 7% lower than the annual average of 1164 cases over the previous five years, and 23% lower than the previous 10-year average of 1409 (Table 1.8).
- As in previous years, the most commonly reported risk factor for acquiring hepatitis C was illicit drug use (reported by 46% of those reporting a risk factor) (Table 1.9). The second most commonly reported risk factor was invasive medical procedures (27%, up from 7% in 2007) followed by travel to or living in an endemic country (24%, up from 3% in 2007).

HIV/AIDS

- The overall rate of reported HIV infections decreased 3% in Toronto from 2007 to 2008 (Figure 1.14).
- The rate of reported HIV infections decreased about 4% among males in 2008, while rates increased by about the same proportion (4%) among females (Figure 1.16).

Syphilis, Infectious

- The overall number of reported cases of syphilis in Toronto increased 18% from 280 cases in 2007 to 331 cases in 2008. This is the second highest number of cases reported in one year since the syphilis outbreak began in 2002 (Figure 1.17).
- The outbreak in Toronto continues to be concentrated among men who have sex with men. More than 95% of the infectious syphilis cases reported were among males (Figure 1.18), and 83% of these males reported the risk factor “Sex with same sex” (Table 1.13). There is still no evidence that the outbreak has spread into the female population in Toronto.

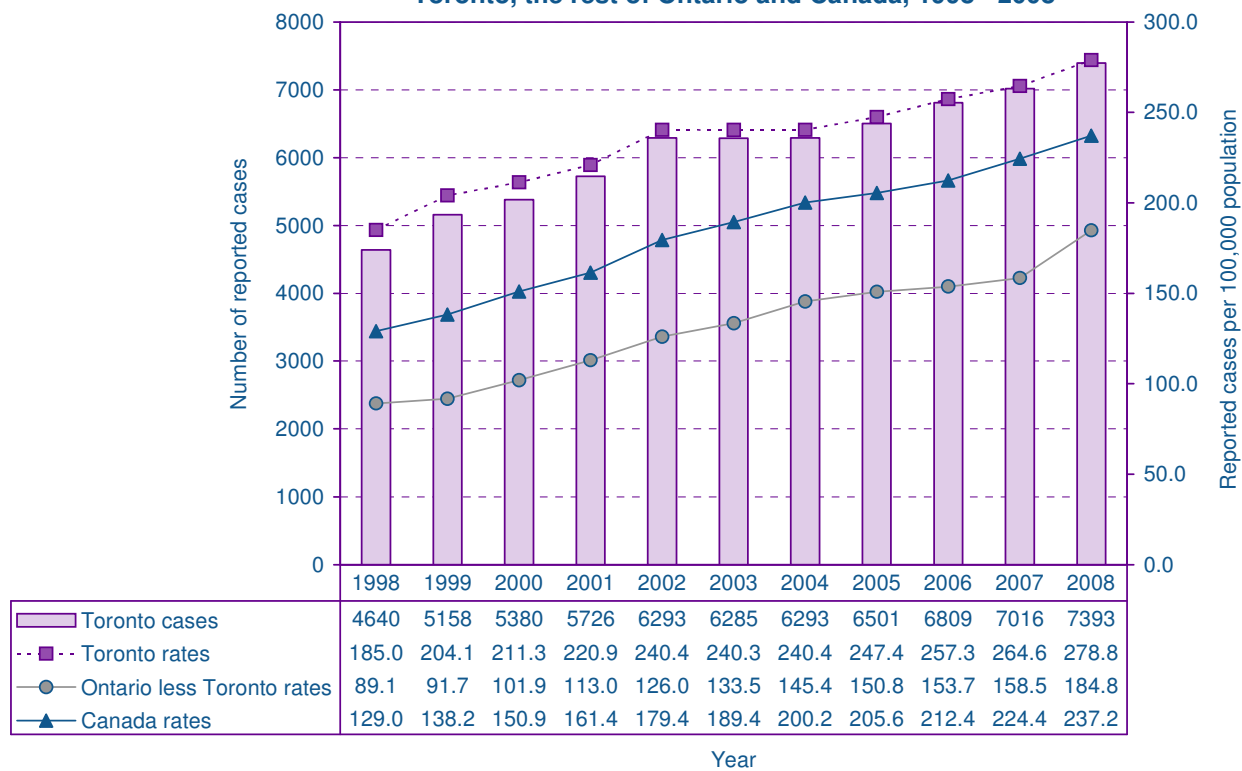
Syphilis, Late Latent

- The number of late latent syphilis cases reported decreased 22% from 695 reported cases in 2007 to 545 reported cases in 2008 (Figure 1.22).
- Considerable increases in late latent syphilis reports have been observed since the introduction of a more sensitive enzyme immunoassay (EIA) test in August 2005, with a peak in reports occurring in 2006. Thus, the increase in the number of reports may be attributable to the diagnosis of individuals who would have tested negative with the previous rapid plasma reagin (RPR) test. In addition, the implementation of a more rigorous confirmation of late latent syphilis cases in January 2007 has resulted in a subsequent decrease in the number of confirmed case reports.

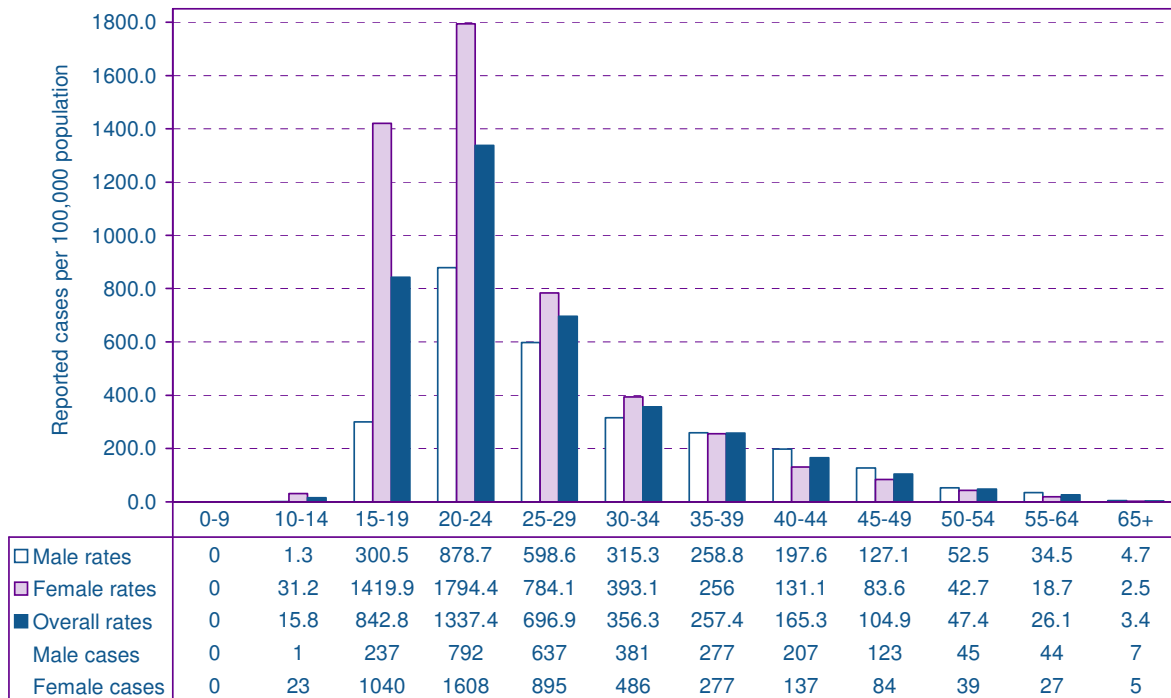
Chlamydia

Table 1.2: Chlamydia summary data			
Toronto			
	2008	5-yr period 2003-2007	10-yr period 1998-2007
	Total	Means	
Number of reported cases	7393	6581	6010
Incidence rate (per 100,000 population)			
Overall	278.8	250.0	231.6
Male	213.3	205.3	180.9
Female	339.4	292.5	279.7
Age at onset (years)	Summary Statistics		
Mean	27	26	26
Median	24	24	24
Range	13 77	<1 84	<1 94

Figure 1.1: Incidence of chlamydia by year.
Toronto, the rest of Ontario and Canada, 1998 - 2008



**Figure 1.2: Incidence of chlamydia by age group and sex*.
Toronto, 2008**



*For 21 cases, sex was transgender or not reported and/or age was not reported. Age group (years)

**Figure 1.3: Incidence rates of chlamydia by sex and year.
Toronto, 1998 - 2008**

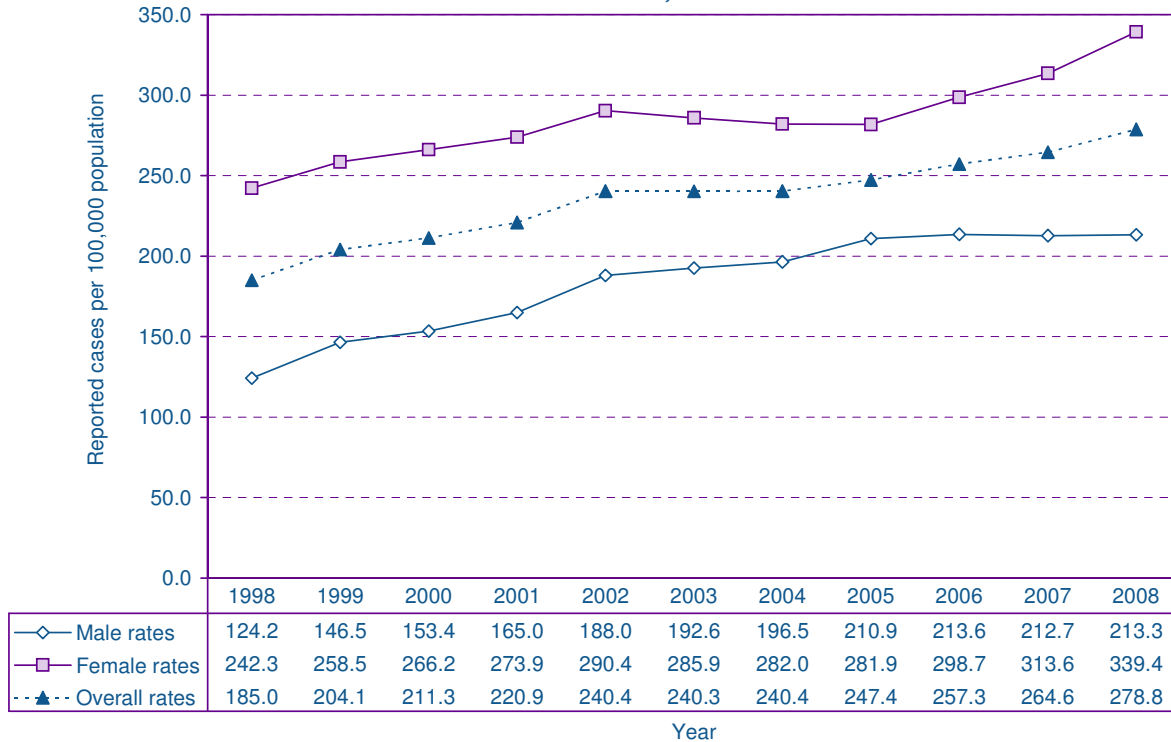


Table 1.3: Risk factors* for reported cases of chlamydia by sex†. Toronto, 2008

Reported risk factor*	Number of cases‡ (%)					
	Male		Female		Overall	
No condom used	1793	(86)	3220	(92)	5027	(90)
Multiple sex partners in last six months	577	(28)	406	(12)	984	(18)
New partner in past two months	312	(15)	333	(9)	646	(12)
Partner with multiple sex partners	74	(4)	328	(9)	405	(7)
Sex with same sex	287	(14)	10	(<1)	297	(5)
Condom breakage	132	(6)	156	(4)	289	(5)
Travel outside province	71	(3)	51	(1)	122	(2)
Partner visiting from outside province	29	(1)	56	(2)	85	(2)
Judgement impaired by alcohol/drugs	30	(1)	24	(<1)	54	(1)
Homeless	5	(<1)	15	(<1)	20	(<1)
Met partner through internet	10	(<1)	8	(<1)	18	(<1)
Sex trade worker	7	(<1)	10	(<1)	17	(<1)
Sex with sex trade worker	11	(<1)	2	(<1)	13	(<1)
Bath house	10	(<1)	0	(0)	10	(<1)
Shared sex toys	0	(0)	5	(<1)	5	(<1)
Encounter following major event	2	(<1)	2	(<1)	4	(<1)
Total with a known risk factor	2079		3507		5601	
Number missing or unknown	672		1115		1792	
Total cases	2751		4622		7393	

*Due to a systematic change in how risk factors are captured in iPHIS, risk factors for chlamydia cases with multiple STIs have been under-reported.

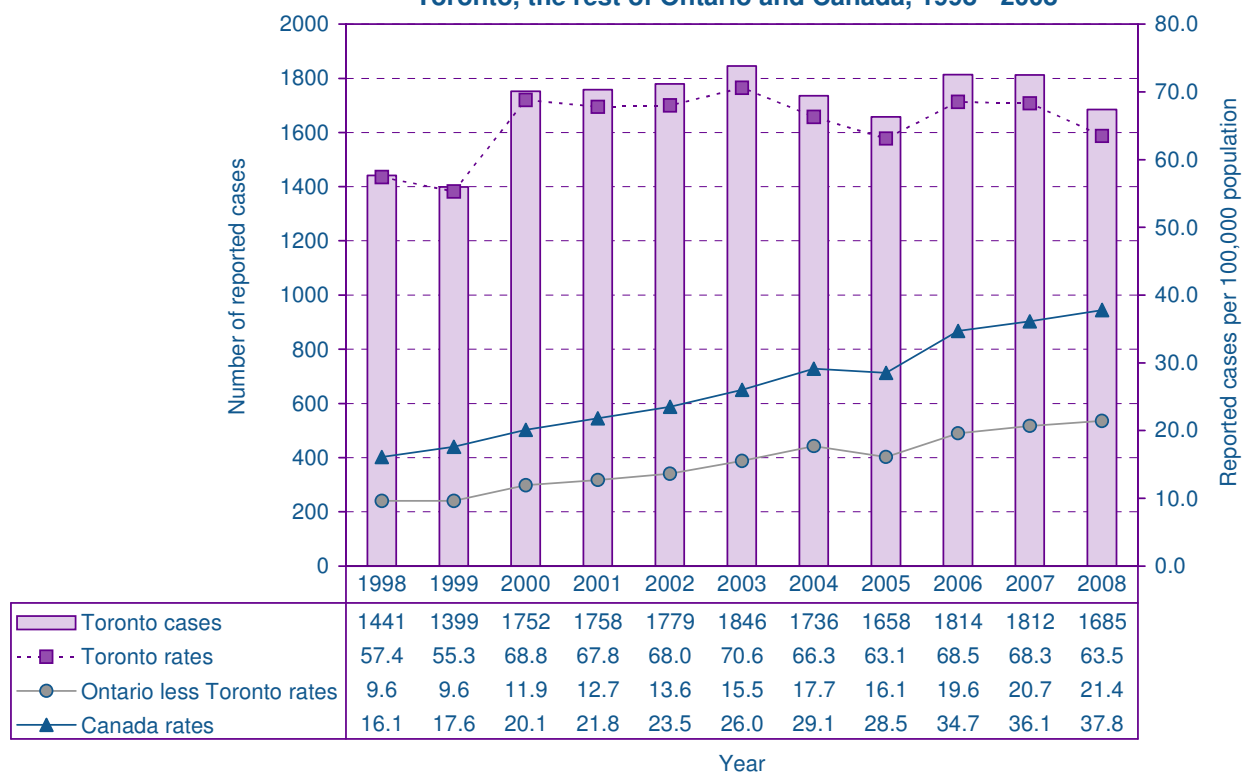
†Sex was transgender or not reported for 20 cases.

‡Cases may report more than one risk factor.

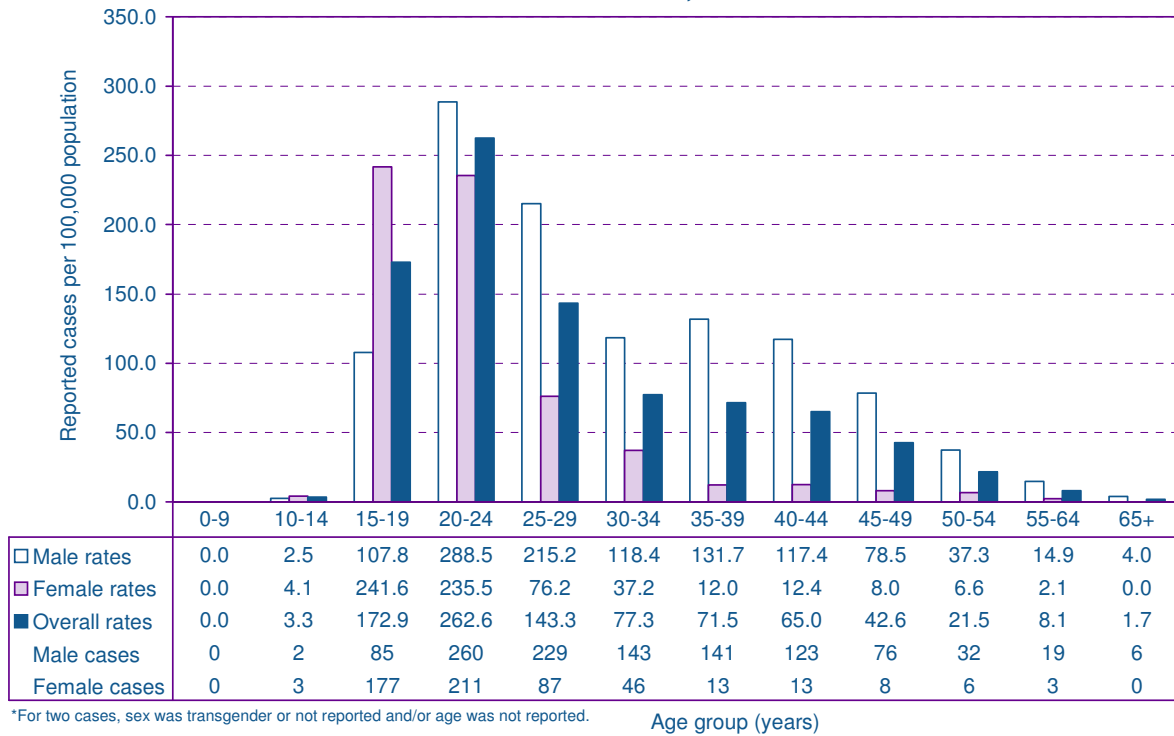
Gonorrhoea

Table 1.4: Gonorrhoea summary data				
Toronto				
	2008	5-yr period 2003-2007		10-yr period 1998-2007
	Total	Means		
Number of reported cases	1685	1773		1700
Incidence rate (per 100,000 population)				
Overall	63.5	67.4		65.5
Male	86.5	95.5		90.2
Female	41.6	40.6		42.0
Age at onset (years)	Summary statistics			
Mean	29	29		28
Median	26	27		26
Range	13 77	<1 78		<1 85

Figure 1.4: Incidence of gonorrhoea by year.
Toronto, the rest of Ontario and Canada, 1998 - 2008



**Figure 1.5: Incidence of gonorrhoea by age group and sex*.
Toronto, 2008**



**Figure 1.6: Incidence rates of gonorrhoea by sex and year.
Toronto, 1998 - 2008**

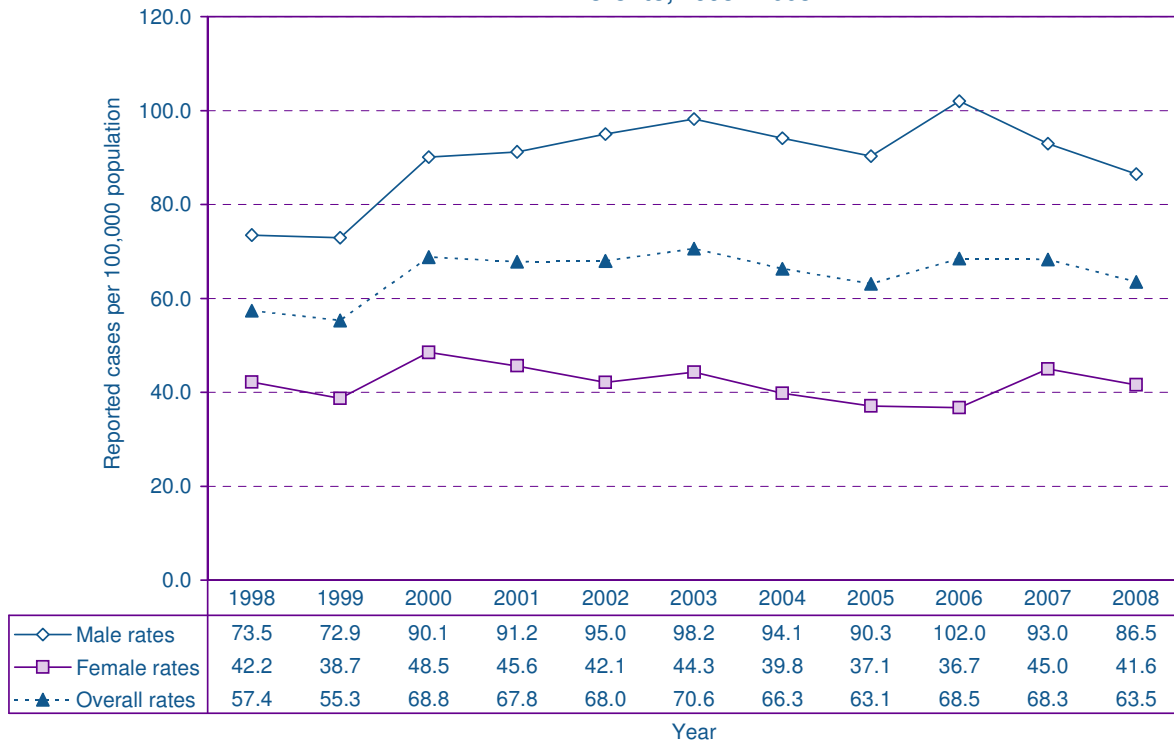


Table 1.5: Risk factors* for reported cases of gonorrhoea by sex†. Toronto, 2008

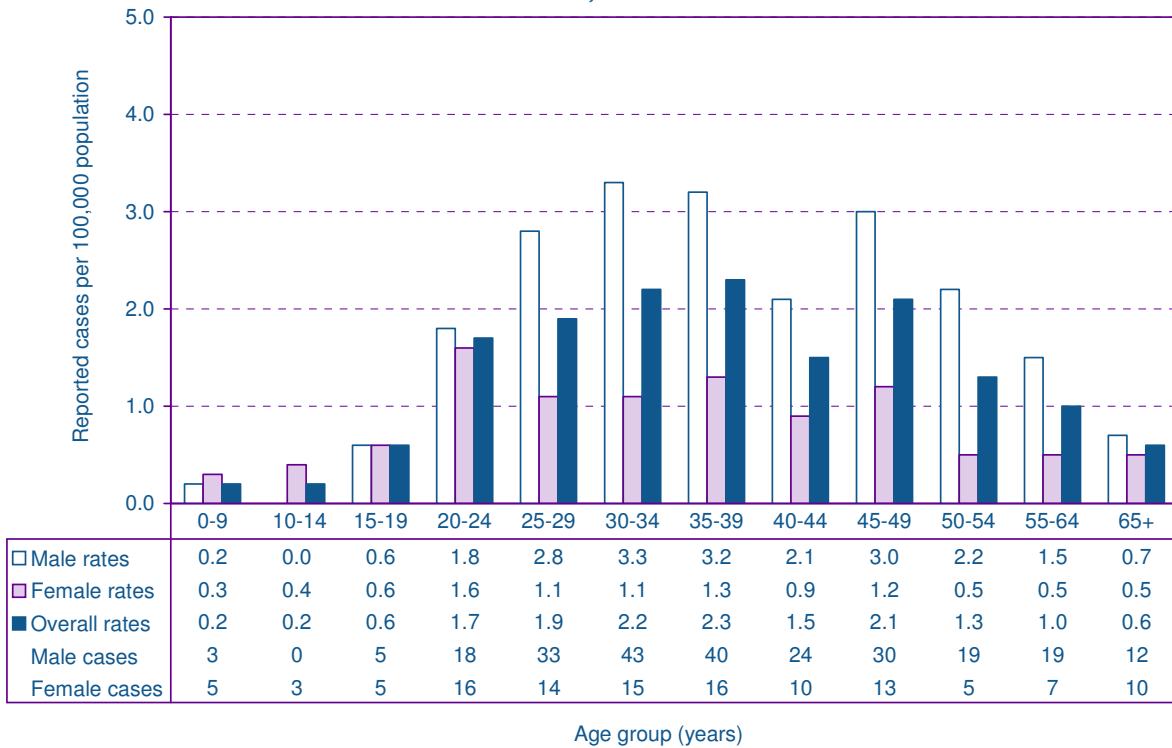
Reported risk factor*	Number of cases† (%)					
	Male		Female		Overall	
No condom used	758	(85)	381	(88)	1140	(86)
Sex with same sex	412	(46)	3	(<1)	415	(31)
Multiple sex partners in last six months	322	(36)	67	(16)	389	(29)
New partner in past two months	175	(20)	53	(12)	228	(17)
Partner with multiple sex partners	51	(6)	61	(14)	112	(8)
Condom breakage	59	(7)	27	(6)	86	(6)
Judgement impaired by alcohol/drugs	26	(3)	3	(<1)	29	(2)
Bath house	25	(3)	0	(0)	25	(2)
Travel outside province	18	(2)	5	(1)	23	(2)
Partner visiting from outside province	8	(<1)	8	(2)	16	(1)
Sex with sex trade worker	10	(1)	2	(<1)	12	(<1)
Met partner through internet	9	(1)	0	(0)	9	(<1)
Sex trade worker	3	(<1)	5	(1)	8	(<1)
Homeless	2	(<1)	5	(1)	7	(<1)
Sex for drugs	1	(<1)	0	(0)	1	(<1)
Shared sex toys	0	(0)	1	(<1)	1	(<1)
Total with a known risk factor	892		431		1324	
Number missing or unknown	224		136		361	
Total cases	1116		567		1685	

*Due to a systematic change in how risk factors are captured in iPHIS, risk factors for gonorrhoea cases with multiple STIs have been under-reported.

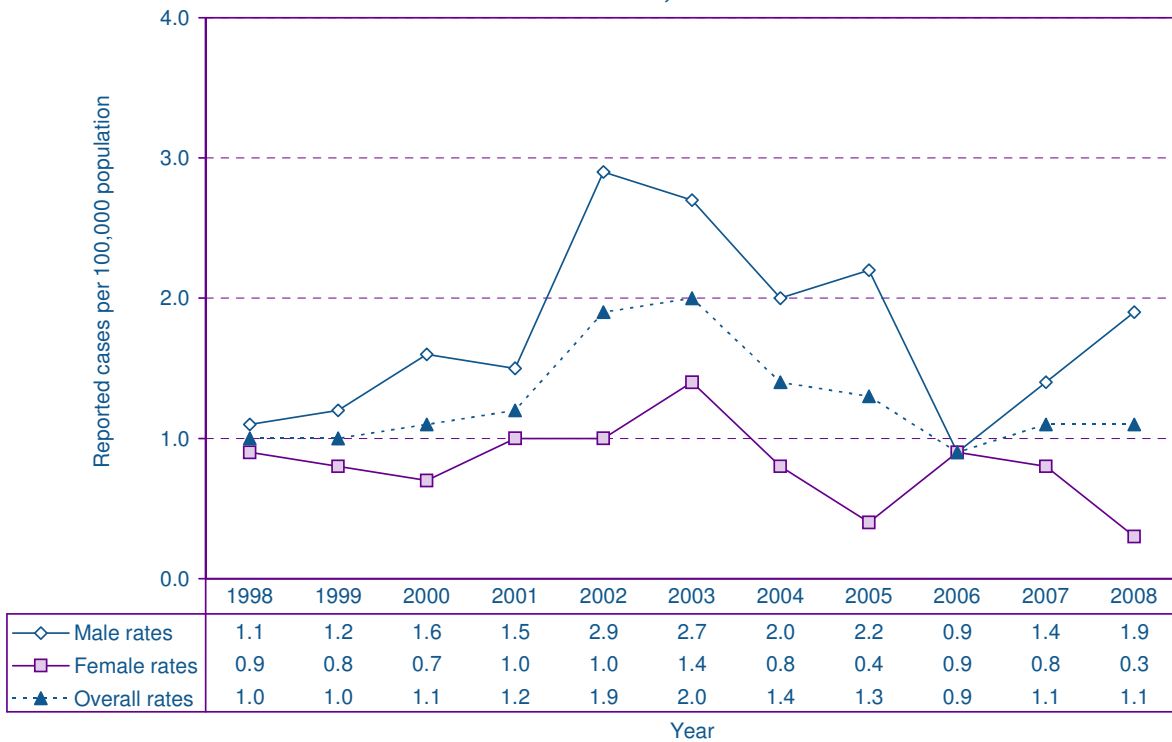
†Sex was transgender or not reported for two cases.

‡Cases may report more than one risk factor.

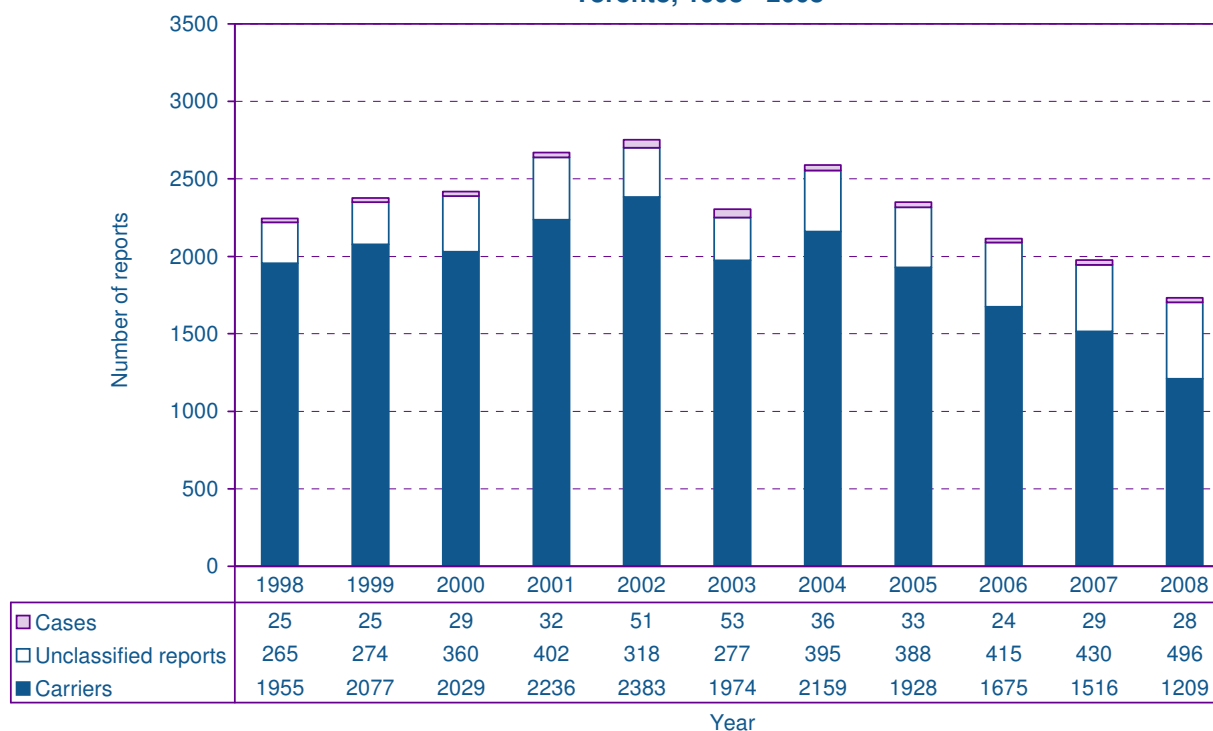
**Figure 1.8: Incidence of acute hepatitis B by age group and sex.
Toronto, 1998 - 2008 combined**



**Figure 1.9: Incidence rates of hepatitis B by sex and year.
Toronto, 1998 - 2008**



**Figure 1.10: Number of hepatitis B cases, carriers and unclassified reports* by year.
Toronto, 1998 - 2008**



*Unclassified hepatitis B reports are clients whose laboratory results indicate positive hepatitis B virus markers but are lacking sufficient evidence to be classified as cases or carriers. These reports are most likely carriers.

**Table 1.7: Risk factors for reported acute cases of hepatitis B by sex.
Toronto, 2008**

Reported risk factor	Number of cases* (%)		
	Male	Female	Overall
Travel to or lived in an endemic country	8 (40)	1 (50)	9 (41)
Sexual contact of a known case	6 (30)	1 (50)	7 (32)
Immunocompromised	5 (25)	0 (0)	5 (23)
Invasive medical procedure	5 (25)	0 (0)	5 (23)
Illicit drug use - Injection/Intra nasal	3 (15)	0 (0)	3 (14)
Sex with same sex	3 (15)	0 (0)	3 (14)
Tattoo/acupuncture/ear piercing/electrolysis	3 (15)	0 (0)	3 (14)
Multiple sex partners	2 (10)	0 (0)	2 (9)
Total with a known risk factor	20	2	22
Number missing or unknown	4	2	6
Total cases	24	4	28

*Cases may report more than one risk factor.

Hepatitis C

Table 1.8: Hepatitis C summary data			
Toronto			
	2008	5-yr period 2003-2007	10-yr period 1998-2007
	Total	Means	
Number of reported cases	1077	1164	1409
Incidence rate (per 100,000 population)			
Overall	40.6	44.2	54.3
Male	50.3	55.1	69.4
Female	31.1	33.7	39.4
Age at onset (years)	Summary statistics		
Mean	46	46	45
Median	46	45	44
Range	<1 90	<1 107	<1 107
Case fatality (%)	0.3	0.2	0.2

Figure 1.11: Incidence of hepatitis C by year.
Toronto, the rest of Ontario and Canada*, 1998 - 2008

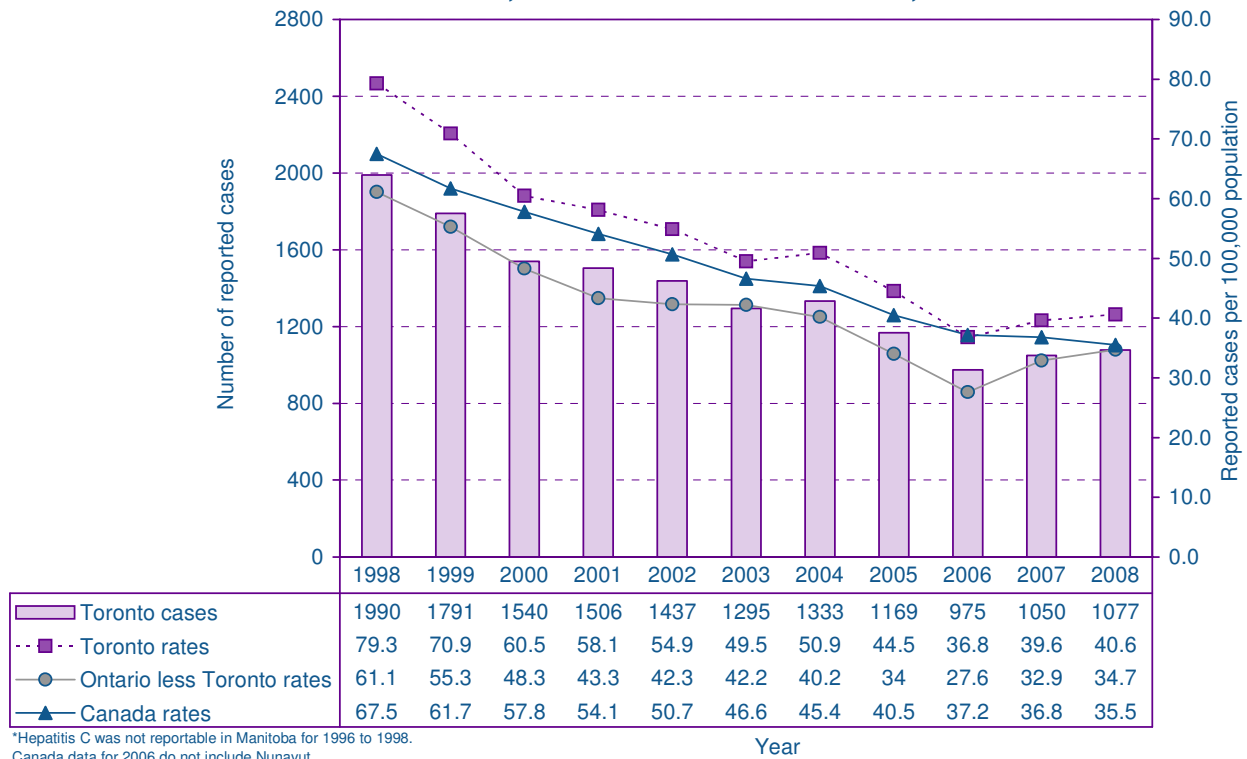


Figure 1.12: Incidence of hepatitis C by age group and sex*.
Toronto, 2008

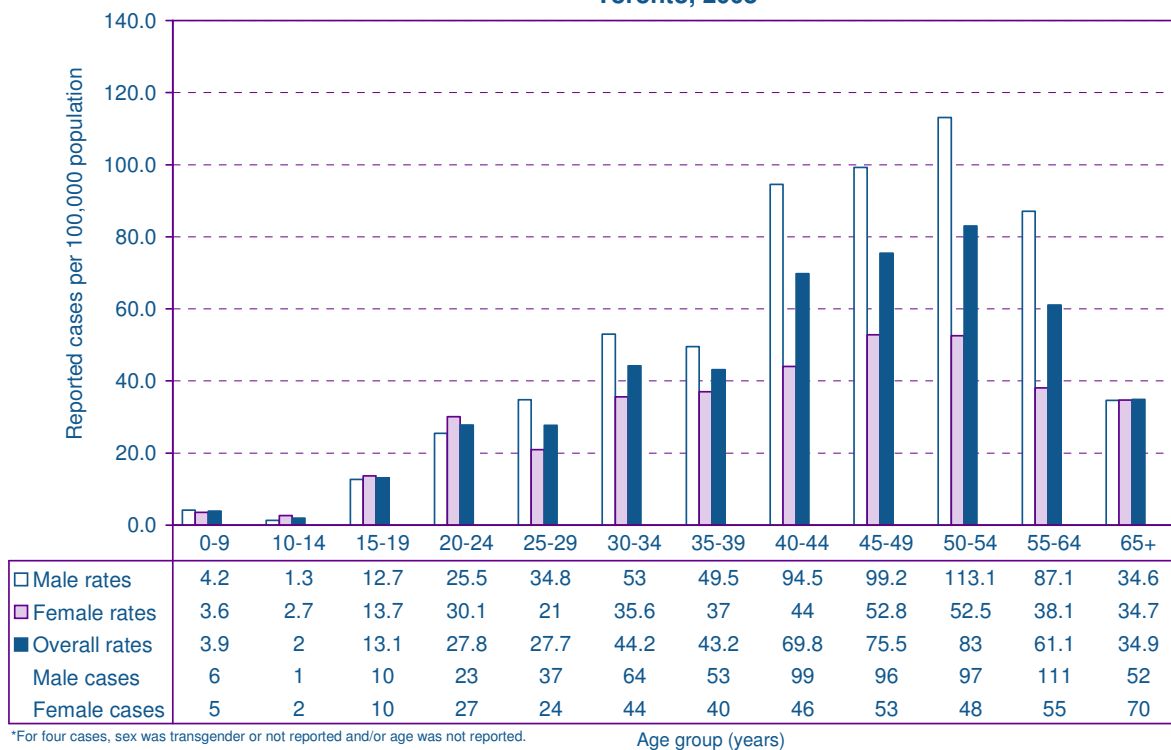
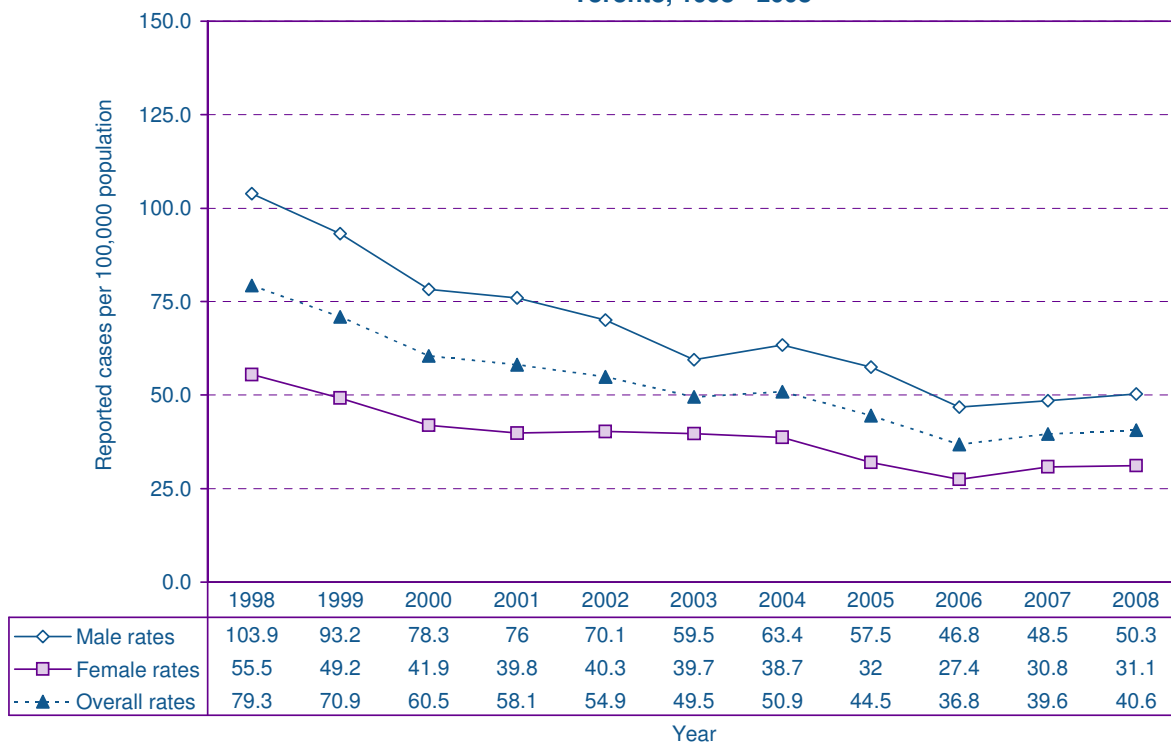


Figure 1.13: Incidence rates of hepatitis C by sex and year.
Toronto, 1998 - 2008



**Table 1.9: Risk factors for reported cases of hepatitis C by sex[‡].
Toronto, 2008**

Reported risk factor	Number of cases* (%)					
	Male		Female		Overall	
Illicit drug use - Injection/intra nasal	207	(53)	83	(35)	291	(46)
Invasive medical procedure	90	(23)	78	(33)	168	(27)
Travel to or lived in an endemic country	76	(20)	78	(33)	154	(24)
Tattoo/acupuncture/ear piercing/electrolysis	81	(21)	64	(27)	145	(23)
Blood transfusion [†]	53	(14)	61	(26)	114	(18)
Multiple sex partners	44	(11)	25	(10)	69	(11)
Sexual contact of a known case	20	(5)	17	(7)	37	(6)
Immunocompromised	22	(6)	10	(4)	32	(5)
Organ/tissue transplant	7	(2)	3	(1)	10	(2)
Dialysis	2	(1)	1	(<1)	3	(<1)
Infant born to case or carrier	2	(<1)	2	(<1)	4	(<1)
Other	39	(10)	25	(10)	64	(10)
Total with a known risk factor	389		239		629	
Number missing or unknown	260		187		450	
Total cases	649		424		1077	

*Cases may report more than one risk factor.

[†]Sixty-five cases reported blood transfusion outside of Canada as a risk factor. Twenty-three cases that reported blood transfusion as a risk factor were exposed prior to 2008.

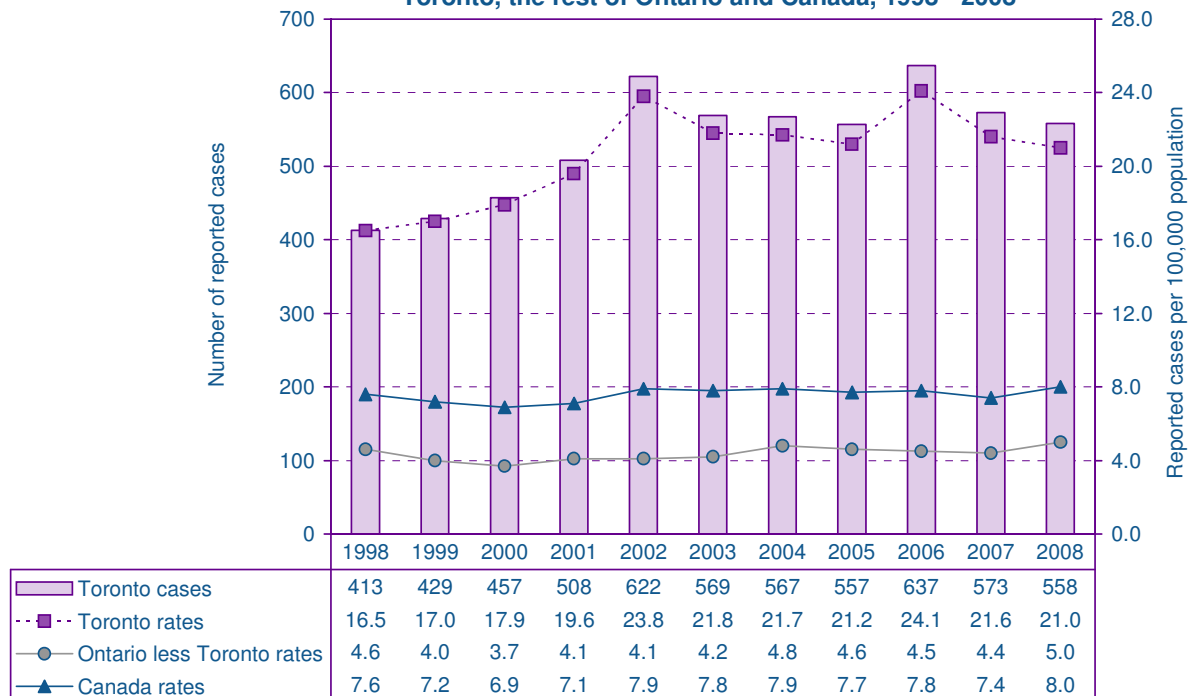
[‡]Sex was transgender or not reported for four cases.

HIV/AIDS

Table 1.10: HIV/AIDS summary data						
Toronto						
	2008		5-yr period 2003-2007		10-yr period 1998-2007	
	Totals		Means			
	AIDS*	HIV	AIDS*	HIV	AIDS*	HIV
Number of reported cases	82	558	-	581	-	533
Incidence rate (per 100,000 population)						
Overall	3.1	21.0	-	22.1	-	20.5
Male	4.7	35.1	-	35.9	-	33.6
Female	1.6	7.6	-	8.8	-	8.0
Age at onset (years)	Summary statistics					
Mean	41	37	-	37	-	36
Median	40	36	-	36	-	36
Range	8 71	<1 68	-	<1 81	-	<1 81

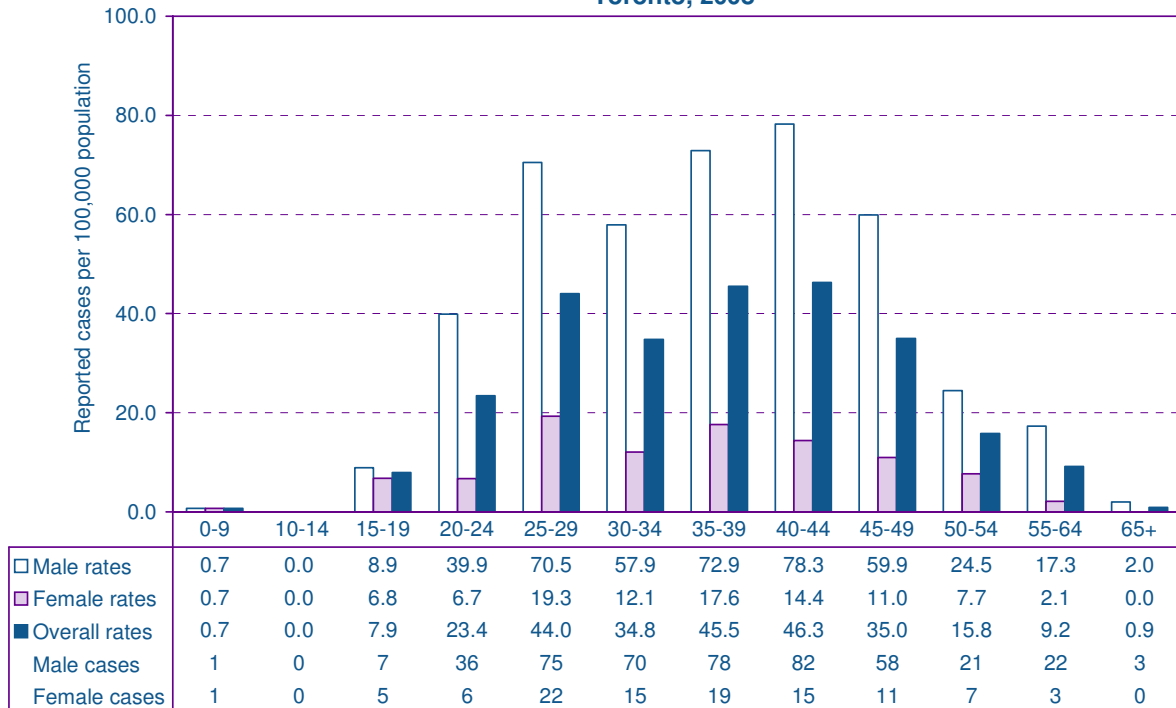
*For AIDS cases there is a delay in reporting by as much as 2 years. Due to discrepancies associated with data conversion from RDIS to iPHIS, historical AIDS data are not available for reporting. Please see technical notes for more information on data limitations regarding the omission of historical AIDS data.

**Figure 1.14: Incidence of HIV* infection by year.
Toronto, the rest of Ontario and Canada, 1998 - 2008**



*HIV reports have been counted by year of test for Ontario less Toronto and Canada rate calculations. Year

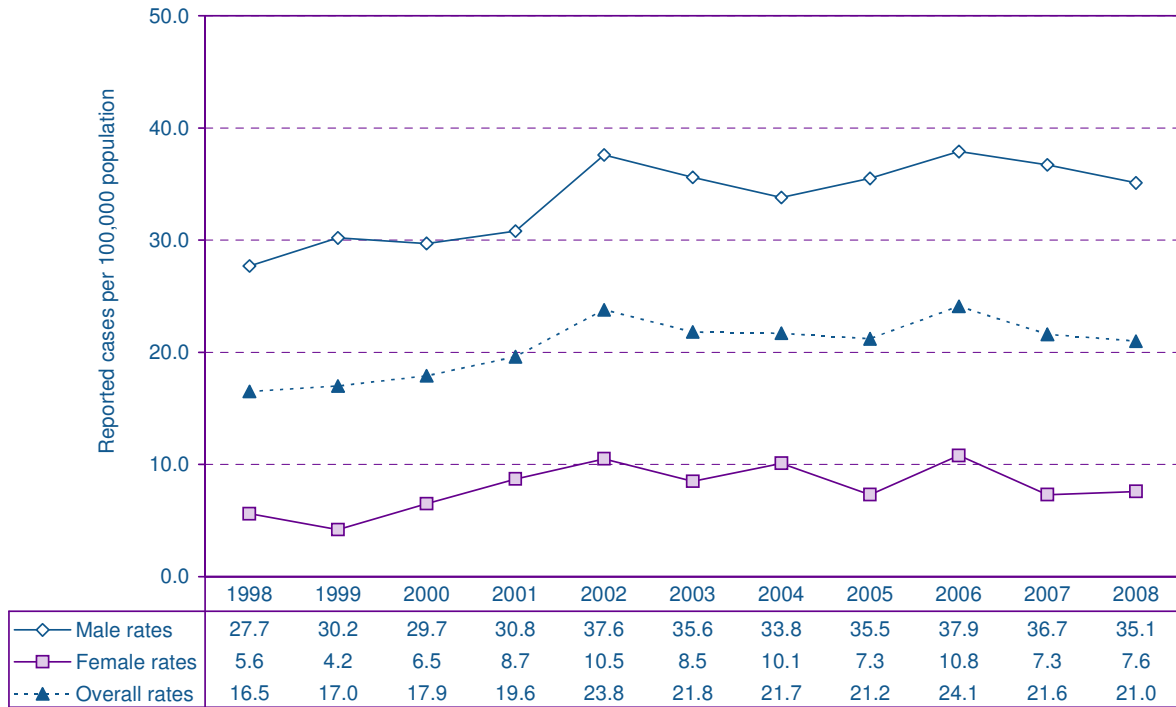
**Figure 1.15: Incidence rates of HIV infection by age group and sex*
Toronto, 2008**



*For one case, sex was transgender or not reported and/or age was not reported.

Age group (years)

**Figure 1.16: Incidence rates of HIV infection by sex and year.
Toronto, 1998 - 2008**



Year

Table 1.11: Number and proportion of HIV-positive diagnoses by exposure category* and sex[†]. Toronto, 2008

Exposure category*	Number of cases [‡] (%)					
	Male		Female		Overall	
MSM	342	(75)	0	(0)	342	(61)
MSM/IDU	15	(3)	0	(0)	15	(3)
IDU	12	(3)	5	(5)	17	(3)
Perinatal	1	(<1)	1	(1)	2	(<1)
Received blood or blood products§	2	(<1)	9	(9)	12	(2)
HIV-Endemic	37	(8)	62	(60)	99	(18)
HET-Partner	4	(1)	10	(10)	14	(3)
NIR-HET	13	(3)	11	(11)	24	(4)
Other	2	(<1)	0	(0)	2	(<1)
No identifiable risk [†] / Unknown	25	(6)	6	(6)	31	(6)
Total	453	(100)	104	(100)	558	(100)

*See the glossary for definitions of each exposure category.

[†]Sex was transgender or not reported for one case.

[‡]Cases may report one or more risks but are counted in the category considered the highest risk according to an exposure category hierarchy. The categories are listed in descending order from those that are considered to carry the highest risk of HIV infection to those considered to carry the lowest risk.

[§]Nine of the twelve cases whose exposure to HIV occurred via the receipt of blood products had also lived in or visited an HIV-endemic country.

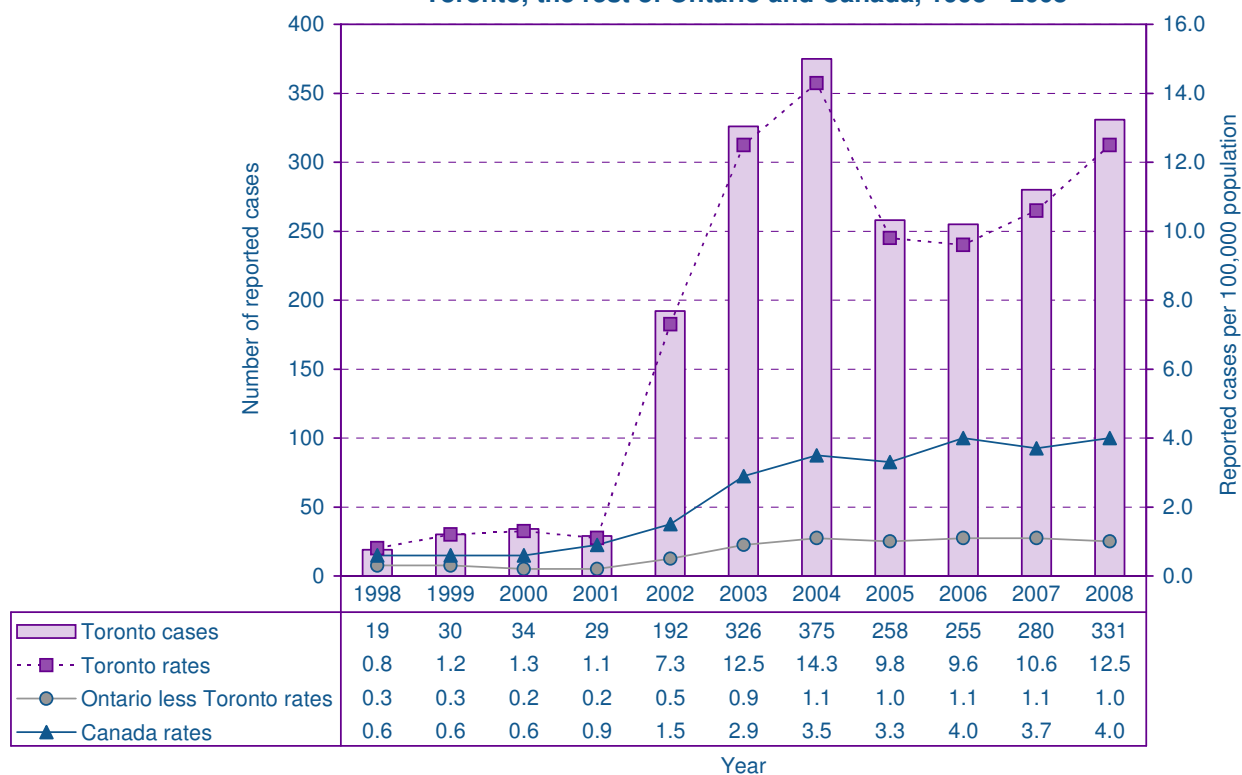
[†] The exposure category 'No identifiable risk' has been revised to include all clients that have missing or unknown risk factors.

Syphilis, infectious

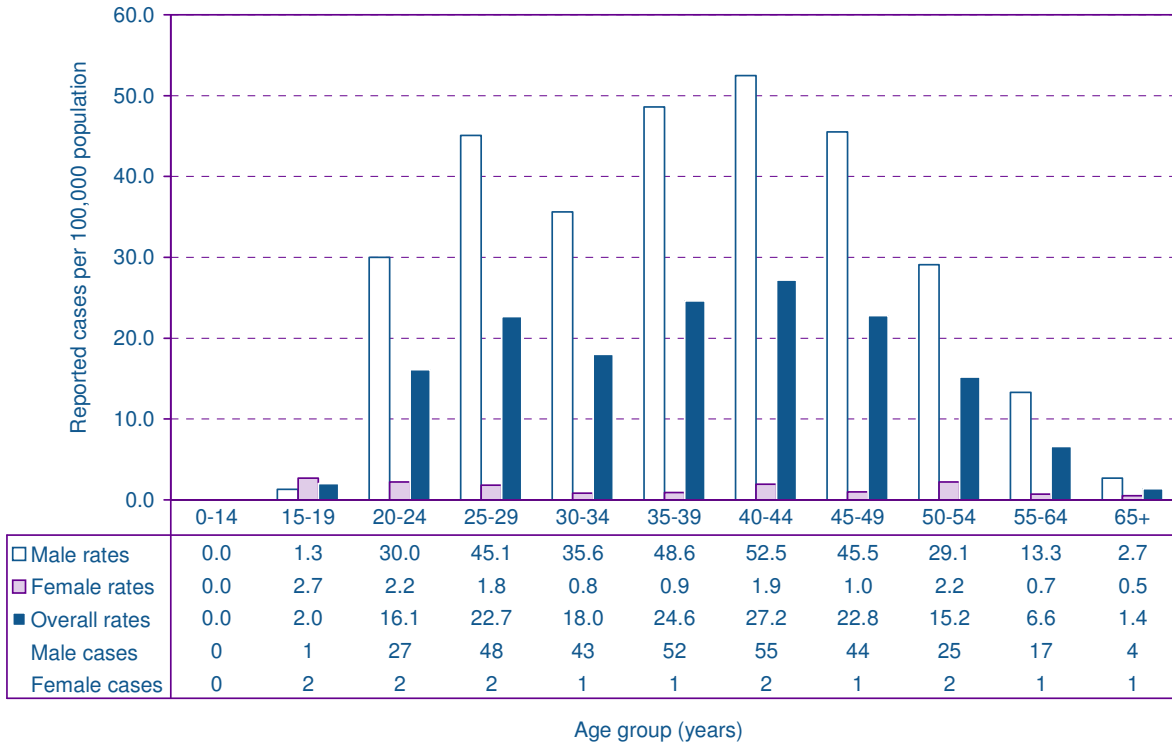
(Primary, secondary and early latent syphilis)

Table 1.12: Infectious syphilis summary data			
Toronto			
	2008	5-yr period 2003-2007	10-yr period 1998-2007
	Total	Means	
Number of reported cases	331	299	180
Incidence rate (per 100,000 population)			
Overall	12.5	11.4	6.9
Male	24.5	22.4	13.4
Female	1.1	0.8	0.7
Age at onset (years)	Summary statistics		
Mean	38	38	38
Median	38	38	38
Range	18 85	14 72	14 72

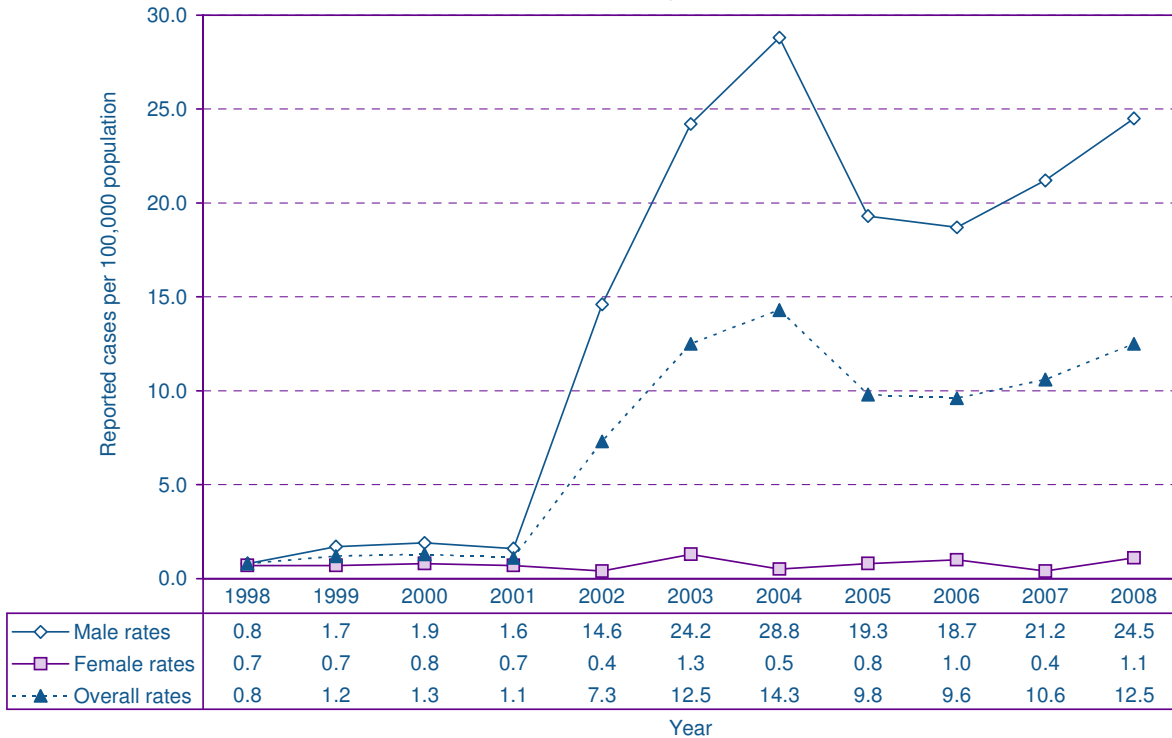
Figure 1.17: Incidence of infectious syphilis by year. Toronto, the rest of Ontario and Canada, 1998 - 2008



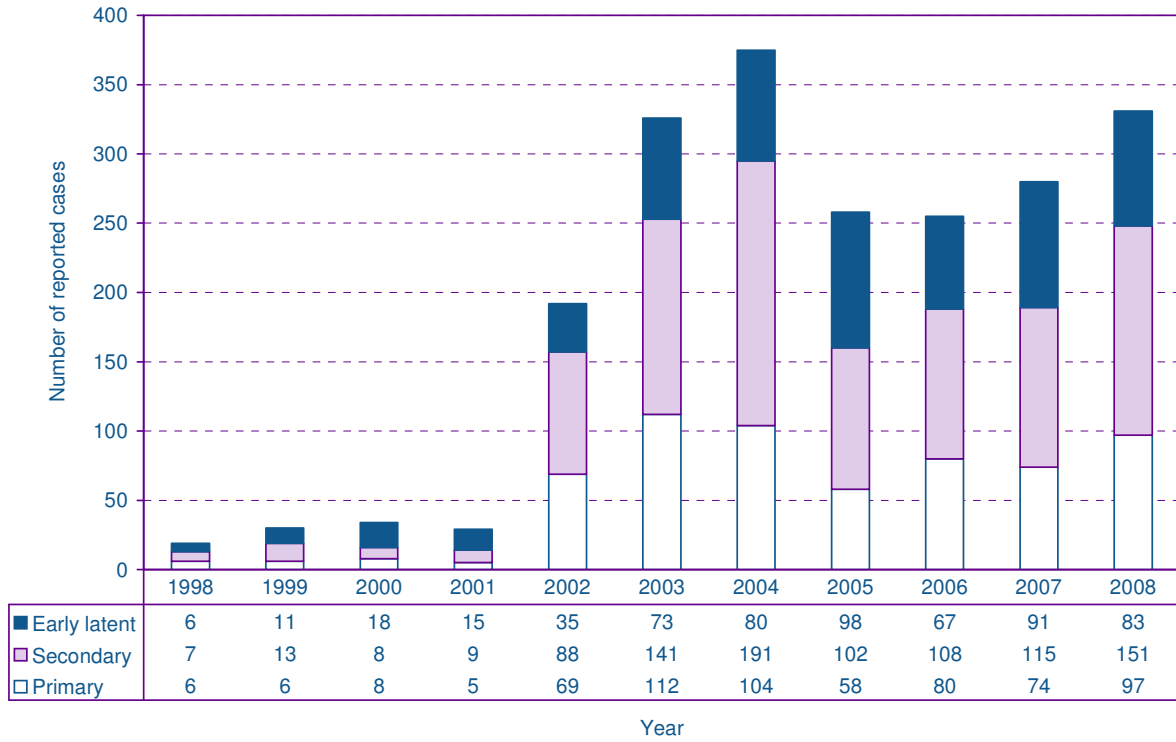
**Figure 1.18: Incidence of infectious syphilis by age group and sex.
Toronto, 2008**



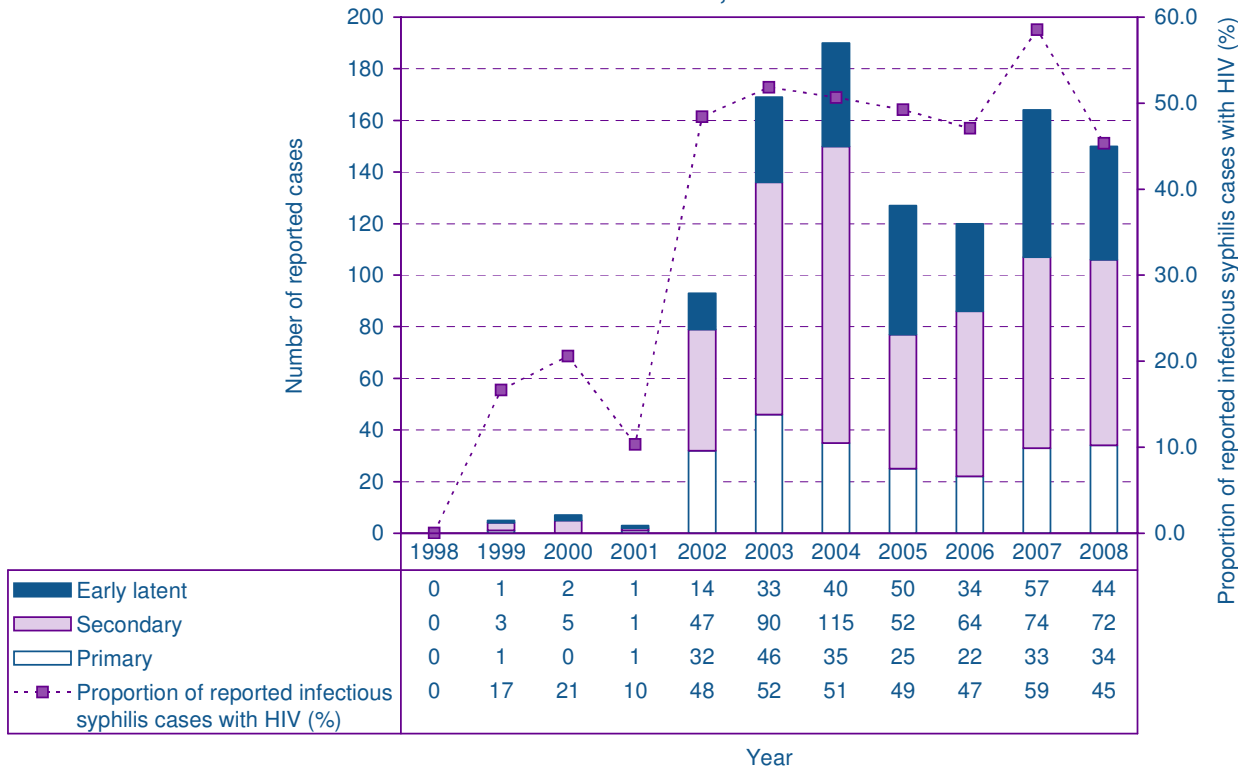
**Figure 1.19: Incidence rates of infectious syphilis by sex and year.
Toronto, 1998 - 2008**



**Figure 1.20: Incidence of infectious syphilis by staging and year.
Toronto, 1998 - 2008**



**Figure 1.21: Incidence of HIV and infectious syphilis co-infections by year.
Toronto, 1998 - 2008**



**Table 1.13: Risk factors for reported cases of infectious syphilis by sex.
Toronto, 2008**

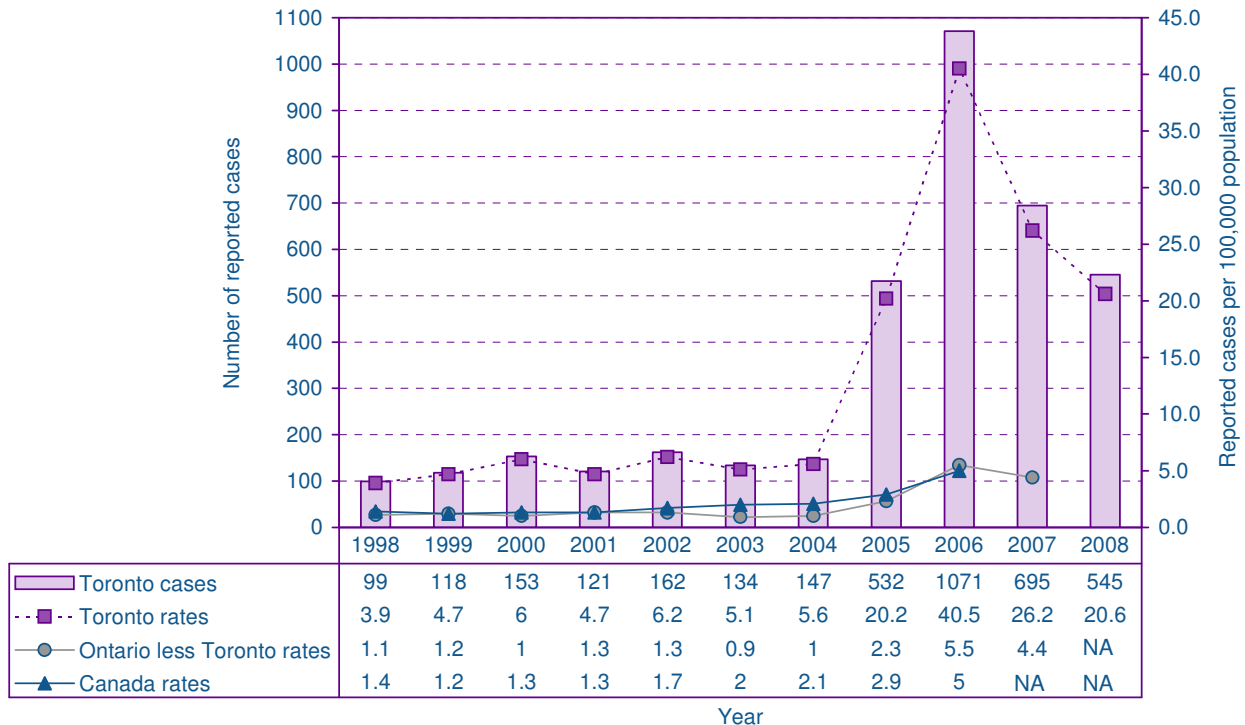
Reported risk factor	Number of cases* (%)					
	Male		Female		Overall	
Sex with same sex	261	(83)	0	(0)	261	(79)
No condom used	206	(65)	13	(93)	219	(67)
Multiple sex partners in last six months	154	(49)	3	(21)	157	(48)
New partner in past two months	46	(15)	0	(0)	46	(14)
Partner with multiple sex partners	32	(10)	2	(14)	34	(10)
Bath house	20	(6)	0	(0)	20	(6)
Travel outside province	14	(4)	1	(7)	15	(5)
Judgement impaired by alcohol/drugs	14	(4)	0	(0)	14	(4)
Condom breakage	10	(3)	0	(0)	10	(3)
Met partner through internet	5	(2)	0	(0)	5	(2)
Sex with sex trade worker	4	(1)	0	(0)	4	(1)
Sex trade worker	2	(<1)	0	(0)	2	(<1)
Partner visiting from outside province	0	(0)	1	(7)	1	(<1)
Homeless	1	(<1)	0	(0)	1	(<1)
Total with a known risk factor	315		14		329	
Number missing or unknown	1		1		2	
Total cases	316		15		331	

*Cases may report more than one risk factor.

Syphilis, late latent

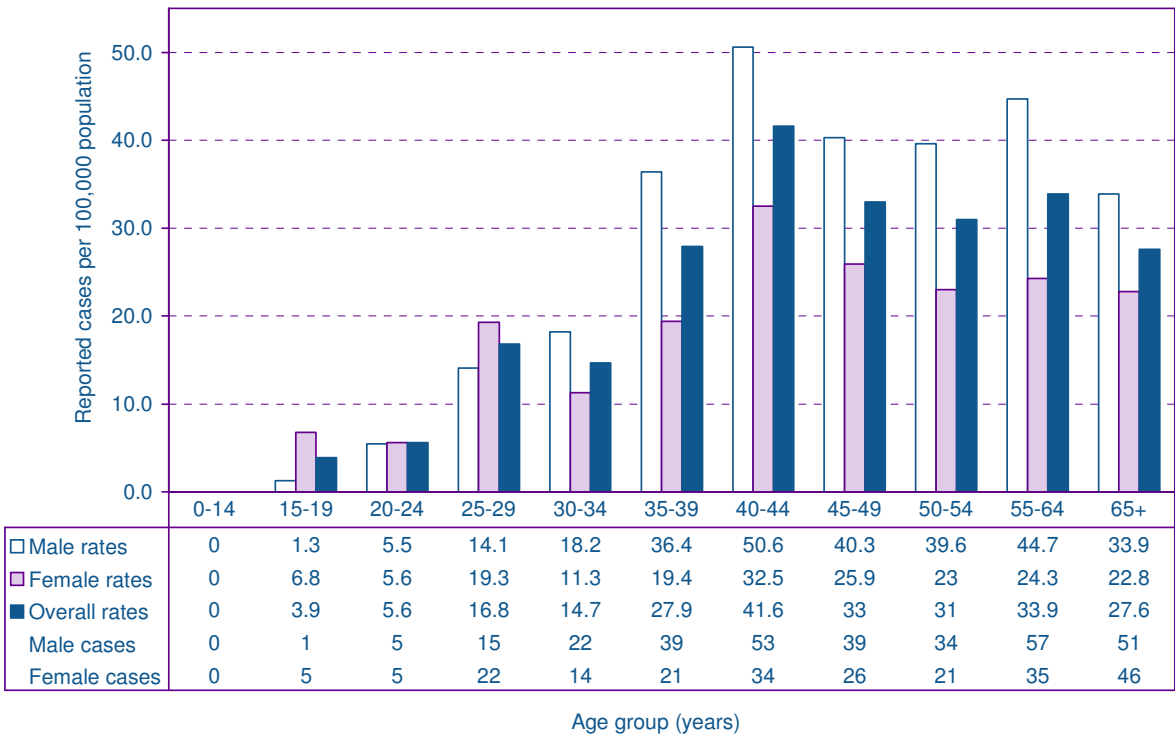
Table 1.14: Late latent syphilis summary data				
Toronto				
	2008	5-yr period 2003-2007	10-yr period 1998-2007	
	Total	Means		
Number of reported cases	545	516	323	
Incidence rate (per 100,000 population)				
Overall	20.6	19.6	12.5	
Male	24.5	23.4	14.6	
Female	16.8	16.0	10.4	
Age at onset (years)	Summary statistics			
Mean	49	50	49	
Median	47	48	47	
Range	17 93	16 100	15 100	

Figure 1.22: Incidence of late latent syphilis by year. Toronto, the rest of Ontario and Canada*, 1998 - 2008

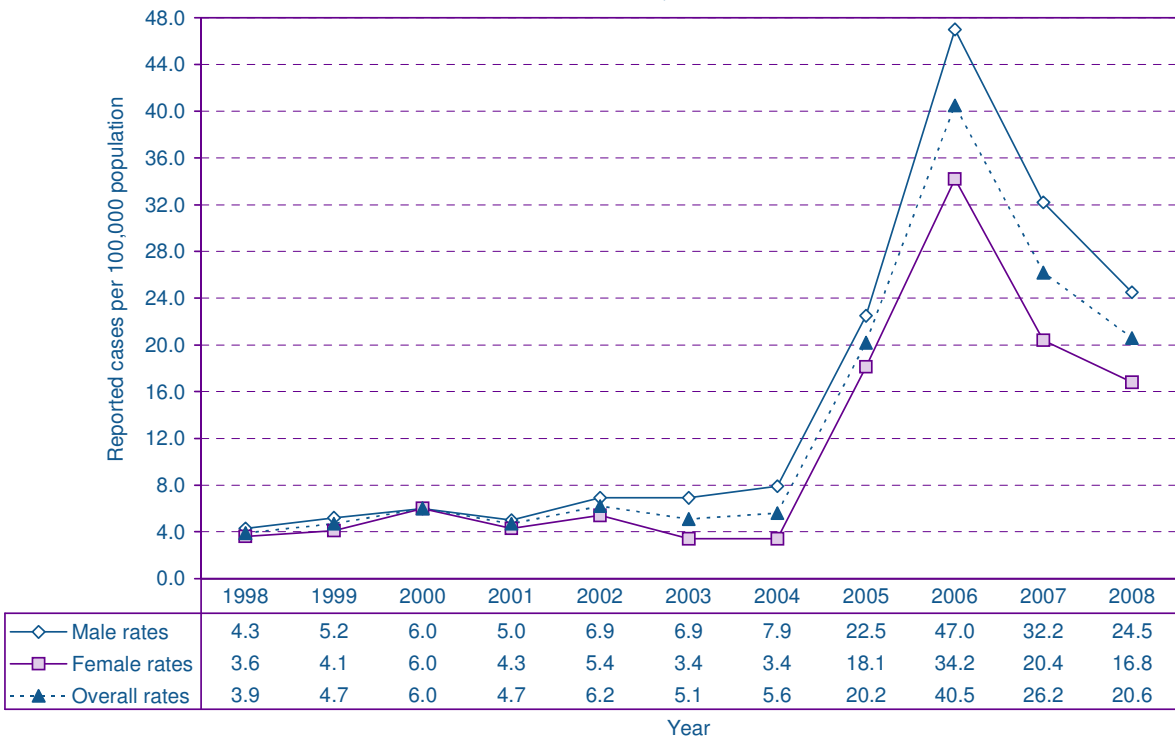


*Canada data include all syphilis stages except infectious and congenital, but are equivalent to late latent syphilis for comparison purposes.
NA: Canada data for 2007 and 2008 and Ontario data for 2008 are not available.

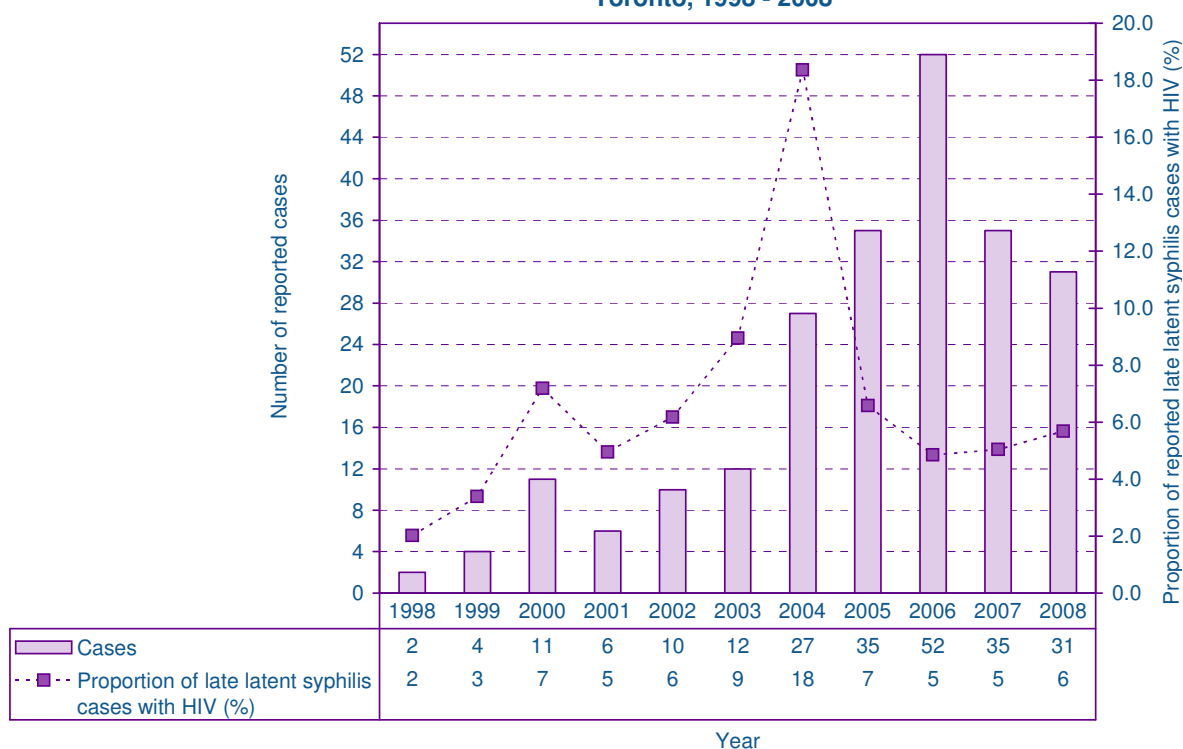
**Figure 1.23: Incidence of late latent syphilis by age group and sex.
Toronto, 2008**



**Figure 1.24: Incidence rates of late latent syphilis by sex and year.
Toronto, 1998 - 2008**



**Figure 1.25: Incidence of HIV and late latent syphilis co-infections by year.
Toronto, 1998 - 2008**



**Table 1.15: Risk factors* for reported cases of late latent syphilis by sex†.
Toronto, 2008**

Reported risk factor*	Number of cases‡ (%)					
	Male		Female		Overall	
No condom used	141	(85)	111	(97)	252	(90)
Sex with same sex	35	(21)	0	(0)	35	(13)
Multiple sex partners in last six months	11	(7)	3	(3)	14	(5)
Travel outside province	11	(7)	2	(2)	13	(5)
Partner with multiple sex partners	3	(2)	5	(4)	8	(3)
Partner visiting from outside province	2	(1)	2	(2)	4	(1)
New partner in past two months	3	(2)	0	(0)	3	(1)
Sex trade worker	2	(1)	1	(<1)	3	(1)
Sex with sex trade worker	2	(1)	1	(<1)	3	(1)
Condom breakage	1	(<1)	0	(0)	1	(<1)
Homeless	1	(<1)	0	(0)	1	(<1)
Sex for drugs	0	(0)	1	(<1)	1	(<1)
Total with a known risk factor	165		114		279	
Number missing or unknown	151		115		266	
Total cases	316		229		545	

*Due to a systematic change in how risk factors are captured in iPHIS, risk factors for late latent syphilis cases with multiple STIs have been under-reported.

†Cases may report more than one risk factor.