

Definition/Description:

Chlamydia is a common sexually transmitted infection caused by the bacterium *Chlamydia trachomatis* and results in both genital and extra-genital infections. If left untreated, chlamydia can result in pelvic inflammatory disease, ectopic pregnancy and infertility. In Manitoba, all confirmed cases of Chlamydia are reportable by laboratories and attending health care professionals to the Director of Communicable Disease Control at Manitoba Health.

Source:

Case Event (Numerator) Data: Communicable Disease Control Unit, Public Health Branch, Manitoba Health

Population (Denominator) Data: Decision Support Services, Health Information Management Branch, Manitoba Health

Tabulations: Population Health and Health Systems Analysis Unit, Quality and Decision Support, Winnipeg Regional Health Authority

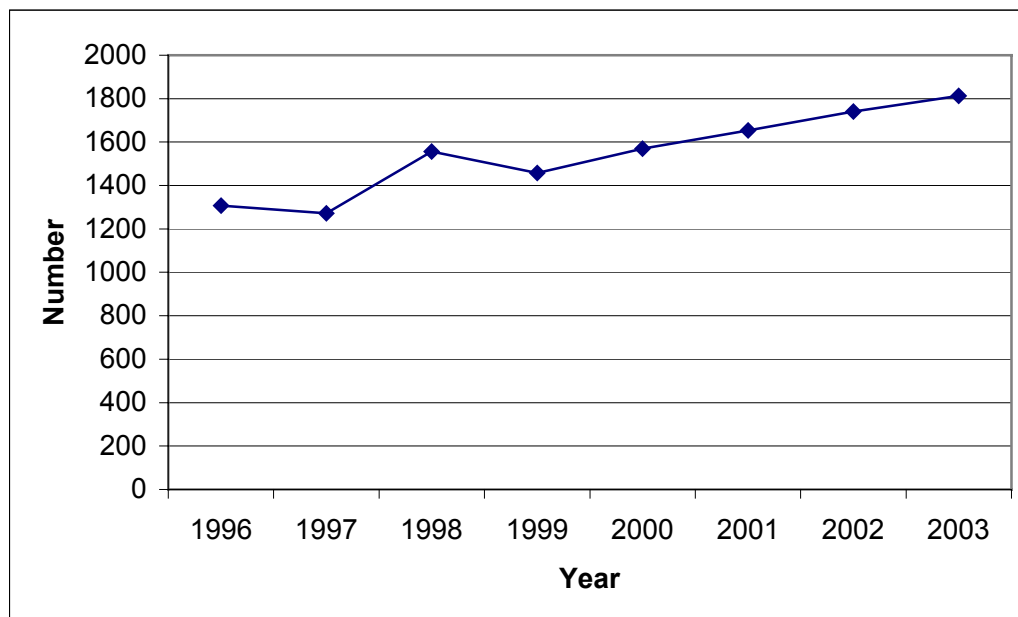
Findings:

Incidence

In the Winnipeg Health Region (WHR), the annual number of reported cases of Chlamydia has consistently increased since 2000 (Figure CT1). From 1996 to 2003, the number of reported cases has increased at an average rate of 72 cases per year; an overall increase of 39% (Table CT1). In 2003, 1813 cases of Chlamydia were reported. Of these, 1257 (69%) were reported among females.

Figure CT1

Chlamydia: Number of Reported Cases in the Winnipeg Health Region, 1996 to 2003



Crude and age-adjusted rates for the period 1996 to 2003 (for both genders combined) are presented in Table CT1. While new testing procedures introduced in 1998 may account for a portion of the increase observed between 1997 and 1998, it does not fully explain the magnitude of the increase. Similarly, the recent expansion of urine-based testing by WRHA Public Health

Nurses in March 2003 does not fully account for the increase in reported cases for this year. Of note, increasing rates of infection have been similarly noted both provincially and nationally. In 2002, the crude rate of chlamydial infection was 2.89 per 1000 in Manitoba and 1.79 per 1000 in Canada.¹

Table CT1

Chlamydia: Number of Reported Cases, Crude and Age-Adjusted Rates in the Winnipeg Health Region for Both Sexes and All Ages, 1996 – 2003

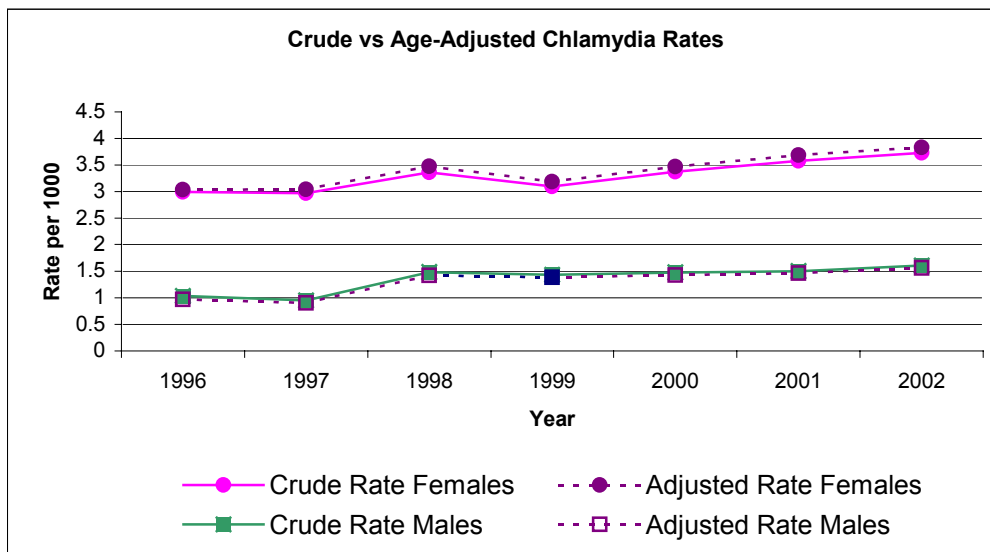
Year	Frequency	Crude Rate per 1000	Age-adjusted Rate per 1000
1996	1308	2.05	2.00
1997	1272	1.99	1.96
1998	1557	2.45	2.44
1999	1457	2.29	2.28
2000	1570	2.45	2.44
2001	1654	2.57	2.57
2002	1741	2.70	2.69
2003	1813	n/a	n/a

Age and Gender

Among females, the rate of chlamydial infection has ranged from 3.0 and 3.7 per 1000, and consistent increases in the incidence of infection have been evident since 2000 (Figure CT2). For males, the rate of infection has remained fairly constant since 1999.

Figure CT2

Incidence of Chlamydia in the Winnipeg Health Region: Crude and Age-Adjusted Rates by Gender and All Ages, 1996-2002



¹ 2002 Canadian Sexually Transmitted Infections (STI) Surveillance Report: Pre-Release; Sexual Health and Sexually Transmitted Infections Section, Centre for Infectious Disease Prevention and Control, Health Canada, March 2004.

Age-specific rates are highest among females 15-19 (23.8 per 1000) and 20-24 years (17.5 per 1000) (Figure CT3). For males, infection is greatest among individuals 20-24 years (7.4 per 1000). These patterns have remained constant from 1996 to 2002 for both females (Figure CT4) and males (Figure CT5) respectively. However, since 2000, a trend towards increasing rates of infection is evident among females aged 20-24 (Figure CT4). For females aged 15-19 years, the rate of chlamydial infection increased 15% in 2002. Among males 20-24 years of age, a notable increase in the incidence of infection is evident between 2001 and 2002 (22%).

Figure CT3
Chlamydia: Age-Specific Rates by Gender, Winnipeg Health Region, 1998-2002

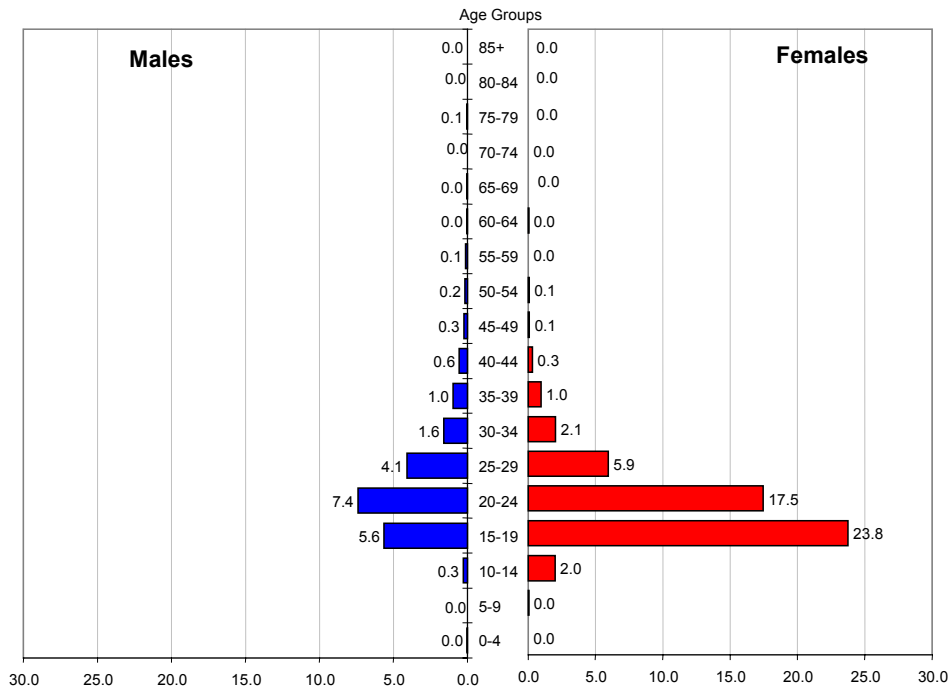


Figure CT4
Chlamydia: Age-Specific Rates, Females, Winnipeg Health Region, 1996-2002

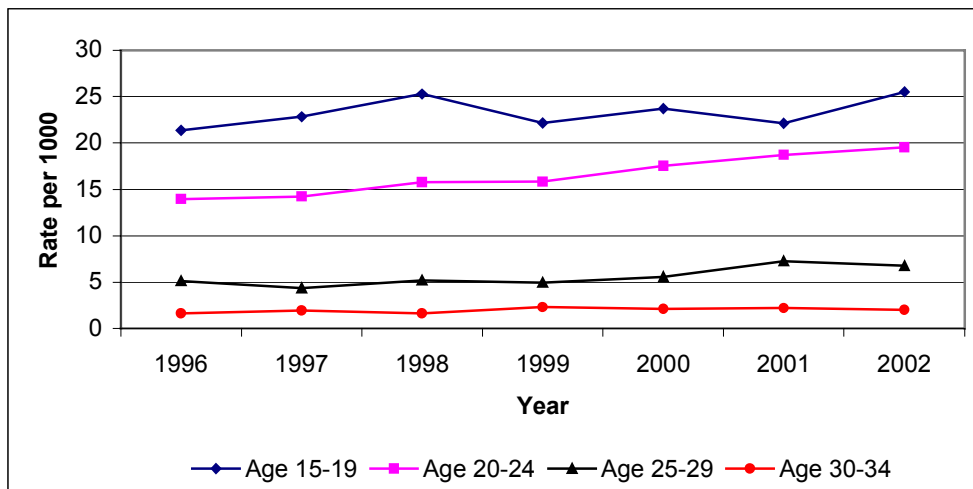
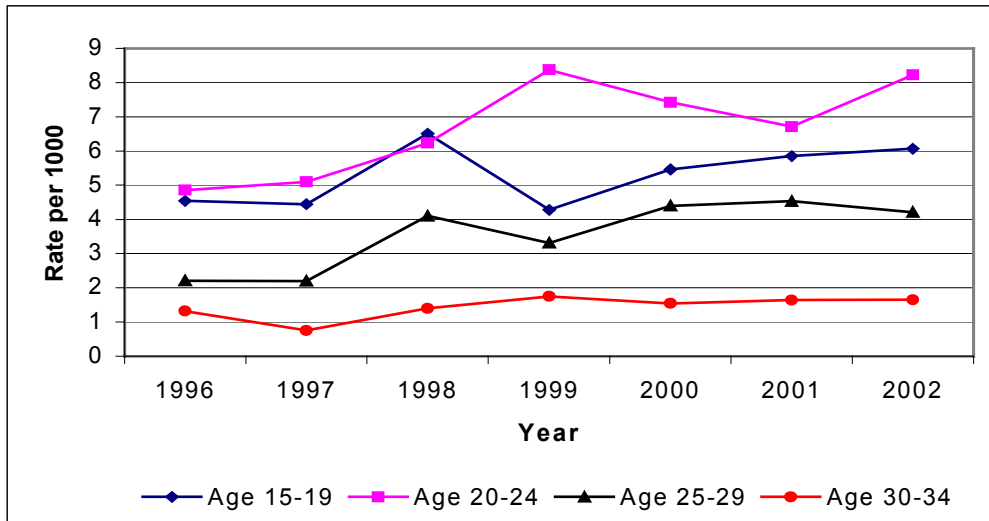


Figure CT5
Chlamydia: Age-Specific Rates, Males, Winnipeg Health Region, 1996-2002



Of all cases of chlamydia reported between 1998 and 2002, males and females between the ages and 15 and 24 account for 71.4% (5699/7979) of cases; and of this number, 76% (4315/5699) of cases are among females. Corresponding rates of infection for this age group are 20.5 per 1000 female population and 6.5 per 1000 male population.

Geographical Variation

Cases, crude rates and age-adjusted rates are summarized by Community Area and Neighborhood Cluster for 1998-2002 and are presented in Table CT2 and Table CT3 respectively. Across Community Areas, the highest numbers of cases are reported in Downtown (n=2086, 26.1%), Point Douglas (n=1175, 14.7%) and River East (n=939, 11.8%), accounting for more than half of all cases.

Crude rates of infection are greatest in Downtown (6.0 per 1000), Point Douglas (5.8 per 1000), Inkster (3.4 per 1000) and River East (2.1 per 1000). Similar patterns are evident for both males and females (Table CT2). Age-adjusted rates are similar to crude rates.

Rates of infection by Neighborhood Cluster further illustrate geographical variation across the WHR. For example, in the Downtown and Point Douglas Community Areas, Downtown East 11B (8.1 per 1000) and Point Douglas South 10B (8.7 per 1000) experience rates of infection twice that of their matching clusters (Table CT3). This variation is further illustrated in Figure CT6 and Figure CT7 respectively. Rates of infection among females and males aged 15-24 years is greatest in Downtown East and Point Douglas South.

Table CT2
Chlamydia: Cases, Crude and Age-Adjusted Rates in the Winnipeg Health Region by
Community Area, 1998-2002

Community Area	Both Sexes			Females			Males		
	Cases	Crude Rate per 1000	Age-Adjusted Rate per 1000	Cases	Crude Rate per 1000	Age-Adjusted Rate per 1000	Cases	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	419	1.4	1.5	283	1.8	2.1	136	1.0	1.0
Assiniboine South	293	1.6	1.5	184	1.9	1.9	109	1.2	1.1
Fort Garry	457	1.5	1.4	326	2.1	2.0	131	0.9	0.8
St. Vital	436	1.5	1.5	332	2.1	2.2	104	0.7	0.7
St. Boniface	343	1.5	1.5	251	2.1	2.2	92	0.8	0.8
Transcona	269	1.7	1.7	190	2.4	2.4	79	1.0	1.0
River East	939	2.1	2.0	677	2.9	3.0	262	1.2	1.2
Seven Oaks	478	1.7	1.6	341	2.3	2.3	137	1.0	1.0
Inkster	528	3.4	3.1	385	4.9	4.5	143	1.9	1.7
Point Douglas	1175	5.8	5.9	857	8.5	8.7	318	3.1	3.1
Downtown	2086	6.0	5.9	1431	8.3	8.3	655	3.7	3.5
River Heights	556	2.0	2.1	386	2.6	2.9	170	1.3	1.3
Winnipeg Health Region	7979	2.5	2.5	5643	3.4	3.5	2336	1.5	1.5

Table CT3
Chlamydia: Cases, Crude and Age-Adjusted Rates in the Winnipeg Health Region by
Neighbourhood Cluster, 1998-2002

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Cases	Crude Rate per 1000	Age-Adjusted Rate per 1000	Cases	Crude Rate per 1000	Age-Adjusted Rate per 1000	Cases	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	192	1.2	1.3	129	1.5	1.7	63	0.8	0.8
	01B	227	1.7	1.9	154	2.2	2.6	73	1.1	1.2
Assiniboine South	002	293	1.6	1.5	184	1.9	1.9	109	1.2	1.1
Fort Garry	03A	112	0.8	0.9	77	1.1	1.3	35	0.5	0.6
	03B	345	2.0	1.7	249	2.8	2.4	96	1.1	1.0
St. Vital	04A	263	2.0	2.1	200	2.8	3.1	63	1.0	1.0
	04B	173	1.1	1.1	132	1.6	1.6	41	0.5	0.5
St. Boniface	05A	160	2.1	2.2	122	3.0	3.4	38	1.0	1.0
	05B	183	1.2	1.2	129	1.6	1.7	54	0.7	0.7
Transcona	006	269	1.7	1.7	190	2.4	2.4	79	1.0	1.0
River East	07A	330	3.7	3.6	231	5.2	5.1	99	2.2	2.1
	07B	261	1.4	1.5	200	2.0	2.3	61	0.7	0.7
	07C	315	2.3	2.1	223	3.2	2.9	92	1.4	1.2
	07D	33	0.9	1.1	23	1.3	1.6	10	0.5	0.6
Seven Oaks	08A	232	2.2	1.9	167	3.1	2.7	65	1.3	1.1
	08B	228	1.4	1.6	162	1.9	2.2	66	0.9	0.9
	08C	18	0.9	1.0	12	1.1	1.3	6	0.6	0.7
Inkster	09A	198	2.3	2.0	137	3.1	2.7	61	1.4	1.3
	09B	330	4.8	4.8	248	7.2	7.3	82	2.4	2.4
Point Douglas	10A	566	4.3	4.4	435	6.5	6.7	131	2.0	2.0
	10B	609	8.7	8.7	422	12.5	12.7	187	5.2	5.1
Downtown	11A	802	4.2	4.2	580	6.0	6.2	222	2.4	2.2
	11B	1284	8.1	7.9	851	11.3	10.9	433	5.2	4.9
River Heights	12A	239	1.4	1.5	160	1.7	1.9	79	1.0	1.0
	12B	317	3.0	3.2	226	4.0	4.5	91	1.9	1.7
Winnipeg Health Region		7979	2.5	2.5	5643	3.4	3.5	2336	1.5	1.5

Figure CT6
Chlamydia: Age-Specific Rates,
Females, Age 15-24, 1998 to 2002

A spatial representation of age-specific rates is shown in the figure to the right. The highest age-specific rates were found in:

- Point Douglas South – 10B
- Downtown East – 11B

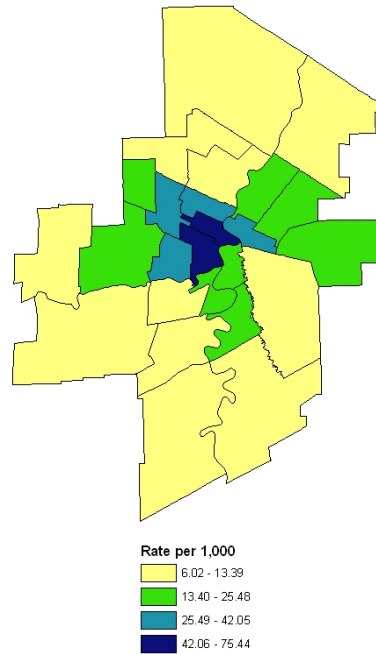
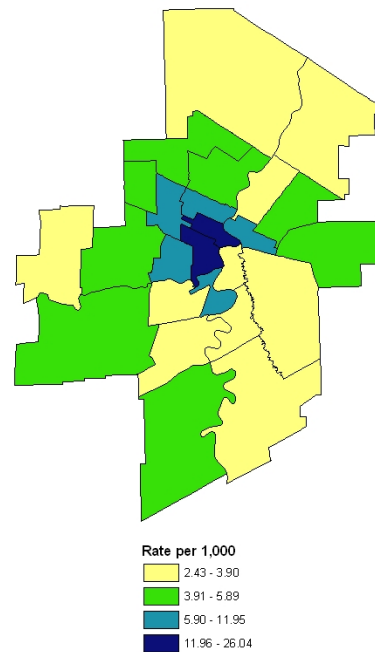


Figure CT7
Chlamydia: Age-Specific Rates, Males
Age 15-24, 1998 to 2002

A spatial representation of age-specific rates is shown in the Figure to the right. The highest age-specific rates were found in:

- Point Douglas South – 10B
- Downtown East – 11B



Relative Ratios and Rate Differences

Relative ratios and rate differences were generated at the Neighbourhood Cluster level to identify the magnitude of variability in infection rates across the WHR (Table CT4 and Figures CT8-CT13). Point Douglas South 10B, Downtown East 11B, Inkster East 09B, Point Douglas North 10A, Downtown West 11A, River East South 07A and River Heights East 12B experience rates of infection 1.2 to 3.7 times greater than the remainder of the WHR (Table CT4; Figure CT8). Fort Garry North 03A, Seven Oaks North 08C and River East North 07D experience the lowest relative ratios, ranging from 0.3 to 0.4 (Table CT4; Figure CT8). These findings are similar for both males and females respectively (Table CT4; Figures CT9 and CT10).

Differences in the rate of infection between Neighbourhood Clusters reflect the actual number of infections per 1000 population (Table CT4; Figure CT11-13). In Point Douglas South 10B, a rate difference of 6.4 translates into approximately 6 more persons with Chlamydia per 1000 population than the rest of the health region. Conversely, Fort Garry North 03A experienced a rate difference of -1.7, which translates into approximately 2 fewer cases of Chlamydia infection per 1000 population than the rest of the region.

Table CT4
Chlamydia: Relative Ratios and Rate Differences in the Winnipeg Health Region by Neighbourhood Cluster, 1998-2002

Community Area	Neighbourhood Cluster	Both Sexes		Females		Males	
		*Relative Ratio of each NC compared to the rest of the WHR	** Difference in Rate per 1000 between each NC and the rest of the WHR	*Relative Ratio of each NC compared to the rest of the WHR	** Difference in Rate per 1000 between each NC and the rest of the WHR	*Relative Ratio of each NC compared to the rest of the WHR	** Difference in Rate per 1000 between each NC and the rest of the WHR
St. James-Assiniboia	01A	0.5	-1.4	0.4	-2.0	0.5	-0.7
	01B	0.7	-0.9	0.6	-1.3	0.7	-0.4
Assiniboine South	002	0.6	-0.9	0.5	-1.6	0.8	-0.3
Fort Garry	03A	0.3	-1.7	0.3	-2.4	0.4	-1.0
	03B	0.8	-0.5	0.8	-0.6	0.8	-0.4
St. Vital	04A	0.8	-0.6	0.8	-0.6	0.7	-0.5
	04B	0.4	-1.5	0.4	-2.0	0.3	-1.0
St. Boniface	05A	0.8	-0.4	0.9	-0.5	0.7	-0.5
	05B	0.5	-1.4	0.5	-1.9	0.5	-0.8
Transcona	006	0.7	-0.8	0.7	-1.0	0.7	-0.5
River East	07A	1.5	1.3	1.5	1.8	1.5	0.7
	07B	0.5	-1.2	0.6	-1.6	0.4	-0.9
	07C	0.9	-0.2	0.9	-0.3	0.9	-0.1
	07D	0.4	-1.6	0.4	-2.2	0.4	-1.0
Seven Oaks	08A	0.9	-0.3	0.9	-0.4	0.8	-0.2
	08B	0.6	-1.1	0.5	-1.6	0.6	-0.7
	08C	0.4	-1.6	0.3	-2.3	0.4	-0.9
Inkster	09A	0.9	-0.2	0.9	-0.3	0.9	-0.1
	09B	2.0	2.4	2.2	3.9	1.6	0.9
Point Douglas	10A	1.8	1.9	2.0	3.2	1.4	0.5
	10B	3.7	6.4	3.9	9.3	3.7	3.8
Downtown	11A	1.8	1.8	1.8	2.8	1.6	0.9
	11B	3.7	5.9	3.7	8.2	4.0	3.9
River Heights	12A	0.5	-1.2	0.5	-1.8	0.6	-0.6
	12B	1.2	0.5	1.2	0.6	1.3	0.4

Figure CT68

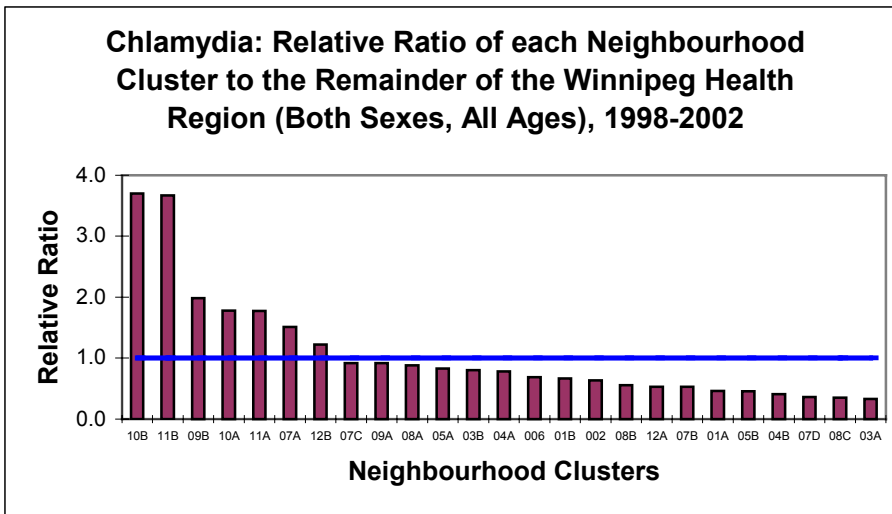


Figure CT9

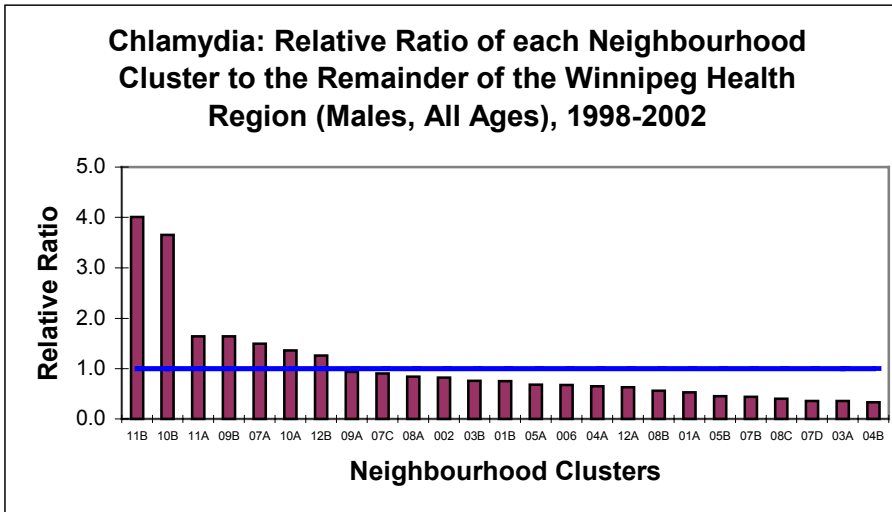
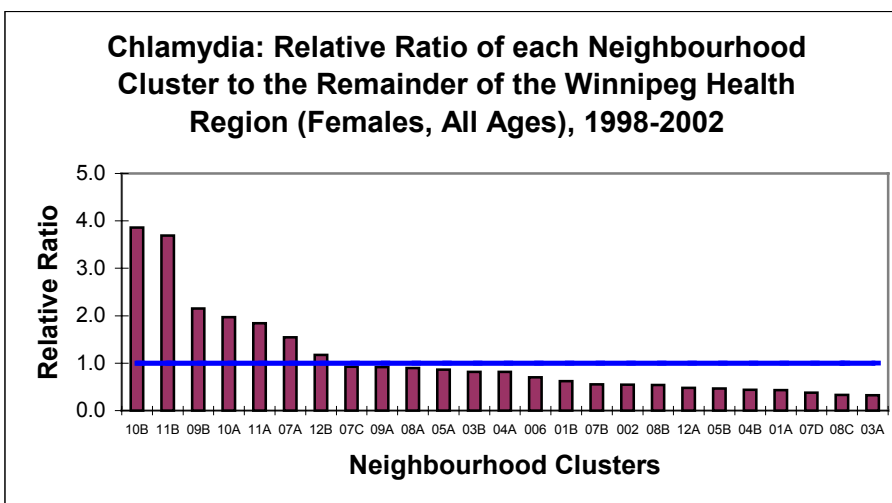


Figure CT10



Figures CT11 and CT12

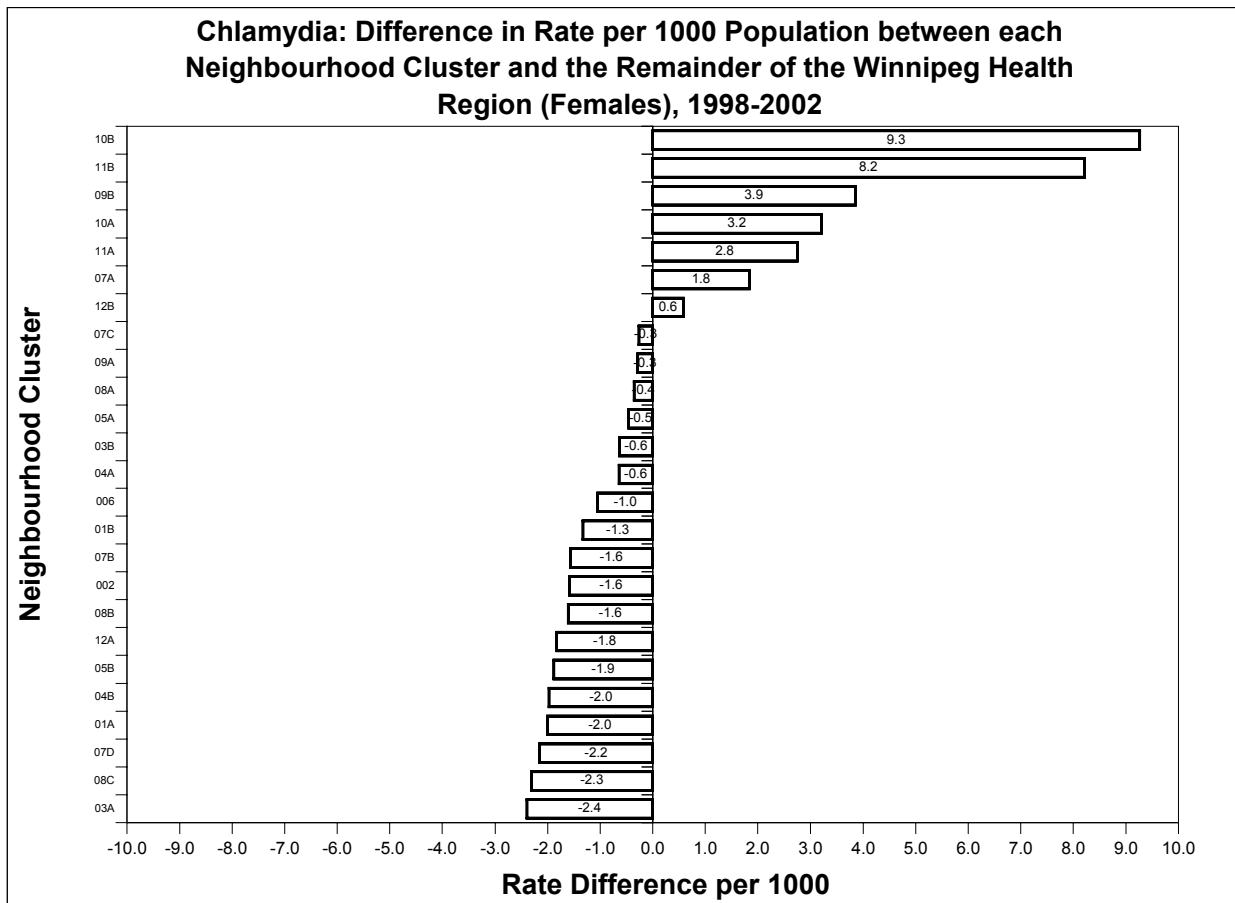
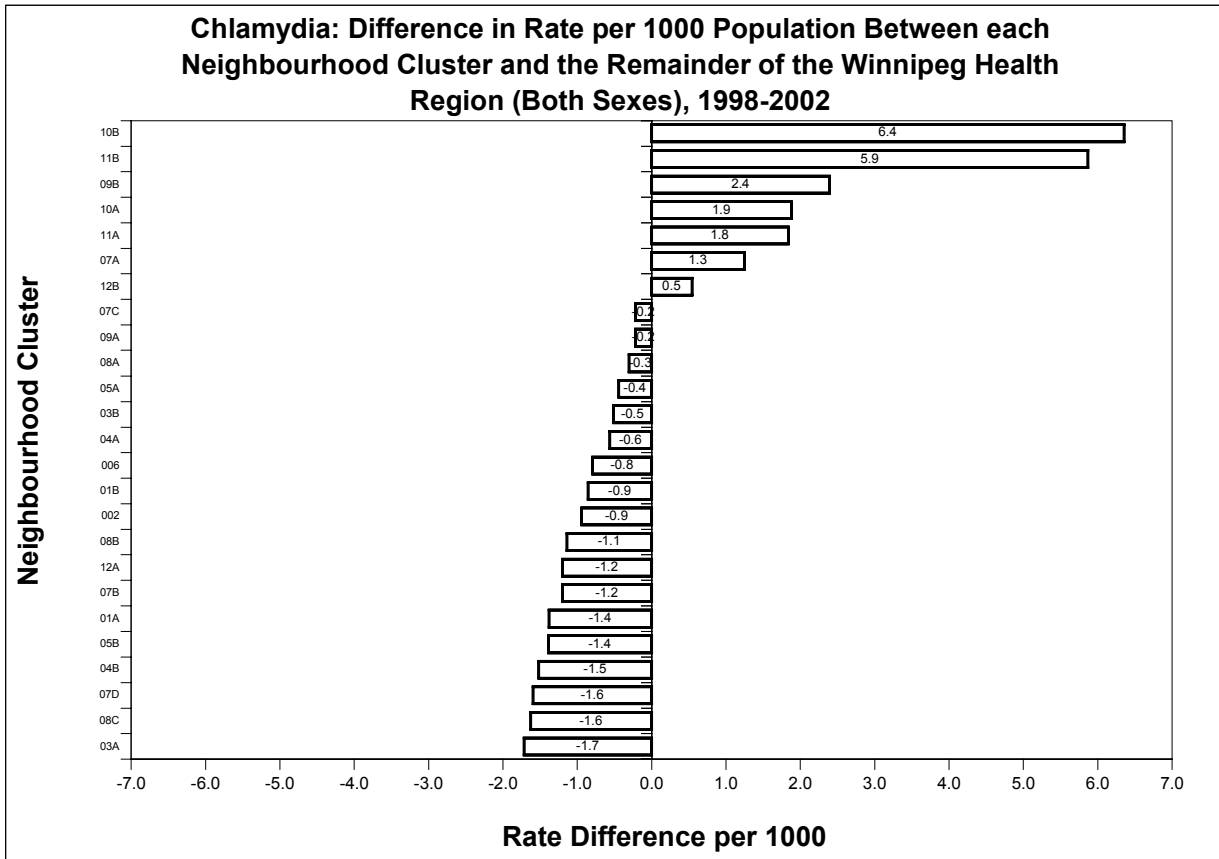
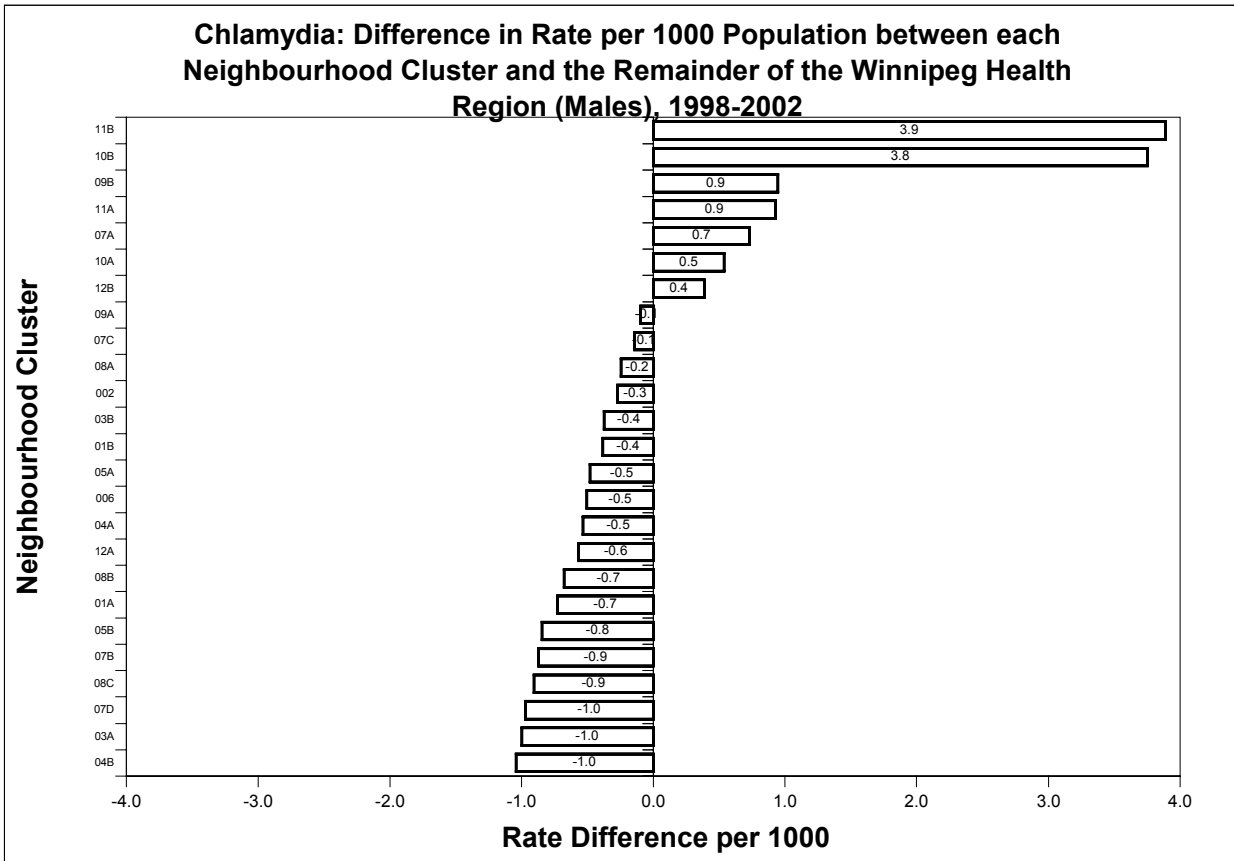


Figure CT13



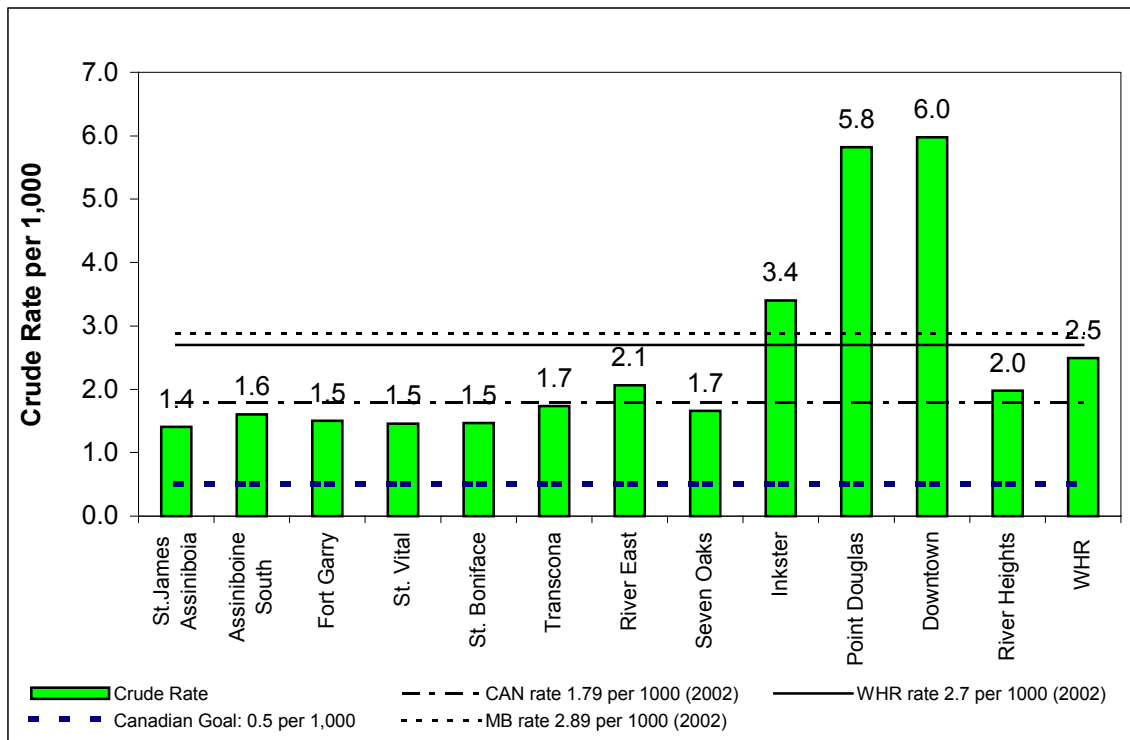
National Goal

In 1997, Health Canada proposed a number of national goals for the prevention and control of sexually transmitted infections in Canada. For chlamydia, the national goal for the overall rate of infection was set at <1 case per 1000 population (<50 cases per 100,000) by 2010; for females between the ages of 15 and 24, the national goal established was less than 2 cases per 1000 (<200 cases per 100,000).²

Rates of chlamydial infection by Winnipeg Health Region Community Area are plotted in Figure CT14 along with the corresponding rates of infection in 2002 for the Winnipeg Health Region (2.7 per 1000), Manitoba (2.89 per 1000) and Canada (1.79 per 1000). Included, as a reference point is the national goal. It is clearly evident that the Point Douglas and Downtown Community Areas largely drive the regional rate of infection. In these Community Areas, rates of infection are roughly double and triple the rates in Manitoba and Canada respectively. Regional adoption of the national goal for chlamydia may not be possible, or reasonable, given the transmission dynamics of chlamydia, the complex social and sexual networks that are known to exist among core groups and the social and economic vulnerabilities of a number of communities in Winnipeg.

Figure CT14

Chlamydia: Crude Rate of Infection By Community Area, Winnipeg Health Region, 1998-2002



² National Goals for the Prevention and Control of Sexually Transmitted Diseases in Canada. Canada Communicable Disease Report, Volume: 23S6 - November 1997.

Highlights:

- Increasing incidence of chlamydial infection in the Winnipeg Health Region: the number of reported cases *increased by an average rate of 72 cases per year; 39% between 1996 and 2002*
- Gender: More females than males are diagnosed with chlamydia infection, *approximately 2-3 times higher for females.*
- Age: The incidence of infection is greatest among younger individuals, *in particular 15 to 24 year olds.*
- Geographical variation: Point Douglas, Downtown, Inkster, River East, and River Heights have a greater burden of illness compared to the rest of the WHR, *between 2.0 and 3.7 times greater than the rest of the WHR.* Within Community Areas, there is further geographic variation at the level of Neighbourhood Cluster: *Downtown East and Point Douglas South have rates of infection twice that of their matching cluster.*
- Provincial/National rate of infection: The regional rate is similar to that of the province but is substantially higher than the national rate; and is largely driven by the Downtown and Point Douglas Community Areas.
- National Goal: Regional adoption of the national goal for chlamydia may not be possible, or reasonable, given the transmission dynamics of chlamydia, the complex social and sexual networks that are known to exist among core groups and the social and economic vulnerabilities of a number of communities in Winnipeg.

ⁱAdditional information describing communicable diseases (including sexually transmitted and blood-borne infections) and immunization in the Winnipeg Health Region is available in **Report on Communicable Diseases and Immunization in the Winnipeg Health Region, 2004** [available fall 2004].