

## Definition/Description:

Gonorrhoea is a sexually transmitted infection caused by the bacterium *Neisseria gonorrhoea* and results in both genital and extra-genital infections. If left untreated, gonorrhoea can result in pelvic inflammatory disease, ectopic pregnancy and infertility. In Manitoba, all confirmed cases of gonorrhoea 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

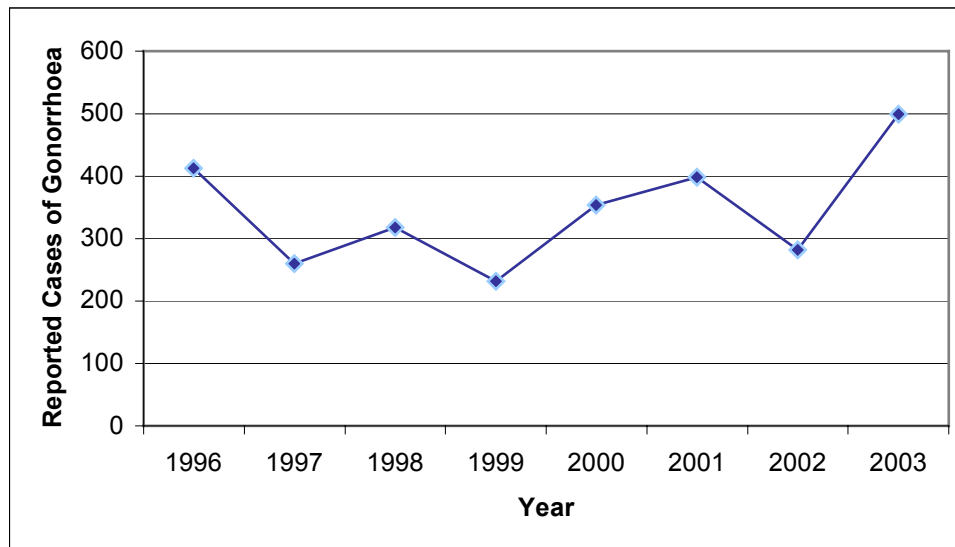
## Findings:

### Incidence

In the Winnipeg Health Region (WHR), the number of reported cases of gonorrhoea has ranged from 232 to 499 between 1996 and 2003 (Figure GC1; Table GC1). In 2003, 499 cases of gonorrhoea were reported, reflecting the largest increase in cases between any two consecutive time periods (77%). For the most part, cases were evenly distributed between males and females.

**Figure GC1**

**Gonorrhoea: Number of reported cases in the Winnipeg Health Region, 1996 to 2003**



Crude and age-adjusted rates for gonorrhoea in the WHR from 1996 to 2003 (for both genders combined) are presented in Table GC1. 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 gonorrhoea infection was 0.54 per 1000 in Manitoba and 0.23 per 1000 in Canada.<sup>1</sup> In the WHR, the crude rate of infection was 0.44 per 1000 in 2002 (Table GC1).

**Table GC1**

**Gonorrhoea: Number of Cases, Crude and Age-Adjusted Rates in the Winnipeg Health Region for Both Sexes and All Ages, 1996 to 2003**

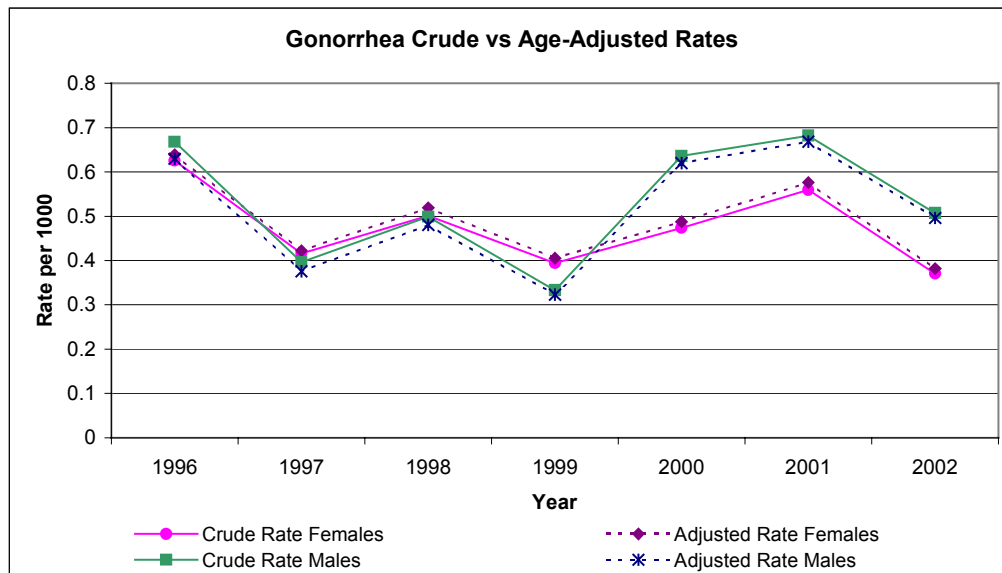
Year	Frequency	Crude Rate per 1000	Age-adjusted Rate per 1000
1996	413	0.65	0.63
1997	260	0.41	0.40
1998	318	0.50	0.50
1999	232	0.36	0.36
2000	354	0.55	0.55
2001	398	0.62	0.62
2002	282	0.44	0.44
2003	499	n/a	n/a

### Age and Gender

Figure GC2 illustrates crude and age-adjusted rates of gonorrhoea in the WHR from 1996 to 2002 for males and females respectively. Rates of infection are similar for males and females from 1996 to 1998; however, beginning in 1999, the rate of infection in males exceeds that for females.

**Figure GC2**

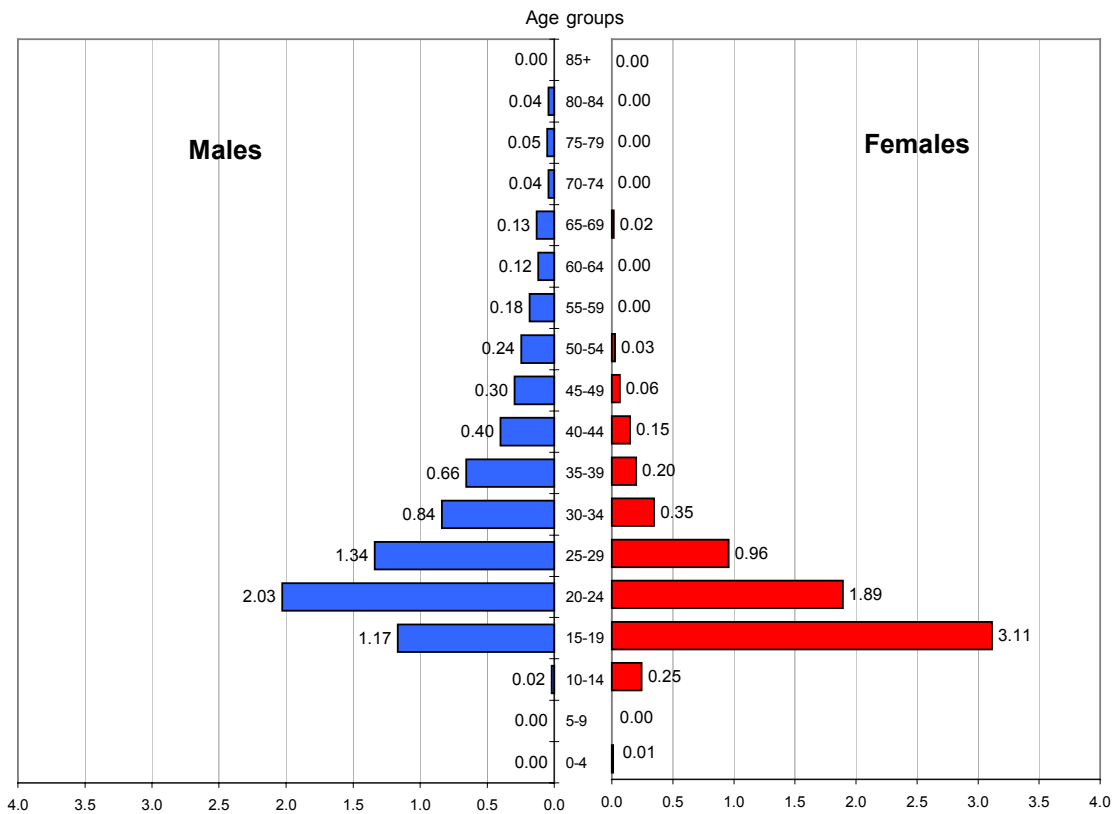
**Incidence of Gonorrhoea in the Winnipeg Health Region: Crude and Age-Adjusted Rates by Gender and All Ages, 1996-2002**



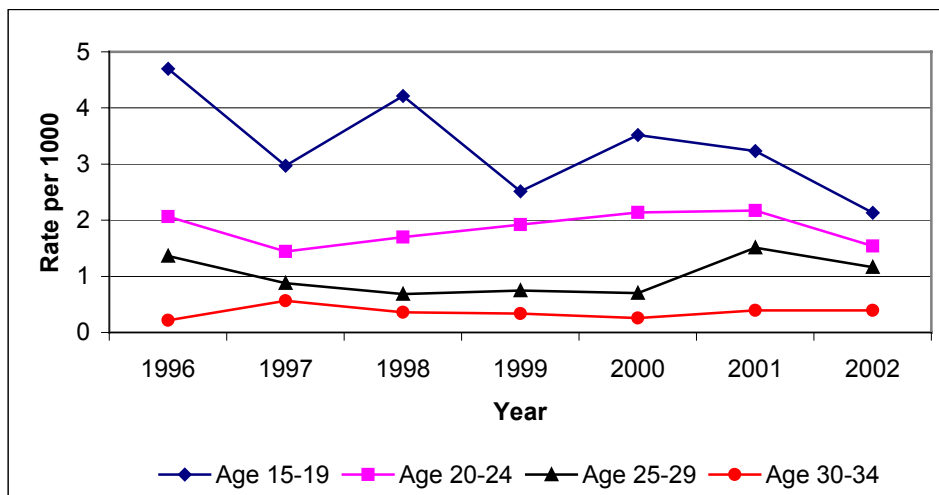
<sup>1</sup> 2002 Canadian Sexually Transmitted Infections (STI) Surveillance Report: Pre-Release; Sexual Health and Sexually Transmitted Infections Section, Centre for Infectious Disease Prevention and Control, Health Canada, March 2004.

Age-specific rates are highest among females 15-19 (3.1 per 1000) and 20 to 24 (1.9 per 1000) (Figure GC3). For males, infection is greatest among those aged 20-24 (2.0 per 1000) and 25-29 (1.34 per 1000). These patterns have remained fairly constant from 1996 to 2002 for both females (Figure GC4) and males (Figure GC5) respectively.

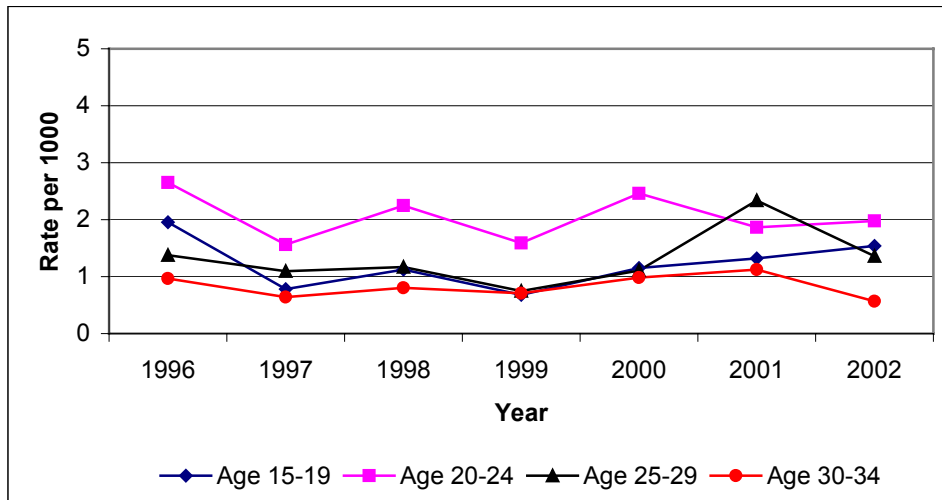
**Figure GC3**  
**Gonorrhoea: Age-Specific Rates in the Winnipeg Health Region, 1996 to 2002**



**Figure GC4**  
**Gonorrhoea: Age-Specific Rates, Females, Winnipeg Health Region, 1996-2002**



**Figure GC5**  
**Gonorrhoea: Age-Specific Rates, Males, Winnipeg Health Region, 1996-2002**



Of all cases of gonorrhoea reported between 1998-2002, males and females between the ages of 15 and 24 account for 54.4% (862/1584) cases; and, of this number, 60.5% (522/862) of cases are among females. Correspondingly, rates of infection for this age group are 2.5 per 1000 female population and 1.6 per 1000.

#### **Geographical Variation**

Cases, crude rates and age-adjusted rates are summarized by Community Area and Neighbourhood Cluster for 1998-2002 and are presented in Table GC2 and Table GC3 respectively. Across Community Areas, the highest numbers of cases are reported in Downtown (580 cases; 36.7%) and Point Douglas (325 cases; 20.5%), accounting for more than half of all cases.

Crude rates of infection are greatest in Downtown (1.7 cases per 1,000), Point Douglas (1.6 per 1,000) and Inkster (0.7 cases per 1,000). Rates of infection ranged from 0.1 and 0.4 per 1000 for the remaining Community Areas. Similar patterns are evident for both males and females (Table GC2). Age-adjusted rates are similar to crude rates.

Rates of infection by Neighbourhood Cluster further illustrate geographical variation across the WHR. For example, Downtown East 11B (2.5 per 1000) and Point Douglas South 10B (2.8 per 1000) experience rates of infection twice that of their matching clusters (Table GC3). This variation is further illustrated in Figure GC6 and Figure GC7 respectively. Rates of infection among females and males aged 15-24 years is greatest in Downtown East and Point Douglas South.

**Table GC2**  
**Gonorrhoea: Cases, Crude and Age-Adjusted Rates in the Winnipeg Health Region by**  
**Community Area, 1998-2002**

Community Area	Both Genders			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	60	0.2	0.2	22	0.1	0.2	38	0.3	0.3
Assiniboine South	36	0.2	0.2	18	0.2	0.2	18	0.2	0.2
Fort Garry	77	0.3	0.2	28	0.2	0.2	49	0.3	0.3
St. Vital	44	0.1	0.2	20	0.1	0.1	24	0.2	0.2
St. Boniface	39	0.2	0.2	17	0.1	0.1	22	0.2	0.2
Transcona	12	0.1	0.1	4	0.1	0.1	8	0.1	0.1
River East	119	0.3	0.3	61	0.3	0.3	58	0.3	0.3
Seven Oaks	78	0.3	0.3	39	0.3	0.3	39	0.3	0.3
Inkster	108	0.7	0.7	63	0.8	0.7	45	0.6	0.6
Point Douglas	325	1.6	1.6	170	1.7	1.7	155	1.5	1.5
Downtown	580	1.7	1.6	268	1.6	1.5	312	1.8	1.6
River Heights	106	0.4	0.4	47	0.3	0.3	59	0.5	0.4
<b>Winnipeg Health Region</b>	<b>1584</b>	<b>0.5</b>	<b>0.5</b>	<b>757</b>	<b>0.5</b>	<b>0.5</b>	<b>827</b>	<b>0.5</b>	<b>0.5</b>

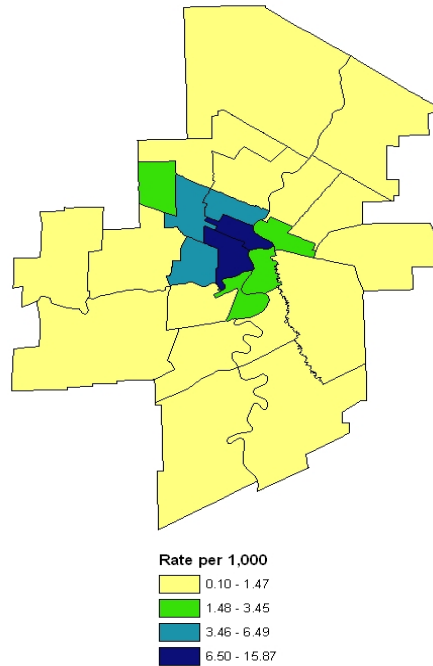
**Table GC3**  
**Gonorrhoea: Cases, Crude and Age-Adjusted Rates in the Winnipeg Health Region by**  
**Neighbourhood Cluster, 1998-2002**

Community Area	Neighbourhood Cluster	Both Genders			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	25	0.2	0.2	8	0.1	0.1	17	0.2	0.2
	01B	35	0.3	0.3	14	0.2	0.2	21	0.3	0.3
Assiniboine South	002	36	0.2	0.2	18	0.2	0.2	18	0.2	0.2
Fort Garry	03A	21	0.2	0.2	6	0.1	0.1	15	0.2	0.2
	03B	56	0.3	0.3	22	0.2	0.2	34	0.4	0.4
St. Vital	04A	31	0.2	0.2	14	0.2	0.2	17	0.3	0.3
	04B	13	0.1	0.1	6	0.1	0.1	7	0.1	0.1
St. Boniface	05A	29	0.4	0.4	15	0.4	0.4	14	0.4	0.4
	05B	10	0.1	0.1	2	0.0	0.0	8	0.1	0.1
Transcona	006	12	0.1	0.1	4	0.1	0.1	8	0.1	0.1
River East	07A	61	0.7	0.6	29	0.7	0.6	32	0.7	0.6
	07B	27	0.1	0.2	17	0.2	0.2	10	0.1	0.1
	07C	28	0.2	0.2	12	0.2	0.2	16	0.2	0.2
	07D	3	0.1	0.1	3	0.2	0.2	0	0.0	0.0
Seven Oaks	08A	30	0.3	0.2	12	0.2	0.2	18	0.4	0.3
	08B	46	0.3	0.3	26	0.3	0.4	20	0.3	0.3
	08C	2	0.1	0.1	1	0.1	0.1	1	0.1	0.1
Inkster	09A	26	0.3	0.3	17	0.4	0.3	9	0.2	0.2
	09B	82	1.2	1.2	46	1.3	1.4	36	1.1	1.1
Point Douglas	10A	128	1.0	1.0	69	1.0	1.1	59	0.9	0.9
	10B	197	2.8	2.8	101	3.0	3.1	96	2.7	2.6
Downtown	11A	190	1.0	1.0	88	0.9	0.9	102	1.1	1.0
	11B	390	2.5	2.3	180	2.4	2.3	210	2.5	2.2
River Heights	12A	39	0.2	0.2	15	0.2	0.2	24	0.3	0.3
	12B	67	0.6	0.7	32	0.6	0.7	35	0.7	0.7
Winnipeg Health Region		1584	0.5	0.5	757	0.5	0.5	827	0.5	0.5

**Figure GC6**  
**Gonorrhea: Age-Specific Rates, Females,**  
**Age 15-24, 1998 to 2002**

A spatial representation of age-specific rates is shown in Figure GC6. The highest age-specific rates were found in:

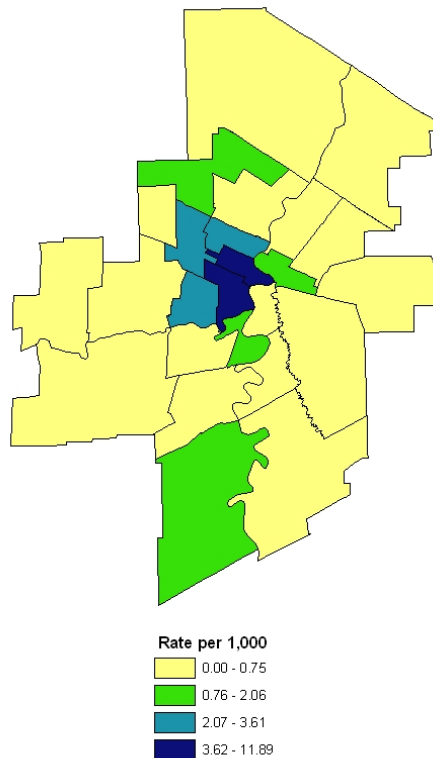
- Point Douglas South – 10B
- Downtown East – 11B



**Figure GC7**  
**Gonorrhea: Age-Specific Rates, Males,**  
**Age 15-24, 1998 to 2002**

A spatial representation of age-specific rates is shown in Figure GC7. 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 GC4 and Figures GC8-GC13). 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 between 1.3 and 6.4 times greater than the remainder of the WHR. St. Boniface East 05B, Transcona 006, and St. Vital South 04B experience the lowest relative ratios (Table GC4; Figure GC8). These patterns are similar for both males and females respectively (Table GC4; Figures GC9 and GC10).

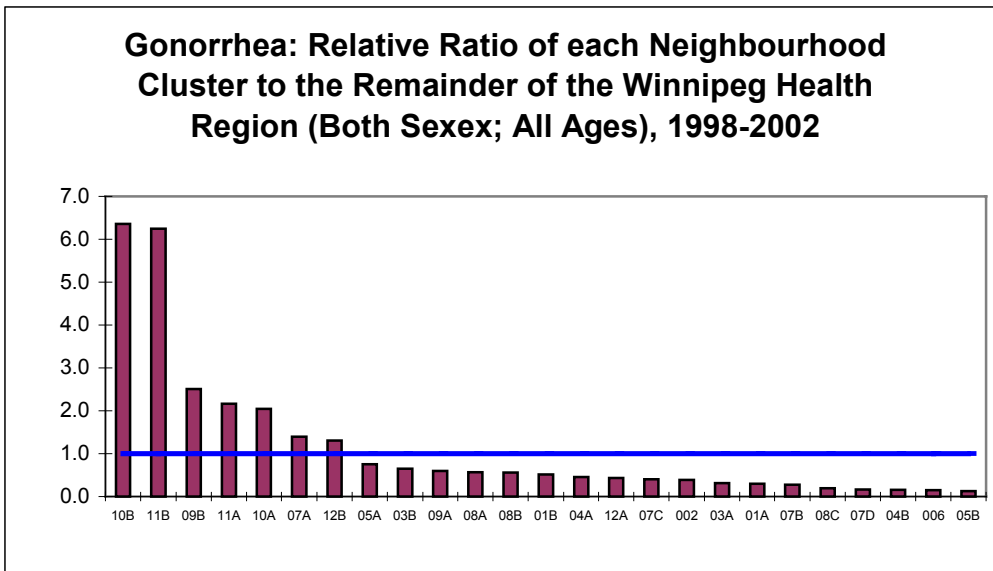
Differences in the rate of infection between Neighbourhood Clusters reflect the actual number of cases per 1000 population (Table GC4; Figure GC11-13). In Point Douglas South 10B, a rate difference of 2.4 translated into approximately 2 more persons with gonorrhoea per 1000 population than the remainder of the region. Conversely, St. Boniface East 05B experienced a rate difference of -0.5, which translates into less than 1 fewer case of gonorrhoea per 1000 population than the rest of the region.



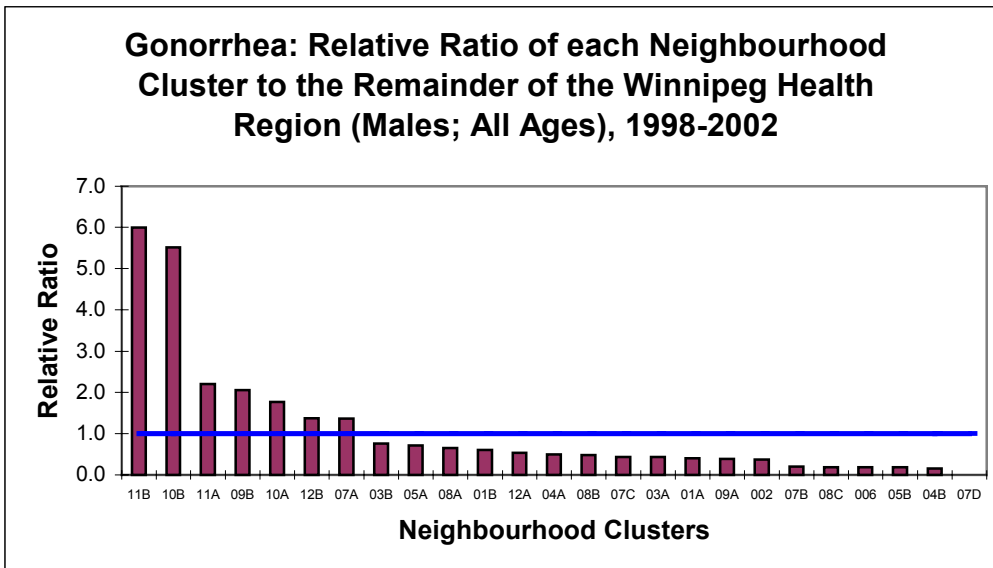
**Table GC4**  
**Gonorrhoea: Relative Ratios and Rate Differences in the Winnipeg Health Region by**  
**Neighbourhood Cluster, 1998-2002**

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	0.3	-0.4	0.2	-0.4	0.4	-0.3
	01B	0.5	-0.2	0.4	-0.3	0.6	-0.2
Assiniboine South	002	0.4	-0.3	0.4	-0.3	0.4	-0.3
Fort Garry	03A	0.3	-0.4	0.2	-0.4	0.4	-0.3
	03B	0.6	-0.2	0.5	-0.2	0.8	-0.1
St. Vital	04A	0.5	-0.3	0.4	-0.3	0.5	-0.3
	04B	0.2	-0.4	0.1	-0.4	0.2	-0.5
St. Boniface	05A	0.7	-0.1	0.8	-0.1	0.7	-0.2
	05B	0.1	-0.5	0.1	-0.5	0.2	-0.5
Transcona	006	0.1	-0.4	0.1	-0.4	0.2	-0.5
River East	07A	1.4	0.2	1.4	0.2	1.4	0.2
	07B	0.3	-0.4	0.3	-0.3	0.2	-0.4
	07C	0.4	-0.3	0.4	-0.3	0.4	-0.3
	07D	0.2	-0.4	0.4	-0.3	0.0	-0.5
Seven Oaks	08A	0.6	-0.2	0.5	-0.2	0.7	-0.2
	08B	0.6	-0.2	0.7	-0.2	0.5	-0.3
	08C	0.2	-0.4	0.2	-0.4	0.2	-0.4
Inkster	09A	0.6	-0.2	0.8	-0.1	0.4	-0.3
	09B	2.5	0.7	3.0	0.9	2.1	0.5
Point Douglas	10A	2.0	0.5	2.4	0.6	1.8	0.4
	10B	6.4	2.4	7.4	2.6	5.5	2.2
Downtown	11A	2.2	0.5	2.1	0.5	2.2	0.6
	11B	6.2	2.1	6.5	2.0	6.0	2.1
River Heights	12A	0.4	-0.3	0.3	-0.3	0.5	-0.3
	12B	1.3	0.1	1.2	0.1	1.4	0.2

**Figure GC8**



**Figure GC9**



**Figure GC10**

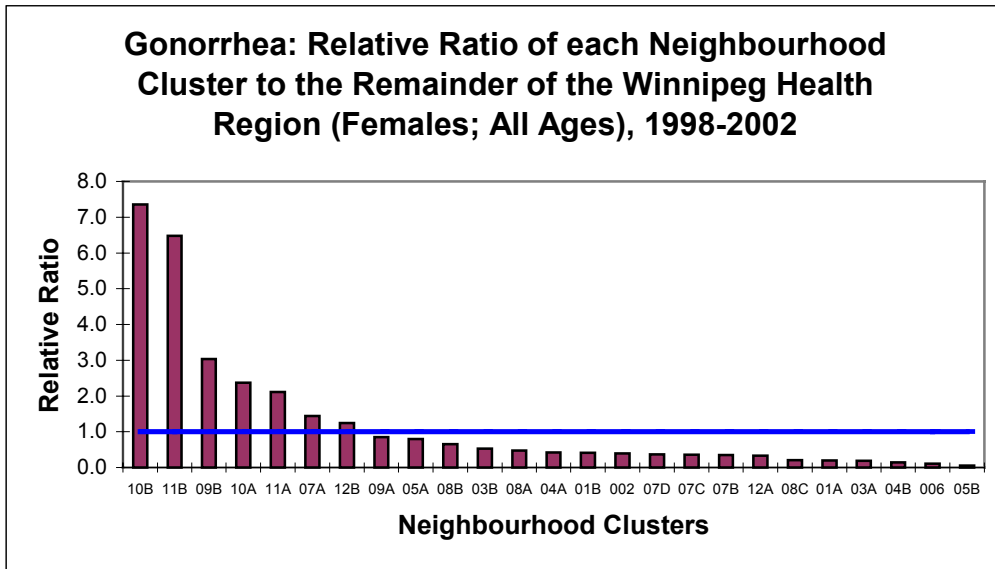


Figure GC11

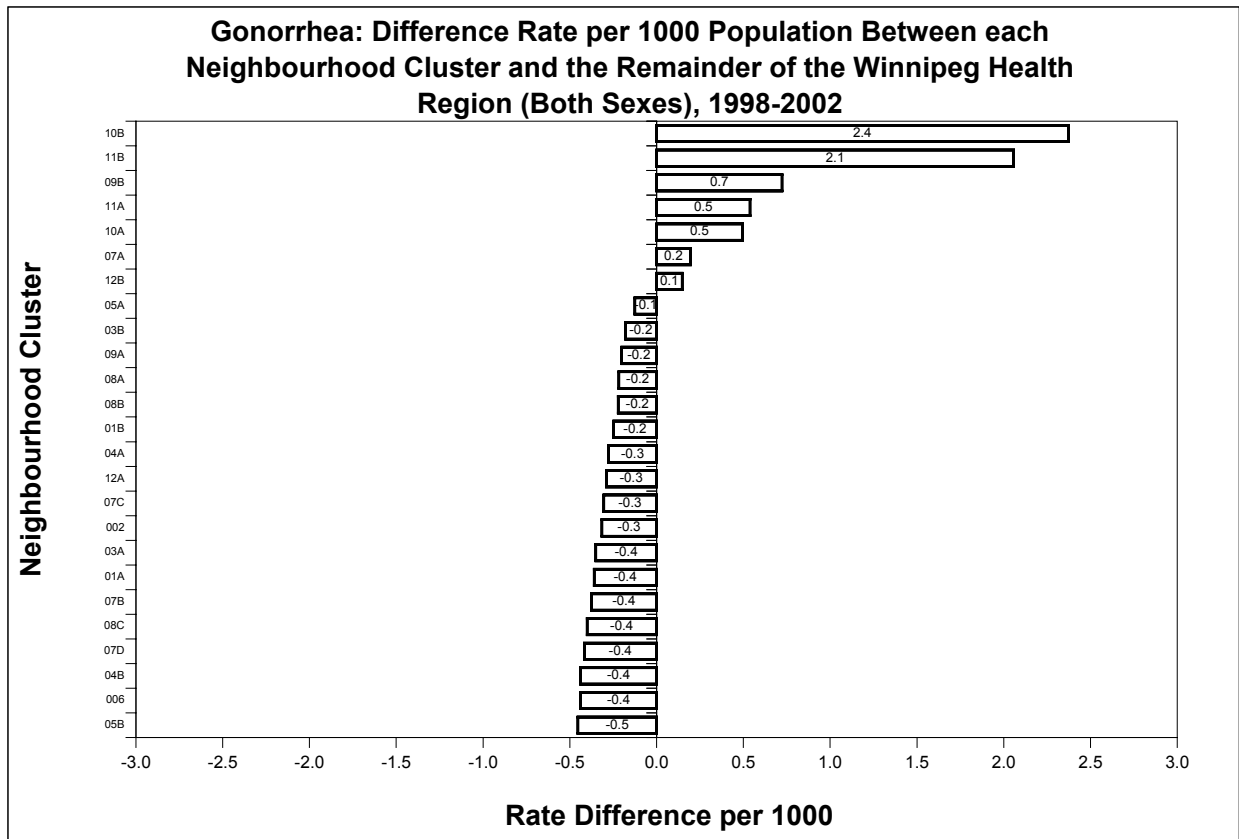


Figure GC12

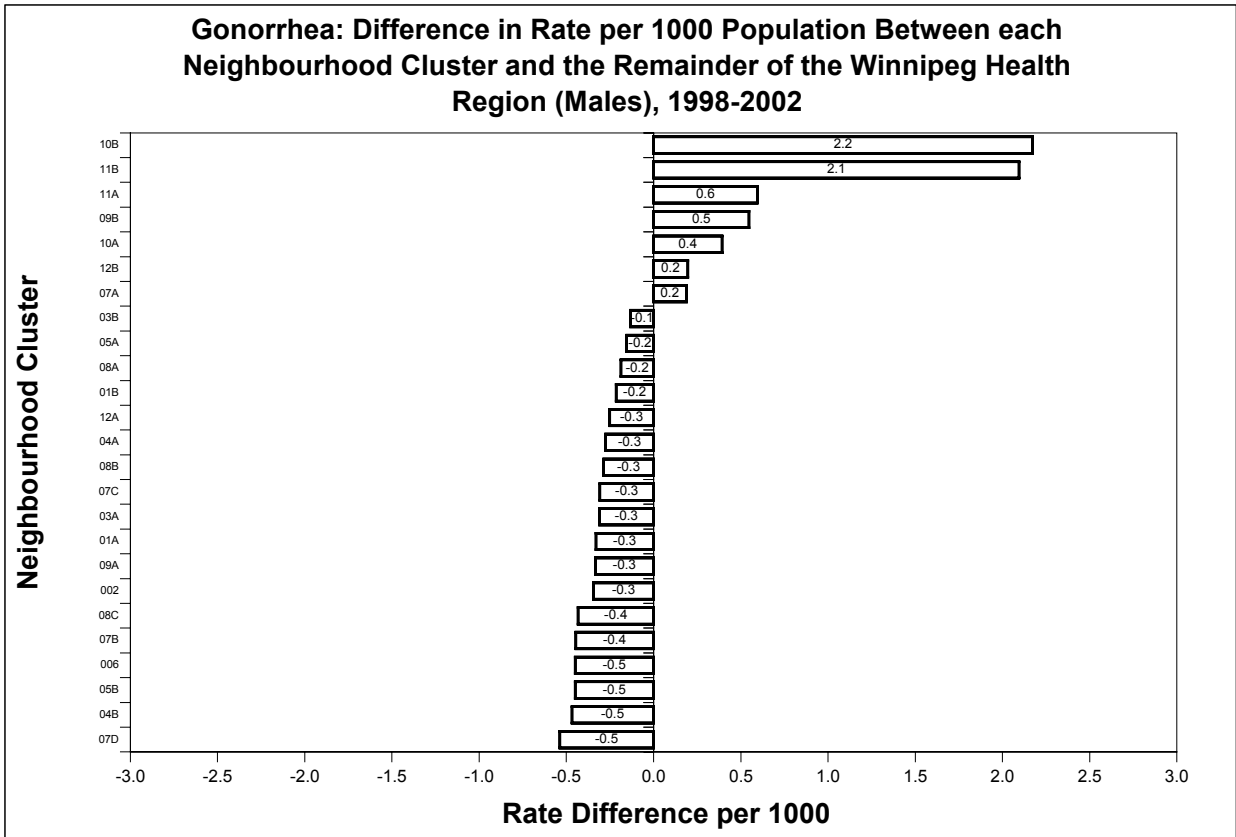
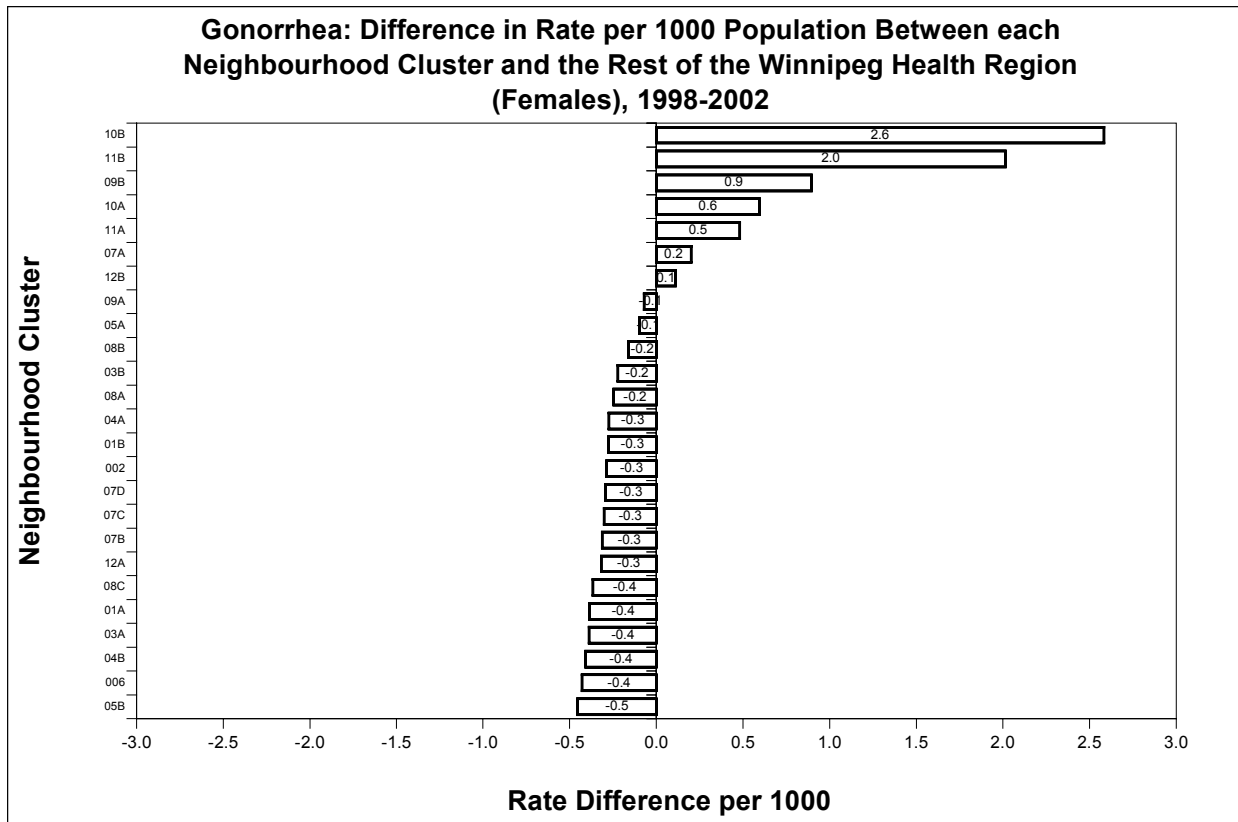


Figure GC13



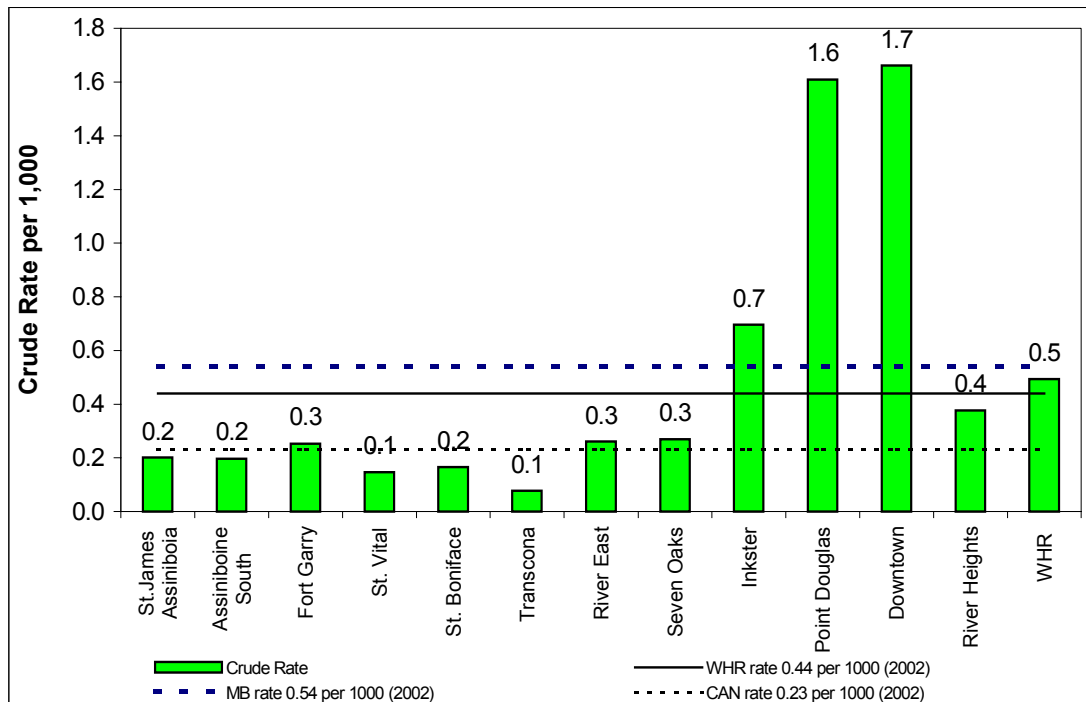
### National Goal

In 1997, Health Canada proposed a number of national goals for the prevention and control of sexually transmitted infections in Canada. For gonorrhoea, Health Canada proposed elimination of locally acquired (endemic) cases by 2010.<sup>2</sup>

Rates of gonorrhoea infection by Winnipeg Health Region Community Area are plotted in Figure GC14 along with the corresponding rates of infection in 2002 for the Winnipeg Health Region (0.44 per 1000), Manitoba (0.54 per 1000) and Canada (0.23 per 1000). It is clearly evident that the Point Douglas and Downtown Community Areas largely drive the regional rate of infection. Regional adoption of the national goal for elimination of endemic gonorrhoea may not be possible, or reasonable, given the transmission dynamics of gonorrhoea, 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.

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

**Figure GC14**  
**Gonorrhoea: Crude Rate of Infection By Community Area, Winnipeg Health Region, 1998-2002**



### Highlights:

- Increasing incidence of gonorrhoea in 2003: 77% increase in number of reported cases compared to 2002.
- Gender: Overall, the distribution of males and females is similar. However, beginning in 1999, the rate of infection among males exceeded that for females.
- Age: Overall, the incidence of infection is greatest among younger individuals, *in particular 15 to 24 year olds*.
- Geographic variation: Point Douglas and Downtown have a greater burden of illness compared to the rest of the WHR, *between 6.2 and 6.4 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 of infection is less than 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 elimination of endemic gonorrhoea may not be possible, or reasonable, given the transmission dynamics of gonorrhoea, 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.

<sup>i</sup> Additional 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].