epiREPORT

Sexually Transmitted Infections In Manitoba

2014

A focus on bacterial sexually transmitted infections

Data reported to December 31, 2014

Epidemiology & Surveillance

Public Health Branch

Public Health and Primary Health Care Division

Manitoba Health, Seniors and Active Living

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Manitoba

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Acknowledgments

The *Sexually Transmitted Infections in Manitoba (2014)* report is the result of the ongoing efforts and expertise of many dedicated individuals throughout the Province of Manitoba. Thank you for your continued dedication and support.

Let us know what you think. We appreciate your feedback! If you would like to comment on any aspect of the report, please send an email to: outbreak@gov.mb.ca

Executive Summary

Manitoba Health, Seniors and Active Living (MHSAL) is pleased to present the *Sexually Transmitted Infections in Manitoba (2014)* report. This report is intended to provide surveillance information about the three most common, reportable, sexually transmitted infections (STIs): chlamydia, gonorrhea and syphilis. This data is collected as part of on-going public health efforts in Manitoba. Below are a few selected highlights from the report:

- There were **6,293** chlamydia infections**, 1107** gonorrhea infections, and **116** confirmed syphilis infections reported to Public Health Surveillance System in 2014.
- There was an overall decrease both in the number of cases and rates of chlamydia and gonorrhea in 2014 compared to 2013.
- Infectious syphilis case numbers have increased and rates have nearly doubled between 2013 (4.4 per 100 000) and 2014 (9.0 per 100,000).
- For chlamydia, the highest rates are found in female cases, particularly in the 15 to 19 and 20 to 24 year age groups. In general, the rate of infection for females is higher than that for males (611.1 versus 350.4 per 100,000 population, respectively). Among males, those in the 20-24 and 25-29 age groups have the highest rates of chlamydia infection.
- For gonorrhea, females also have a higher rate compared to males (90.9 versus 78.5 per 100,000 population, respectively). Similar to chlamydia infection, the rates are highest in the 15 -19 and 20- 24 year age groups for females. Among males, 20-24 and 25-29 age groups have the highest rates of gonorrhea infection.
- For syphilis, the majority of cases were reported from males, with the highest rates reported in the 20 -24 and 30-39 year age groups. The female rate of syphilis is much lower than that for males (2.3 versus 15.6 per 100,000 population, respectively). However, the female rate increased nearly four-fold between 2013 and 2014. The largest number of cases among females was reported in the 25-29 and 30-39 and 50+ year age groups.
- In terms of geography, the Northern Regional Health Authority (RHA) had the highest reported regional rates (compared to all RHAs) for chlamydia and gonorrhea infection in 2014. For syphilis, the rates of infection were highest in males reported from both Winnipeg RHA and Northern RHA.

Introduction

Sexually Transmitted Infections in Manitoba (2014) presents a descriptive epidemiological overview of cases of bacterial sexually transmitted infections (chlamydia, gonorrhea, and syphilis) reported to the Public Health Surveillance System of Manitoba Health, Healthy Living & Seniors (MHSAL) between January 1st and December 31st, 2014. The number and incidence of cases of sexually transmitted infections in 2014 are presented by regional health authority (RHA), sex, and age group. Trends for the time period 2005 to 2014 are also presented. Due to the fact that case files in this system are updated daily and may involve further investigation of past cases, case counts may differ slightly from counts previously reported.

Methodology

This report presents case counts and crude incidence of sexually transmitted infections in 2014 by RHA, sex, and age group. Time trends in incidence for the time period of 2003 to 2014.

Data for cases of chlamydia and gonorrhea, with a specimen collection date between January 1, 2003 and December 31, 2014 were extracted from MHSAL's Public Health Surveillance Databases in June 2015. For syphilis, a review of records occurred in late 2015, and the analysis of cases from 2014 was revised in December, 2015. It should be noted that provincial databases are continually updated as new case information is received from public health units and there may be slight differences between this report and any previous or future reports.

Cases of chlamydia were identified by ICD9 codes of 99.x and gonorrhea cases were identified by ICD9 codes of 98.x in the provincial database. Only confirmed infectious syphilis cases (which were reported with staging information and labeled with an ICD9 code identifying primary, secondary and early latent infection) were included in this analysis. For ease of reading, the term "syphilis" is used throughout this report and refers to "infectious syphilis".

Cases were assigned to an RHA based on residence of the case at time of laboratory testing (i.e. as provided on the laboratory report received by the Public Health Surveillance Unit) which may differ from region or jurisdiction that carried out the public health investigation and follow-up. Note that cases from Churchill were included with cases from Winnipeg RHA. Cases with an out of province residence were not included in these analyses.

Case counts were defined as the number of infections and not the number of infected individuals, as an individual may have had more than one infection in a given period time. For example, if someone was co-infected with chlamydia and gonorrhea, then each infection would be counted separately. This was also the case for an individual who had more than one infection within the year; each separate infection was counted separately.

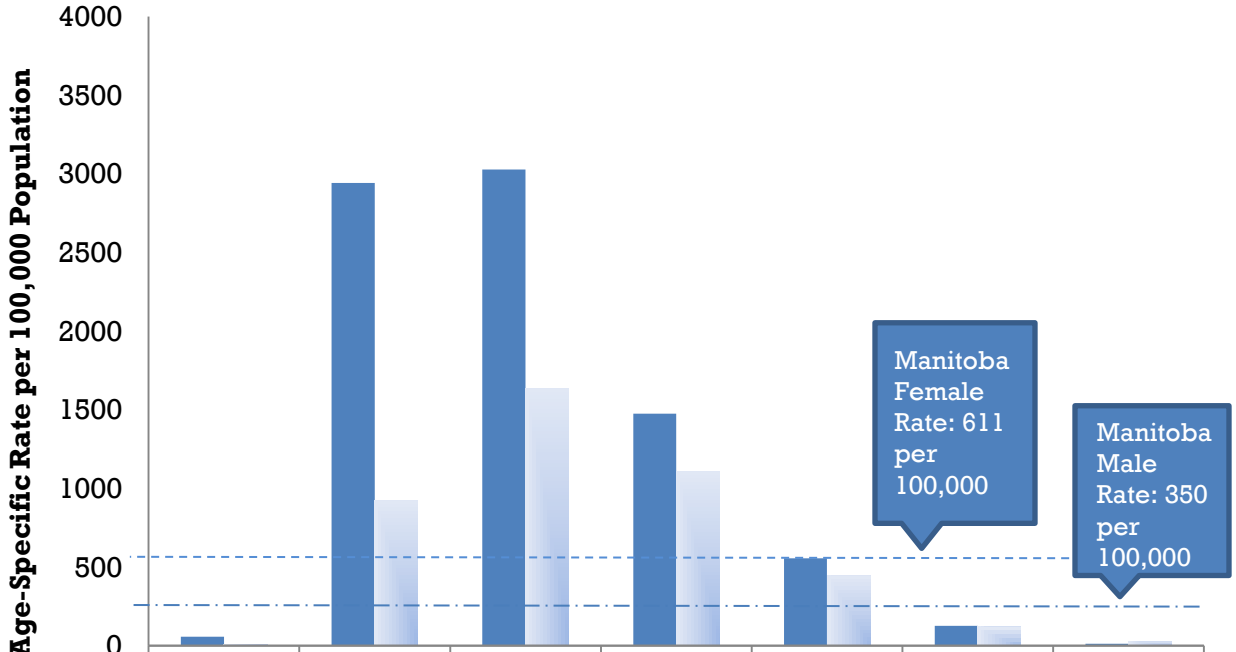
Incidence rates were calculated using the MHSAL population file from June 1, 2015. All rates are crude rates calculated as the number of events (numerator) divided by the population of the age-gender group specified (denominator) and multiplied by 100,000 to produce number of reported cases per 100,000 population, unless otherwise identified as per 1,000 population in which case the multiplication was by 1,000 (useful in smaller geographies, such as an RHA). Note that in some stratification analyses (e.g. by age), the low case counts (typically less than five) will result in less statistical stability of the rates, and therefore comparisons should be made with caution.

Chlamydia

Chlamydia is a sexually transmitted infection that is caused by the bacterium *Chlamydia trachomatis*. Most infections are asymptomatic but when symptoms do occur it is typically two to three weeks after exposure and may include discharge, itchiness, or a burning sensation when urinating. Young age (15-24 years) and having multiple sexual partners is associated with chlamydia infection in Canada[i].

Chlamydia transmission can be prevented through the use of condoms and can be cured with antibiotics. If left untreated, chlamydia can cause pelvic inflammatory disease and serious complications in pregnancy.

Generally, the incidence of chlamydia was much higher among females than males in 2014, with peaks in the 20 to 24 age group for both females and males (Figure 1, Table 1). The highest incidence was observed among those in the age groups 15 to 19 and 20 to 24.



	under 15	15-19	20-24	25-29	30-39	40-49	50+
F	56.0	2942.2	3028.2	1474.7	554.6	126.7	12.0
M	4.8	920.5	1633.7	1107.2	447.7	119.2	25.5

Figure 1: Age Specific Rates of Chlamydia Infection by Sex in Manitoba, 2014

Table 1: Number and Rates of Chlamydia Infection by Age Group and Sex in Manitoba, 2014

Age Group (Years)	Females		Males		Total	
	# of Cases	Rate per 100,000	# of Cases	Rate per 100,000	# of Cases	Rate per 100,000
under 15	67	56.0	6	4.8	73	29.7
15-19	1243	2942.2	413	920.5	1656	1901.0
20-24	1428	3028.2	809	1633.7	2237	2313.9
25-29	671	1474.7	506	1107.2	1177	1290.6
30-39	478	554.6	382	447.7	860	501.4
40-49	107	126.7	101	119.2	208	122.9
50+	28	12.0	54	25.5	82	18.4
All Ages	4022	611.1	2271	350.4	6293	481.7

Geography

The Northern Health Region had a considerably higher incidence of chlamydia than the rest of the province, with the incidence among females nearly five times the overall incidence among females in Manitoba (Figure 2, Table 2).

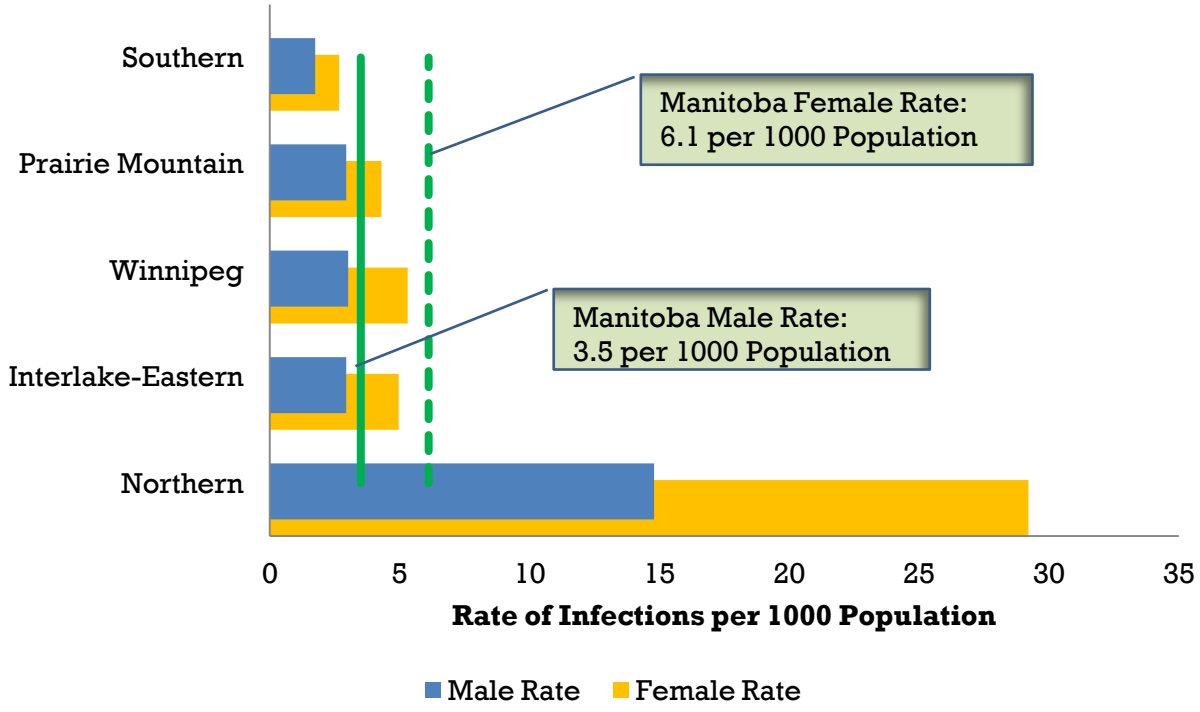


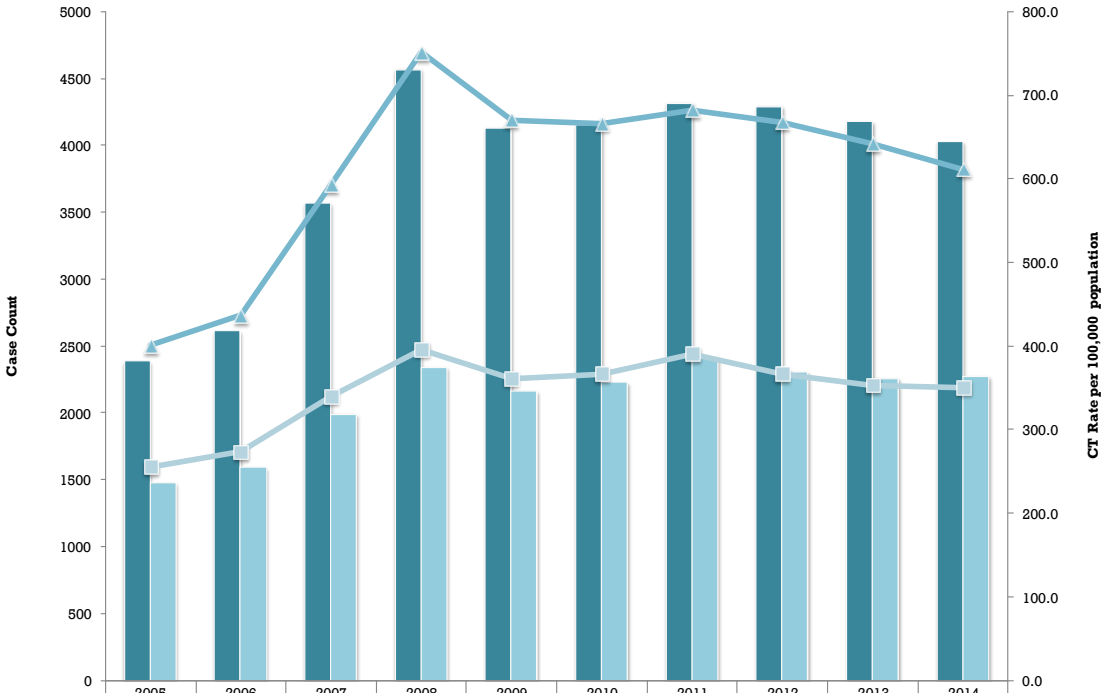
Figure 2: Rates of Chlamydia Infection per 1,000 Population by Region (RHA) of Case Residence in Manitoba, 2014

Table 2: Number and Rates per 1,000 Population of Chlamydia Infections reported by Region (RHA) in Manitoba, 2014

Region	Females		Males		Total	
	# of Cases	Rate per 1,000	# of Cases	Rate per 1,000	# of Cases	Rate per 1,000
Northern	1085	29.2	565	14.8	1650	21.9
Interlake-Eastern	310	5.0	189	2.9	499	3.9
Winnipeg	2010	5.3	1105	3.0	3115	4.2
Prairie Mountain	364	4.3	244	2.9	608	3.6
Southern	253	2.7	168	1.7	421	2.2
Manitoba	4022	6.1	2271	3.5	6293	4.8

Time Trend

The annual incidence of chlamydia increased considerably up to 2008 and has been settled at a high but stable annual incidence since 2009 (Figure 3). The number of cases and incidence has been consistently higher among females than males. The increase in incidence observed from 2006 to 2008 was likely due to the transition to nucleic acid amplification testing of cervical swab specimens in the laboratory, which particularly affected females because prior to this the nucleic acid probe test had been used for testing cervical swab specimens[ii]. Nucleic acid amplification had been used for urine specimens (more commonly taken among males) since 1998.[ii]



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Females	2383	2608	3565	4565	4125	4148	4313	4287	4172	4022
Males	1476	1587	1988	2337	2160	2224	2414	2304	2256	2271
Male Rate per 100,000	255.2	273.2	339.9	395.4	360.5	366.1	390.6	366.2	353.1	350.4
Female Rate per 100,000	400.3	436.5	592.6	750.9	670.5	666.0	682.0	667.5	641.5	611.1

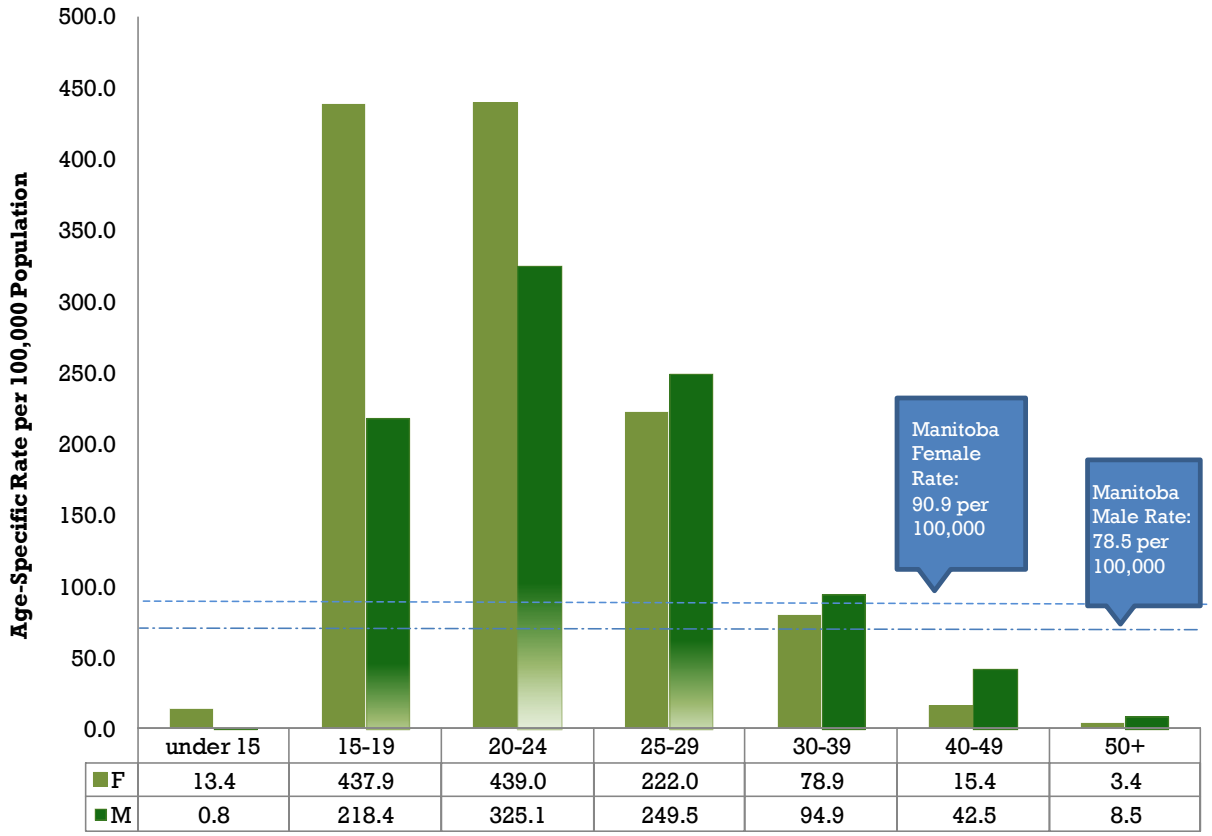
Figure 3: Number and Rates of Chlamydia Infection in Manitoba, 2005-2014

Gonorrhea

Gonorrhea is a sexually transmitted infection that is caused by the bacterium *Neisseria gonorrhea*. Most infections are asymptomatic but when symptoms do occur it is typically two to seven days after exposure and may include discharge, pain, or a burning sensation when urinating. Among females, symptoms are uncommon and typically mild if they do occur. Young age (15-24 years) and having multiple sexual partners is associated with this infection in Canada[iii].

Gonorrhea transmission can be prevented through the use of condoms. While gonorrhea can be cured with antibiotics, drug-resistant strains are becoming more common, causing difficulties with treatment. If left untreated, gonorrhea can cause pelvic inflammatory disease and serious complications in pregnancy.

Generally, the incidence of gonorrhea in 2014 was higher among females compared to males, and in particular in the 15 to 19 and 20 to 24 age groups (Figure 4, Table 3).



	under 15	15-19	20-24	25-29	30-39	40-49	50+
F	13.4	437.9	439.0	222.0	78.9	15.4	3.4
M	0.8	218.4	325.1	249.5	94.9	42.5	8.5

Figure 4: Age Specific Rates of Gonorrhea Infection by Sex in Manitoba, 2014

Table 3: Number and Rates of Gonorrhea Infection by Age Group and Sex in Manitoba, 2014

	Females		Males		Total	
Age Group (Years)	**# of Cases**	**Rate per 100,000**	**# of Cases**	**Rate per 100,000**	**# of Cases**	**Rate per 100,000**
under 15	16	13.4	1	0.8	17	6.9
15-19	185	437.9	98	218.4	283	324.9
20-24	207	439.0	161	325.1	368	380.7
25-29	101	222.0	114	249.5	215	235.7
30-39	68	78.9	81	94.9	149	86.9
40-49	13	15.4	36	42.5	49	29.0
50+	8	3.4	18	8.5	26	5.8
All Ages	598	90.9	509	78.5	1107	84.7

Geography

The Northern Health Region had considerably higher incidence of gonorrhea than the rest of the province, with the incidence among females nearly seven times the overall incidence among females in Manitoba (Figure 5, Table 4).

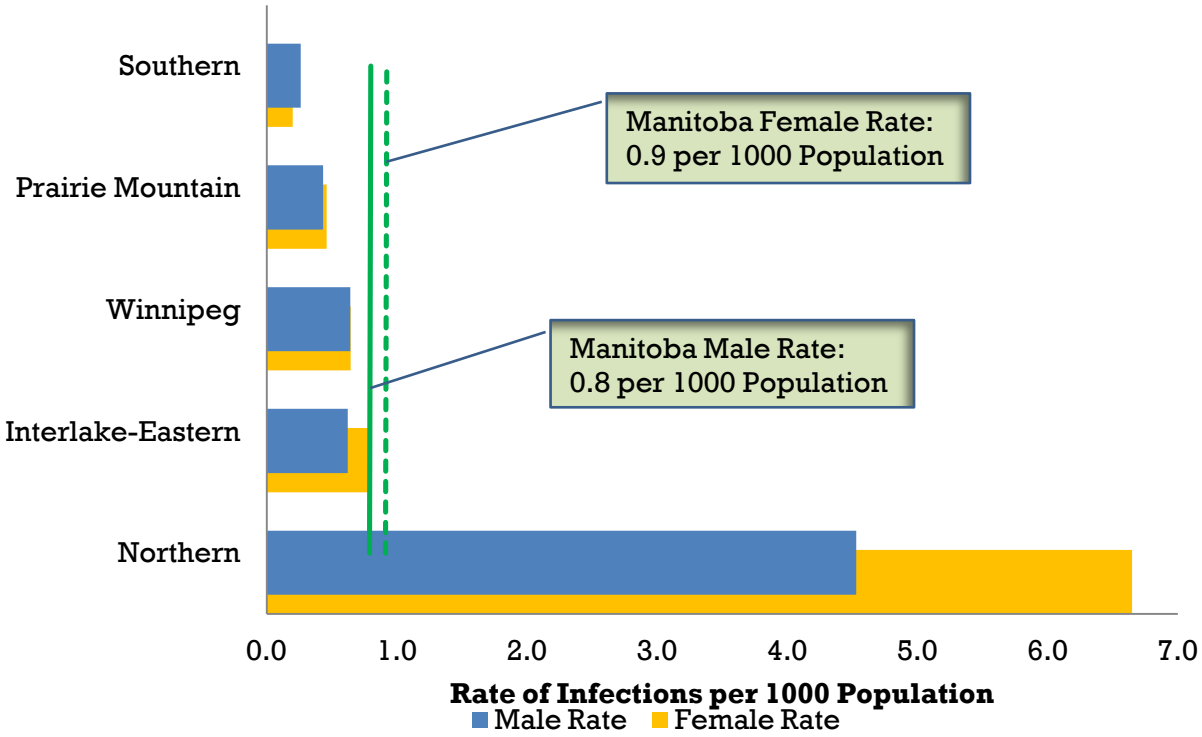


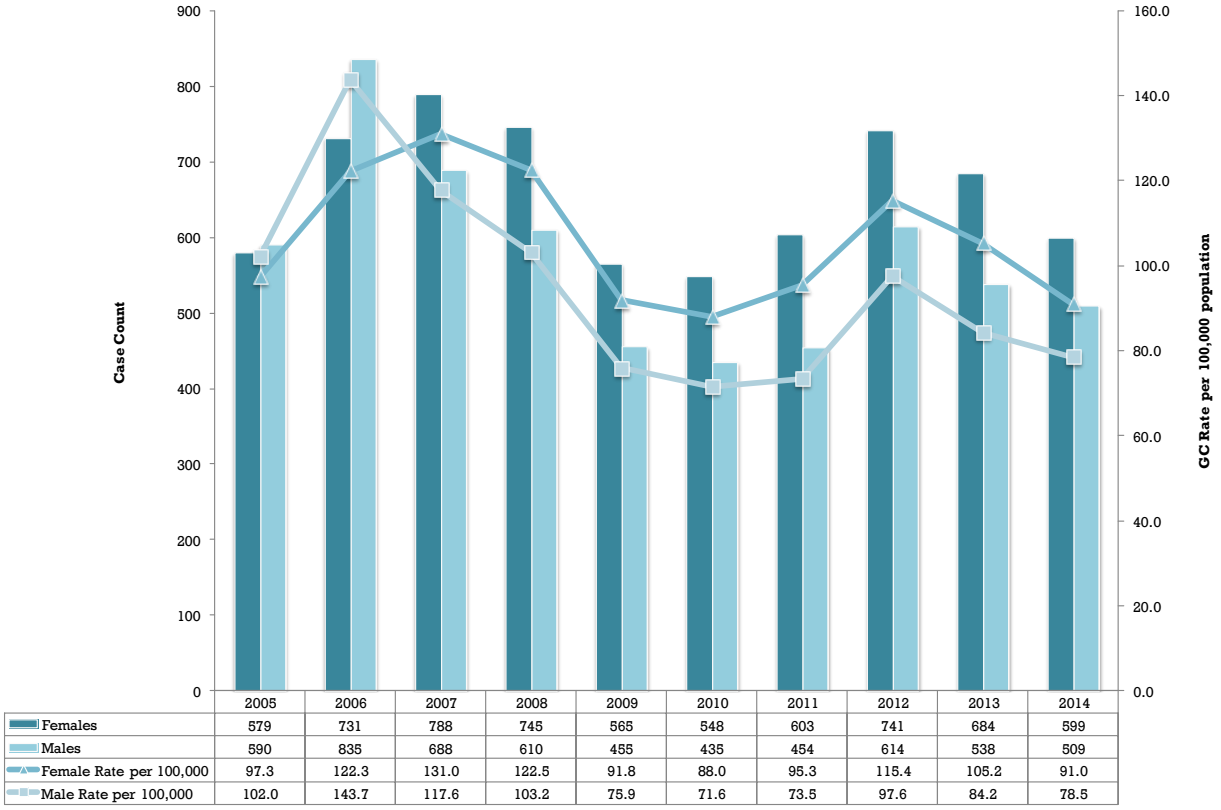
Figure 5: Rates of Gonorrhea Infection per 1,000 Population by Region (RHA) of Case Residence in Manitoba, 2014

Table 4: Number and Rates per 1,000 Population of Gonorrhea Infection by Region (RHA) in Manitoba, 2014

Region	Females		Males		Total	
	# of Cases	Rate per 1,000	# of Cases	Rate per 1,000	# of Cases	Rate per 1,000
Northern	247	6.6	173	4.5	420	5.6
Interlake-Eastern	49	0.8	40	0.6	89	0.7
Winnipeg	244	0.6	235	0.6	479	0.6
Prairie Mountain	39	0.5	36	0.4	75	0.4
Southern	19	0.2	25	0.3	44	0.2
Manitoba	598	0.9	509	0.8	1107	0.8

Time Trend

There have been two peaks in annual gonorrhea incidence since 2005 – one in 2006 and the other in 2012 (Figure 6). Since 2012 the incidence rate has been decreasing annually.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Females	579	731	788	745	565	548	603	741	684	599
Males	590	835	688	610	455	435	454	614	538	509
Female Rate per 100,000	97.3	122.3	131.0	122.5	91.8	88.0	95.3	115.4	105.2	91.0
Male Rate per 100,000	102.0	143.7	117.6	103.2	75.9	71.6	73.5	97.6	84.2	78.5

Figure 6: Number and Rates of Gonorrhea Infection in Manitoba, 2005-2014

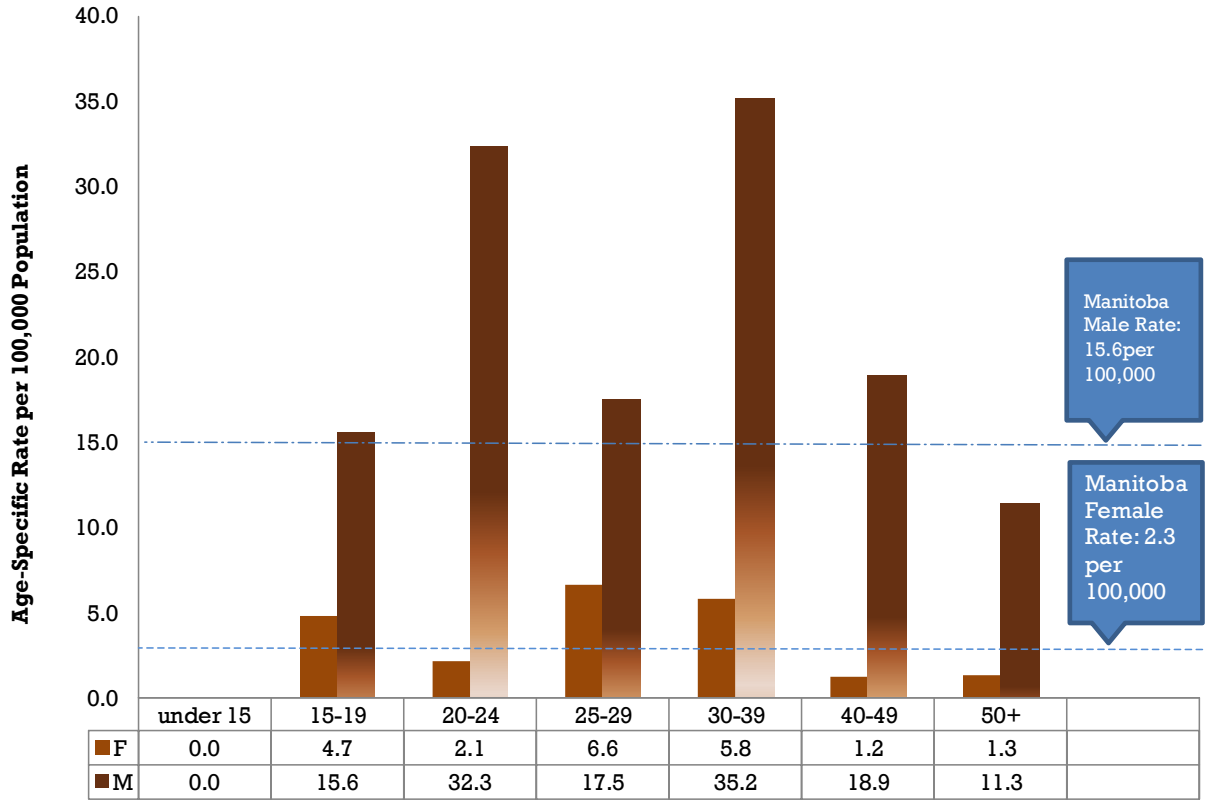
Syphilis

Syphilis is a sexually transmitted infection that is caused by the bacterium *Treponema pallidum*. Within three days to three months of having sex with someone infected with syphilis a painless open sore (chancre) may develop, followed by a body rash and flu-like symptoms. If left untreated, syphilis can progress to tertiary syphilis. Tertiary syphilis is a slowly progressive inflammatory disease that can affect any organ in the body and produces clinical illness, over ten to thirty years after the initial infection. Neurosyphilis (affecting the central nervous system) is another clinical presentation that can occur during any stage of infection. Syphilis can also be spread from an infected mother to her unborn baby and if untreated the baby may have serious health problems or die (congenital syphilis).[iv]

Syphilis transmission can be prevented through the use of condoms by covering up chancres. Chancres that occur in areas not covered by a condom can infect another person even if a condom is used. Syphilis can be cured with antibiotics and should be treated as early as possible to avoid permanent damage.

A syphilis outbreak was reported in Winnipeg RHA in late 2012 and continued into 2014[v]. A report published by Winnipeg RHA about the syphilis outbreak indicated that by September 2014 one quarter of cases resided in downtown Winnipeg and more than half of the cases were men who have sex with men. Winnipeg RHA recommended five approaches to address the outbreak: population awareness and education, outreach, cause and contact management, provider education, and knowledge sharing.

In 2014, the majority of infectious syphilis cases were reported in males, with the highest incidence in the 20-24 and 30-39 years age groups. However, male cases were reported across a wide age range. Females have low incidence rates compared to males, the age groups with the highest rates were 25-29 and 30-39 age groups (Figure 7, Table 5); although they are also distributed across a wide age range. Note that the rates presented should be should be interpreted with caution due to the low numbers of cases, in some age groupings.



	under 15	15-19	20-24	25-29	30-39	40-49	50+	
F	0.0	4.7	2.1	6.6	5.8	1.2	1.3	
M	0.0	15.6	32.3	17.5	35.2	18.9	11.3	

Figure 7: Age Specific Rates of Syphilis Infection by Sex in Manitoba, 2014

Table 5: Number and Rates of Syphilis Infection by Age Group and Sex in Manitoba, 2014

Age Group (Years)	Females		Males		Total	
	# of Cases	Rate per 100,000	# of Cases	Rate per 100,000	# of Cases	Rate per 100,000
under 15	0	0.0	0	0.0	0	0.0
15-19	2	4.7	7	15.6	9	10.3
20-24	1	2.1	16	32.3	17	17.6
25-29	3	6.6	8	17.5	11	12.1
30-39	5	5.8	30	35.2	35	20.4
40-49	1	1.2	16	18.9	17	10.0
50+	3	1.3	24	11.3	27	6.1
All Ages	15	2.3	101	15.6	116	8.9

Geography

The highest incidence was observed among males in the Northern and Winnipeg Health Regions in 2014 (Table 6).Rates in Southern and Northern RHAs for female cases were higher than the provincial female rate (Figure 8).

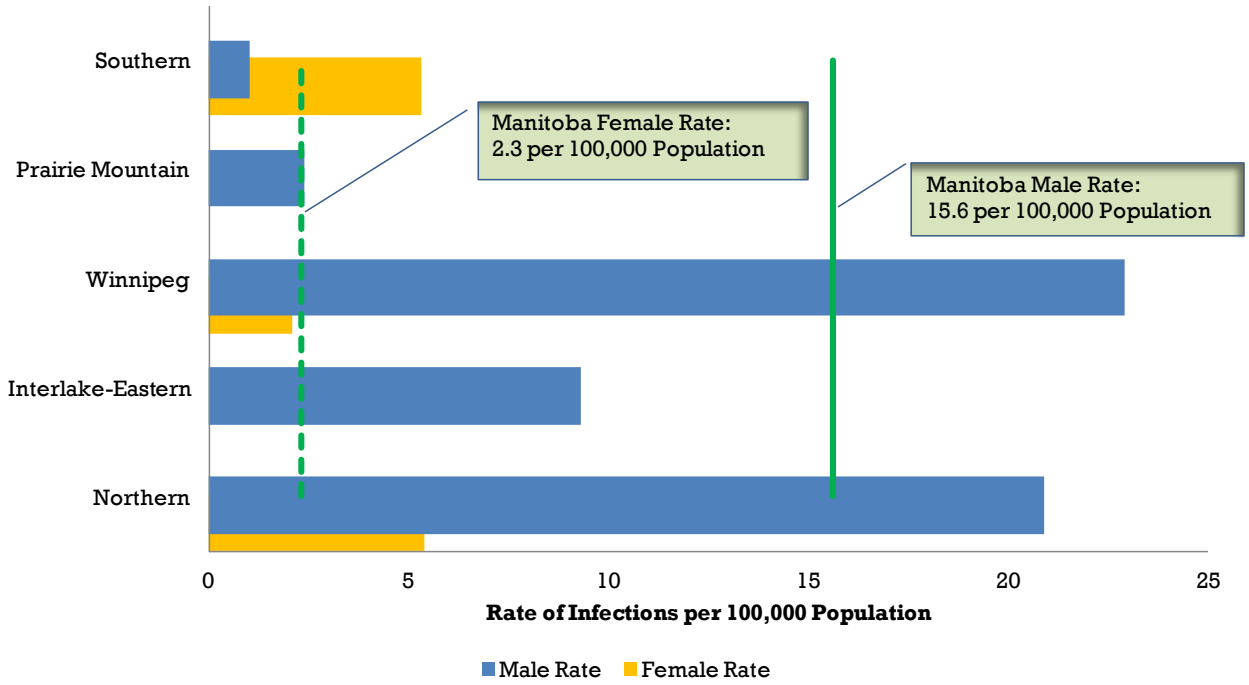


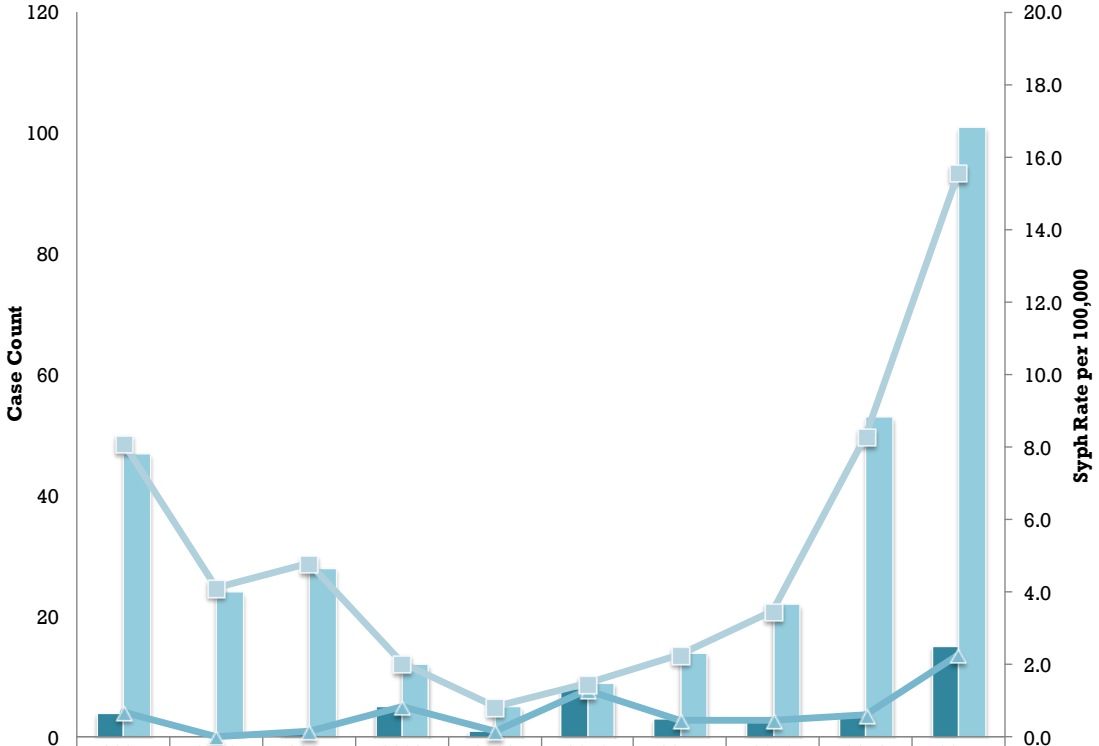
Figure 8: Rates of Syphilis Infection per 100,000 Population by Region (RHA) in Manitoba, 2014

Table 6: Number and Rates per 100,000 Population of Syphilis Infection by Region (RHA) of Case Residence in Manitoba, 2014

Region	Females		Males		Total	
	# of Cases	Rate per 1,000	# of Cases	Rate per 1,000	# of Cases	Rate per 1,000
Northern	2	5.4	8	20.9	10	13.3
Interlake-Eastern	0	0.0	6	9.3	6	4.7
Winnipeg	8	2.1	84	22.9	92	12.3
Prairie Mountain	0	0.0	2	2.4	2	1.2
Southern	5	5.3	1	1.0	6	3.1
Manitoba	15	2.3	101	15.6	116	8.9

Time Trend

The annual incidence of syphilis has been increasing in recent years among males, and in 2014 increased to 15.6 per 100, 000 population. (Figure 8). Females have historically had low rates of infection, but this also increased in 2014 to a rate of 2.3 per 100,000 population, a nearly four-fold increase (Figure 8).



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Female Count	4	0	1	5	1	8	3	3	4	15
Male Count	47	24	28	12	5	9	14	22	53	101
Female Rate	0.7	0.0	0.2	0.8	0.2	1.3	0.5	0.5	0.6	2.3
Male Rate	8.1	4.1	4.8	2.0	0.8	1.5	2.3	3.5	8.3	15.6

Figure 8: Syphilis Infection Number and Rates by Sex in Manitoba, 2005-2014

Discussion

Generally, the incidence of chlamydia was much higher among females than males in 2014, with peaks in the 20 to 24 age group for both females and males. The highest incidence was observed among those in the age groups 15 to 19 and 20 to 24. The Northern Health Region had considerably higher incidence of chlamydia than the rest of the province, with the incidence among females nearly five times the overall incidence among females in Manitoba. The annual incidence increased up to 2008 and has been settled at a high but stable annual incidence since 2009.

Very similar patterns were observed for gonorrhea, with a higher incidence among females and in the 15 to 19 and 20 to 24 age groups. The Northern Health Region had considerably higher incidence of gonorrhea than the rest of the province, with the incidence among females nearly seven times the overall incidence among females in Manitoba. There have been two peaks in annual gonorrhea incidence since 2003 – one in 2006 and the other in 2012. Since 2012 the incidence has been decreasing annually. It should also be noted that changes in testing patterns may also have an influence on changes in the rates of STI from year to year.

The annual incidence of syphilis has been increasing since approximately 2011, and in 2014 Manitoba experienced the highest number of reported cases of infectious syphilis recorded in at least the past 20 years (since electronic databases were implemented). In 2014 the majority of cases were among males, with the greatest incidence among those 20 years of age and older and distributed across a wide age range. The highest incidence was observed among males in the Northern and Winnipeg Health Regions in 2014. The majority of cases reported with primary stage of infection (46%, n=53 cases) followed by secondary (31%, n= 36 cases) and early latent (23%, n=27 cases) (note: this data not shown in report). Although females have lower rates of syphilis compared to males, there was an increase in the rate of syphilis among females, by nearly a four-fold in 2014 compared to 2013.

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