

SEXUALLY TRANSMITTED INFECTIONS; EPIDEMIOLOGY REPORT 2024

Acknowledgement

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Purpose

This report provides a high-level summary of the incidence of notifiable sexually transmitted and blood-borne infections (STI/BBIs) among Northern Health (NH) residents. Infectious diseases are caused by microorganisms (such as bacteria, parasites, or viruses) or by the toxins they produce. These diseases are spread by sexual contact with infected persons, the sharing of drug paraphernalia, or other exposures to bodily fluids.

Due to the small population size of NH, some STI/BBIs occur infrequently, and as a result it is difficult to ascertain patterns and trends. In addition, to reduce the likelihood of identifying any persons from this report, only STI/BBIs where there is a five-year average of five or more cases per year are included – based on data from 2018 through 2022. Also, in any year where there are fewer than five cases, data will be suppressed and represented as “<5”. In addition, we acknowledge that the sex values reported do not reflect the full spectrum of gender identity and work towards improving the reporting of sex and gender. Where available, NH rates will be compared to British Columbia (BC) rates.

Note: BC rates are based on population estimates from BC Stats, Ministry of Labour, Citizens' Service and Open Government, which may differ from the population estimates used to calculate NH rates (see Data Notes).

Summary

In 2023, there were 1,418 STI/BBI cases reported to NH, of which just over half (815 or 57.6%) were genital chlamydia (Table 1). There were slight declines in the number of chlamydia cases during the first years of the Covid-19 pandemic in 2020 and 2021; however, case counts have increased to near pre-pandemic numbers in recent years. The next most common STI/BBI reported in 2023 was syphilis, accounting for one in five STI/BBI cases (20.3%). A rapid increase in the number of syphilis cases occurred in 2022 and 2023, increasing from 24 cases in 2021 to 288 in 2023, a twelve-fold increase. Due to the rapid rise in syphilis, gonorrhea dropped to the third most common STI/BBI at 223 cases or 15.8%. Cases of chronic hepatitis C virus infections (HCV) have generally been declining since 2018 when there were 149 cases and approximately half of that in 2023 (n=76). The number of new HIV cases per year was consistent between 2018 and 2023. Due to the small number of HIV cases, a summary section is not included.

Table 1. Counts, five-year average and percent of STI/BBIs, NH; 2018 – 2023.*

Disease	2018	2019	2020	2021	2022	2023	% (2023)	2018-2022 Avg.
Hepatitis C: Acute	11	11	8	8	11	8	0.6	10
Hepatitis C: Chronic/Unknown	149	120	90	100	86	76	5.4	109
HIV	7	8	5	9	6	8	0.6	7
Chlamydia - Genital	985	908	789	600	818	815	57.5	820
Gonorrhea - Genital	215	189	275	257	268	223	15.7	241
Syphilis	9	10	23	24	135	288	20.3	40
TOTAL	1376	1246	1190	998	1324	1418		1227

* case counts may change over time due to lag in reporting or changes in episode date;

red text indicates higher than expected, based on five-year average;

blue text indicates lower than expected, based on five-year average.

Chlamydia

Chlamydia infections are caused by the bacteria *Chlamydia trachomatis* and can be treated with antibiotics. Infected persons may not notice symptoms from infection, which show up between two and six weeks after sexual contact. Without seeking treatment, infection can lead to serious complications such as pelvic inflammatory disease, infertility, and reactive arthritis. In addition, pregnant women can pass on chlamydia infections during childbirth and should therefore be screened for infections.

Between 2018 and 2022, there was an annual average of 820 chlamydia cases and in 2023 there were 814 cases (Table 2). Female cases outnumber male cases by nearly two-to-one and in general are slightly younger than males. The number of cases and the crude incidence rate of chlamydia declined between 2018 and 2021 by roughly 60%; however, they increased to near pre-pandemic levels by 2023 (Figure 1). Rates in NH were similar to BC.

Half (50.7%) of chlamydia cases were reported to the Northern Interior (NI) Health Service Delivery Area (HSDA) between 2018 and 2023, compared to 20.4% and 28.8% in the Northeast (NE) and Northwest (NW), respectively. Since 2021, the incidence rate increased the most in the NW by 80% and was the highest among NH HSDAs in 2023. Incidence rates of chlamydia in the NE declined however (Figure 2). Rates of chlamydia are highest among youth and young adults aged 15 to 29 (Figure 3). The increases in chlamydia rates since 2021 have been driven by persons under the age of 30; whereas rates among those aged 30 and older have remained stable or declined slightly.

Table 2. Chlamydia summary data, NH; 2018-2023.

	2023			2018-2022 Avg.		
	Males	Females	Total	Males	Females	Total
Cases # (%)	240 (29.5)	574 (70.5)	814	277 (33.8)	543 (66.2)	820
Crude Rate*	152.0	379.2	263.2	180.0	371.0	273.1
Avg. Age	28.6	25.6	26.5	28.3	24.0	26.1
Age Range	15 – 73	13 – 65	13 – 73	13 – 77	0 – 70	0 – 77

* per 100,000

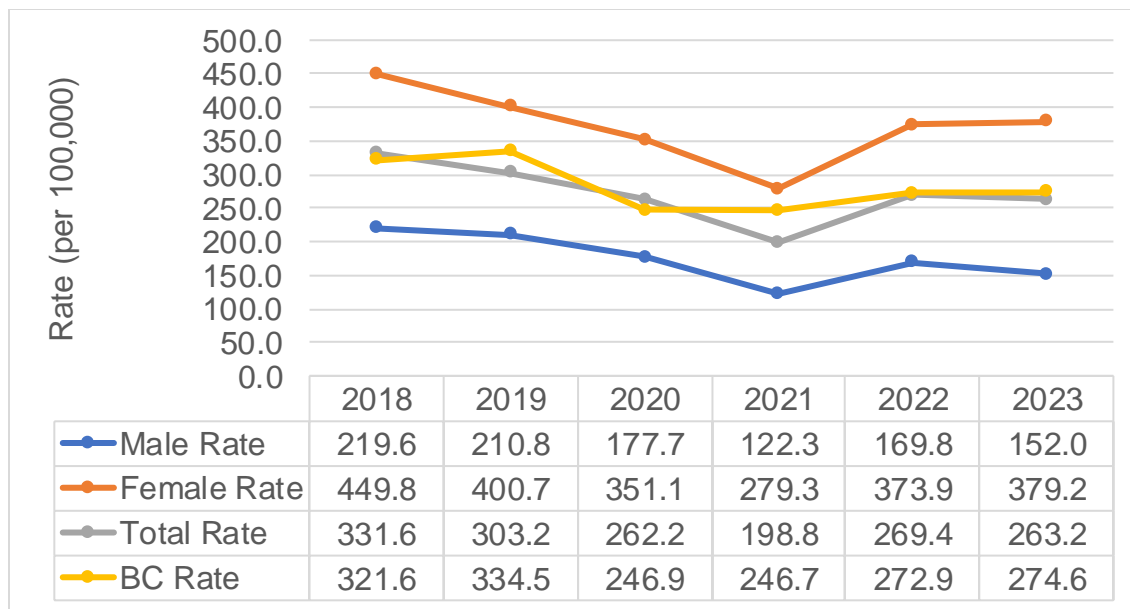


Figure 1. Crude incidence rates of chlamydia by sex, NH and BC; 2018-2023.

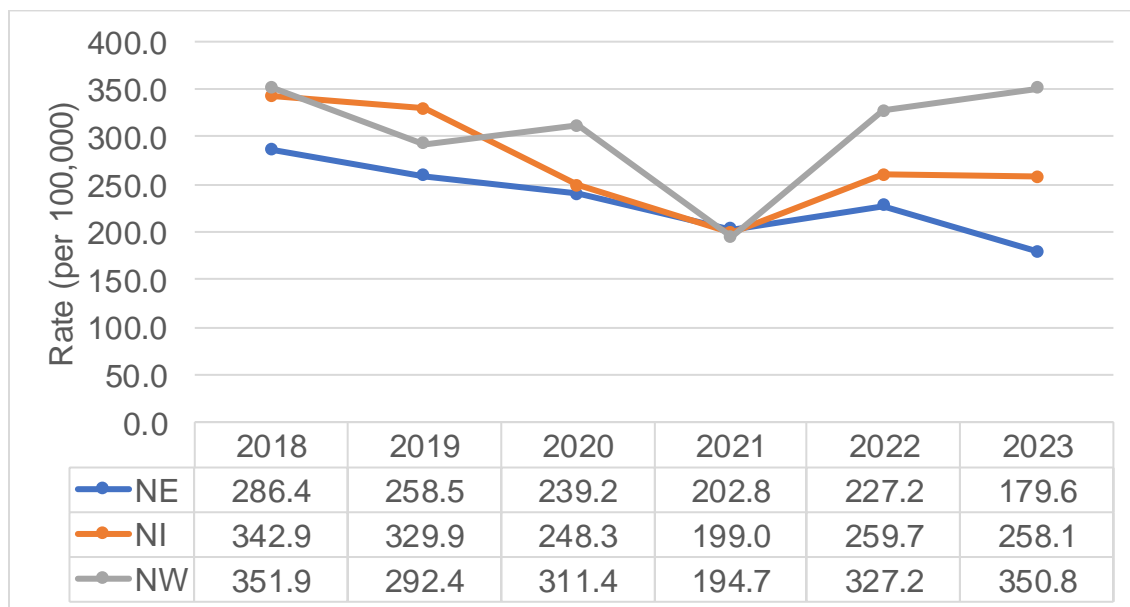


Figure 2. Crude incidence rates of chlamydia by HSDA, NH; 2018-2023.

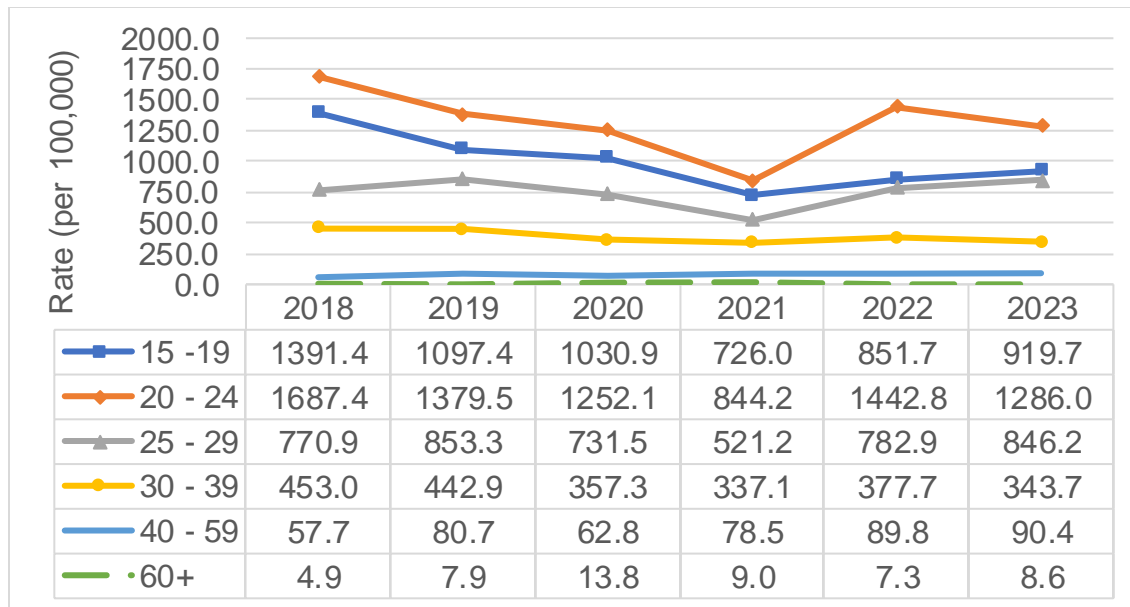


Figure 3. Age-specific* incidence rates of chlamydia, NH; 2018-2023.

* data for persons <15 suppressed

Gonorrhea

Gonorrhea infections are caused by the bacteria *Neisseria gonorrhoeae* and can also be treated with antibiotics. Like chlamydia infections, untreated gonorrhea can lead to serious complications and pregnant women can also pass on gonorrhea infections to their babies.

Between 2018 and 2022, there was an average of 241 gonorrhea cases reported per year and in 2023 there were 223 cases (Table 3). There have generally been an equal number of male and female cases, and the ages of male cases was older than females. The number of cases and crude incidence rate of gonorrhea increased slightly between 2018 and ~2020-2022, though decreased in 2023 (Figure 4). Rates of gonorrhea have been higher in NH compared to BC overall since 2020.

Nearly two-thirds (61.7%) of gonorrhea cases between 2018 and 2023 occurred in the NI compared to 16.3% in the NE and 22.0% in the NW. Incidence rates in the NI peaked in 2021 but have declined since then; rates in the NE have also been declining since 2020 (Figure 5). By comparison, incidence rates of gonorrhea increased by roughly 250% in the NW since 2021, making it the HSDA with the highest rate in 2023. Rates of gonorrhea were highest among age groups under the age of 40 (Figure 6). Among these age groups, there was a lot of variability year to year in the incidence rates, but generally there was an increase between 2018 and 2023. Rates among those aged 40 and older were relatively stable.

Table 3. Gonorrhea summary data, NH; 2018-2023.

	2023			2018-2022 Avg.		
	Males	Females	Total	Males	Females	Total
Cases # (%)	108 (48.4)	115 (51.6)	223	127 (52.8)	114 (47.2)	241
Crude Rate*	68.4	76.0	72.1	82.5	77.5	80.1
Avg. Age	33.1	28.5	30.7	33.7	27.9	31.0
Age Range	16 – 73	16 – 60	16 – 73	14 – 88	13 – 63	13 – 88

* per 100,000

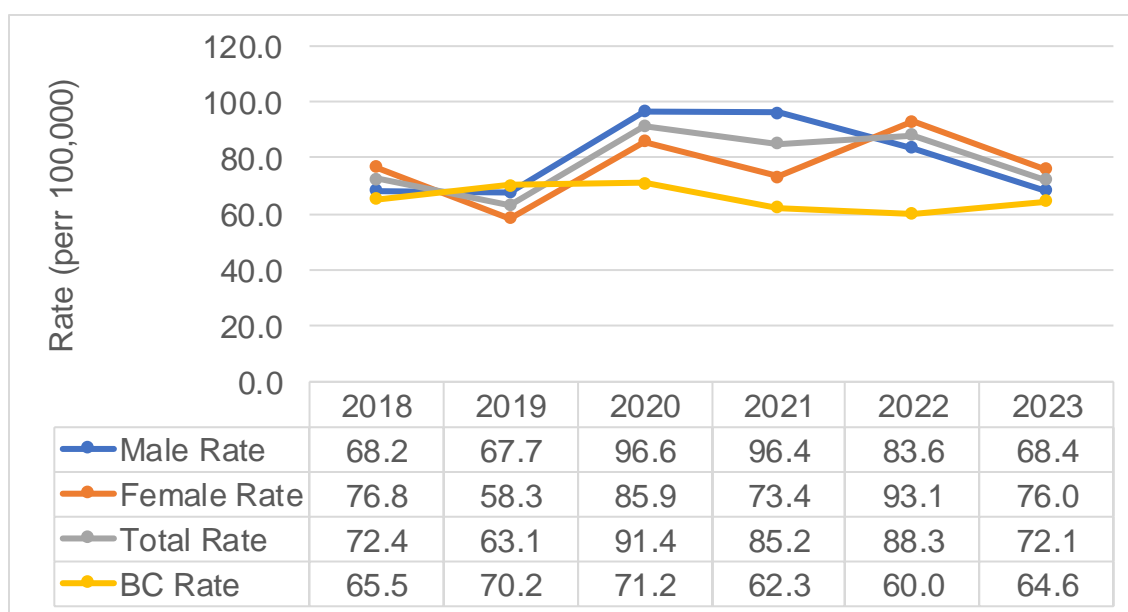


Figure 4. Crude incidence rates of gonorrhea by sex, NH and BC; 2018-2023.

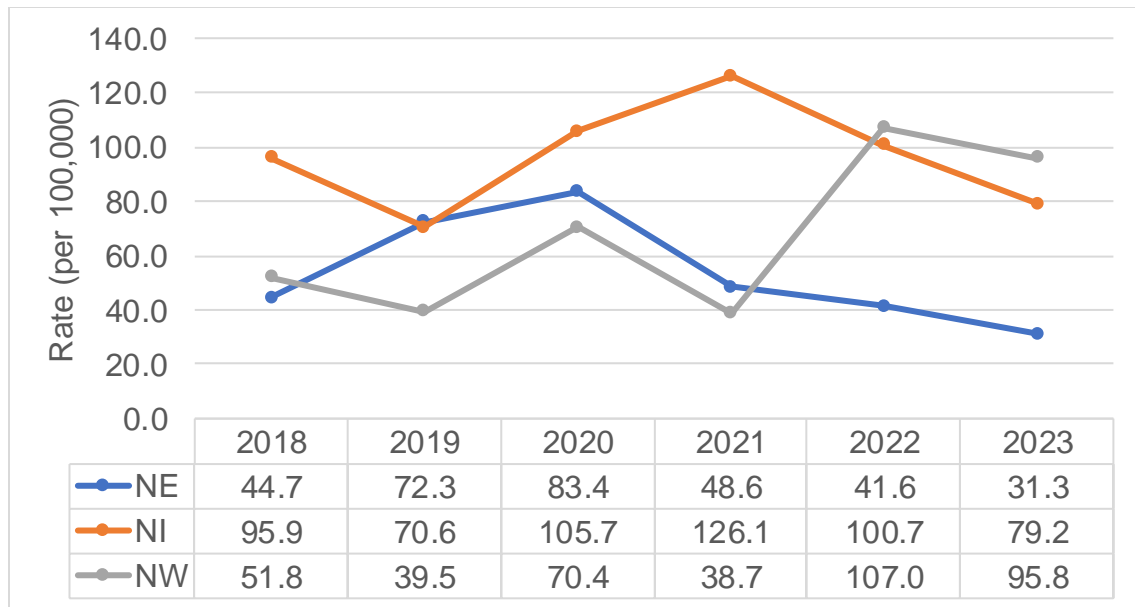


Figure 5. Crude incidence rates of gonorrhea by HSDA, NH; 2018-2023.

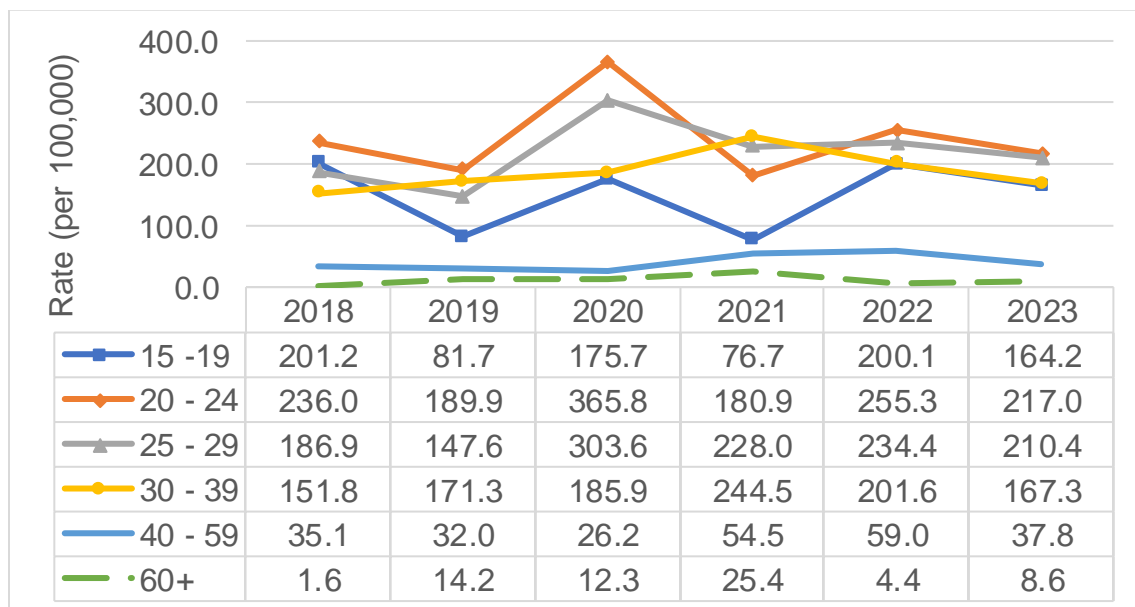


Figure 6. Age-specific incidence rates of gonorrhea, NH; 2018-2023.

* data for persons <15 suppressed

Hepatitis C

Hepatitis C virus infection (HCV) is a liver disease which can lead to severe complications such as cancer and cirrhosis without treatment. Acute HCV infections can occur without symptoms, or with non-specific symptoms such as fatigue and muscle pain, that can make HCV difficult to diagnose. Hepatitis C is passed through blood-to-blood contact such as sharing needles, blood transfusions, or sexual contact. HCV can be treated with anti-viral medications.

HCV infections have been declining in NH. Between 2018 and 2023, the number of new incidences of chronic HCV was nearly halved from 149 to 76. Male cases outnumber female cases by two-to-one and are also slightly older (Table 4). Between 2018 and 2023 incidence rates decreased by 46% and 58% among males and females, respectively (Figure 7). Rates in NH are generally similar to BC.

Incidence rates in the NE and NI HSDAs decreased by 57% and 56% between 2018 and 2023, respectively; however, rates in the NW only decreased by 32% (Figure 8). Since 2018, rates of HCV decreased among all age groups except for those under the age of 20 (Figure 9). That age group has seen a slow increase in rates since ~2019-2020. Similarly, incidence of HCV has increased among those aged 20 to 29 since ~2021-2022.

Table 4. Chronic HCV summary data, NH; 2018-2023.

	2023			2018-2022 Avg.		
	Males	Females	Total	Males	Females	Total
Cases # (%)	49 (64.5)	27 (35.5)	76	68 (64.5)	41 (35.5)	109
Crude Rate*	31.0	17.8	24.6	44.4	27.8	36.3
Avg. Age	46.9	42.2	45.2	50.5	44.2	48.2
Age Range	22 – 85	19 – 70	19 – 85	20 – 83	0 – 84	0 – 84

* per 100,000

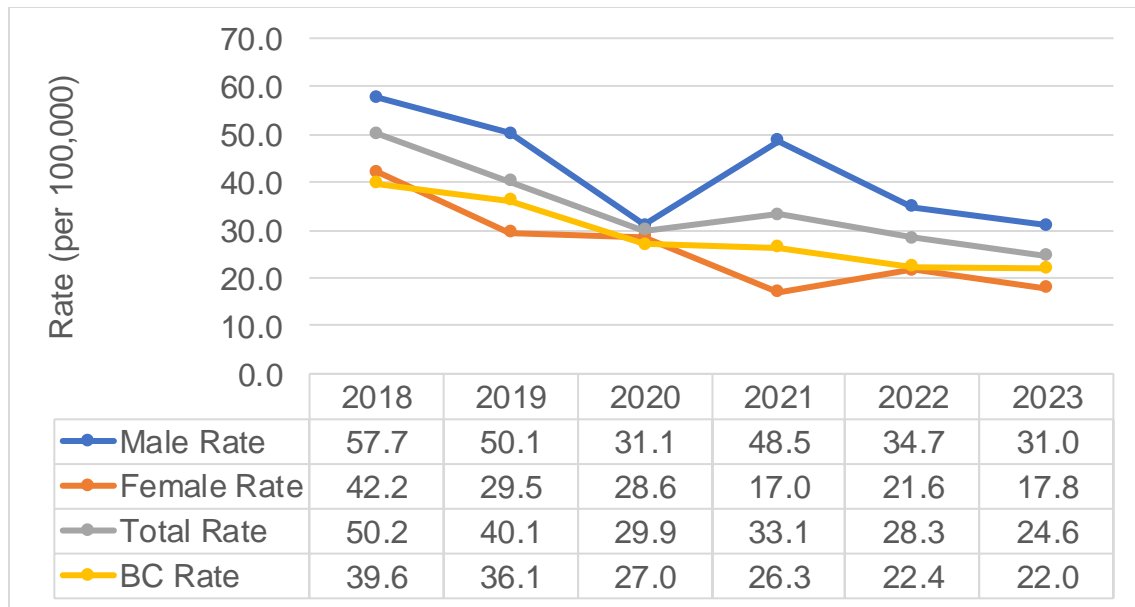


Figure 7. Crude incidence rates of HCV by sex, NH and BC; 2018-2023.

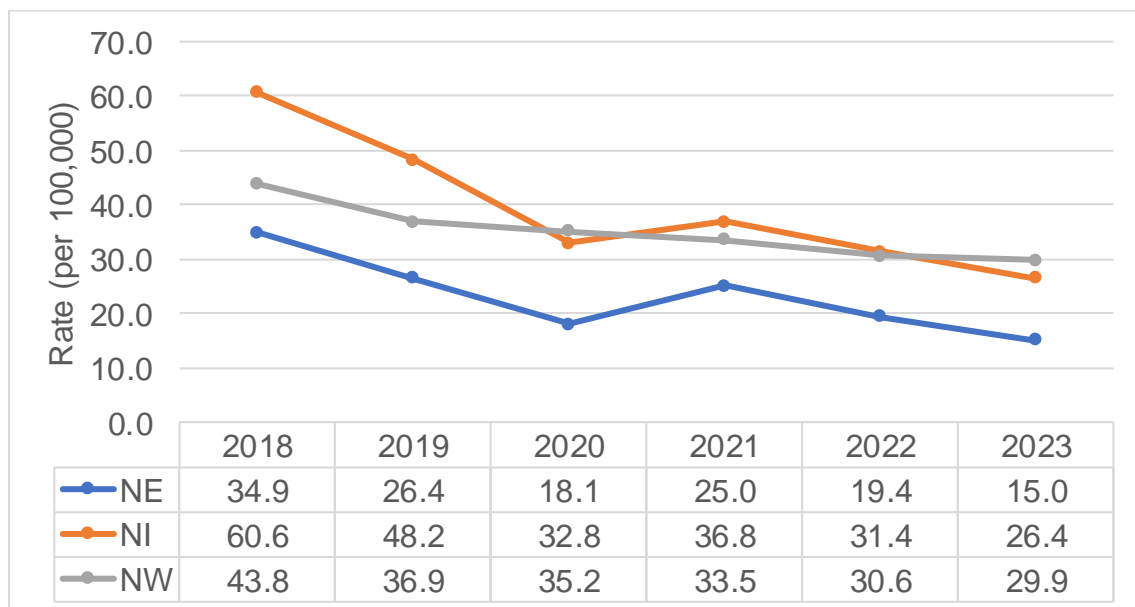


Figure 8. Crude incidence rates of HCV by HSDA, NH; 2018-2023.

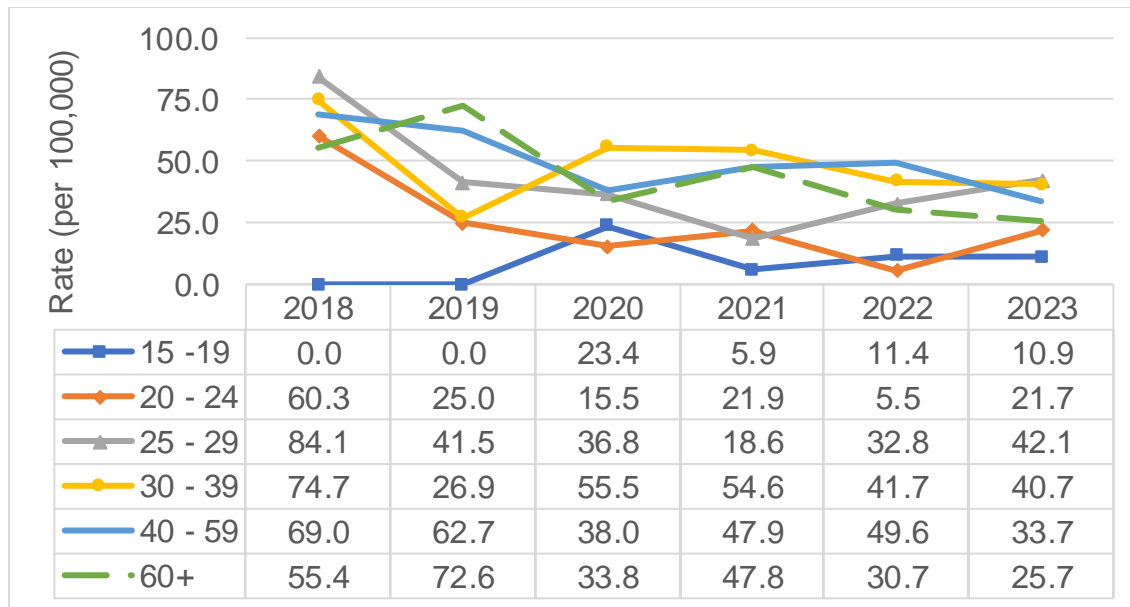


Figure 9. Age-specific incidence rates of HCV, NH; 2018-2023.

* data for persons <15 suppressed

Syphilis

Syphilis infections are caused by the bacteria *Treponema pallidum* and can be treated with antibiotics. Syphilis infections occur in stages with different symptoms occurring in each stage (Table 4). Like other STI/BBIs, pregnant women can pass on syphilis infections during pregnancy or delivery and should therefore be screened for infections. Congenital syphilis can have serious implications on the health of the infant, including prematurity, low birthweight, stillbirth, and perinatal death.

Table 5. Syphilis staging.

Stage	Time to Symptoms*	Symptoms / Complications
Primary	3 – 90 days	Painless sore where infection entered body
Secondary	14 – 90 days	Non-itchy rash anywhere on body
Latent	>90 days; Early latent: infection occurred within past year	Damage to brain, heart and other organs; Neurosyphilis; Infertility

* after sexual contact

Syphilis infections have seen a marked rise in BC and NH. In NH, the increase began in 2022. In addition, the distribution of cases between males and females began to change significantly. Prior to 2022, the majority of infections occurred among males (predominantly among populations of men who have sex with men); females now make up a small majority of cases (Table 6). In addition, where the gender of the partner is known/not missing, heterosexual couples make up the majority of cases in NH (BCCDC: Syphilis Indicators 2024 Q2 – See Data Sources). Between 2021 and 2022 the incidence rate increased 5.6X; the rate increase in females was even greater at 9.1X compared to 4.2X in males (Figure 10). Rates doubled again among both sexes between 2022 and 2023. Until 2021, rates of syphilis were lower in NH compared to BC; however, as of 2023, the rate in NH was 2.5X higher than BC.

Case volumes and incidence rates were highest in 2023 in the NI; however, the rate *increase* was greatest in the NW which increased 19.0X between 2021 and 2023, from 3.9 cases per 100,000 to 73.4 cases per 100,000 (Figure 11). The increases in rates of syphilis were largest among persons aged 25 through 39, followed by those aged 20 to 24 (Figure 12). Since 2021, increased rates were seen in all age groups.

Table 6. Syphilis summary data, NH; 2018-2023.

	2023			2018-2022 Avg.		
	Males	Females	Total	Males	Females	Total
Cases # (%)	138 (47.9)	150 (52.1)	288	24 (60.0)	16 (40.0)	40
Crude Rate*	87.4	99.1	93.1	15.5	10.8	13.2
Avg. Age	38.9	30.8	34.7	41.8	31.7	37.7
Age Range	0 – 73	16 – 64	0 – 73	20 – 85	0 – 69	0 – 85

* per 100,000

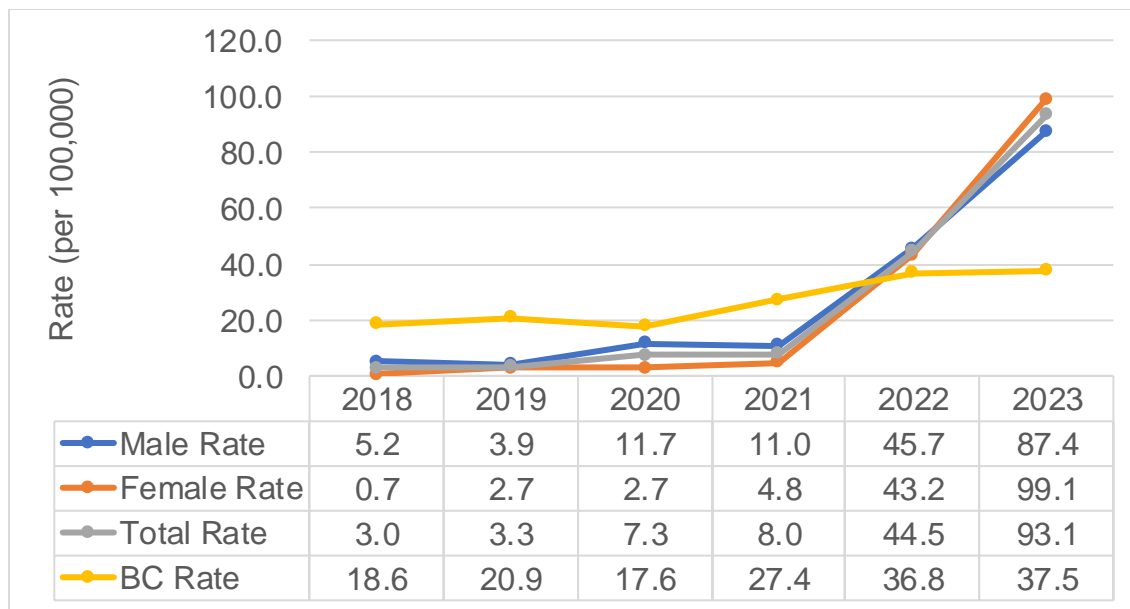


Figure 10. Crude incidence rates of syphilis by sex, NH and BC; 2018-2023.

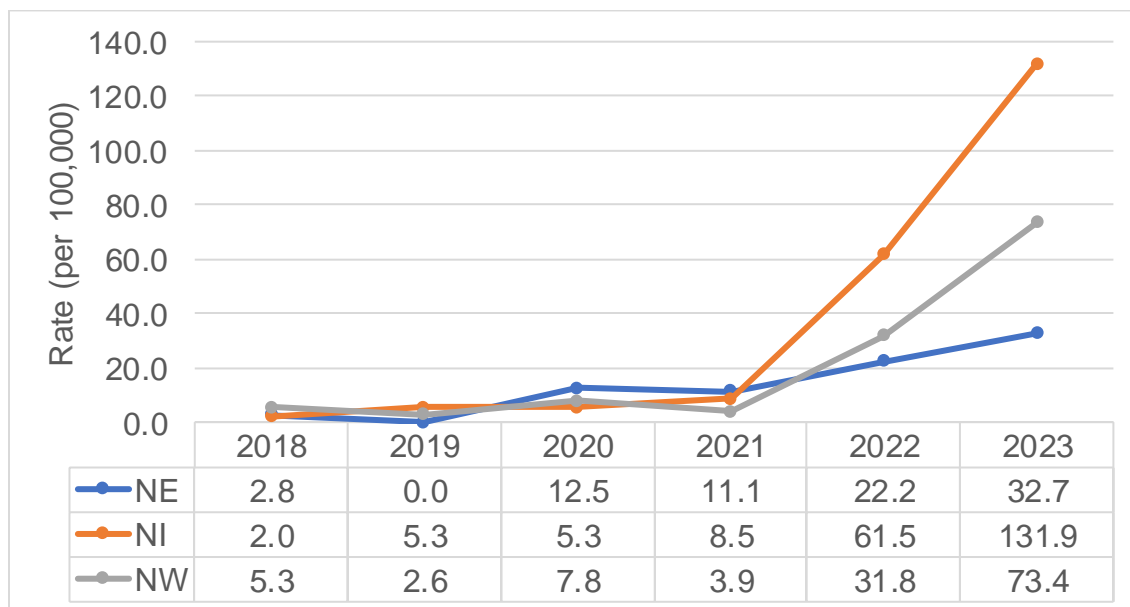


Figure 11. Crude incidence rates of syphilis by HSDA, NH; 2018-2023.

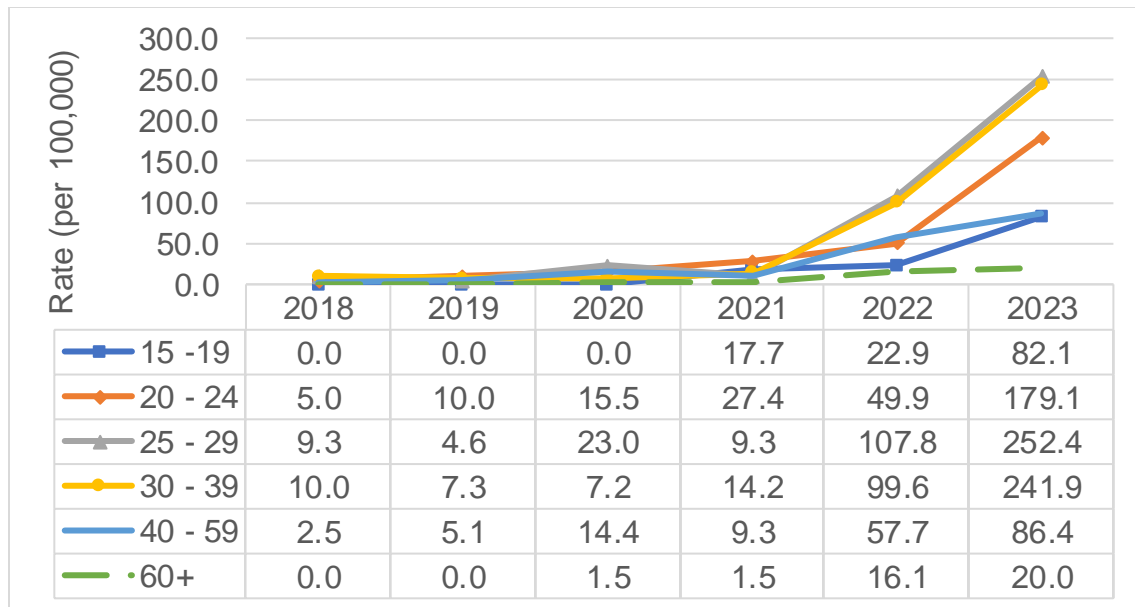


Figure 12. Age-specific incidence rates of syphilis, NH; 2018-2023.

* data for persons <15 suppressed

Technical Notes

Data Sources

BC Rates: BCCDC Communicable Disease Dashboard. Retrieved October 2024. Available: https://bccdc.shinyapps.io/communicable_disease_dashboard/; Syphilis Indicators 2024 Q2. Available: <http://www.bccdc.ca/health-info/diseases-conditions/syphilis/more-resources>

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Definitions

Crude Rate: the crude rate is the total number of events that occur in a population in a given time frame divided by the total population in that given time frame. Often these figures are very small and so are multiplied by 100,000 to make them more meaningful.

References

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BCCDC. Health Info. Diseases and Conditions: Hepatitis C. Available: <http://www.bccdc.ca/health-info/diseases-conditions/hepatitis-c>

BCCDC. Health Info. Diseases and Conditions: Syphilis. Available: <http://www.bccdc.ca/health-info/diseases-conditions/syphilis>

Appendix A: List of Reportable Communicable Diseases in British Columbia

As per Health Act Communicable Disease Regulation B.C. Reg. 4/83 O.C. 6/83 includes amendments up to B.C. Reg. 380/2012, March 18, 2013

Schedule A: Reportable by all sources, including Laboratories

Acquired Immune Deficiency; Syndrome;
Anthrax;
Botulism;
Brucellosis;
Carbapenemase Producing Organism (CPO);
Chancroid;
Cholera;
Congenital Infections:
• Toxoplasmosis Rubella
• Cytomegalovirus
• Herpes Simplex
• Varicella-Zoster
• Hepatitis B Virus
• Congenital Rubella Syndrome
• Listeriosis and any other congenital infection;
Creutzfeldt-Jacob Disease;
Cryptococcal infection;
Cryptosporidiosis;
Cyclospora infection;
Diffuse Lamellar Keratitis;
Diphtheria;
Encephalitis;
Foodborne illness: All causes;
Gastroenteritis epidemic: Bacterial, Parasitic, Viral;
Genital Chlamydia Infection;
Giardiasis;
Gonorrhea – all sites;
Group A Streptococcal Disease, Invasive;
H5 and H7 strains of the Influenza virus;

Haemophilus influenzae Disease,
Hantavirus Pulmonary Syndrome;
Hemolytic Uremic Syndrome (HUS);
Hemorrhagic Viral Fevers;
Hepatitis Viral:
• Hepatitis A
• Hepatitis B
• Hepatitis C
• Hepatitis E
• Other Viral Hepatitis;
Human Immunodeficiency Virus; Infection
Leprosy;
Lyme Disease;
Measles Meningitis: All causes
Meningococcal Disease;
Mumps;
Neonatal Group B Streptococcal Infection;
Paralytic Shellfish Poisoning (PSP);
Pertussis (Whooping Cough);
Plague;
Poliomyelitis;
Rabies;
Reye's Syndrome;
Rubella;
Severe Acute Respiratory Syndrome (SARS);
Smallpox;
Streptococcus pneumoniae Infection, Invasive;
Syphilis;
Tetanus;
Transfusion Transmitted Infection;
Tuberculosis;
Tularemia;

Typhoid Fever and Paratyphoid Fever;
Waterborne Illness All causes;
West Nile Virus Infection;
Yellow Fever.

**Schedule B: Reportable by
Laboratories only**

All specific bacterial and viral stool
pathogens:
Campylobacter, Salmonella, Shigella,
Yersinia
Amoebiasis;
Borrelia burgdorferi infection;
Cerebrospinal Fluid Micro-organisms;
Chlamydial Diseases, including
Psittacosis;
Creutzfeldt-Jacob Disease;
Cryptococcal Infection;
Herpes Genitalis;
Human Immunodeficiency Virus
Infection;
Influenza virus, including the H5 and H7
strains;
Legionellosis;
Leptospirosis;
Listeriosis;
Malaria;
Q Fever;
Rickettsial Diseases;
Severe Acute Respiratory Syndrome
(SARS);
Smallpox;
Tularemia;
West Nile Virus Infect