New Brunswick Communicable Disease

2018 Annual Surveillance Report

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1. Introduction

The reporting of notifiable diseases and events in New Brunswick (NB) is governed by the NB *Public Health Act*[1] (PHA). The *PHA* stipulates the duties and requirements of health professionals, laboratories and institution operators with respect to the reporting of notifiable diseases and events, as well as the reporting requirements within specified timeframes.

Surveillance systems, both passive and enhanced, are in place to capture information on notifiable communicable diseases and events in order to facilitate monitoring of trends, to detect aberrations and outbreaks, as well as for reporting, guiding response strategies and evaluating the impact of these strategies to inform policies and programs.

As per the *PHA*, NB Public Health statistics are provided for 7 geographical areas called "Health Regions"[2]. These areas correspond to Regional Health Authorities (RHAs) as follows: Horizon Health Network (Health Regions 2, 3, and 7); Réseau de Santé Vitalité (Health Regions 1, 4, 5, and 6). See Figure 1 for an overview of the Health Regions.

The purpose of this report is to provide a summary of notifiable diseases and events that were reported in NB in 2018 and compare trends with the previous five years, 2013-2017.

Figure 1. Map of Health Regions in New Brunswick

[1] Public Health Act (S.N.B. 1998, c. P-22.4). http://laws.gnb.ca/en/showfulldoc/cs/P-22.4//20181113

[2] Health Regions Regulation - Public Health Act. http://laws.gnb.ca/en/showdoc/cr/2009-141

2. Data Sources

- Confirmed case reports were obtained from the 7 NB Public Health regional offices through the Reportable Disease Surveillance System (RDSS). All cases were classified according to the date they were first reported to the Health Region.
- Data for enteric diseases were obtained through the enteric database maintained within the Office of the Chief Medical Officer of Health (OCMOH). Outbreak summaries of enteric diseases are also notifiable since January 2017 as part of the Outbreak Summaries module within the Canadian Network for Public Health Intelligence. Each Health Region reports its own outbreaks as part of the weekly enteric extracts.
- Data for invasive meningococcal disease (IMD), invasive pneumococcal disease (IPD), invasive group A streptococcal disease (iGAS), measles, mumps, legionellosis, tuberculosis (TB), sexually transmitted and bloodborne infections (except Chamydia) and Lyme disease were obtained through enhanced surveillance systems maintained by the OCMOH. The data are derived from forms specifically designed for each disease and completed by Public Health regional staff.
- Data for HIV and AIDS were obtained through the HIV/AIDS Case Report Surveillance System database.
- The denominators used to calculate provincial rates are population estimates from Statistics Canada, Demography Division, released March 2019.
- National disease rates for 2013 to 2017 were retrieved online on the Notifiable Diseases On-Line page at the Public Health Agency of Canada's (PHAC) website. National disease rates for 2018 were not available at the time of writing of this report.

3. Limitations

The numbers cited in this report reflect only confirmed cases that met the National Case Definitions and were reported to Public Health. As a result, the data may under-represent the true number of infected individuals in the population. This is particularly relevant for diseases where many infected individuals remain asymptomatic, and diseases that have a wide clinical spectrum. It should be noted that persons experiencing severe illness are more likely to present to a healthcare provider.

Also, numbers and rates presented in this report are based on 2018 notifications received as of June 2019. Some of these figures may change somewhat in future reports due to delays in reporting. The national data provided by the PHAC being used in this report may also be subject to minor changes in future reports for similar reasons.

Please use caution when interpreting age-specific, sex-specific or region-specific annual incidence rates for some diseases, as the relatively small number of cases can lead to major fluctuations in rates from year–to-year.

4. 2018 Highlights

4.1. Main Disease Trends

- **Vaccine-Preventable Diseases:**
  In comparison to the previous 5-year averages, incidence rates were lower for pertussis, and higher for *Haemophilus influenzae*, IMD, IPD and varicella. Eight cases of mumps were reported. No cases of measles, rubella, diphtheria, tetanus or poliomyelitis were reported.

- **Enteric, Food and Waterborne Diseases:**
  Incidence rates for cryptosporidiosis, salmonellosis, shigellosis and vibrio species were higher than the previous 5-year averages whereas incidence rates for giardiasis and yersiniosis were lower. Incidence rates for *E. coli* O157:H7, campylobacteriosis, listeriosis, hepatitis A and typhoid fever were comparable to the previous 5-year averages.

- **Sexually Transmitted and Bloodborne Infections:**
  Incidence rates of chlamydia, gonorrhea, acute hepatitis B, hepatitis C and HIV infections were higher compared to the previous 5-year averages, whereas the incidence rate was lower for infectious syphilis.

- **Vectorborne and Zoonotic Diseases:**
  In comparison to the previous 5-year average, the incidence rate of Lyme disease was higher, with the majority of cases (85%) being reported in Health Region 2. For malaria, the incidence rate was lower than the previous 5-year average. There was one case of Zika reported and no cases of Q-fever, leptospirosis, tularemia, yellow fever, West Nile Virus or human rabies reported.

- **Diseases Transmitted via the Respiratory Route and Direct Contact:**
  In comparison to the previous 5-year averages, incidence rates for legionellosis and iGAS were higher and the incidence rate for tuberculosis was slightly lower. There was one case of group B streptococcal infection of the newborn reported.

4.2. Provincial Outbreaks

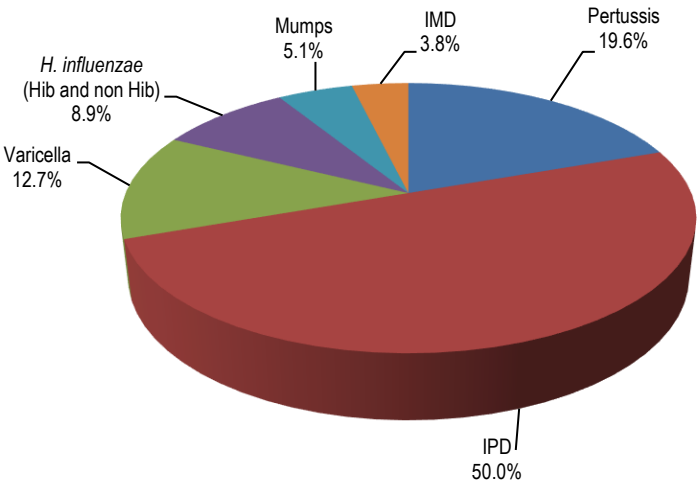
- No multi-regional or provincial outbreaks were declared in 2018.

5. Vaccine-Preventable Diseases

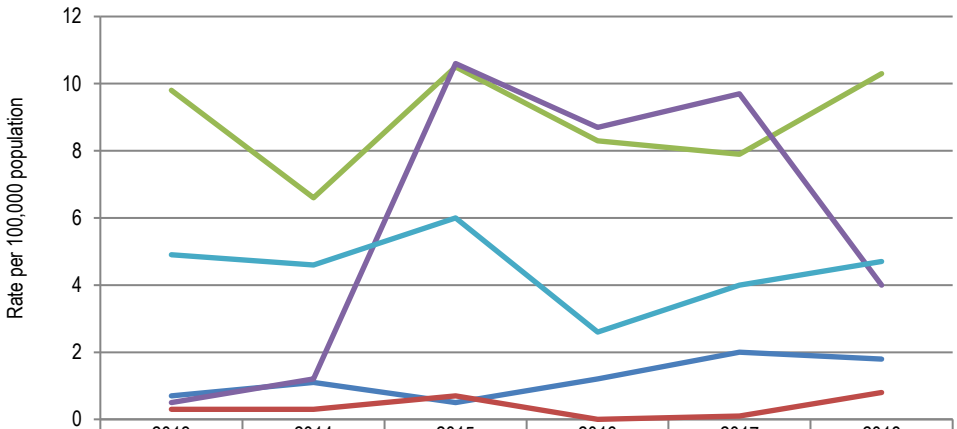
Vaccine-preventable diseases are infectious diseases for which effective preventive vaccines exist. Early immunization of infants and completion of the full schedule of vaccinations up to and through adulthood contributes to reducing the incidence and burden of these diseases.

For information on the NB Routine Immunization Schedule, please refer to the New Brunswick Immunization Guide.

Graph 1. Percent Distribution of Vaccine-preventable Diseases in New Brunswick, 2018



Graph 2. Incidence Rates of Selected Vaccine-preventable Diseases in New Brunswick per 100,000 population, 2013-2018



	2013	2014	2015	2016	2017	2018
H. influenzae (Hib and non Hib)	0.7	1.1	0.5	1.2	2.0	1.8
IMD	0.3	0.3	0.7	0.0	0.1	0.8
IPD	9.8	6.6	10.5	8.3	7.9	10.3
Pertussis	0.5	1.2	10.6	8.7	9.7	4.0
Varicella	4.9	4.6	6.0	2.6	4.0	4.7

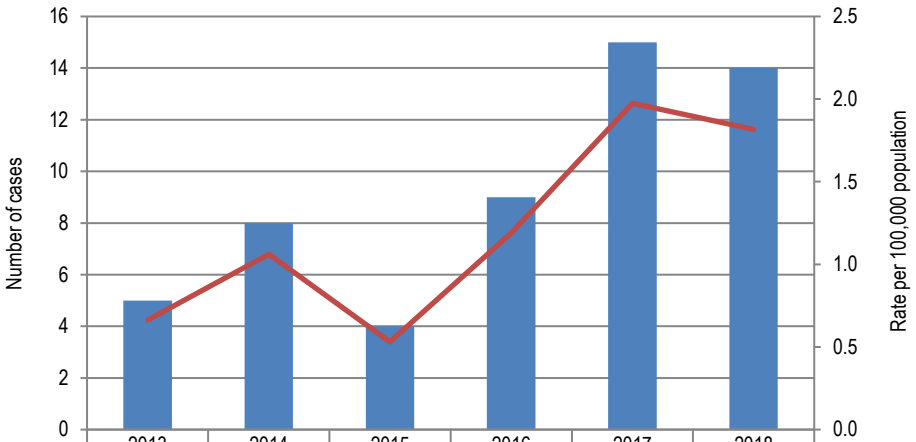
5.1. *Haemophilus influenzae* type b and non-type b

Only *Haemophilus influenzae* type b (Hib) is preventable by vaccine.

In NB, subtype reporting is not consistently available for *Haemophilus influenzae*. As a result, this report describes all *Haemophilus influenzae* cases whether type b or non-b, including untypable strains. National rates are not presented as they account for Hib cases only.

In 2018, a total of 14 cases (9 females, 5 males) of *Haemophilus influenzae* were reported to Public Health, with an incidence rate of 1.8 cases per 100,000 population. During the previous five years, an average of 8 cases were reported each year, with an average annual incidence rate of 1.1 cases per 100,000 population.

Graph 3. Number of Reported Cases of *Haemophilus influe*nzae Infections and Incidence Rates per 100,000 Population, New Brunswick, 2013-2018



	2013	2014	2015	2016	2017	2018
H. influenzae (Hib and non Hib) cases	5	8	4	9	15	14
H. influenzae (Hib and non Hib) rates	0.7	1.1	0.5	1.2	2.0	1.8

In 2018, *Haemophilus influenzae* cases were reported in all age groups, except for the 0-4 years. The majority (71%) of cases were among the 60+ years age group which is consistent with the previous five years. Cases were reported in every Health Region, except for Region 5, and were distributed evenly with 2 to 3 cases each. Information on strain type was available for 9 cases, none of which were type b. The increased number of reported cases of *Haemophilus influenzae* in 2017 and 2018 is likely due to an increase in reporting of non-typable strains.

The annual differences in *Haemophilus influenzae* incidence rate should be interpreted with caution because of the small number of cases involved that can lead to major fluctuations in the rate from year to year.

Publicly funded *Haemophilus influenzae* type b immunization (DTaP-IPV-Hib) is offered at ages 2, 4, 6, and 18 months.

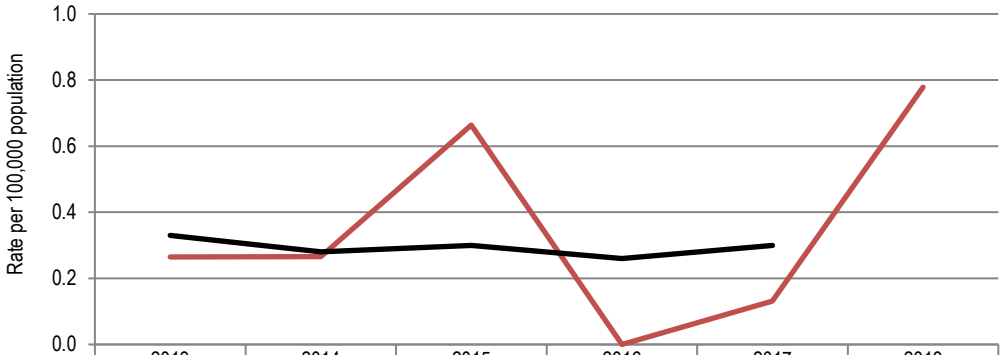
5.2. Influenza

Influenza activity in NB is being monitored throughout the year. However, the reporting period usually begins later in the fall and ends late spring. The 2018-2019 Summary Report of influenza activity in NB can be found on the OCMOH's Influenza Surveillance Reports webpage.

5.3. Invasive Meningococcal Disease

In 2018, a total of 6 cases (4 females, 2 males) of IMD were reported to Public Health, with an incidence rate of 0.8 case per 100,000 population. During the previous five years, an average of 2 cases were reported each year which amounts to an average annual incidence rate of 0.3 case per 100,000 population. Overall, the incidence rate for NB was lower than or equal to the national rate based on the five years of available national data, with the exception of 2015 when the NB rate was higher than that for Canada.

Graph 4. Number of Reported Cases of Invasive Meningococcal Disease and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of NB Cases	2	2	5	0	1	6
NB Rates	0.3	0.3	0.7	0.0	0.1	0.8
Canada Rates	0.3	0.3	0.3	0.3	0.3	

Annual differences in the IMD incidence rate should be interpreted with caution because of the small number of cases involved that can lead to major rate fluctuations from year to year.

All reported IMD cases from 2013 to 2018 were serogroup B, with the exception of one serogroup Y. A vaccine against meningococcal serogroup B disease was first introduced in Canada in 2014, but it is not yet routinely administered as per the recommendations of the National Advisory Committee for Immunization.

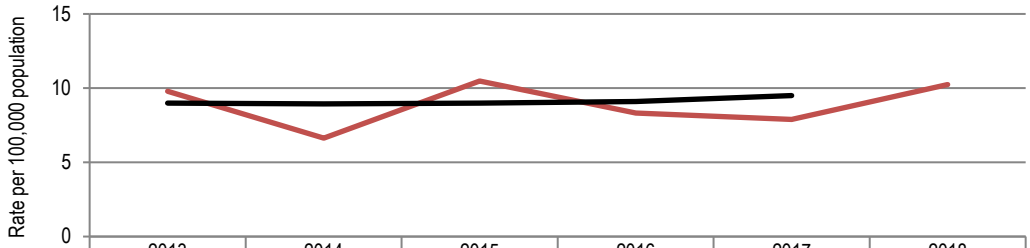
Since the introduction of the meningococcal C vaccine into the routine schedule at one year of age and the adolescent catch up program in 2005, the incidence of serogroup C IMD has steadily decreased, the last reported case to Public Health going back to 2008.

Publicly-funded immunization against meningococcal disease is offered at 12 months (Meningococcal conjugate C) and in grade 9 (Meningococcal conjugate ACYW-135).

5.4. Invasive Pneumococcal Disease

In 2018, a total of 79 cases (36 females, 43 males) of IPD were reported to Public Health, with an incidence rate of 10.3 cases per 100,000 population. During the previous five years, an average of 65 cases were reported each year for an average annual incidence rate of 8.6 cases per 100,000 population. Overall, the average annual incidence rate was comparable to the national rate.

Graph 5. Number of Reported Cases of Invasive Pneumococcal Disease and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of NB Cases	74	50	79	63	60	79
NB Rates	9.8	6.6	10.5	8.3	7.9	10.3
Canada Rates	9.0	8.9	9.0	9.1	9.5	

During the period 2013 to 2018, annual IPD incidence rates were consistently higher in the less than one and the 65+ years age groups, except for 2017 and 2018 when rates were highest in the 1-4 and 65+ years age groups and no cases reported in the less than one year age group. The average annual incidence rate for the less than one and the 65+ age groups was 20.7 and 20.1 cases per 100,000 population, respectively.

New Brunswickers that were 65 years and older accounted for 43% of all reported cases in 2018. The most prevalent IPD serotype in this age group was 9N; about 32% (n=11) with available information on their vaccination status and vaccine type (n=34) were vaccinated with either the 23-valent (9 cases) or the 13-valent (1 case) pneumococcal vaccine, or both (1 case); vaccine preventable serotypes accounted for 60% of all serotypes among non-vaccinated cases in this age group (n=10) compared to 45% among those vaccinated (n=5).

In 2018, IPD incidence rates were higher in all Health Regions compared to 2017, with the exception of Regions 3 and 6. Region-specific rates should be interpreted with caution because of the small numbers involved that can lead to major fluctuations in rate from year to year.

Publicly funded IPD immunization is offered at 2, 4, and 12 months of age (Pneumococcal conjugate- Prevnar-13) and for persons 65 years of age and older (Pneumococcal polysaccharide- Pneumo-23).

5.5. Measles

No cases of measles were reported to Public Health in 2018. Sustained transmission of measles in Canada has been eliminated as a result of current immunization schedules and high coverage rates throughout the country; however, some outbreaks are still being reported.

Publicly funded measles immunization (MMRV) is offered during childhood at 12 and 18 months of age.

5.6. Mumps

In 2018, a total of 8 cases (1 female, 7 males) of mumps were reported to Public Health, 4 of which were linked to a mumps outbreak in Region 1 in a post-secondary institution during the month of April. During the previous five years, there were 11 confirmed cases reported in NB: 5 cases in 2013 of which 3 were linked to the same cluster, 2 cases in 2014, one in 2016 and 3 cases in 2017.

Publicly funded mumps immunization (MMRV) is offered at 12 and 18 months of age.

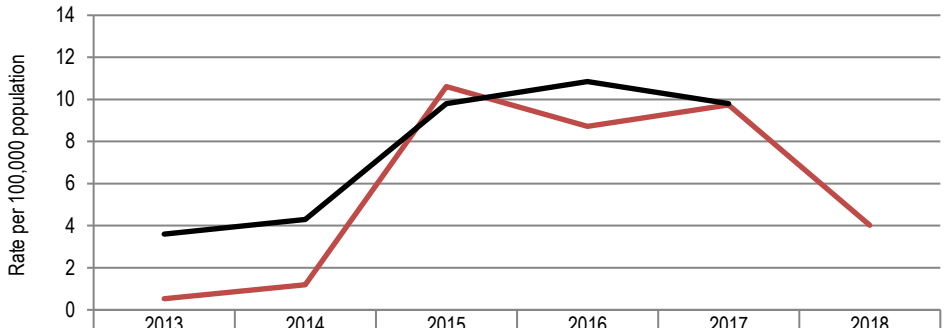
5.7. Pertussis

In 2018, a total of 31 cases (15 females, 16 males) of pertussis were reported to Public Health, with an incidence rate of 4.0 cases per 100,000 population. During the previous five years, an average of 47 cases were reported each year, with an average annual incidence rate of 6.2 cases per 100,000 population. There were no regional pertussis outbreaks declared in 2018. This could be the main attribute for the decrease in the number of reported cases compared to the 5-year average.

The majority of reported cases (47%) and the highest incidence rate (8.0 cases per 100,000 population) were in Region 2. The highest age-specific incidence rate was in the less than one year age group (45.0 cases per 100,000 population; 3 cases), followed by the 10-14 age group (15.8 per 100,000 population; 6 cases).

Information on vaccination was available for 14 cases; 2 cases were not vaccinated (both were children, i.e., 19 years old or less), 6 cases were partially vaccinated (4 adults and 2 children), and 6 were deemed up-to-date with their immunization (all children).

Graph 6. Number of Reported Cases of Pertussis and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of NB Cases	4	9	80	66	74	31
NB Rates	0.5	1.2	10.6	8.7	9.7	4.0
Canada Rates	3.6	4.3	9.8	10.9	9.8	

Publicly funded pertussis immunization is offered at 2, 4, 6, and 18 months (DTaP-IPV-Hib), 4 years (Tdap-IPV), grade 7 (Tdap) and once in adulthood (Tdap).

5.8. Rubella

No cases of rubella were reported in 2018 as well as in the previous five years (2013-2017).

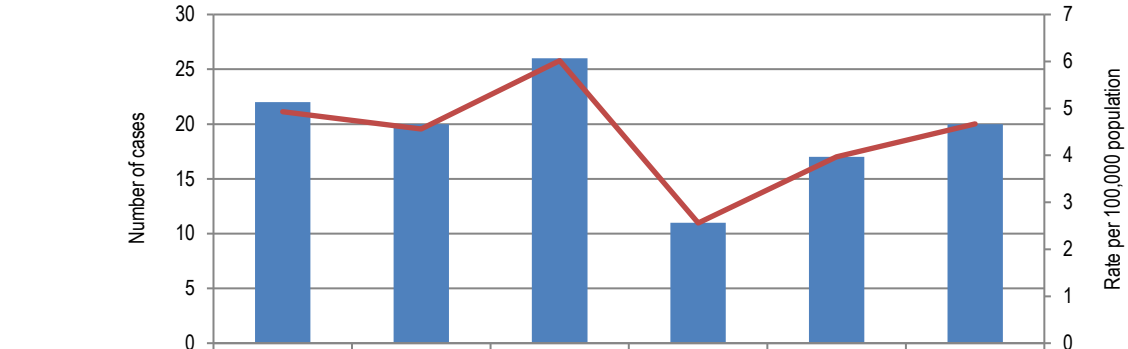
Publicly funded rubella immunization (MMRV) is offered during childhood (12 and 18 months).

5.9. Varicella

Varicella is grossly under-reported to Public Health as it is mostly clinically diagnosed with no laboratory confirmation. Due to reporting inconsistencies across the Health Regions and the fact that most cases in adults 50 years and older present with shingles (herpes zoster), this report focuses only on reported cases in those aged 0 to 49 years.

In 2018, a total of 20 laboratory-confirmed cases (7 females, 13 males) of varicella were reported to Public Health, with an incidence rate of 4.7 cases per 100,000 population. During the previous five years, an average of 19 cases were reported each year, with an average annual incidence rate of 4.4 cases per 100,000 population. Incidence rates were somewhat stable in 2013 and 2014, then increased in 2015 as a result of several elementary school outbreaks reported in Region 3, followed by a sharp decrease in 2016 and another increase in 2017.

Graph 7. Number of Reported Cases of Varicella and Incidence Rates per 100,000 Population, New Brunswick[3], 2013-2018



	2013	2014	2015	2016	2017	2018
Number of Cases	22	20	26	11	17	20
NB Rates	4.9	4.6	6.0	2.6	4.0	4.7

Publicly funded varicella immunization (MMRV) is offered during childhood at 12 and 18 months of age. The two-dose varicella vaccine schedule started in 2011 for the 2009 birth cohort onwards. In response to the school outbreaks in 2015, a catch-up program for the second dose was introduced in the 2015/16 school year for grade 9 and 10 students. The vaccine will continue to be offered to grade 9 students through the 2022/23 school year.

5.10. Other vaccine preventable diseases

No cases of diphtheria, tetanus or poliomyelitis were reported between 2013 and 2018. Publicly funded immunizations are provided during childhood (DTaP-IPV-Hib, Tdap-IPV, Tdap), adolescence (Tdap) and adulthood (Tdap, Td).

For further details on case counts and rates of different vaccine preventable diseases, please refer to Appendix 2.

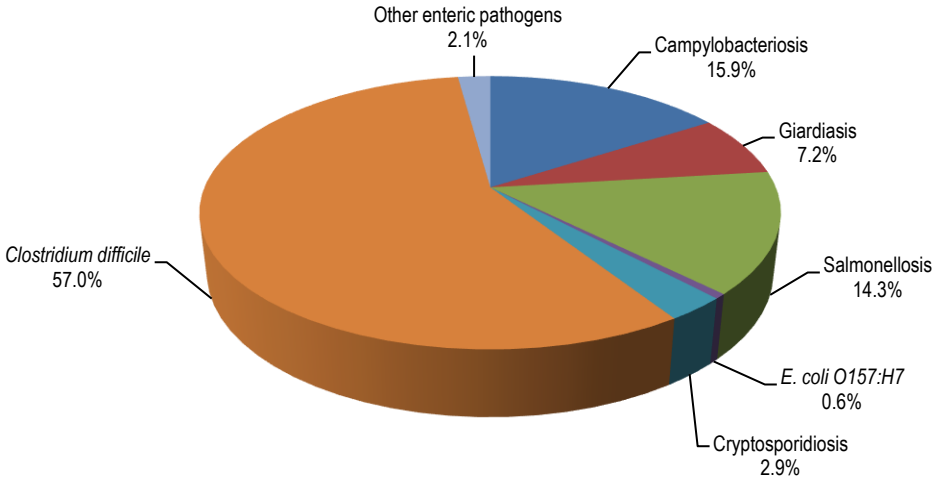
[3] No national comparisons available as not all provinces report varicella cases in any given year, which leads to high fluctuation in rates from year to year.

6. Enteric, Food and Waterborne Diseases

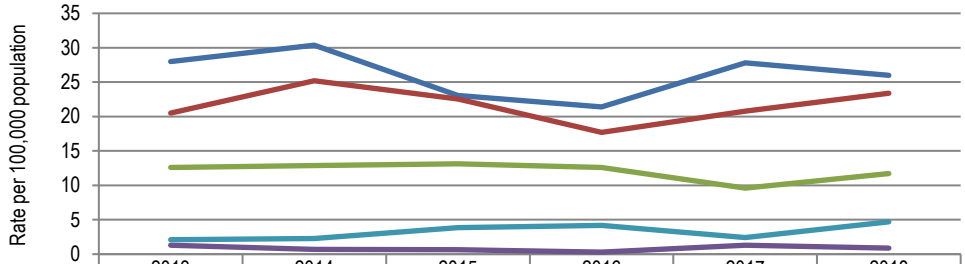
Enteric diseases are for the most part associated with food. However, cases are sometimes linked to contaminated water, secondary transmission from humans and direct contact with animals, including exotic pets.

In 2018, *Clostridium difficile* infections (CDI) accounted for the largest percentage of enteric, food and waterborne diseases reported in NB, followed by campylobacteriosis, salmonellosis and giardiasis.

Graph 8. Percent Distribution of Enteric, Food and Waterborne Diseases in New Brunswick, 2018



Graph 9. Incidence Rates of Selected Enteric, Food and Waterborne Diseases per 100,000 Population, New Brunswick, 2013-2018

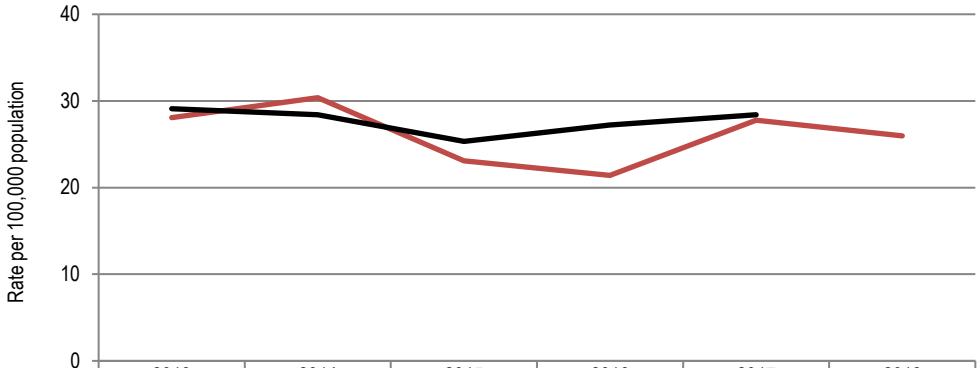


	2013	2014	2015	2016	2017	2018
Campylobacteriosis	28.0	30.4	23.1	21.4	27.8	26.0
Salmonellosis	20.5	25.2	22.6	17.7	20.8	23.4
Giardiasis	12.6	12.9	13.1	12.6	9.6	11.7
E. coli O157	1.3	0.7	0.7	0.3	1.3	0.9
Cryptosporidiosis	2.1	2.3	3.8	4.2	2.4	4.7

6.1. Campylobacteriosis

In 2018, a total of 200 cases (96 females, 104 males) of campylobacteriosis were reported to Public Health, with an incidence rate of 26.0 cases per 100,000 population. During the previous five years, an average of 198 cases were reported each year, with an average annual incidence rate of 26.1 cases per 100,000 population. Overall, the average annual incidence rate was lower than the national rate.

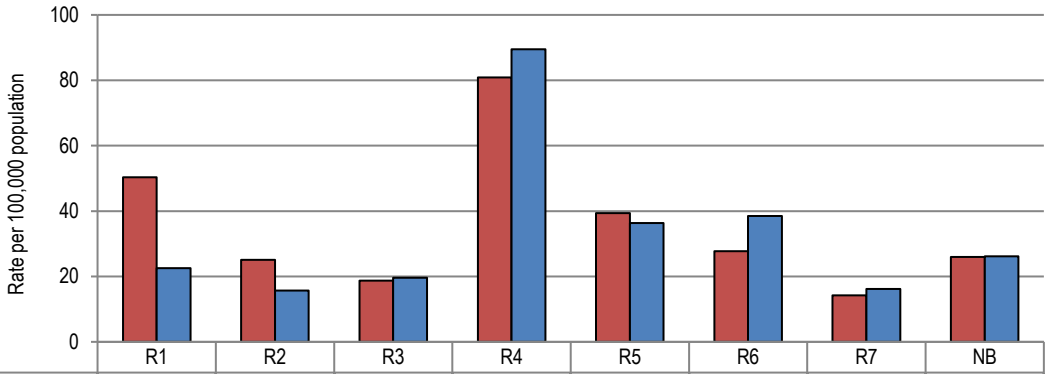
Graph 10. Number of Reported Cases of Campylobacteriosis and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of NB Cases	212	229	174	162	211	200
NB Rates	28.1	30.4	23.1	21.4	27.8	26.0
Canada Rates	29.1	28.4	25.3	27.2	28.4	

The highest incidence rate of campylobacteriosis in 2018 was in Region 4 (80.9 cases per 100,000 population), followed by Region 1 (50.3 cases per 100,000 population) and Region 5 (39.3 cases per 100,000 population). During the previous five years, the highest average incidence rate was again in Region 4, followed by Region 6 and Region 5, with 89.4, 38.5 and 36.4 cases per 100,000 population, respectively.

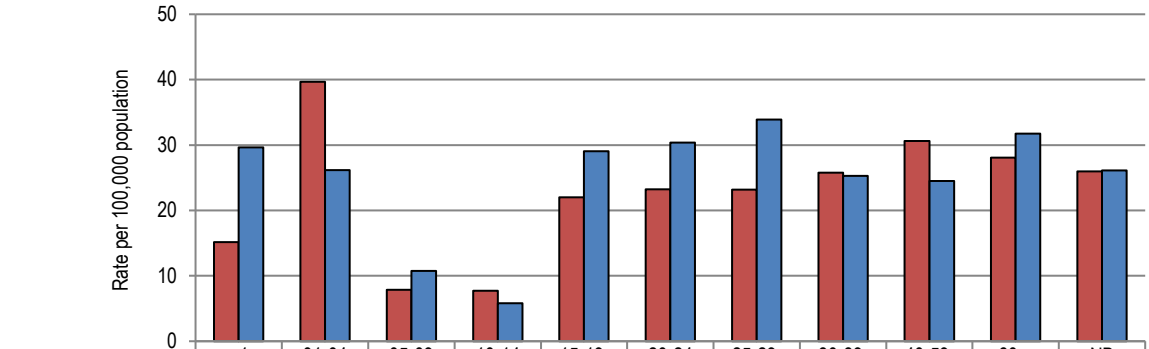
Graph 11. Incidence Rates of Campylobacteriosis per 100,000 Population, by Health Region, New Brunswick, 2018 and 2013-2017 5-year Averages



	R1	R2	R3	R4	R5	R6	R7	NB
2018	50.3	25.1	18.7	80.9	39.3	27.7	14.2	26.0
2013-2017 Averages	22.5	15.6	19.6	89.4	36.4	38.5	16.2	26.1

In 2018, the majority of reported cases of campylobacteriosis were in the 40-59 years age group (68 cases), followed by the 60+ (62 cases), with an incidence rate of 30.6 and 28.1 cases per 100,000 population, respectively. During the previous five years, the highest average annual incidence rate was in the 25-29 years age group, followed by the 60+, the 20-24 and the <1 year age groups, with 33.9, 31.8, 30.4 and 29.6 cases per 100,000 population, respectively.

Graph 12. Age-specific Incidence Rates of Campylobacteriosis per 100,000 Population, New Brunswick, 2018 and 2013-2017 5-year Averages



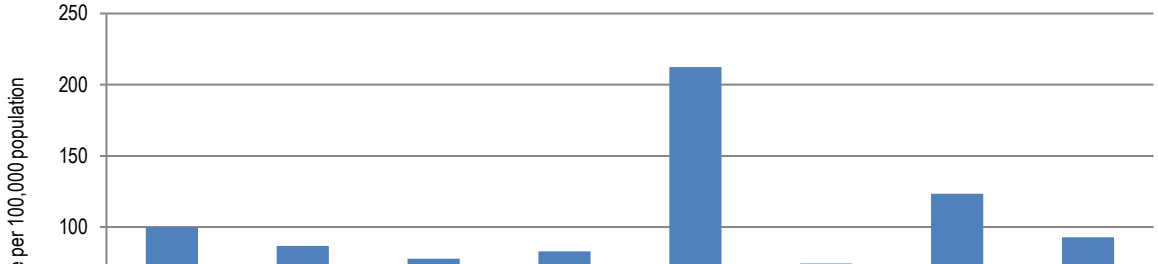
	<1	01-04	05-09	10-14	15-19	20-24	25-29	30-39	40-59	60+	NB
2018	15.2	39.7	7.8	7.7	22.0	23.2	23.2	25.8	30.6	28.1	26.0
2013-2017 Averages	29.6	26.2	10.8	5.8	29.1	30.4	33.9	25.3	24.5	31.8	26.1

6.2 *Clostridium difficile* infection

In 2018, there were 716 cases (416 females, 300 males) of CDI reported to Public Health, with an incidence rate of 92.9 cases per 100,000 population (females: 106.9; males: 78.7).

The largest number of reported cases was in Region 1 (218 cases), followed by Regions 2 and 3 (152 and 141 cases, respectively). However, the highest incidence rate of CDI was in Region 5 with 212.4 cases per 100,000 population, followed by Regions 7 and 1 with 123.3 and 99.7 cases per 100,000 population, respectively.

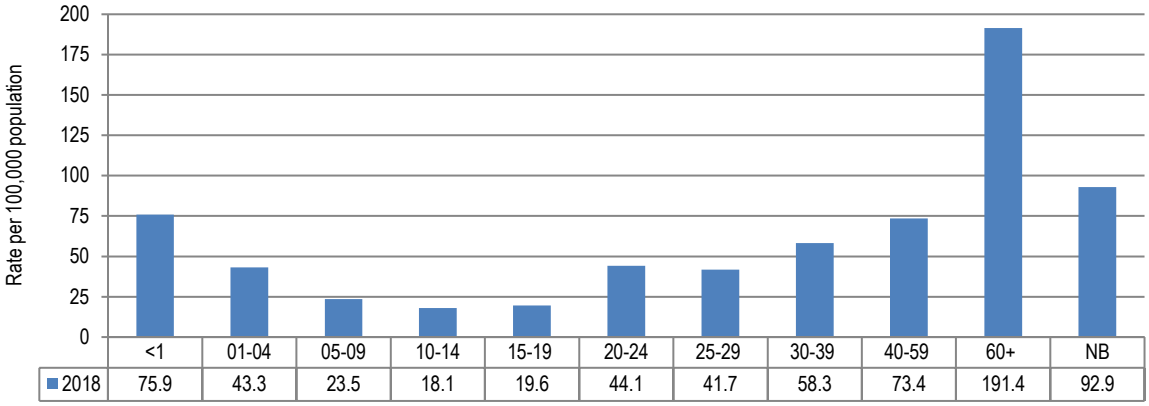
Graph 13. Incidence Rates of *Clostridium difficile* infection per 100,000 Population, by Health Region, New Brunswick, 2018



	R1	R2	R3	R4	R5	R6	R7	NB
2018	99.7	86.8	77.6	82.9	212.4	74.4	123.3	92.9

The majority of CDI cases reported were in the 60+ years age group (423 cases), followed by the 40-59 and the 30-39 years age groups (163 cases and 52 cases, respectively). However, the incidence rate was highest in the 60+ years age group (191.4 cases per 100,000 population), followed by the <1 and the 40-49 years age groups (75.9 and 73.4 cases per 100,000 population, respectively).

Graph 14. Incidence Rates of *Clostridium difficile* infection per 100,000 Population, by Age Group, New Brunswick, 2018

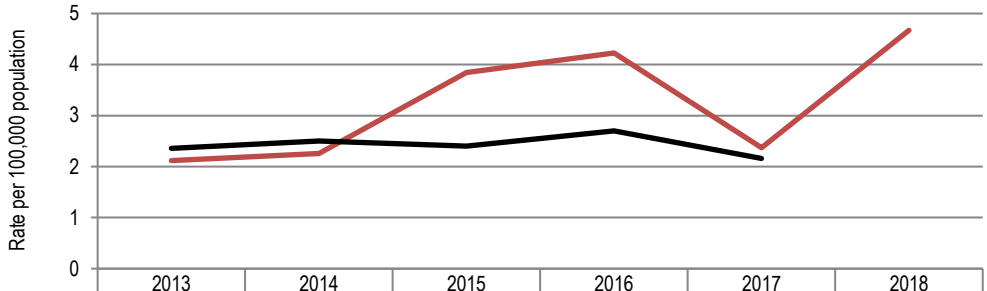


	<1	01-04	05-09	10-14	15-19	20-24	25-29	30-39	40-59	60+	NB
2018	75.9	43.3	23.5	18.1	19.6	44.1	41.7	58.3	73.4	191.4	92.9

6.3 Cryptosporidiosis

In 2018, a total of 36 cases (17 females, 19 males) of cryptosporidiosis were reported to Public Health, with an incidence rate of 4.7 cases per 100,000 population. During the previous five years, an average of 22 cases were reported each year, with an average annual incidence rate of 3.0 cases per 100,000 population. Incidence rates fluctuated over the years compared to the national rates.

Graph 15. Number of Reported Cases of Cryptosporidiosis and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of NB Cases	16	17	29	32	18	36
NB Rates	2.1	2.3	3.8	4.2	2.4	4.7
Canada Rates	2.4	2.5	2.4	2.7	2.2	

The largest number of reported cases of cryptosporidiosis was in Region 3 (12 cases), followed by Regions 1 and 2 (10 cases and 7 cases, respectively). The incidence rate, however, was highest in Region 7 (7.1 cases per 100,000 population), followed by Region 3 (6.6 cases per 100,000 population).

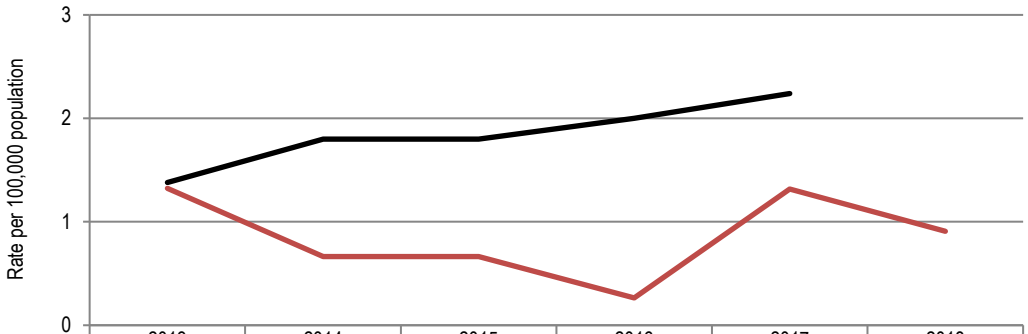
The largest number of cases was in the 30-39 years age group (11 cases), followed by the 40-59 years (10 cases). The incidence rate was highest in the 30-39 years age group (12.3 cases per 100,000 population), followed by the 25-29 years age group (11.6 cases per 100,000 population).

The annual differences in incidence rates by Health Region and by age group should be interpreted with caution because of the small numbers involved that can lead to major fluctuation in rates from year to year.

6.4 *E.coli* 0157:H7 infection

In 2018, a total of 7 cases (5 females, 2 males) of *E.coli* 0157:H7 infection were reported to Public Health, with an incidence rate of 0.9 case per 100,000 population. These figures are similar to the previous five years, with an average of 6 cases reported yearly and an average incidence rate of 0.8 case per 100,000 population. During the same period, NB rates were consistently lower than the national rates.

Graph 16. Number of Reported Cases of *E.coli* 0157:H7 Infection and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of NB Cases	10	5	5	2	10	7
NB Rates	1.3	0.7	0.7	0.3	1.3	0.9
Canada Rates	1.4	1.8	1.8	2.0	2.2	

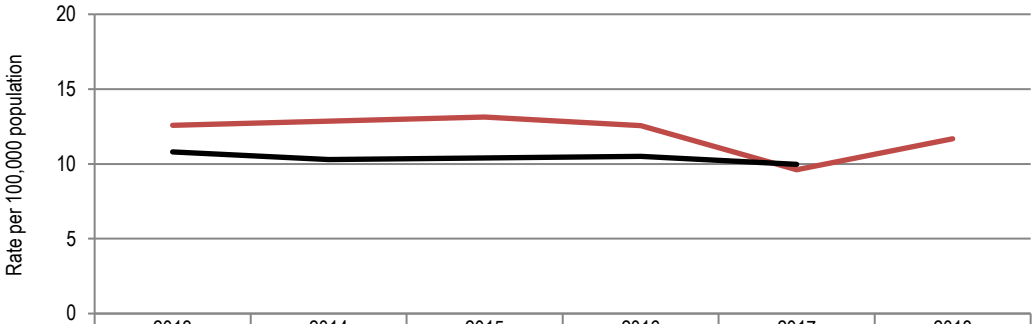
The majority of *E.coli* 0157:H7 cases reported in 2018 were in Region 1 (4 cases; incidence rate: 1.8 cases per 100,000 population), followed by Regions 2, 6 and 7 (1 case each; incidence rates: 0.6, 1.3 and 2.4 cases per 100,000 population, respectively). Fifty-seven percent (57%) of the cases were in the 30-39 and 40-59 years age groups.

Annual differences in incidence rates should be interpreted with caution because of the small numbers involved that can lead to major fluctuation in rates from year to year.

6.5 Giardiasis

In 2018, a total of 90 cases (33 females, 57 males) of giardiasis were reported to Public Health, with an incidence rate of 11.7 cases per 100,000 population. During the previous five years, an average of 92 cases were reported each year, with a 5-year average incidence rate of 12.1 cases per 100,000 population. The incidence rate of giardiasis was relatively stable during the period 20113-2017, NB rates being consistently higher than the national rates, except in 2017 when it was similar to the Canadian rate.

Graph 17. Number of Reported Cases of Giardiasis and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018

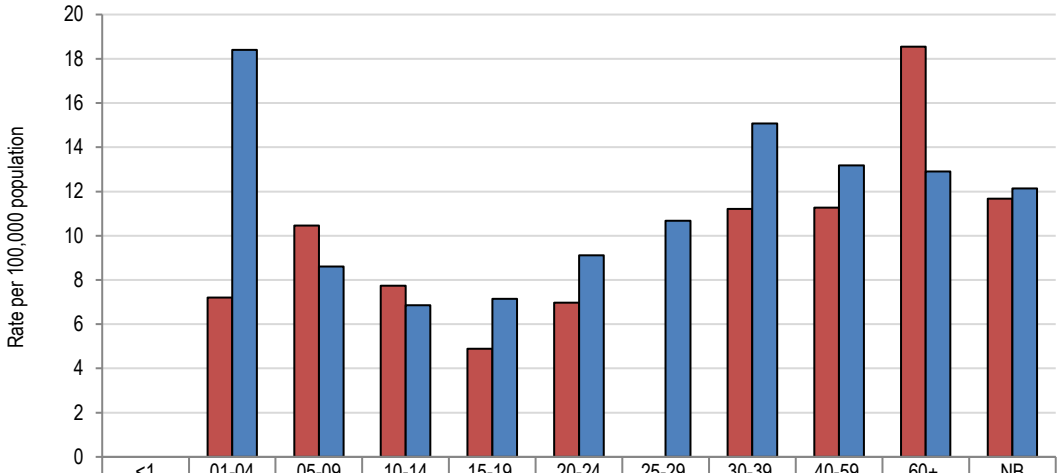


	2013	2014	2015	2016	2017	2018
Number of NB Cases	95	97	99	95	73	90
NB Rates	12.6	12.9	13.1	12.6	9.6	11.7
Canada Rates	10.8	10.3	10.4	10.5	10.0	

The majority of reported cases were in Regions 1, 2 and 3 (21, 21 and 22 cases, respectively). This is consistent with the regional distribution of cases during the previous five years. The highest incidence rate, however, was in Region 5 (35.4 cases per 100,000 population), followed by Region 6 (15.1 cases per 100,000 population).

The largest number of reported cases of giardiasis was in the 60+ years age group (41 cases), followed by the 40-59 and the 30-39 years age groups (25 and 10 cases, respectively). This is consistent with the age distribution of cases during the previous five years. Incidence rates of giardiasis were also highest in the same three age groups, with 18.6, 11.3 and 11.2 cases per 100,000 population in the 60+, the 40-49 and the 30-39 years age groups, respectively. Overall, the incidence rate was lower than that of the previous 5-year average in most age groups.

Graph 18. Incidence Rates of Giardiasis per 100,000 Population, by Age Group, New Brunswick, 2018 and 2013-2017 5-year Averages

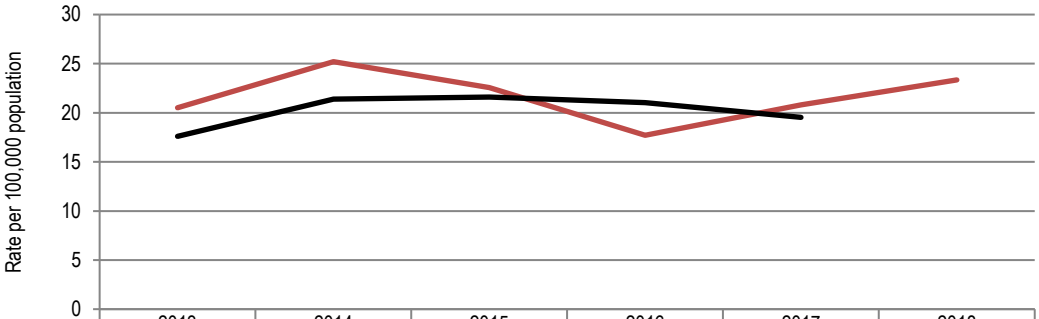


	<1	01-04	05-09	10-14	15-19	20-24	25-29	30-39	40-59	60+	NB
2018	0.0	7.2	10.5	7.7	4.9	7.0	0.0	11.2	11.3	18.6	11.7
2013-2017 Averages	0.0	18.4	8.6	6.9	7.2	9.1	10.7	15.1	13.2	12.9	12.1

6.6 Salmonellosis

In 2018, there were 180 cases (99 females, 81 males) of salmonellosis reported to Public Health, with an incidence rate of 23.4 cases per 100,000 population. These figures are slightly higher than the annual average for the previous five years (161 cases and 21.4 cases per 100,000 population, respectively). Incidence rates were higher than the national rates during the 5-year period, with the exception of 2016 when the rate was lower.

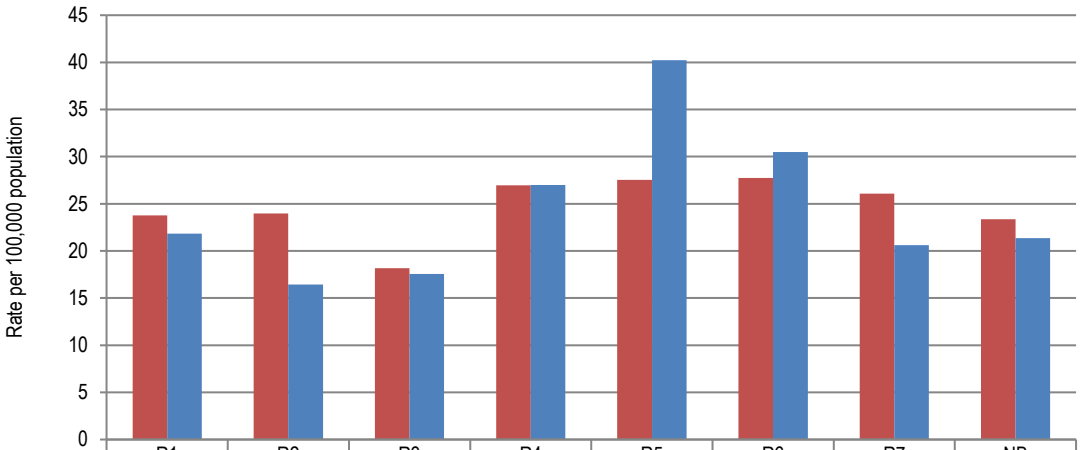
Graph 19. Number of Reported Cases of Salmonellosis and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of NB Cases	155	190	170	134	158	180
NB Rates	20.5	25.2	22.6	17.7	20.8	23.4
Canada Rates	17.6	21.4	21.6	21.0	19.5	

The largest number of reported cases was in Region 1 (52 cases), followed by Regions 2 and 3 (42 and 33 cases, respectively). However, Region 6 had the highest incidence rate with 27.7 cases per 100,000 population, followed by Regions 5 and 4 with 27.5 and 27.0 cases per 100,000 population, respectively. During the previous five years, the highest average incidence rate was in Region 5 (40.2 cases per 100,000 population), followed by Regions 6 and 4 (30.5 and 27.0 cases per 100,000 population, respectively).

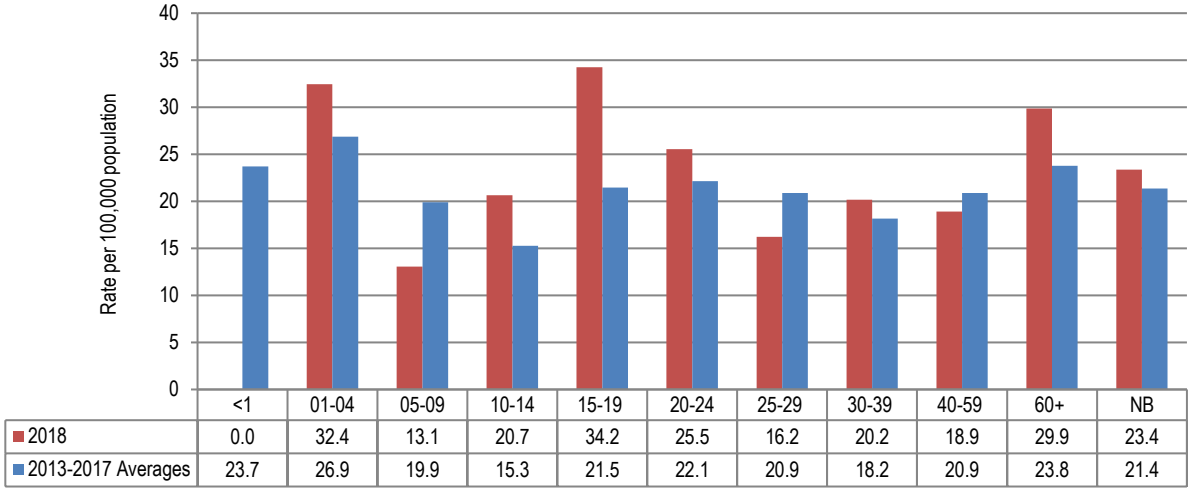
Graph 20. Incidence Rates of Salmonellosis per 100,000 Population, by Health Region, New Brunswick, 2018 and 2013-2017 5-year Averages



	R1	R2	R3	R4	R5	R6	R7	NB
2018	23.8	24.0	18.2	27.0	27.5	27.7	26.1	23.4
2013-2017 Averages	21.9	16.5	17.6	27.0	40.2	30.5	20.6	21.4

The majority of reported cases of salmonellosis were in the 60+ years age group (66 cases), followed by the 40-59 years age group (42 cases). However, the incidence rate was highest in the 15-19 years age group (34.2 cases per 100,000 population), followed by the 1-4 and the 60+ years age groups (32.4 and 29.9 cases per 100,000 population, respectively). During the previous five years, the highest average annual incidence rate was in the 1-4 years age group (26.9 cases per 100,000 population), followed by the 60+ and the <1 year age groups (23.8 and 23.7 cases per 100,000 population, respectively).

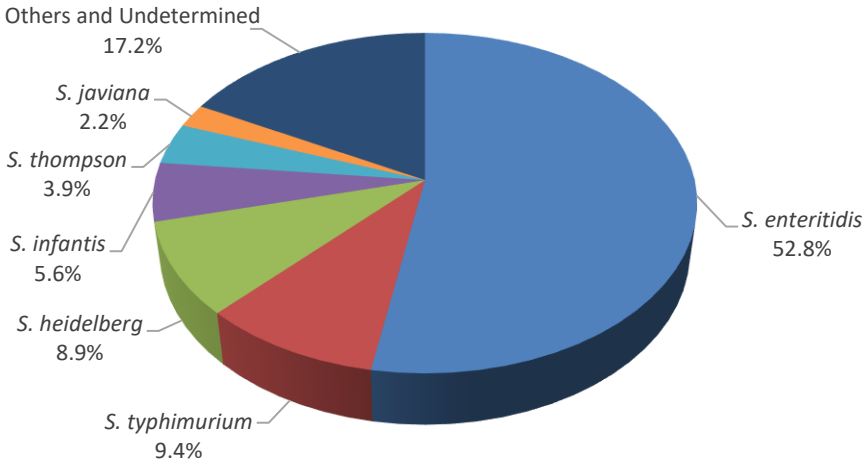
Graph 21. Incidence Rates of Salmonellosis per 100,000 Population, by Age Group, New Brunswick, 2018 and 2013-2017 5-year Averages



	<1	01-04	05-09	10-14	15-19	20-24	25-29	30-39	40-59	60+	NB
2018	0.0	32.4	13.1	20.7	34.2	25.5	16.2	20.2	18.9	29.9	23.4
2013-2017 Averages	23.7	26.9	19.9	15.3	21.5	22.1	20.9	18.2	20.9	23.8	21.4

The most prevalent *Salmonella* serotype in 2018 was *S. enteritidis* (95; 53%), followed by S. *typhimurium* (17; 9%), *S. heidelberg* (16; 9%), *S. infantis* (10; 6%), *S. thompson* (7; 4%) and *S. javiana* (4; 2%). Thirty-one (31) other serotypes or undetermined serotypes accounted for another 17% of cases.

Graph 22. Percent Distribution of Salmonellosis by Salmonella Serotype, New Brunswick, 2018



6.7 Other Enteric, Food and Waterborne Diseases

Other enteric, food and waterborne diseases that are notifiable in NB include shigellosis, Vibrio species, listeriosis, hepatitis A, yersiniosis and typhoid fever. In 2018, both the number of reported cases and incidence rates of shigellosis and Vibrio species (shigellosis: 9 cases, 1.2 cases per 100,000 population; Vibrio species: 10 cases; 1.3 cases per 100,000 population) were higher than the 5-year averages. For yersiniosis, the number of reported cases and the incidence rate (1 case; 0.1 case per 100,000 population) were lower than the 5-year averages. For listeriosis and hepatitis A, the 2018 figures were similar to the 5-year averages (listeriosis: 5 cases, 0.6 case per 100,000 population; hepatitis A: 2 cases, 0.3 case per 100,000 population). No cases of typhoid fever were reported in 2018 and during the period 2013-2017. For further details on case counts and rates for other enteric, food and waterborne diseases, please refer to Appendix 3.

6.8 Summary of Enteric Outbreaks

In 2018, a total of 65 regional enteric, food and waterborne disease outbreaks were reported in NB. Forty-eight (48 or 74%) of these occurred in institutional non-residential settings (45 in daycares, 2 in elementary schools and 1 in a day camp), 16 (or 25%) in institutional residential settings (15 in long-term care facilities and 1 in a group home) and 1 (or 2%) in a recreational facility (campground). The largest number of outbreaks occurred in Region 3 (28 outbreaks), followed by Regions 2 (20 outbreaks), 1 (10 outbreaks), 4 (3 outbreaks), 5 and 6 (each 2 outbreaks). No outbreaks were reported in Region 7.

The pathogenic microorganism was identified in 23% of outbreaks, which is somewhat similar to 2017 (26%). Of those outbreaks with an identified organism (n=15), norovirus was the most common pathogen (9 outbreaks), followed by rotavirus (3 outbreaks), then adenovirus, sapovirus and *Salmonella enteritidis* (1 outbreak each).

No multi-regional or provincial outbreaks were reported in 2018. However, NB was involved in 7 national outbreaks. Five of them implicated *Salmonella enteritidis* and were all associated with contaminated chicken products. The source of the national *Salmonella thompson* outbreak could not be confirmed. The other outbreak was due to *E. coli* O157:H7 associated with contaminated romaine lettuce.

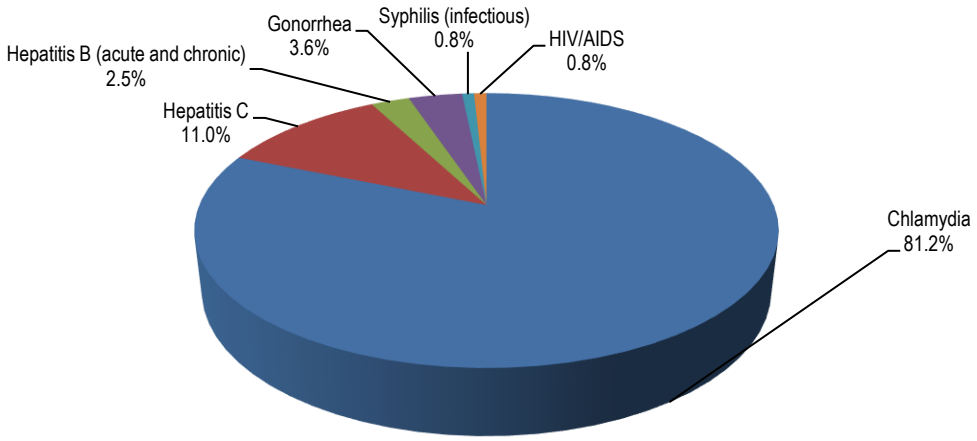
For further details on settings and microorganisms distribution, please refer to Appendix 3.

7. Sexually Transmitted and Bloodborne Infections

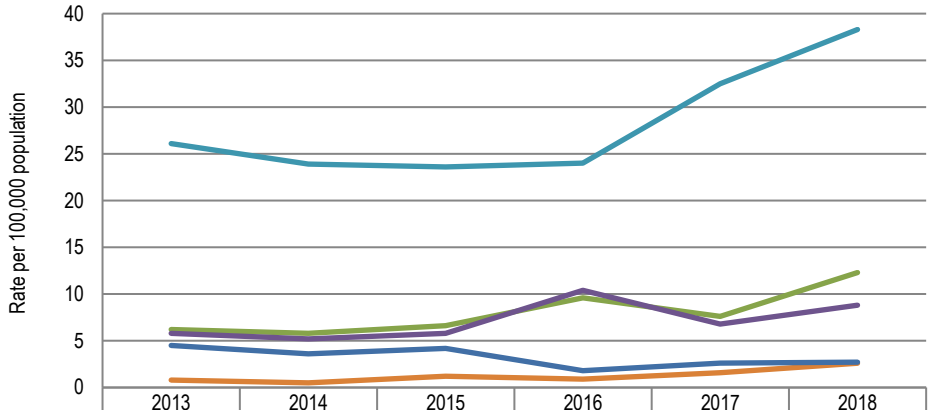
Sexually transmitted and bloodborne infections (STBBI) and their serious consequences can be prevented and mitigated through sexual health promotion, harm reduction strategies, early detection and treatment, and notification of sexual and drug use partners.

In 2018, the most common reported STBBI was chlamydia, followed by hepatitis C, gonorrhea and chronic hepatitis B.

Graph 23. Percent Distribution of Sexually Transmitted and Bloodborne Infections in New Brunswick, 2018



Graph 24. Incidence Rates of Selected Sexually Transmitted and Bloodborne Infections per 100,000 Population, New Brunswick, 2013-2018



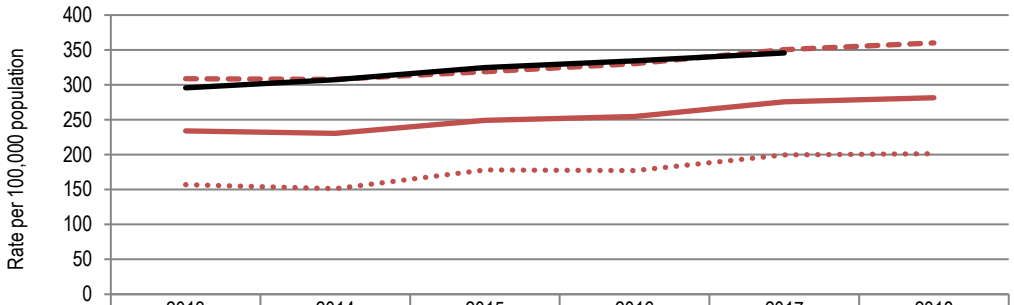
	2013	2014	2015	2016	2017	2018
Chlamydia	233.7	230.5	249.0	255.0	276.0	282.0
Gonorrhea	6.2	5.8	6.6	9.6	7.6	12.3
Hepatitis B (acute and chronic)	5.8	5.2	5.8	10.4	6.8	8.8
Hepatitis C	26.1	23.9	23.6	24.0	32.5	38.3
HIV	0.8	0.5	1.2	0.9	1.6	2.6
Syphilis (infectious)	4.5	3.6	4.2	1.8	2.6	2.7

7.1. Chlamydia

Chlamydia is the most commonly reported sexually transmitted infection in NB. In 2018, a total of 2,170 cases (1402 females, 768 males) were reported to Public Health, with an incidence rate of 281.6 cases per 100,000 population. These figures are higher than the annual average for the previous five years (1,882 cases and 248.9 cases per 100,000 population, respectively).

There was an upward trend in the number of chlamydia cases reported between 2015 and 2018. Overall, incidence rates for NB were lower than that for Canada during the 5-year period.

Graph 25. Incidence Rates of Chlamydia per 100,000 Population, by Sex for New Brunswick, and Overall Comparison with Canada, 2013-2018

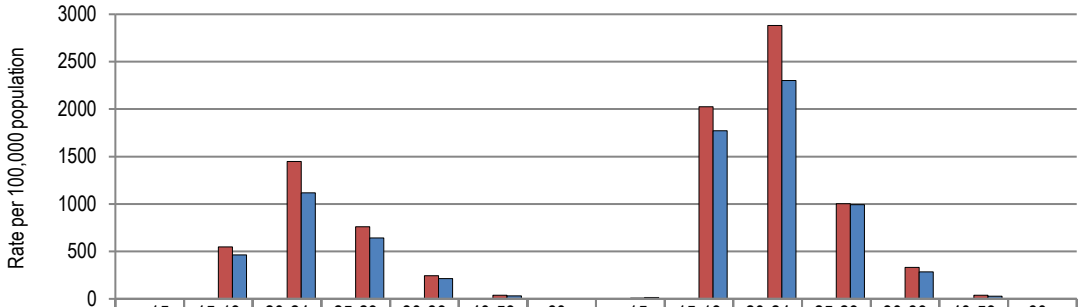


	2013	2014	2015	2016	2017	2018
NB Rates (Males)	157.1	151.3	178.3	177.4	199.5	201.4
NB Rates (Females)	308.8	308.0	318.8	330.3	350.3	360.1
NB Rates	233.8	230.5	249.4	254.8	275.8	281.6
Canada Rates	295.8	307.4	324.9	334.3	345.7	

The highest incidence rate of chlamydia in 2018 was in Region 1 (362.2 cases per 100,000 population), followed by Region 3 (361.2 cases per 100,000 population) and Region 2 (231.1 cases per 100,000 population). During the previous five years, the highest average incidence rate was in Region 3, followed by Regions 1 and 6 (327.9, 304.3 and 207.4 cases per 100,000 population, respectively).

The majority of reported cases of chlamydia were in the 20-24 years age group (917 cases), followed by the 15-19 and the 25-29 years age groups (520 and 379 cases, respectively), with incidence rates of 2,129.3, 1,272.0 and 878.0 cases per 100,000 population, respectively. Incidence rates were higher in all age groups compared to the 5-year averages, except for the <15 years where the rate was lower. The largest difference in rates was in the 20-24 years age group for both males and females.

Graph 26. Number of Reported Cases of Chlamydia and Incidence Rates per 100,000 Population, by Sex and Age Group, New Brunswick, 2018 and 2013-2017 5-year Averages

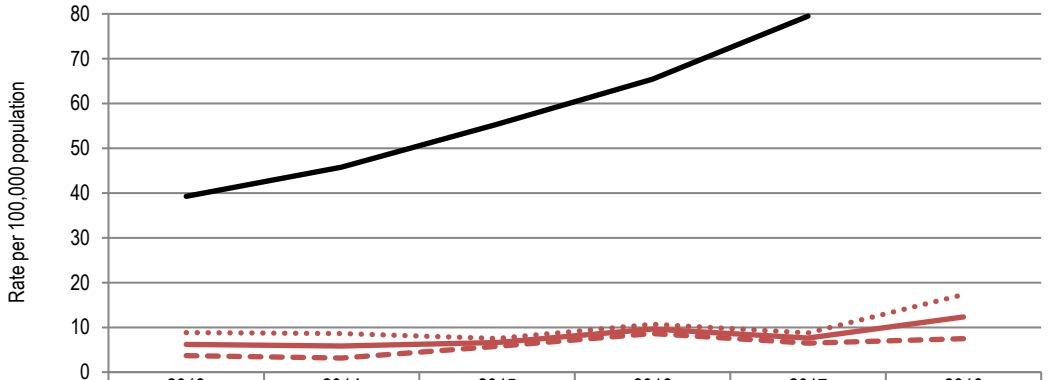


	Male							Female						
	<15	15-19	20-24	25-29	30-39	40-59	60+	<15	15-19	20-24	25-29	30-39	40-59	60+
2018 Cases	1	114	328	169	109	44	3	4	406	589	210	149	43	1
2013-2017 Average Count	0	102	268	143	96	34	2	7	355	508	207	127	31	1
2018 Rates	1.8	547.4	1,449.1	761.1	244.9	39.8	2.9	7.3	2,024.2	2,882.7	1,001.9	333.1	38.5	0.9
2013-2017 Average Rates	0.7	463.3	1,118.9	641.7	212.4	30.8	2.2	13.4	1,771.5	2,301.6	992.4	283.5	26.6	0.8

7.2. Gonorrhea

In 2018, a total of 95 cases (29 females, 66 males) of gonorrhea were reported to Public Health, with an incidence rate of 12.3 cases per 100,000 population. These figures are higher than the annual average for the previous five years (54 cases and 7.2 cases per 100,000 population, respectively). New Brunswick incidence rates were relatively stable and much lower compared to the national rates.

Graph 27. Incidence Rates of Gonorrhea per 100,000 Population, by Sex for New Brunswick, and Overall Comparison with Canada, 2013-2018



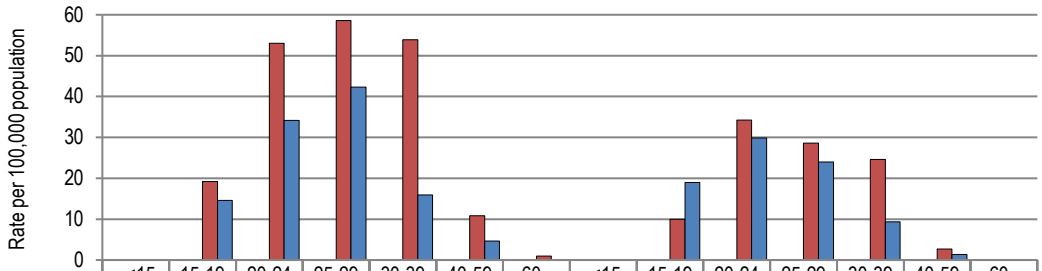
	2013	2014	2015	2016	2017	2018
NB Rates (Males)	8.8	8.6	7.5	10.7	8.8	17.3
NB Rates (Females)	3.7	3.1	5.8	8.6	6.5	7.4
NB Rates	6.2	5.8	6.6	9.6	7.6	12.3
Canada Rates	39.3	45.8	55.4	65.4	79.5	

The total number of reported cases in males doubled compared to the previous year, with a male to female case ratio (M:F) of 2.3:1 compared to 1.3:1 in 2017. This ratio is also higher than that for the previous 5-year annual average (1.6:1). During the period 2015-2018, there was also an important increase in the number of female cases being reported to Public Health.

The largest number of cases reported in 2018 were in Region 1 (35 cases), followed by Region 3 (31 cases) and Region 2 (11 cases). Together, these three Health Regions accounted for 81% of cases. The total number of cases was higher than the previous 5-year annual average in all Health Regions, except Regions 2 (lower) and 4 (equal) for females and Region 6 (equal) for males.

The median age for both male and female cases was 30 years. The highest incidence rate in males was in the 25-29 years age group; for females it was the 20-24 years age group.

Graph 28. Number of Reported Cases of Gonorrhea and Incidence Rates per 100,000 Population, by Sex and Age Group, New Brunswick, 2018 and 2013-2017 5-year Averages



	Male							Female						
	<15	15-19	20-24	25-29	30-39	40-59	60+	<15	15-19	20-24	25-29	30-39	40-59	60+
2018 Cases	0	4	12	13	24	12	1	0	2	7	6	11	3	0
2013-2017 Average Count	0	3	8	9	7	5	0	0	4	7	5	4	2	0
2018 Rates	0.0	19.2	53.0	58.5	53.9	10.9	1.0	0.0	10.0	34.3	28.6	24.6	2.7	0.0
2013-2017 Average Rates	0.0	14.6	34.2	42.3	15.9	4.7	0.0	0.0	19.0	29.9	24.0	9.3	1.4	0.0

Annual variations in age- and region-specific rates for gonorrhea should be interpreted with caution because of the small numbers involved that can lead to large fluctuations in rates.

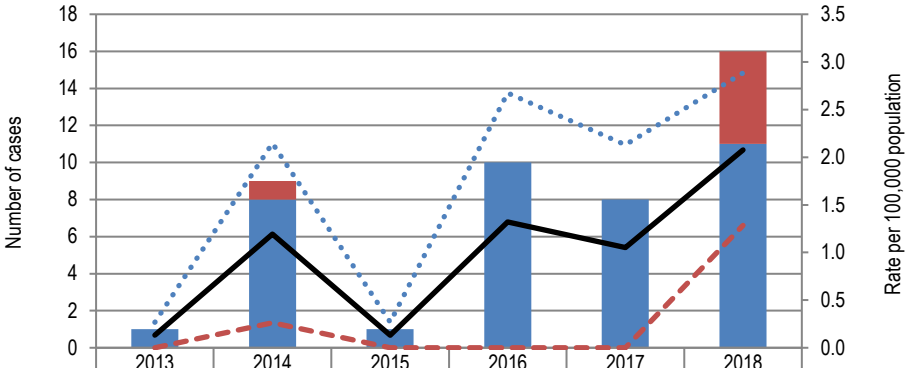
More than half of male cases identified themselves as males having sex with males, whether gay or bisexual. Most male and female cases reported high-risk sexual behaviours such as not using condoms while having sex (whether vaginal, anal or oral), or having multiple, casual or anonymous partners in the the 60 days prior to infection.

7.3. Hepatitis B

7.3.1. Acute hepatitis B

In 2018, a total of 16 cases (5 females, 11 males) of acute hepatitis B were reported to Public Health, with an incidence rate of 2.1 cases per 100,000 population. These figures are higher than the annual average for the previous five years (6 cases and 0.8 case per 100,000 population, respectively).

Graph 29. Number of Acute Hepatitis B Cases Reported and Incidence Rates per 100,000 Population, by Sex, New Brunswick, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of Cases (Females)	0	1	0	0	0	5
Number of Cases (Males)	1	8	1	10	8	11
Rates (Males)	0.3	2.1	0.3	2.7	2.1	2.9
Rates (Females)	0.0	0.3	0.0	0.0	0.0	1.3
NB Rates	0.1	1.2	0.1	1.3	1.1	2.1

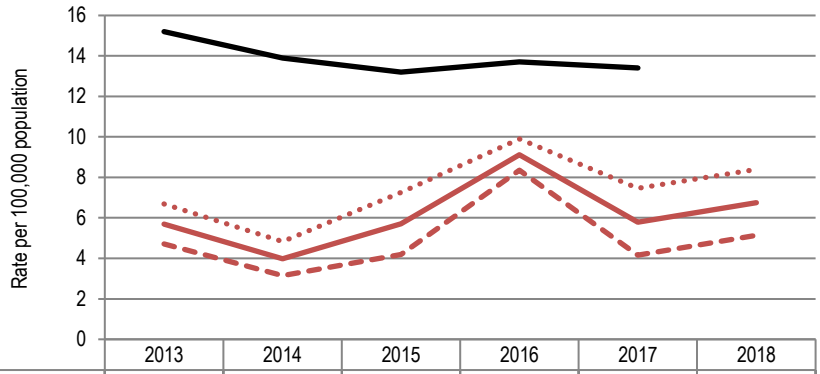
The largest number of reported cases in 2018 was in Region 1 (12 cases or 75%), followed by Regions 3, 5, 6 and 7 (1 case each). The majority of reported cases (11 cases or 69%) were in the 40-59 years age group, followed by the 60+ (3 cases or 19%). The median age of cases was 42 years and the age range was 20-63 years.

All but one case reported being heterosexual. Thirty-eight percent (38%) had more than one sexual partner. Other risk behaviours included body piercing (31%), tattooing (38%), acupuncture (25%), use of street drugs (38%) and sharing personal hygiene items (25%). Two cases had previously received the hepatitis B vaccine.

7.3.2. Chronic hepatitis B

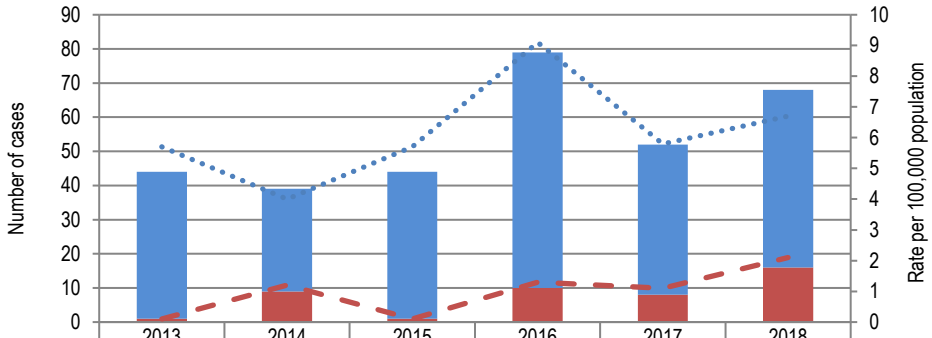
In 2018, a total of 52 new cases (20 females, 32 males) of diagnosed chronic hepatitis B were reported to Public Health, with an incidence rate of 6.7 cases per 100,000 population. These figures are slightly higher than the annual average for the previous five years (46 cases and 6.1 cases per 100,000 population, respectively).

Graph 30. Incidence Rates of Diagnosed Chronic Hepatitis B per 100,000 Population, by Sex for New Brunswick, and Overall Comparison of Hepatitis B with Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
NB Rates (Males)	6.7	4.8	7.3	9.9	7.5	8.4
NB Rates (Females)	4.7	3.1	4.2	8.4	4.2	5.1
NB Rates: Chronic Hepatitis B	5.7	4.0	5.7	9.1	5.8	6.7
Canada Rates: Chronic & Acute Hepatitis	15.2	13.9	13.2	13.7	13.4	

Graph 31. Number of Reported Cases of Chronic and Acute Hepatitis B and Incidence Rates per 100,000 Population, New Brunswick, 2013-2018

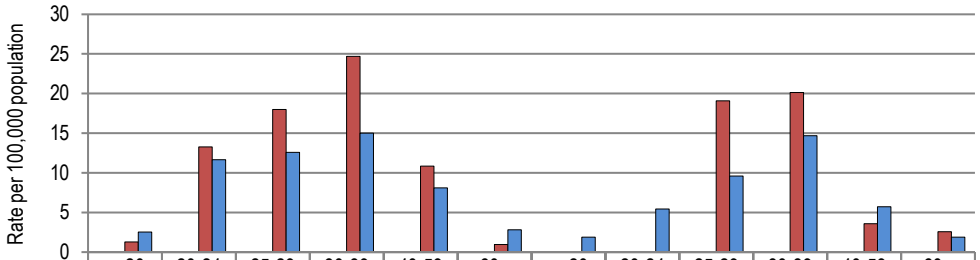


	2013	2014	2015	2016	2017	2018
Chronic Hepatitis B Cases	43	30	43	69	44	52
Acute Hepatitis B Cases	1	9	1	10	8	16
Acute Hepatits B Rate	0.1	1.2	0.1	1.3	1.1	2.1
Chronic Hepatits B Rate	5.7	4.0	5.7	9.1	5.8	6.7

The largest number of reported cases of diagnosed chronic hepatitis B in 2018 was in Region 3 (18 cases or 35%), followed by Region 1 (16 cases or 31%) and Region 2 (8 cases or 15%). Together, these three Regions accounted for 81% of cases that year. The incidence rate was highest in Region 5 (11.8 cases per 100,000 population), followed by Region 3 (9.9 cases per 100,000 population).

The majority (38%) of reported cases in NB were in the 30-39 years age group, followed by the 40-59 years age group (31%). In males, the largest percentage (38%) was in the 40-59 years age group, followed by the 30-39 years age group (34%), whereas in females it was the 30-39 years age group (45%), followed by the 25-29 and 40-59 years age groups (20% each). For both males and females, the highest incidence rate was in the 30-39 years age group (24.7 cases and 20.1 cases per 100,000, respectively).

Graph 32. Number of Reported Cases of Diagnosed Chronic Hepatitis B and Incidence Rates per 100,000 Population, by Sex and Age Group, New Brunswick, 2018 and 2013-2017 5-year averages



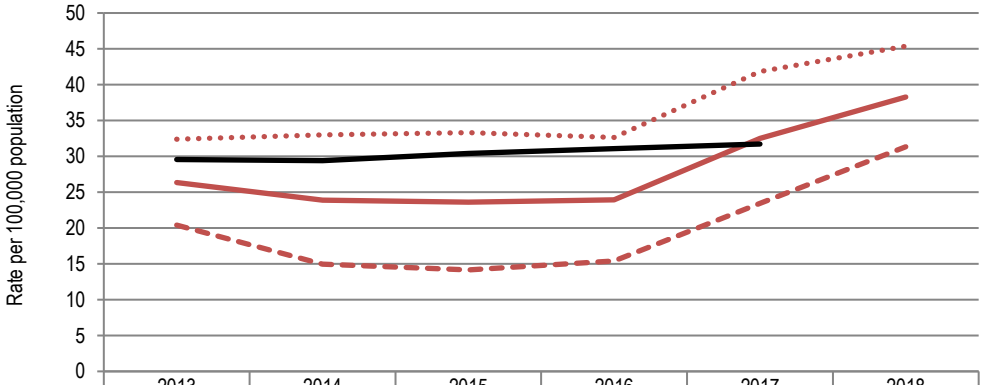
	Male						Female					
	<20	20-24	25-29	30-39	40-59	60+	<20	20-24	25-29	30-39	40-59	60+
Number of Cases in 2018	1	3	4	11	12	1	0	0	4	9	4	3
2013-2017 Average Count	2	3	3	7	9	3	1	1	2	7	7	2
2018 Rates	1.3	13.3	18.0	24.7	10.9	1.0	0.0	0.0	19.1	20.1	3.6	2.6
2013-2017 Average Rates	2.6	11.7	12.6	15.0	8.1	2.8	1.9	5.4	9.6	14.7	5.7	1.9

Consistent with previous years, the majority of cases (69%) involved new residents arriving from endemic areas of the world.

7.4. Hepatitis C

In 2018, a total of 295 cases (122 females, 173 males) of diagnosed hepatitis C were reported to Public Health, with an incidence rate of 38.3 cases per 100,000 population. Eighteen (18 or 6%)) of these cases were confirmed as new infections (i.e., documented HCV antibody seroconversion within the last 12 months in a person who was previously seronegative). The 2018 figures are higher than those of the 2013-2017 5-year averages (197 cases per year and an average incidence rate of 26.1 cases per 100,000 population). Overall, NB rates were lower than the national rates during the 5-year period, except for 2017 when the rate was slightly higher for NB.

Graph 33. Incidence Rates of Diagnosed Hepatitis C per 100,000 Population, by Sex for New Brunswick, and Overall Comparison with Canada, 2013-2018

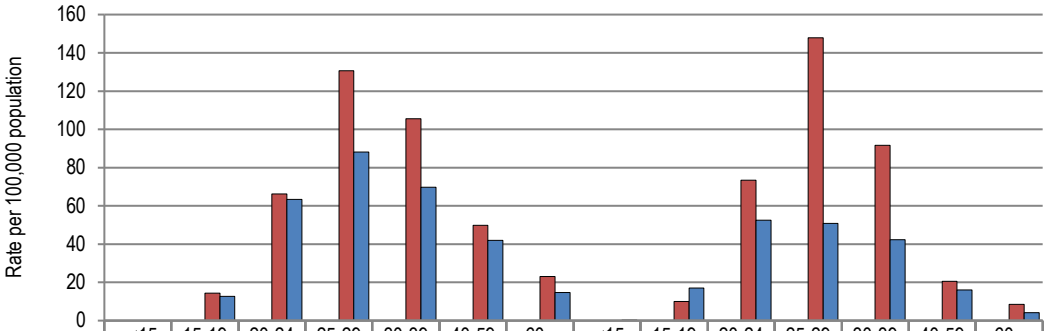


	2013	2014	2015	2016	2017	2018
NB Rates (Males)	32.4	33.0	33.3	32.6	41.8	45.4
NB Rates (Females)	20.4	15.0	14.2	15.4	23.4	31.3
NB Rates	26.3	23.9	23.6	23.9	32.5	38.3
Canada Rates	29.6	29.4	30.4	31.1	31.7	

The largest number of cases was in Region 1 (102 cases or 35%), followed by Region 2 (74 cases or 25%) and Region 3 (66 or 22%). Together, these three Regions accounted for 82% of reported cases in 2018.

The majority (30%) of reported cases in NB were in the 30-39 years age group, followed by the 40-59 years age group (26%). In males, the largest percentage (32%) was in the 40-59 years age group, followed by the 30-39 years age group (27%), whereas in females it was the 30-39 years age group (34%), followed by the 25-29 years age group (25%). For both males and females, the highest incidence rate was in the 25-29 years age group (130.6 cases and 147.9 cases per 100,000, respectively).

Graph 34. Number of Reported Cases of Diagnosed Hepatitis C and Incidence Rates per 100,000 Population, by Sex and Age group, New Brunswick, 2018 and 2013-2017 5-year averages



	Male							Female						
	<15	15-19	20-24	25-29	30-39	40-59	60+	<15	15-19	20-24	25-29	30-39	40-59	60+
Number of Cases in 2018	0	3	15	29	47	55	24	0	2	15	31	41	23	10
2013-2017 Average Count	0	3	15	20	32	47	14	0	3	12	11	19	18	4
2018 Rates	0.0	14.4	66.3	130.6	105.6	49.8	23.1	0.0	10.0	73.4	147.9	91.6	20.6	8.5
2013-2017 Average Rates	0.0	12.8	63.4	88.2	69.8	42.0	14.7	0.4	17.0	52.5	50.8	42.3	16.0	4.2

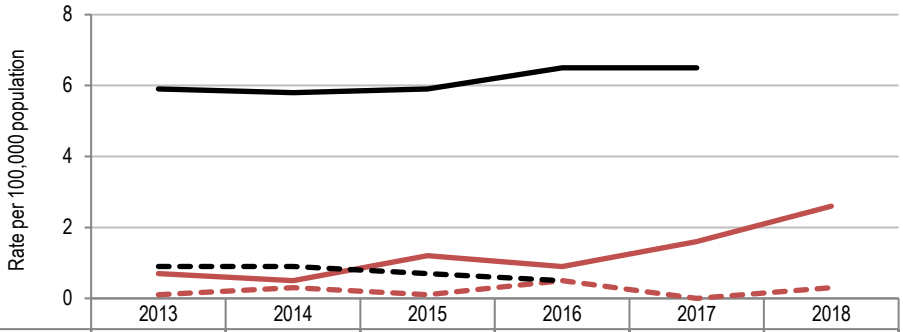
Intravenous (IV) drug use and sharing injecting equipment remain the most common risk factors for diagnosed hepatitis C cases in NB. Among those that provided information on their drug usage, 92% indicated they had used or were currently using injectable and/or non injectable drugs. Among the IV drug users, 56% admitted sharing needles and 66% indicated sharing other snorting, sniffing or smoking equipment.

7.5. HIV/AIDS

7.5.1. HIV

In 2018, a total of 20 new cases (4 females, 16 males) of diagnosed HIV infection were reported to Public Health, with an incidence rate of 2.6 cases per 100,000 population. These figures are higher than the annual average for the previous five years (7 cases and 1.0 case per 100,000 population, respectively). HIV incidence rates in NB fall below national rates.

Graph 35. Number of Reported Cases of Diagnosed HIV and AIDS and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
HIV: Number of NB Cases	5	4	9	7	12	20
HIV: NB Rates	0.7	0.5	1.2	0.9	1.6	2.6
HIV: Canada Rates	5.9	5.8	5.9	6.5	6.5	
AIDS: Number of NB Cases	1	2	1	4	0	2
AIDS: NB Rates	0.1	0.3	0.1	0.5	0.0	0.3
AIDS: Canada Rates*	0.9	0.9	0.7	0.5		

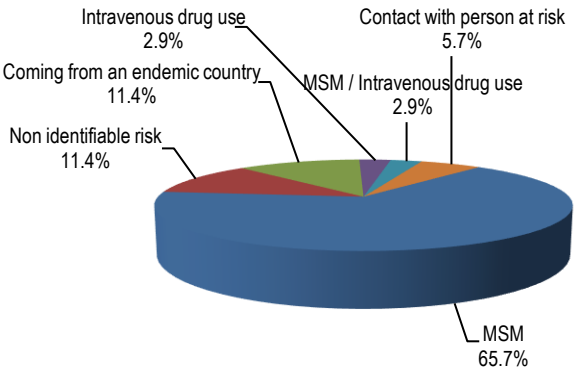
* 2017 rate not available

The majority of newly diagnosed HIV cases (40%) in 2018 were in the 50+ years age group, followed by the 20-29 years age group (30%). Together, these two age groups accouint for 70% of all cases reported that year.

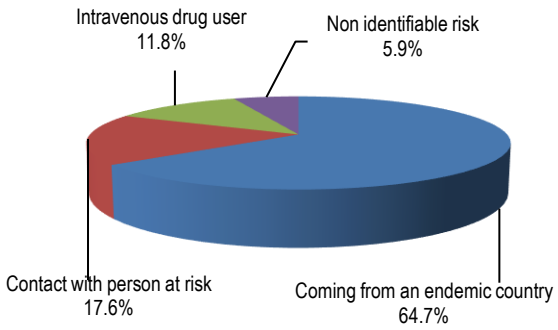
Among the newly reported cases, 9 acquired the infection in Canada and 11 would have acquired the infection prior to their arrival to this country.

In 2018, most HIV cases (75%) in males implicated men having sex with men (MSM), whereas in females, the most common risk factor reported for HIV infection was heterosexual contact with a person at risk (50%). During the 5-year period 2014-2018, the most common risk factor reported in males was again MSM (66%), whereas in females it was coming from an endemic country (65%).

Graph 36a. Percent Distribution of Risk Factors for HIV Infection Among Males, New Brunswick, 2014-2018 (N=35)



Graph 36b. Percent Distribution of Risk Factors for HIV Infection Among Females, New Brunswick, 2014-2018 (N=17)



7.5.2. AIDS

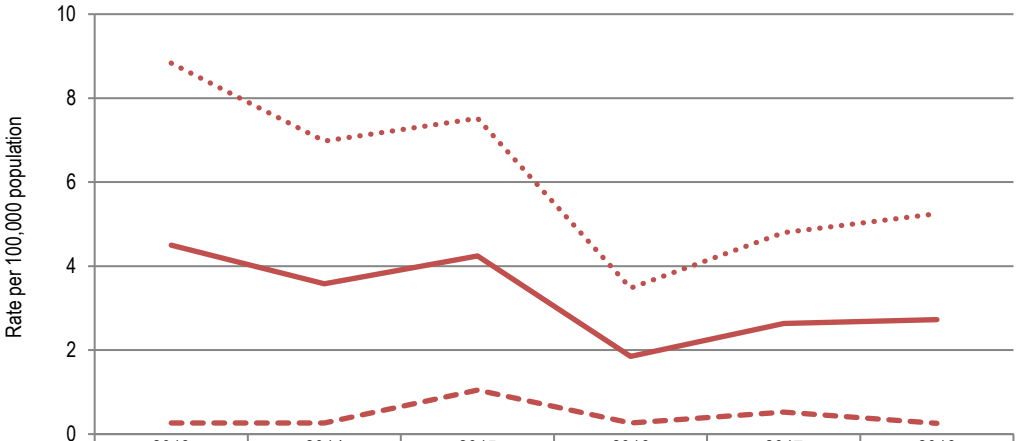
In 2018, there were two new cases of AIDS reported to Public Health, with an incidence rate of 0.3 case per 100,000 population. Both cases were males. These figures are similar to the 5-year annual averages for the previous five years (2 cases and 0.2 case per 100,000 population). Overall, AIDS incidence rates in NB are lower than the national rates.

Annual variations in HIV and AIDS incidence rates should be interpreted with caution because of the small numbers involved that can lead to major fluctuations in rates from year to year.

7.6. Infectious Syphilis

In 2018, there were 21 cases (1 female, 20 males) of infectious syphilis reported to Public Health, with an incidence rate of 2.7 cases per 100,000 population. During the previous five years, an average of 25 cases were reported each year, with a 5-year average incidence rate of 3.4 cases per 100,000 population.

Graph 37. Incidence Rates of Infectious Syphilis per 100,000 Population, by Sex and Overall for New Brunswick, 2013-2018

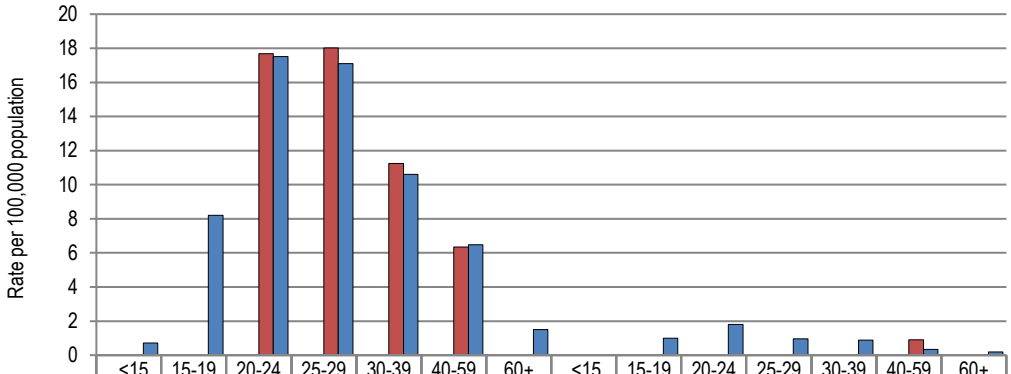


	2013	2014	2015	2016	2017	2018
Rates (Males)	8.8	7.0	7.5	3.5	4.8	5.2
Rates (Females)	0.3	0.3	1.0	0.3	0.5	0.3
NB Rates	4.5	3.6	4.2	1.8	2.6	2.7

In 2018, cases were reported in all Health Regions except Regions 4 and 7. Region 1 accounted for most (57%) of the cases.

The largest number of cases was in the 40-59 years age group (8 cases or 38%), followed by the 30-39 years age group (5 cases or 24%). However, the highest incidence rate was in the 20-24 and 25-29 years age groups with 9.3 cases per 100,000 population in each of these age groups.

Graph 38. Number of Reported Cases of Infectious Syphilis and Incidence Rates per 100,000 Population, by Sex and Age Group, New Brunswick, 2018 and 2013-2017 5-year Average



	Male							Female						
	<15	15-19	20-24	25-29	30-39	40-59	60+	<15	15-19	20-24	25-29	30-39	40-59	60+
Number of Cases in 2018	0	0	4	4	5	7	0	0	0	0	0	0	1	0
2013-2017 Average Count	0	2	4	4	5	7	1	0	0	0	0	0	0	0
2018 Rates	0.0	0.0	17.7	18.0	11.2	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
2013-2017 Average Rates	0.7	8.2	17.5	17.1	10.6	6.5	1.5	0.0	1.0	1.8	1.0	0.9	0.3	0.2

Annual variations in incidence rates of infectious syphilis should be interpreted with caution because of the small numbers involved that can lead to large fluctuations in rates from year to year.

Eleven (11) of the cases were primary or secondary syphilis and 10 were early latent syphilis. All of the male cases that provided information on their sexual orientation identified themselves as men having sex with men.

For further details on counts and incidence rates of notifiable STBBIs in NB, please refer to Appendix 4 of this report.

8. Vectorborne and Zoonotic Diseases

New Brunswick continues to have a few sporadic cases and low incidence rates of vectorborne and zoonotic diseases, although Lyme disease is on the rise in some jurisdictions.

8.1 Lyme Disease

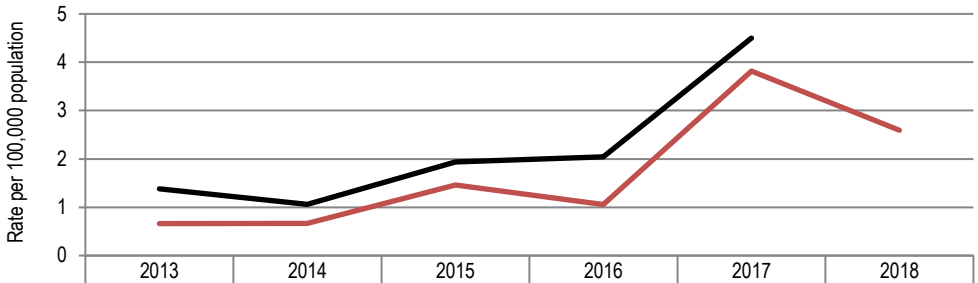
National Lyme disease surveillance began in 2009 and has evolved to enhanced Lyme disease surveillance since 2011. The disease is transmitted by the bite of an infected black-legged tick, commonly known as the deer tick. It is treatable with antiobiotics, but treatment is more effective if begun early during the course of the disease. When treatment is delayed, disseminated illness may occur with more serious symptoms and complications.

Although it is possible to be bitten by an infected deer tick anywhere in NB, the risk is much greater in areas where tick populations are established or appear to be established. Based on provincial tick surveillance and reports of human disease, tick populations were established or emerging in the following counties in 2018:

> Saint John, Kings, Queens, Charlotte (including Grand Manan Island), Westmorland, Albert, York and Sunbury.

A total of 20 confirmed cases (5 females, 15 males) of Lyme disease were reported to Public Health in 2018, with an incidence rate of 2.6 cases per 100,000 population. During the previous five years, an average of 12 cases were reported each year, with a 5-year average incidence rate of 1.5 cases per 100,000 population. Since 2013, the incidence rate of Lyme disease has consistently been lower than the national rate but with an overall upward trend.

Graph 39. Number of Reported Cases of Lyme Disease and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of Cases in NB	5	5	11	8	29	20
NB Rates	0.7	0.7	1.5	1.1	3.8	2.6
Canada Rates	1.4	1.1	1.9	2.0	4.5	

Annual variations in Lyme disease incidence rates should be interpreted with caution because of the small numbers involved that can lead to major fluctuations in rates from year to year.

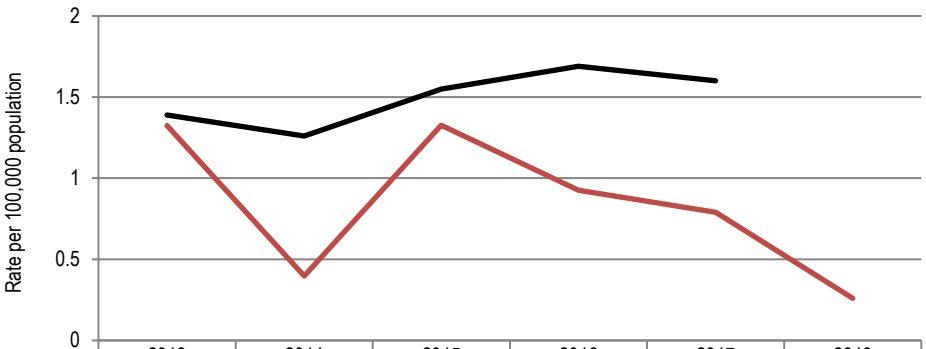
For 18 of the 20 reported cases in 2018 (90%), the disease was locally acquired, with 17 being in Region 2 (Saint John County: 8, Charlotte County: 6, Kings County: 3) and one in Region 1 (Westmorland County).

Of the 20 reported cases of Lyme disease, 8 were in the 60+ years age group, 5 were in the 10-14, and the remainng 7 cases were in the 5-9, 15-19, 20-24, 25-29 and 40-59 years age groups.

8.2 Other Vectorborne and Zoonotic diseases

In 2018, two cases of malaria were reported to Public Health (both travel-related), with an incidence rate of 0.3 case per 100,000 population. This is much lower than the averages for the previous five years (7 cases and 1.0 case per 100,000 population). Overall, incidence rates decreased significantly in NB over the 5-year period and were consistently lower than the national rates.

Graph 40. Number of Reported Cases of Malaria and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of Cases in NB	10	3	10	7	6	2
NB Rates	1.3	0.4	1.3	0.9	0.8	0.3
Canada Rates	1.4	1.3	1.6	1.7	1.6	

Both cases were males in the 40-59 yers age group, one being from Region 3 and the other from Region 4.

Other vectorborne and zoonotic diseases reported in 2018 included one case of Zika.

For further details on counts and incidence rates of reported vectorborne and zoonotic diseases, please refer to Appendix 5.

9. Diseases Transmitted via the Respiratory Route and Direct Contact

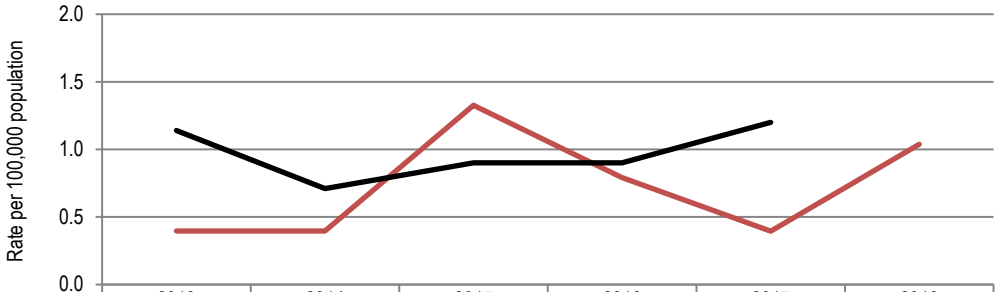
Respiratory infections are spread by direct or indirect transmission or via the airborne route. Pathogens may also be transmitted through aerosolization of the microbe (e.g., cooling towers).

Diseases that can be transmitted by direct contact are considered contagious. These diseases can also be transmitted by sharing a towel or items of clothing in close contact with the body (e.g., socks) if they are not washed thoroughly between uses.

9.1. Legionellosis

In 2018, a total of 8 cases (2 females, 6 males) of legionellosis were reported to Public Health, with an incidence rate of 1.0 cases per 100,000 population. During the previous five years, an average of 5 cases were reported each year, with an average annual incidence rate of 0.7 case per 100,000 population. Overall, the incidence rate for NB was lower than the national rate, with the exception of 2015 when it was higher.

Graph 41. Number of Reported Cases of Legionellosis and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



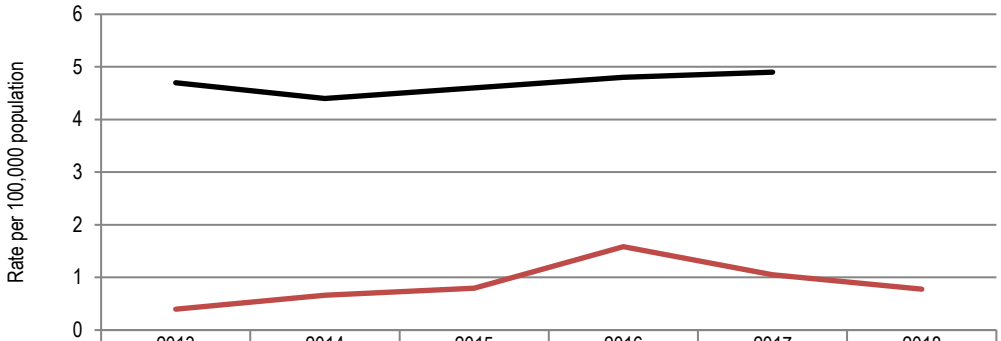
	2013	2014	2015	2016	2017	2018
Number of Cases in NB	3	3	10	6	3	8
NB Rates	0.4	0.4	1.3	0.8	0.4	1.0
Canada Rates	1.1	0.7	0.9	0.9	1.2	

The largest number of reported cases of legionellosis was in Region 1 (6 cases), followed by Regions 2 and 6 (1 case each). All of the cases were 45 years of age or older.

9.2. Tuberculosis (active)

In 2018, there were 6 confirmed cases (4 females, 2 males) of active tuberculosis (TB) reported to Public Health, with an incidence rate of 0.8 case per 100,000 population. During the previous five years, an average of 7 cases were reported each year, with an average annual incidence rate of 0.9 case per 100,000 population. The annual incidence rate of active TB was relatively stable during the period 2013-2017 and NB rates were consistently lower than the national rates.

Graph 42. Number of Reported Cases of Active Tuberculosis and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of Cases in NB	3	5	6	12	8	6
NB Rates	0.4	0.7	0.8	1.6	1.1	0.8
Canada Rates	4.7	4.4	4.6	4.8	4.9	

Annual variations in TB incidence rates should be interpreted with caution because of the small numbers involved that can lead to major fluctuations in rates from year to year.

All reported cases were in Regions 1 and 3 with 3 cases each. The largest number of cases was in the 20-39 years age group (4 cases), followed by the 40-59 and 60+ age groups (1 case each).

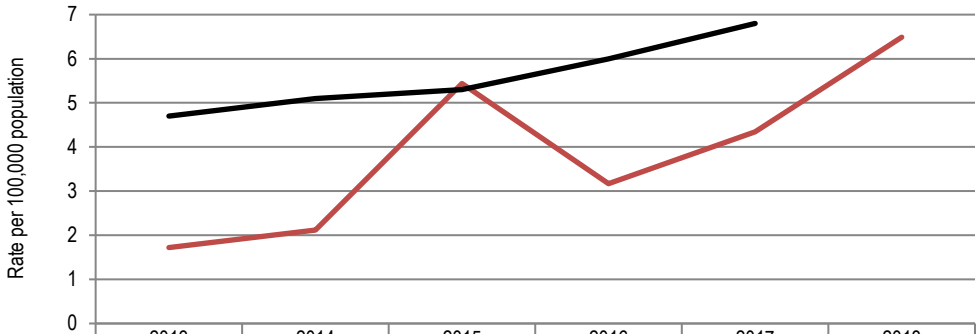
Pulmonary TB accounted for the majority of cases (3 cases), followed by TB in “Other organs” (2 cases) and bone and joint TB (1 case). The majority of TB cases (5 or 83.3%) were foreign-born. One case was aboriginal.

Looking at the 2017 treatment outcomes for the 8 reported cases that year, 2 were cured (negative culture at the end of treatment), 3 had completed their treatment but no culture done at the end of treatment and 3 were still receiving treatment.

9.3. Invasive Group A Streptococcal Disease

In 2018, a total of 50 confirmed cases (20 females, 30 males) of invasive group A streptococcal disease (iGAS) were reported to Public Health, with an incidence rate of 6.5 cases per 100,000 population. During the previous five years, an average of 25 cases were reported each year, with an average annual incidence rate of 3.4 cases per 100,000 population. Incidence rates of iGAS were consistently lower than national rates during the 5-year period, except for 2015 when the rate was slightly higher.

Graph 43. Number of Reported Cases of Invasive Group A Streptococcal Disease and Incidence Rates per 100,000 Population, New Brunswick and Canada, 2013-2018



	2013	2014	2015	2016	2017	2018
Number of NB Cases	13	16	41	24	33	50
NB Rates	1.7	2.1	5.4	3.2	4.3	6.5
Canada Rates	4.7	5.1	5.3	6.0	6.8	

Region 1 accounted for the majority of cases (20 cases or 40%), followed by Regions 2 (18 cases or 36%), 3 (9 cases or 18%), 6 (2 cases or 4%) and 4 (1 case or 2%).

The largest number of cases were in the 60+ years age group (18 cases), followed by the 40-59 (13 cases), the <20 and 30-39 (8 cases each), and the 20-29 (3 cases) years age groups.

The majority of cases (28%) were serotypes M1 and M12 (7 cases each), followed by serotypes M6 and M75 (6 cases each). These four serotypes accounted for 52% of all reported cases.

9.4. Group B Streptococcal Infection of the Newborn

In 2018, a single case of group B streptococcal infection of the newborn was reported to Public Health, with an incidence rate of 15.2 cases per 100,000 live births. During the period 2013-2017, an average of 2 cases were reported each year (range: 1 to 3), with an average annual incidence rate of 23.6 cases per 100,000 live births.

For further details regarding diseases transmitted via the respiratory route and direct contact, please refer to Appendix 6.

Appendix 1. List of Notifiable Diseases and Events

Notifiable Disease and Reportable Events
Office of the Chief Medical Officer of Health

2018

New Nouveau Brunswick

Timeline	Notifiable diseases and events	To be reported by	
		Laboratory	Clinicians (clinical illness)
Verbally within one hour — Please attach a label for your region that specifies the telephone number to be used during and after business hours **AND** **In writing by the end of the next working day** — Please attach a label for your region that specifies mailing address and fax number	Anthrax	✔	✔
	Botulism	✔	✔
	Cholera	✔	✔
	Clusters of illness thought to be food, water-borne or enteric	✔	✔
	Clusters of severe or atypical illness thought to be respiratory borne	✔	✔
	Diphtheria	✔	✔
	Hemorrhagic fever (viral)	✔	✔
	Influenza caused by a new subtype	✔	
	Measles	✔	✔
	Meningococcal disease (invasive)	✔	✔
	Plague	✔	✔
	Poliomyelitis due to wild type poliovirus	✔	✔
	Severe acute respiratory syndrome	✔	✔
	Smallpox	✔	✔
	Unusual clusters of suspect notifiable disease cases	✔	✔
	Yellow fever	✔	✔
Verbally within 24 hours — Please attach a label for your region that specifies the telephone number to be used during and after business hours **AND** **In writing within seven days** — Please attach a label for your region that specifies mailing address and fax number	Brucellosis	✔	✔
	Campylobacteriosis	✔	
	Cryptosporidiosis	✔	
	Cyclosporiasis	✔	
	Escherichia coli infection (Verotoxigenic)	✔	✔
	Exposure to a suspected rabid animal		✔
	Giardiasis	✔	
	Guillain-Barré syndrome		✔
	Hantavirus pulmonary syndrome	✔	✔
	Haemophilus influenzae infection– all serotypes (invasive)	✔	✔
	Hepatitis A	✔	✔
	Hepatitis B	✔	
	Hepatitis E	✔	
	Legionellosis	✔	✔
	Listeriosis (invasive)	✔	✔
	Mumps	✔	✔
	Paralytic shellfish poisoning		✔
	Pertussis	✔	✔
	Q fever	✔	✔
	Rabies	✔	✔
	Rubella (induding congenital)	✔	✔
	Salmonellosis	✔	
	Shigellosis	✔	
	Staphylococcus aureus foodborne intoxications	✔	✔
	Streptococcus group A infection(invasive)	✔	✔
	Tularemia	✔	✔
	Tuberculosis (active)	✔	✔
	Typhoid	✔	✔
	Unusual illness as per one of the following criteria: - presence of symptoms that do not fit any recognizable clinical picture - known aetiology but not expected to occur in New Brunswick - known aetiology that does not behave as expected - clusters presenting with unknown aetiology	✔	✔
	Varicella	✔	✔
	Vibrio species pathogenic to humans (other than Cholera)	✔	
	West Nile Virus infection	✔	✔
	Yersinosis	✔	
In writing within seven days — Please attach a label for your region that specifies mailing address and fax number	Adverse reaction to a vaccine or other immunizing agent		✔
	Chlamydial infection (genital)	✔	
	Clostridium difficile associated diarrhea	✔	✔
	Creutzfeld-Jacob disease (Classic and New Variant)		✔
	Cytomegalovirus (congenital/neonatal)	✔	✔
	Gonococcal infection	✔	
	Hepatitis C and G	✔	
	Hepatitis (other viral)	✔	✔
	Herpes (congenital/neonatal)	✔	✔
	Human Immunodeficiency Virus infection//Acquired Immunodeficiency Syndrome	✔	✔
	Influenza (laboratory confirmed)	✔	
	Leprosy	✔	✔
	Leptospirosis	✔	✔
	Lyme borreliosis	✔	✔
	Malaria	✔	
	Methicillin-resistant Staphylococcus aureus	✔	
	Pneumococcal infection (invasive)	✔	
	Psittacosis	✔	✔
	Rickettsial infection	✔	
	Streptococcus group B infection (neonatal)	✔	✔
	Syphilis(induding congenital)	✔	✔
	Tetanus	✔	✔
	Toxoplasmosis	✔	
	Vancomycin-resistant Enterococci	✔	

Appendix 2. Tables Related to Vaccine-Preventable Diseases

Table 2.1. Number of cases of vaccine-preventable diseases reported in New Brunswick and incidence rates per 100,000 population, 2013-2018.

Vaccine-Preventable Diseases	2013		2014		2015		2016		2017		2018	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Diphteria	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Haemophilus influenzae (unspecified)	5	0.7	8	1.1	4	0.5	9	1.2	15	2.0	14	1.8
Invasive Meningococcal Disease [Ω]	2	0.3	3	0.4	5	0.7	0	0.0	1	0.1	6	0.8
Invasive Pneumococcall Disease [§]	74	9.8	50	6.6	79	10.5	63	8.3	60	7.9	79	10.3
Measles	3	0.4	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0
Mumps	5	0.7	2	0.3	0	0.0	1	0.1	3	0.4	8	1.0
Pertussis	4	0.5	9	1.2	80	10.6	66	8.7	74	9.7	31	4.0
Rubella and Congenital Rubella Syndrome	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tetanus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Varicella	22	4.9	20	4.6	26	6.0	11	2.6	17	4.0	20	4.7

Data sources: Reportable Disease Surveillance System (RDSS) database, except for IMD and IPD. OCMOH, Disease Prevention and Control.
[Ω] Invasive Meningococcal Disease enhanced surveillance database. OCMOH, Disease Prevention and Control.
[§] Invasive Pneumococcal Disease enhanced surveillance database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Table 2.2. Number of cases of vaccine-preventable diseases reported in New Brunswick and incidence rates per 100,000 population, by Health Region, 2018.

Vaccine-Preventable Diseases	Region 1		Region 2		Region 3		Region 4		Region 5		Region 6		Region 7		NB	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Diphteria	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Haemophilus influenzae (unspecified)	2	0.9	3	1.7	2	1.1	2	4.1	0	0.0	2	2.5	3	7.1	14	1.8
Invasive Meningococcal Disease Ω	1	0.5	0	0.0	2	1.1	3	6.2	0	0.0	0	0.0	0	0.0	6	0.8
Invasive Pneumococcall Disease §	28	12.8	12	6.8	9	5.0	9	18.7	5	19.7	7	8.8	9	21.3	79	10.3
Measles	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Mumps	7	3.2	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3	0	0.0	8	1.0
Pertussis	7	3.2	14	8.0	5	2.8	0	0.0	0	0.0	4	5.0	1	2.4	31	4.0
Rubella and Congenital Rubella Syndrome	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tetanus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Varicella	12	9.5	5	5.0	1	0.9	1	4.2	0	0.0	1	2.7	0	0.0	20	4.7

Data sources: Reportable Disease Surveillance System (RDSS) database, except for IMD and IPD. OCMOH, Disease Prevention and Control.

Ω Invasive Meningococcal Disease enhanced surveillance database. OCMOH, Disease Prevention and Control.

§ Invasive Pneumococcal Disease enhanced surveillance database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Table 2.3. Number of cases of vaccine-preventable diseases reported in New Brunswick and incidence rates per 100,000 population, by age group and sex, 2018.

Vaccine-Preventable Diseases		Age groups																		Total	
		<1		1-4		5-9		10-14		15-19		20-24		25-29		30-39		40-59		60+			
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Diphteria A29:X46	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Haemophilus influenzae (unspecified)	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	0	0.0	4	3.8	5	1.3
	Female	0	0.0	0	0.0	1	5.3	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	1	0.9	6	5.1	9	2.3
	Total	**0**	**0.0**	**0**	**0.0**	**1**	**2.6**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**2**	**2.2**	**1**	**0.5**	**10**	**4.5**	**14**	**1.8**
Invasive Meningococcal Disease [Ω]	Male	0	0.0	1	7.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	0	0.0	0	0.0	2	0.5
	Female	0	0.0	0	0.0	1	5.3	1	5.3	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	1	0.9	4	1.0
	Total	**0**	**0.0**	**1**	**3.6**	**1**	**2.6**	**1**	**2.6**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**1.1**	**1**	**0.5**	**1**	**0.5**	**6**	**0.8**
Invasive Pneumococcal Disease [§]	Male	0	0.0	3	21.3	0	0.0	0	0.0	1	4.8	0	0.0	0	0.0	6	13.5	9	8.2	24	23.1	43	11.3
	Female	0	0.0	1	7.3	1	5.3	0	0.0	1	5.0	2	9.8	0	0.0	1	2.2	9	8.1	21	17.9	36	9.2
	Total	**0**	**0.0**	**4**	**14.4**	**1**	**2.6**	**0**	**0.0**	**2**	**4.9**	**2**	**4.6**	**0**	**0.0**	**7**	**7.8**	**18**	**8.1**	**45**	**20.4**	**79**	**10.3**
Measles	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Mumps	Male	0	0.0	0	0.0	0	0.0	0	0.0	1	4.8	4	17.7	1	4.5	0	0.0	1	0.9	0	0.0	7	1.8
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	0	0.0	0	0.0	1	0.3
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**2.4**	**4**	**9.3**	**1**	**2.3**	**1**	**1.1**	**1**	**0.5**	**0**	**0.0**	**8**	**1.0**
Pertussis	Male	3	89.2	1	7.1	0	0.0	2	10.1	3	14.4	1	4.4	0	0.0	2	4.5	3	2.7	1	1.0	16	4.2
	Female	0	0.0	1	7.3	3	16.0	4	21.2	0	0.0	2	9.8	0	0.0	3	6.7	2	1.8	0	0.0	15	3.9
	Total	**3**	**45.5**	**2**	**7.2**	**3**	**7.8**	**6**	**15.5**	**3**	**7.3**	**3**	**7.0**	**0**	**0.0**	**5**	**5.6**	**5**	**2.3**	**1**	**0.5**	**31**	**4.0**
Rubella and Congenital Rubella Syndrome	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Tetanus	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Varicella	Male	0	0.0	0	0.0	3	15.4	5	25.2	0	0.0	3	13.3	0	0.0	0	0.0	2	1.8	0	0.0	13	6.0
	Female	0	0.0	1	7.3	3	16.0	2	10.6	0	0.0	0	0.0	0	0.0	1	2.2	0	0.0	0	0.0	7	3.3
	Total	**0**	**0.0**	**1**	**3.6**	**6**	**15.7**	**7**	**18.1**	**0**	**0.0**	**3**	**7.0**	**0**	**0.0**	**1**	**1.1**	**2**	**0.9**	**0**	**0.0**	**20**	**4.7**

Data sources: Reportable Disease Surveillance System (RDSS) database, except for IMD and IPD. OCMOH, Disease Prevention and Control.

[Ω] Invasive Meningococcal Disease enhanced surveillance database. OCMOH, Disease Prevention and Control.

[§] Invasive Pneumococcal Disease enhanced surveillance database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Appendix 3. Tables Related to Enteric, Food and Waterborne Diseases

Table 3.1. Number of cases of enteric, food and waterborne diseases reported in New Brunswick and incidence rates per 100,000 population, 2013-2018.

	2013		2014		2015		2016		2017		2018	
Enteric, Food and Waterborne Diseases	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**
Campylobacteriosis	212	28.1	229	30.4	174	23.1	162	21.4	211	27.8	200	26.0
Clostridium difficile											716	92.9
Cryptosporidiosis	16	2.1	17	2.3	29	3.8	32	4.2	18	2.4	36	4.7
E. coli O157	10	1.3	5	0.7	5	0.7	2	0.3	10	1.3	7	0.9
Giardiasis	95	12.6	97	12.9	99	13.1	95	12.6	73	9.6	90	11.7
Hepatitis A	9	1.2	0	0.0	1	0.1	1	0.1	1	0.1	2	0.3
Listeriosis	9	1.2	2	0.3	4	0.5	5	0.7	4	0.5	5	0.6
Salmonellosis	155	20.5	190	25.2	170	22.6	134	17.7	158	20.8	180	23.4
Shigellosis	7	0.9	5	0.7	4	0.5	7	0.9	3	0.4	9	1.2
Typhoid Fever	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Vibrio species	3	0.4	3	0.4	5	0.7	4	0.5	3	0.4	10	1.3
Yersiniosis	5	0.7	5	0.7	2	0.3	0	0.0	1	0.1	1	0.1

Data source: Enterics database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Table 3.2. Number of cases of enteric, food and waterborne diseases reported in New Brunswick and incidence rates per 100,000 population, by Health Region, 2018.

	Region 1		Region 2		Region 3		Region 4		Region 5		Region 6		Region 7		NB	
Enteric, Food and Waterborne Diseases	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**
Campylobacteriosis	45	20.6	44	25.1	34	18.7	39	80.9	10	39.3	22	27.7	6	14.2	200	26.0
Clostridium difficile	218	99.7	152	86.8	141	77.6	40	82.9	54	212.4	59	74.4	52	123.3	716	92.9
Cryptosporidiosis	10	4.6	7	4.0	12	6.6	1	2.1	1	3.9	2	2.5	3	7.1	36	4.7
E. coli O157	4	1.8	1	0.6	0	0.0	0	0.0	0	0.0	1	1.3	1	2.4	7	0.9
Giardiasis	21	9.6	21	12.0	22	12.1	3	6.2	9	35.4	12	15.1	2	4.7	90	11.7
Hepatitis A	0	0.0	1	0.6	0	0.0	0	0.0	1	3.9	0	0.0	0	0.0	2	0.3
Listeriosis	4	1.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.4	5	0.6
Salmonellosis	52	23.8	42	24.0	33	18.2	13	27.0	7	27.5	22	27.7	11	26.1	180	23.4
Shigellosis	3	1.4	2	1.1	3	1.7	1	2.1	0	0.0	0	0.0	0	0.0	9	1.2
Typhoid Fever	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Vibrio species	1	0.5	1	0.6	0	0.0	1	2.1	1	3.9	6	7.6	0	0.0	10	1.3
Yersiniosis	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1

Data source: Enterics database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

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Table 3.3. Number of cases of enteric, food and waterborne diseases reported in New Brunswick and incidence rates per 100,000 population, by age group and sex, 2018.

Enteric, Food and Waterborne Diseases		Age groups																		Total	
		<1		1-4		5-9		10-14		15-19		20-24		25-29		30-39		40-59		60+			
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Campylobacteriosis	Male	1	29.7	6	42.5	1	5.1	1	5.0	5	24.0	6	26.5	5	22.5	11	24.7	36	32.6	32	30.8	104	27.3
	Female	0	0.0	5	36.7	2	10.7	2	10.6	4	19.9	4	19.6	5	23.9	12	26.8	32	28.7	30	25.6	96	24.7
	Total	**1**	**15.2**	**11**	**39.7**	**3**	**7.8**	**3**	**7.7**	**9**	**22.0**	**10**	**23.2**	**10**	**23.2**	**23**	**25.8**	**68**	**30.6**	**62**	**28.1**	**200**	**26.0**
Clostridium difficile	Male	3	89.2	7	49.6	6	30.8	3	15.1	3	14.4	6	26.5	7	31.5	22	49.4	64	58.0	179	172.3	300	78.7
	Female	2	62.0	5	36.7	3	16.0	4	21.2	5	24.9	13	63.6	11	52.5	30	67.1	99	88.7	244	208.4	416	106.9
	Total	**5**	**75.9**	**12**	**43.3**	**9**	**23.5**	**7**	**18.1**	**8**	**19.6**	**19**	**44.1**	**18**	**41.7**	**52**	**58.3**	**163**	**73.4**	**423**	**191.4**	**716**	**92.9**
Cryptosporidiosis	Male	0	0.0	0	0.0	1	5.1	1	5.0	1	4.8	2	8.8	2	9.0	5	11.2	5	4.5	2	1.9	19	5.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	1	5.0	2	9.8	3	14.3	6	13.4	5	4.5	0	0.0	17	4.4
	Total	**0**	**0.0**	**0**	**0.0**	**1**	**2.6**	**1**	**2.6**	**2**	**4.9**	**4**	**9.3**	**5**	**11.6**	**11**	**12.3**	**10**	**4.5**	**2**	**0.9**	**36**	**4.7**
E. coli O157	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	1	1.0	2	0.5
	Female	0	0.0	0	0.0	1	5.3	0	0.0	0	0.0	1	4.9	0	0.0	2	4.5	1	0.9	0	0.0	5	1.3
	Total	**0**	**0.0**	**0**	**0.0**	**1**	**2.6**	**0**	**0.0**	**0**	**0.0**	**1**	**2.3**	**0**	**0.0**	**2**	**2.2**	**2**	**0.9**	**1**	**0.5**	**7**	**0.9**
Giardiasis	Male	0	0.0	2	14.2	1	5.1	3	15.1	1	4.8	3	13.3	0	0.0	7	15.7	16	14.5	24	23.1	57	14.9
	Female	0	0.0	0	0.0	3	16.0	0	0.0	1	5.0	0	0.0	0	0.0	3	6.7	9	8.1	17	14.5	33	8.5
	Total	**0**	**0.0**	**2**	**7.2**	**4**	**10.5**	**3**	**7.7**	**2**	**4.9**	**3**	**7.0**	**0**	**0.0**	**10**	**11.2**	**25**	**11.3**	**41**	**18.6**	**90**	**11.7**
Hepatitis A	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	1	5.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	2	0.5
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**2.6**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**0.5**	**2**	**0.3**
Listeriosis	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	1	0.3
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	3.4	4	1.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**5**	**2.3**	**5**	**0.6**
Salmonellosis	Male	0	0.0	5	35.4	3	15.4	1	5.0	7	33.6	6	26.5	4	18.0	11	24.7	18	16.3	26	25.0	81	21.2
	Female	0	0.0	4	29.4	2	10.7	7	37.1	7	34.9	5	24.5	3	14.3	7	15.6	24	21.5	40	34.2	99	25.4
	Total	**0**	**0.0**	**9**	**32.4**	**5**	**13.1**	**8**	**20.7**	**14**	**34.2**	**11**	**25.5**	**7**	**16.2**	**18**	**20.2**	**42**	**18.9**	**66**	**29.9**	**180**	**23.4**
Shigellosis	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.4	1	4.5	1	2.2	2	1.8	0	0.0	5	1.3
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.8	0	0.0	0	0.0	3	2.6	4	1.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**2.3**	**2**	**4.6**	**1**	**1.1**	**2**	**0.9**	**3**	**1.4**	**9**	**1.2**
Typhoid Fever	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Vibrio species	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	0	0.0	3	2.9	4	1.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	5	4.3	6	1.5
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**1.1**	**1**	**0.5**	**8**	**3.6**	**10**	**1.3**
Yersiniosis	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	0	0.0	1	0.3
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**0.5**	**0**	**0.0**	**1**	**0.1**

Data source: Enterics database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Table 3.4. Number of regional enteric clusters or outbreaks reported in New Brunswick, by type of setting and Health Region, 2018.

Types of Setting	Clusters / Outbreaks							
	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	NB
Institutional- Non residential	10	11	23	1	1	2	0	48
Institutional- Residential	0	8	5	2	1	0	0	16
Recreational facility	0	1	0	0	0	0	0	1
Total	10	20	28	3	2	2	0	65

Table 3.5. Number of regional enteric clusters or outbreaks reported in New Brunswick, by causative agent and Health Region, 2018.

Causative Agents	Clusters / Outbreaks							
	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	NB
Norovirus	0	6	1	2	0	0	0	9
Rotavirus	0	1	2	0	0	0	0	3
Adenovirus	0	0	1	0	0	0	0	1
Sapovirus	1	0	0	0	0	0	0	1
Salmonella enteritidis	1	0	0	0	0	0	0	1
No organisms identified	8	13	24	1	2	2	0	50
Total	10	20	28	3	2	2	0	65

Data source: Outbreak Summaries module, Canadian Network for Public Health Intelligence (CNPHI).

Appendix 4. Tables Related to Sexually Transmitted and Bloodborne infections

Table 4.1. Number of cases of sexually transmitted and bloodborne infections reported in New Brunswick and incidence rates per 100,000 population, 2013-2018.

Sexually Transmitted and Bloodborne Infections	2013		2014		2015		2016		2017		2018	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
AIDS §	1	0.1	2	0.3	1	0.1	4	0.5	0	0.0	2	0.3
HIV §	6	0.8	4	0.5	9	1.2	7	0.9	12	1.6	20	2.6
Chlamydia (genital)	1,767	233.8	1,738	230.5	1,880	249.4	1,928	254.8	2,095	275.8	2,170	281.6
Gonorrhea (genital)	47	6.2	44	5.8	50	6.6	73	9.6	58	7.6	95	12.3
Hepatitis B (Acute)	1	0.1	9	1.2	1	0.1	10	1.3	8	1.1	16	2.1
Hepatitis B (Chronic)	43	5.7	30	4.0	43	5.7	69	9.1	44	5.8	52	6.7
Hepatitis C	197	26.1	180	23.9	178	23.6	181	23.9	247	32.5	295	38.3
Syphilis (Infectious)	34	4.5	27	3.6	32	4.2	14	1.8	20	2.6	21	2.7
Syphilis (All)	48	6.4	46	6.1	45	6.0	31	4.1	33	4.3	56	7.3

Data sources: Reportable Disease Surveillance System (RDSS) database, except for HIV and AIDS. OCMOH, Disease Prevention and Control.
§ HIV/AIDS Case Report Surveillance System database.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Table 4.2. Number of cases of sexually transmitted and bloodborne infections reported in New Brunswick and incidence rates per 100,000 population, by Health Region, 2018.

Sexually Transmitted and Bloodborne Infections	Region 1		Region 2		Region 3		Region 4		Region 5		Region 6		Region 7		NB	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Chlamydia (genital)	792	362.2	405	231.1	656	361.2	72	149.3	48	188.8	117	147.5	80	189.7	2,170	281.6
Gonorrhea (genital)	35	16.0	11	6.3	31	17.1	2	4.1	2	7.9	6	7.6	8	19.0	95	12.3
Hepatitis B (Acute)	12	5.5	0	0.0	1	0.6	0	0.0	1	3.9	1	1.3	1	2.4	16	2.1
Hepatitis B (Chronic)	16	7.3	8	4.6	18	9.9	3	6.2	3	11.8	2	2.5	2	4.7	52	6.7
Hepatitis C	102	46.6	74	42.2	66	36.3	6	12.4	2	7.9	12	15.1	33	78.3	295	38.3
Syphilis (Infectious)	12	5.5	1	0.6	5	2.8	0	0.0	1	3.9	2	2.5	0	0.0	21	2.7
Syphilis (All)	28	12.8	8	4.6	12	6.6	0	0.0	2	7.9	4	5.0	2	4.7	56	7.3

Data source: Reportable Disease Surveillance System (RDSS) database. OCMOH, Disease Prevention and Control.

Notes: HIV and AIDS data were excluded for confidentiality reasons.
Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Table 4.3. Number of cases of sexually transmitted and bloodborne infections reported in New Brunswick and incidence rates per 100,000 population, by age group and sex, 2018.

Sexually Transmitted and Bloodborne Infections		Age groups																		Total	
		<1		1-4		5-9		10-14		15-19		20-24		25-29		30-39		40-59		60+			
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
AIDS [§]	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.8	0	0.0	2	0.5
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**2**	**0.9**	**0**	**0.0**	**2**	**0.3**
HIV [§]	Male	0	0.0	0	0.0	0	0.0	0	0.0	1	4.8	3	13.3	1	4.5	2	4.5	9	8.2	0	0.0	16	4.2
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.9	1	4.8	1	2.2	1	0.9	0	0.0	4	1.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**2.4**	**4**	**9.3**	**2**	**4.6**	**3**	**3.4**	**10**	**4.5**	**0**	**0.0**	**20**	**2.6**
Chlamydia (genital)	Male	0	0.0	0	0.0	0	0.0	1	5.0	114	547.4	328	1,449.1	169	761.1	109	244.9	44	39.8	3	2.9	768	201.4
	Female	0	0.0	0	0.0	0	0.0	4	21.2	406	2,024.2	589	2,882.7	210	1,001.9	149	333.1	43	38.5	1	0.9	1,402	360.1
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**5**	**12.9**	**520**	**1,272.0**	**917**	**2,129.3**	**379**	**878.0**	**258**	**289.1**	**87**	**39.2**	**4**	**1.8**	**2,170**	**281.6**
Gonorrhea (genital)	Male	0	0.0	0	0.0	0	0.0	0	0.0	4	19.2	12	53.0	13	58.5	24	53.9	12	10.9	1	1.0	66	17.3
	Female	0	0.0	0	0.0	0	0.0	0	0.0	2	10.0	7	34.3	6	28.6	11	24.6	3	2.7	0	0.0	29	7.4
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**6**	**14.7**	**19**	**44.1**	**19**	**44.0**	**35**	**39.2**	**15**	**6.8**	**1**	**0.5**	**95**	**12.3**
Hepatitis B (Acute)	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.4	0	0.0	0	0.0	8	7.2	2	1.9	11	2.9
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	3	2.7	1	0.9	5	1.3
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**2.3**	**0**	**0.0**	**1**	**1.1**	**11**	**5.0**	**3**	**1.4**	**16**	**2.1**
Hepatitis B (Chronic)	Male	0	0.0	0	0.0	0	0.0	0	0.0	1	4.8	3	13.3	4	18.0	11	24.7	12	10.9	1	1.0	32	8.4
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	19.1	9	20.1	4	3.6	3	2.6	20	5.1
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**2.4**	**3**	**7.0**	**8**	**18.5**	**20**	**22.4**	**16**	**7.2**	**4**	**1.8**	**52**	**6.7**
Hepatitis C	Male	0	0.0	0	0.0	0	0.0	0	0.0	3	14.4	15	66.3	29	130.6	47	105.6	55	49.8	24	23.1	173	45.4
	Female	0	0.0	0	0.0	0	0.0	0	0.0	2	10.0	15	73.4	31	147.9	41	91.6	23	20.6	10	8.5	122	31.3
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**5**	**12.2**	**30**	**69.7**	**60**	**139.0**	**88**	**98.6**	**78**	**35.1**	**34**	**15.4**	**295**	**38.3**
Syphilis (Infectious)	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	17.7	4	18.0	5	11.2	7	6.3	0	0.0	20	5.2
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	0	0.0	1	0.3
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**4**	**9.3**	**4**	**9.3**	**5**	**5.6**	**8**	**3.6**	**0**	**0.0**	**21**	**2.7**
Syphilis (All)	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	39.8	11	49.5	10	22.5	9	8.2	9	8.7	48	12.6
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	3	2.7	4	3.4	8	2.1
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**9**	**20.9**	**11**	**25.5**	**11**	**12.3**	**12**	**5.4**	**13**	**5.9**	**56**	**7.3**

Data sources: Reportable Disease Surveillance System (RDSS) database, except for HIV and AIDS. OCMOH, Disease Prevention and Control.
[§] HIV/AIDS Case Report Surveillance System database.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Appendix 5. Tables Related to Vectorborne and Zoonotic Diseases

Table 5.1. Number of cases of vectorborne and zoonotic diseases reported in New Brunswick and incidence rates per 100,000 population, 2013-2018.

Vectorborne and Zoonotic Diseases	2013		2014		2015		2016		2017		2018	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Leptospirosis	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0
Lyme Disease	5	0.7	5	0.7	11	1.5	8	1.1	29	3.8	20	2.6
Malaria	10	1.3	3	0.4	10	1.3	7	0.9	6	0.8	2	0.3
Q fever	1	0.1	2	0.3	0	0.0	1	0.1	1	0.1	0	0.0
Rabies	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tularemia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
West Nile Virus	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
Yellow Fever	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Zika	0	0.0	0	0.0	0	0.0	2	0.3	2	0.3	1	0.1

Data source: Reportable Disease Surveillance System (RDSS) database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Table 5.2. Number of cases of vectorborne and zoonotic diseases reported in New Brunswick and incidence rates per 100,000 population, by Health Region, 2018.

Vectorborne and Zoonotic Diseases	Region 1		Region 2		Region 3		Region 4		Region 5		Region 6		Region 7		NB	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Leptospirosis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Lyme Disease	1	0.5	17	9.7	1	0.6	0	0.0	0	0.0	1	1.3	0	0.0	20	2.6
Malaria	0	0.0	0	0.0	1	0.6	1	2.1	0	0.0	0	0.0	0	0.0	2	0.3
Q fever	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Rabies	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tularemia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
West Nile Virus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Yellow Fever	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Zika	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1

Data source: Reportable Disease Surveillance System (RDSS) database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Table 5.3. Number of cases of vectorborne and zoonotic diseases reported in New Brunswick and incidence rates per 100,000 population, by age group and sex, 2018.

Vectorborne and Zoonotic diseases		Age groups																		Total	
		<1		1-4		5-9		10-14		15-19		20-24		25-29		30-39		40-59		60+			
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Leptospirosis	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Lyme Disease	Male	0	0.0	0	0.0	1	5.1	5	25.2	1	4.8	1	4.4	0	0.0	0	0.0	2	1.8	5	4.8	15	3.9
	Female	0	0.0	0	0.0	1	5.3	0	0.0	0	0.0	0	0.0	1	4.8	0	0.0	0	0.0	3	2.6	5	1.3
	Total	**0**	**0.0**	**0**	**0.0**	**2**	**5.2**	**5**	**12.9**	**1**	**2.4**	**1**	**2.3**	**1**	**2.3**	**0**	**0.0**	**2**	**0.9**	**8**	**3.6**	**20**	**2.6**
Malaria	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.8	0	0.0	2	0.5
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**2**	**0.9**	**0**	**0.0**	**2**	**0.3**
Q fever	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Rabies	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Tularemia	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Wets Nile Virus	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Yellow Fever	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Zika	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.6	0	0.0	1	0.3
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**1.5**	**0**	**0.0**	**1**	**0.1**

Data source: Reportable Disease Surveillance System (RDSS) database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.

Appendix 6. Tables Related to Diseases Transmitted via the Respiratory Route and Direct Contact

Table 6.1. Number of reported cases of selected diseases transmitted via the respiratory route and direct contact and incidence rates per 100,000 population, New Brunswick, 2013-2018.

Diseases Transmitted via the Respiratory Route and Direct Contact	2013		2014		2015		2016		2017		2018	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Invasive Group A Streptococcal Disease §	13	1.7	16	2.1	41	5.4	24	3.2	33	4.3	50	6.5
Group B Streptococcal Infection of the Newborn †	3	43.3	1	14.5	1	14.9	2	29.9	1	15.0	1	15.2
Legionellosis †	3	0.4	3	0.4	10	1.3	6	0.8	3	0.4	8	1.0
Tuberculosis ‡	3	0.4	5	0.7	6	0.8	12	1.6	8	1.1	6	0.8

Table 6.2. Number of reported cases of selected diseases transmitted via the respiratory route and direct contact and incidence rates per 100,000 population, by Health Region, New Brunswick, 2018.

Diseases Transmitted via the Respiratory Route and Direct Contact	Region 1		Region 2		Region 3		Region 4		Region 5		Region 6		Region 7		NB	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Invasive Group A Streptococcal Disease §	20	9.1	18	10.3	9	5.0	1	2.1	0	0.0	2	2.5	0	0.0	50	6.5
Group B Streptococcal Infection of the Newborn †	1	52.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	15.2
Legionellosis †	6	2.7	1	0.6	0	0.0	0	0.0	0	0.0	1	1.3	0	0.0	8	1.0
Tuberculosis ‡	3	1.4	0	0.0	3	1.7	0	0.0	0	0.0	0	0.0	0	0.0	6	0.8

Data sources: § iGAS enhanced database. OCMOH, Disease Prevention and Control.
† Reportable Disease Surveillance System (RDSS) database. OCMOH, Disease Prevention and Control.
‡ Active TB enhanced database. OCMOH, Disease Prevention and Control.

Notes: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.
Rates for group B streptococcal infection of the newborn are based on live birth estimates from Statistics Canada, Demography Division. Date modified August 13, 2018.

Table 6.3. Number of reported cases of selected diseases transmitted via the respiratory route and direct contact and incidence rates per 100,000 population, by age group and sex, New Brunswick, 2018.

Diseases Transmitted via the Respiratory Route or Direct Contact		Age groups																		Total	
		<1		1-4		5-9		10-14		15-19		20-24		25-29		30-39		40-59		60+			
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Invasive Group A Streptococcal Disease [§]	Male	0	0.0	0	0.0	1	5.1	2	10.1	2	9.6	0	0.0	0	0.0	4	9.0	8	7.2	13	12.5	30	7.9
	Female	0	0.0	3	22.0	0	0.0	0	0.0	0	0.0	2	9.8	1	4.8	4	8.9	5	4.5	5	4.3	20	5.1
	Total	**0**	**0.0**	**3**	**10.8**	**1**	**2.6**	**2**	**5.2**	**2**	**4.9**	**2**	**4.6**	**1**	**2.3**	**8**	**9.0**	**13**	**5.9**	**18**	**8.1**	**50**	**6.5**
Legionellosis [†]	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	2.7	3	2.9	6	1.6
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.7	2	0.5
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**3**	**1.4**	**5**	**2.3**	**8**	**1.0**
Tuberculosis [‡]	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.4	1	4.5	0	0.0	0	0.0	0	0.0	2	0.5
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.8	1	2.2	1	0.9	1	0.9	4	1.0
	Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**1**	**2.3**	**2**	**4.6**	**1**	**1.1**	**1**	**0.5**	**1**	**0.5**	**6**	**0.8**

Data sources: [§] iGAS enhanced database. OCMOH, Disease Prevention and Control.
[†] Reportable Disease Surveillance System (RDSS) database. OCMOH, Disease Prevention and Control.
[‡] Active TB enhanced database. OCMOH, Disease Prevention and Control.

Note: Rates are based on population estimates from Statistics Canada, Demography Division, released March 2019.