

New Brunswick Communicable Disease 2017 Annual Surveillance Report

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1. Introduction

Reporting of notifiable diseases and reportable events in New Brunswick (NB) is governed by the New Brunswick *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 reportable 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, aberration and outbreak detection, reporting, guiding response strategies, and evaluating the effect of these strategies to inform policies and programs.

As per the *Act*, NB Public Health statistics are provided in 7 regions called “Health Regions”². These areas correspond to both Regional Health Authorities (RHAs) as follows: Horizon Health Network (Health Regions 2, 3, and 7) and 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 reportable events reported in NB in 2017 and compare 2017 trends to those reported in the previous five years, 2012-2016.

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 are collected from the Health Regions in New Brunswick (NB) through the Reportable Disease Surveillance System (RDSS). All diseases are classified by the date they were reported to the health authority.
- Data for enteric diseases were obtained through the enteric database maintained within the Office of the Chief Medical Officer of Health (OCMOH). Outbreak summaries for enteric diseases became reportable as part of the Outbreak Summaries module within the Canadian Network for Public Health Intelligence (CNPHI) as of January 1, 2017. Each region reports its own outbreaks as part of weekly enteric extracts.
- Data for invasive meningococcal disease (IMD), invasive pneumococcal disease (IPD), invasive group A streptococcal disease (IGAS), measles, mumps, rubella, legionella, tuberculosis, and Lyme disease are collected through enhanced surveillance systems maintained at the OCMOH, which are derived from reporting by Health Regions in NB using forms specifically designed for each disease.
- Data for HIV and AIDS are collected through the HIV/AIDS Case Report Surveillance System database (HACRSS).
- Data for infectious syphilis, for 2012, were obtained through the enhanced syphilis database designed for the purpose of the outbreak.
- Data for the 2012 pertussis outbreak were obtained through the enhanced pertussis database designed for the purpose of the outbreak.
- The denominators used to calculate provincial rates were population estimates from Statistics Canada, Demography Division; data received May 2018.
- National disease rates for 2012 to 2016 were retrieved online on the [Notifiable Diseases On-Line](#) page at Public Health Agency of Canada (PHAC) website. National disease rates for year 2017 were not available at the time of writing of this report.

3. Limitations

It should be noted that the numbers cited in this report reflect only those of confirmed cases that meet the [National Case Definitions](#) and that are reported to Public Health. As a result, the data may under-represent the true number of cases in the population. This is particularly relevant for those diseases where cases remain asymptomatic or diseases that have a wide clinical spectrum. Persons experiencing severe illness are more likely to present to a healthcare provider. Numbers and rates in the report are based on 2017 notifications received as of June 2018, and may be subject to minor changes in future reports.

Please use caution when interpreting age-specific, gender-specific or region-specific annual incidence rates for some diseases; the relatively low number of cases can result in major fluctuations in the rate from year to year.

National data provided by PHAC that are used in this report are also subject to change.

4. 2017 Highlights

4.1. Main Disease Trends

- **Vaccine Preventable Diseases (VPD):**
In comparison to the previous 5-year average, lower incidence rates were observed for IPD, IMD and varicella. Incidence rates were higher for *Haemophilus influenza* and pertussis. One case of measles, and 3 cases of mumps were reported. No cases of rubella, diphtheria, tetanus or poliomyelitis were reported.
- **Enteric, Food, and Waterborne Diseases:**
Higher incidence rate of campylobacteriosis was noted. Rates for cryptosporidiosis, giardiasis, salmonellosis, hepatitis A, yersiniosis, shigellosis, vibrio species, and listeriosis were lower in comparison to the previous 5-year averages. Rates for E. Coli O157:H7 and typhoid fever were comparable to the previous 5-year averages.
- **Sexually Transmitted and Blood Borne Diseases:**
Compared to the previous 5-year average, higher incidence rates of chlamydia, gonorrhea, acute hepatitis B, hepatitis C and HIV were observed. Incidence rates were lower for infectious syphilis in comparison to the previous 5-year average.
- **Vectorborne and Zoonotic Diseases:**
For Lyme disease, an increase in the incidence rate was noted in this year in comparison with the average rates of the previous 5-years with the majority of cases (96.5%) reported in Region 2. Slight decrease in the incidence rate was noted for malaria in comparison with the average rate of the previous 5-years. There were 2 cases of Zika and one case each of Q-fever and leptospirosis. No cases of human rabies, tularemia, yellow fever or West Nile Virus were reported this year.
- **Respiratory and Direct Contact Diseases:**
The incidence rates for tuberculosis and invasive group A streptococcal (iGAS) diseases were higher than the average rates reported in the previous 5-years. Whereas incidence rate for legionella was lower than what was reported in the previous 5-years. For group B streptococcal infection of newborn, only 1 case was reported in the current year.

4.2. Provincial Outbreaks

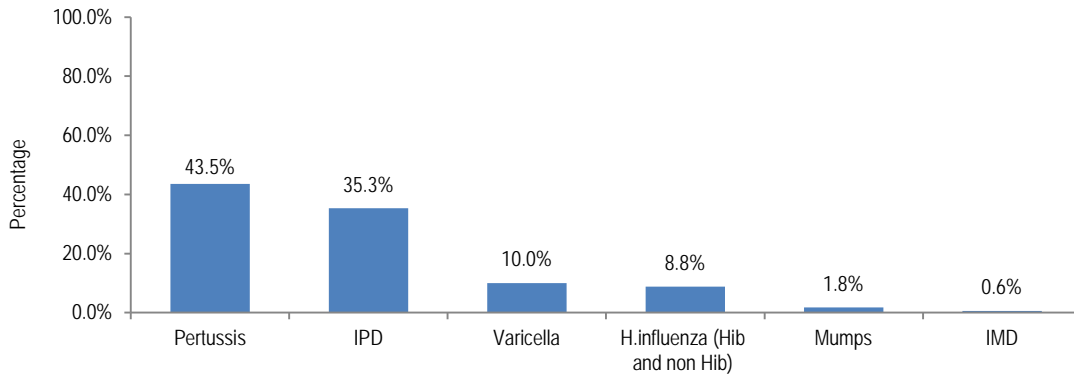
No multi-regional outbreaks were reported in this year.

5. Vaccine preventable diseases (VPD)

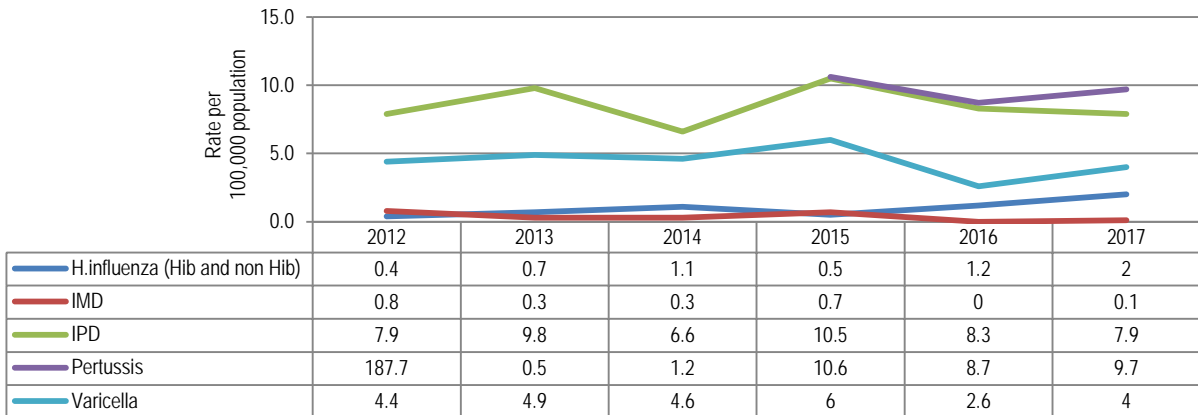
Vaccine preventable diseases (VPDs) are conditions which have vaccines available to protect against them and as such their epidemiology remains mostly stable, except with the occurrence of outbreaks.

For information on the New Brunswick (NB) Routine Immunization Schedule please refer to the [New Brunswick Immunization Guide](#).

Graph 1. Vaccine Preventable Diseases in New Brunswick, 2017



Graph 2. Incidence Rates per 100,000 population of some Vaccine Preventable Diseases in New Brunswick, 2012-2017.



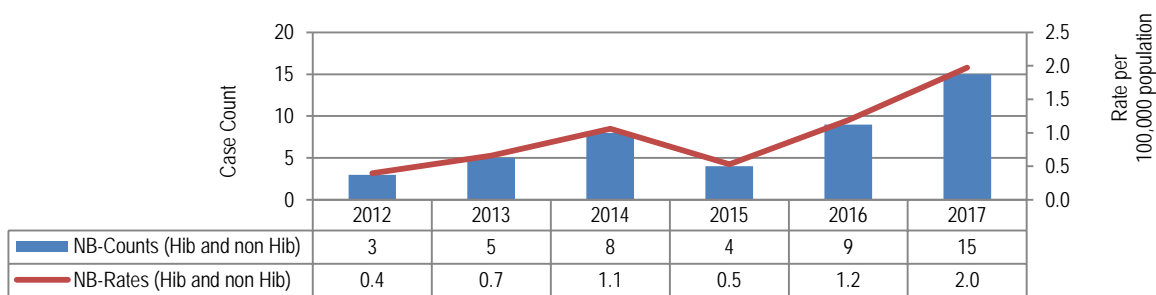
5.1. *Haemophilus influenzae* type b and non-type b (Hib and non Hib)

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. Canadian rates are not presented as they account for *Haemophilus influenzae* type b only.

In 2017, the incidence rate of *Haemophilus influenzae* was 2 per 100,000 population which accounted for 15 cases reported to Public Health. Over the last 5 years, there was an average of 6 cases of *Haemophilus influenzae* (Hib and non Hib) per year, with a 5-year average incidence rate of 0.8 cases per 100,000 population.

Graph 3. *Haemophilus influenzae* (Hib and non Hib) Case Counts and Rates per 100,000 population for New Brunswick, 2012-2017.



In 2017, cases were reporting among all age groups with the majority (60%) were among those aged 60 years and older. This is consistent with the overall distribution of cases in the past 5 years, where the majority of cases occurred in the 60 years and older age group. Cases were reported from all regions except Region 5, with the majority being reported in Region 1 (47%). Information on strain type was available on 9 cases, of which 1 was type b. The increase in 2017 was most likely attributed to an enhancement in the reporting of untypable strains.

The annual changes in the *Haemophilus influenzae* incidence rate should be interpreted with caution: the relatively low number of cases can result in major fluctuations in the rate from year to year.

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

5.2. Influenza

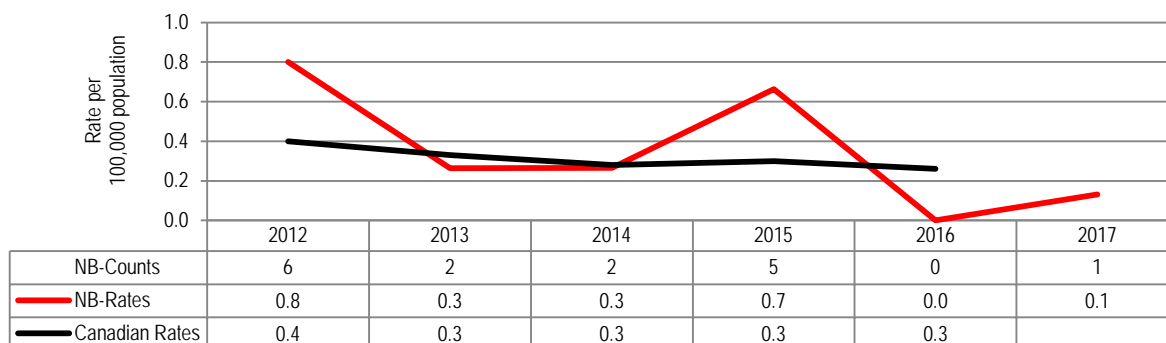
Influenza activity in New Brunswick is monitored throughout the year; however, the reporting period differs from the calendar reporting year. [NB Influenza Activity summary report 2017-2018 season](#) can be accessed at the OCMOH webpage. For the summary of influenza activity in New Brunswick for previous seasons, please consult the [Influenza Surveillance Reports](#) webpage.

5.3. Invasive Meningococcal Disease (IMD)

In 2017, one case of IMD was reported to Public Health accounting for an incidence rate of 0.1 case per 100,000 population. Over the last 5 years, there was an average of 3 cases of IMD per year and the 5-year average incidence rate was 0.4 cases per 100,000 population. Overall, the incidence rate in NB has been lower than or equal to the national rate, with the exception of 2012 and 2015 when higher incidence rates were recorded.

The annual changes in the IMD incidence rate should be interpreted with caution; the relatively low number of cases can result in major fluctuations in the rate from year to year.

Graph 4. IMD Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



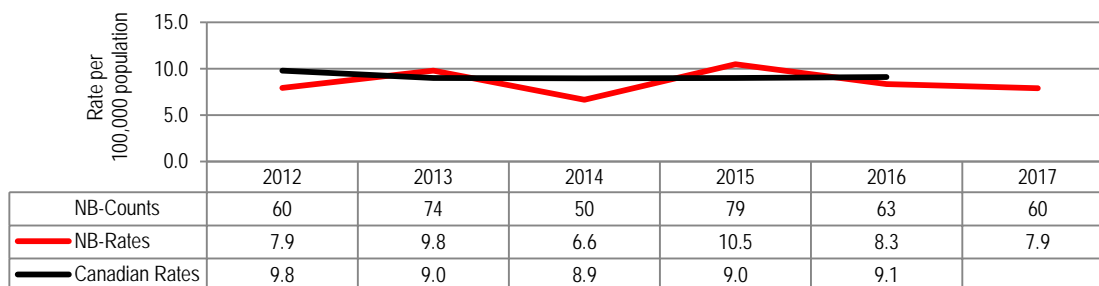
The only serogroup among IMD cases, in all age groups and across 2012 to 2017, was serogroup B. Since the introduction of meningococcal C vaccine into the routine schedule at one year of age and an adolescent catch up program introduced in 2005, the incidence of serogroup C has steadily declined with no associated cases occurring since 2008. Vaccine against meningococcal type B was introduced in Canada in 2014, but is not routinely administered as per the recommendations of the National Advisory Committee for Immunization (NACI).

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 (IPD)

In 2017, the rate of IPD was 7.9 per 100,000 population with 60 cases reported to Public Health. Over the last 5 years, there was an average of 65 cases of IPD per year and the 5-year average incidence rate was 8.5 cases per 100,000 population. Overall, the incidence rate in NB is comparable to the national rate.

Graph 5. IPD Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



During the period from 2012 to 2017, the incidence rates were consistently highest at both ends of the age group spectrum: the average incidence rate was 19.6 cases per 100,000 population for the under 1 year old infants and 20.8 cases per 100,000 population for those who are 65 years and older.

In 2017, cases aged 65 years and older represented almost half (n=27) of all reported IPD cases. Among these cases, the most prevalent serotypes were: 9N and 22F. Only 31.6% (n=6) of the cases aged 65 years and older, with available information on their vaccine status, were vaccinated with either the 13-valent (1 case) or the 23-valent pneumococcal vaccine (5 cases). Vaccine preventable serotypes accounted for 53.8% of all serotypes among non-vaccinated cases in this age group (n=13) compared to 33.3% among those vaccinated (n=6).

In 2017, all regions showed similar or lower incidence rates compared to 2016 with the exception of Region 6 and 7. Regional-specific rates should be interpreted with caution; the relatively low number of cases can result in major fluctuations in the rate from year to year.

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

5.5. Measles

In 2017, one case of measles, linked to an outbreak in Nova Scotia, was reported to Public Health. 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 recorded.

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

5.6. Mumps

In 2017, 3 cases of mumps were reported to Public Health. Since 2012, there were 8 confirmed cases reported in NB: one in 2012, five cases in 2013, of which 3 were linked to the same cluster, and one case in 2014 and 2016.

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

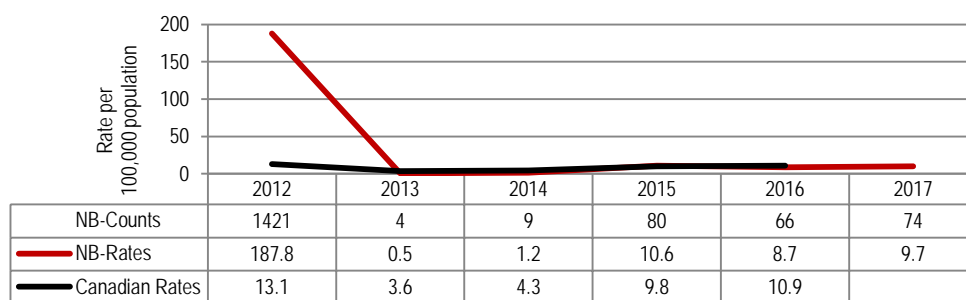
5.7. Pertussis

In 2017, 74 cases of pertussis were reported to Public Health with an incidence rate of 9.7 per 100,000 population. Over the last 5 years (excluding 2012 when a province-wide pertussis outbreak occurred), an average of 36 cases were reported with an average incidence rate of 4.8 per 100,000 population.

A pertussis outbreak was declared in Region 3 in April 2017 and was declared over in November 2017. Cases from Region 3 related to the outbreak represented 46% of all pertussis cases in 2017. During the 2017 outbreak in Region 3, the median age of the cases was 11 years old (range 1 month-53 years) with 55% of all cases deemed up-to-date with pertussis containing vaccine. The highest incidence rate was among children in the 5 to 9 year old age group followed by the 10 to 14 year old age group. In cases aged 1 year to less than 17 years old with available vaccine information (14 out of 17), 81.2% were up-to-date with their immunization. The median interval since the last dose of vaccine was 49 months for cases aged 5 to 16 years old.

In 2017, 15 cases were reported in Region 2 where 2 distinct clusters of cases occurred. Region 7 also experienced 2 distinct clusters with 13 cases reported. Sporadic cases were reported in Region 1 and Region 6.

Graph 6. Pertussis Case Counts and Rates per 100,000 population in New Brunswick and Canada, 2012-2017.



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 2017, as well as in the period between between 2012 and 2016.

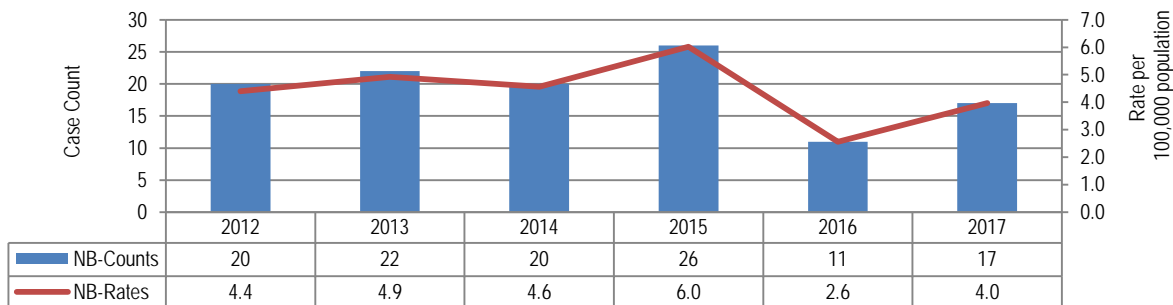
Publicly funded rubella immunization (MMRV) is offered during childhood (12 and 18 months).

5.9. Varicella

Varicella is under-reported to Public Health. Due to reporting inconsistencies across the regions, we focus on reported varicella cases in people aged 0-49 years. In general, most cases in adults aged 50 years old and over present with shingles (herpes zoster).

In 2017, 17 cases of lab confirmed varicella were reported to Public Health with an incidence rate of 4 per 100,000 population. Over the past 5 years, the varicella rate was stable between 2012 and 2014, increased in 2015 when several elementary school outbreaks were reported in Region 3; the rate decreased again in the following years.

Graph 7. Varicella Case Counts and Rates per 100,000 population for New Brunswick³, 2012-2017.



³ No Canadian Rates were reported as not all provinces report varicella for all years, making the annual national rates highly fluctual.

Publicly funded varicella immunization (MMRV) is offered in 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 2015/16 school year for grade 9 and 10 students. The vaccine will continue to be offered to grade 9 students in the school year 2016/17 through 2022/23.

5.10. Other vaccine preventable diseases

No cases of diphtheria, tetanus and poliomyelitis were reported between 2012 and 2017. Publicly funded immunizations are provided during childhood (DTaP-IPV-Hib/ Tdap-IPV/ Tdap), adolescence (Tdap) and adulthood (Tdap, Td).

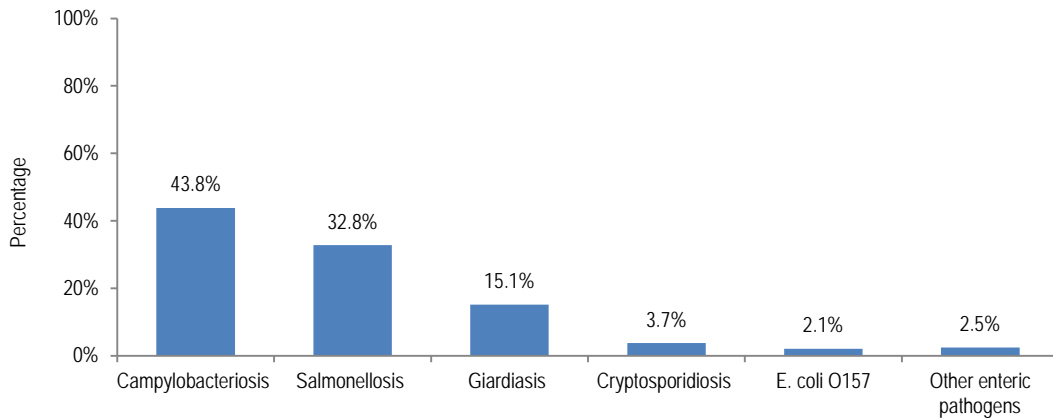
For further details on counts and rates of different vaccine preventable diseases, please refer to Appendix 2.

6. Enteric, Food and Waterborne Diseases

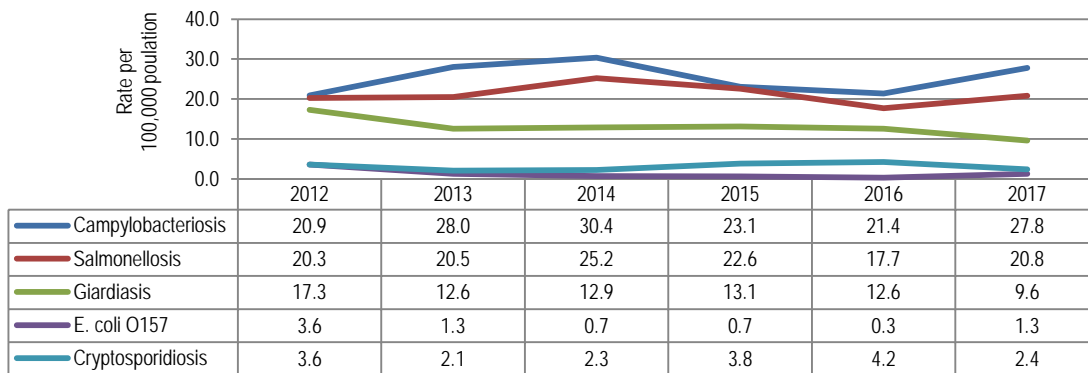
Enteric diseases are normally associated with food, however, cases have been linked to contaminated water, secondary transmission from humans, and direct contacts with animals, including exotic pets.

In 2017, *Campylobacter*, *Salmonella*, and *Giardia* accounted for the highest proportion of reportable enteric, food and waterborne organisms, which is similar to what was reported the previous year.

Graph 8. Enteric Diseases in New Brunswick, 2017.



Graph 9. Incidence Rates per 100,000 population of some Enteric Diseases in New Brunswick, 2012-2017.

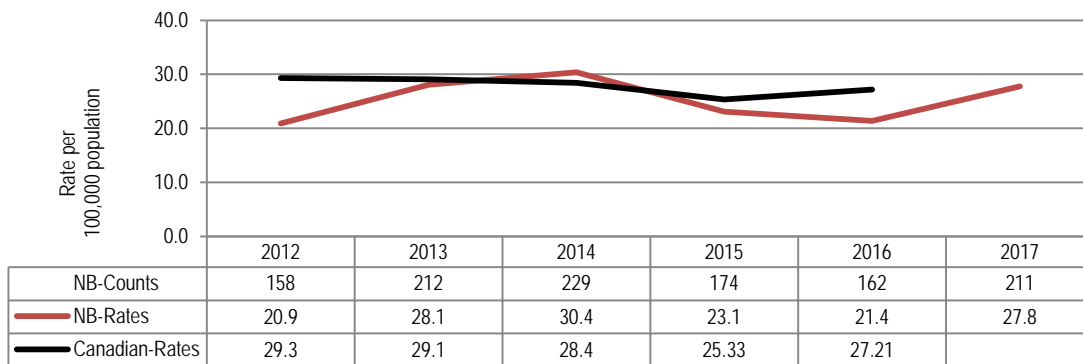


6.1. Campylobacteriosis

Campylobacteriosis is the most frequently reported enteric infection.

In 2017, there was a marked increase in the number of reported cases of Campylobacter (211 cases), in comparison to the previous year 2016 (162 cases) and the average of the last five years 2012-2016 (187 cases per year). The incidence rate of campylobacteriosis, in 2017, was 27.8 per 100,000 population, whereas the previous 5-year average was 24.8 per 100,000 population. Overall, the incidence rate in NB is lower than the national rate.

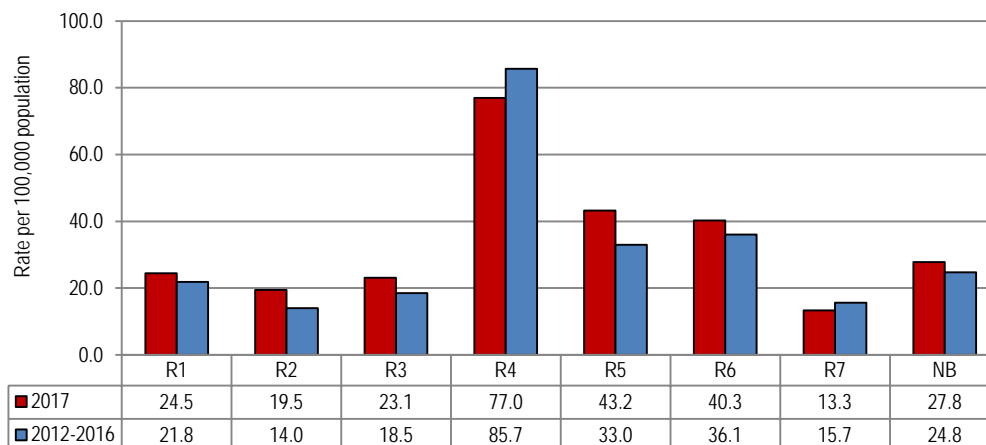
Graph 10. Campylobacteriosis Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



In 2017, the incidence rate was higher in males (28.8 per 100,000 population) than females (26.8 per 100,000 population) which is consistent with the trend in the previous five years with the average 5-year incidence rate being 27.9 per 100,000 and 21.7 per 100,000 for males and females respectively.

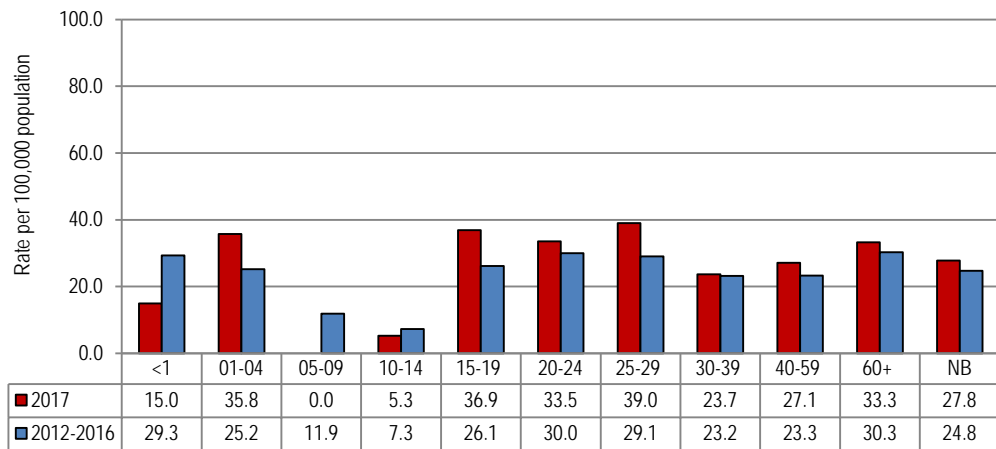
The highest incidence rate in 2017, was reported in Region 4 (77.0 per 100,000 population), followed by Region 5 (43.2 per 100,000 population), then Region 6 (40.3 per 100,000 population). These three regions reported the highest average incidence rates in the previous five years as well. Average incidence rate between 2012-2016 was 85.7, 33.0, and 36.1 per 100,000 population for Region 4, Region 5, and Region 6 respectively.

Graph 11. Incidence rate of Campylobacteriosis by Health Region in New Brunswick, 2012-2017.



The majority of the cases in 2017 were in the age group of 60 years and older (70 cases) followed by age group 40-59 (60 cases); this finding was consistent with that reported in the previous five years 2012-2016 (average of 58 cases and 53 cases for 60 years and older and 40-59 age groups respectively).

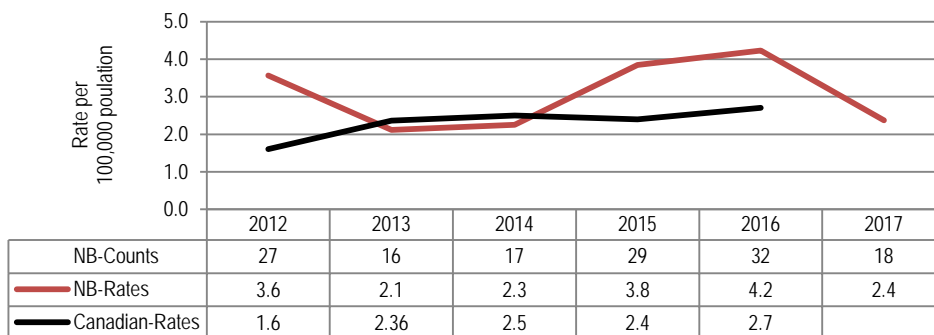
Graph 12. Incidence rate of Campylobacter Cases by Age group in New Brunswick, 2012-2017.



6.2 Cryptosporidiosis

In 2017, 18 cases of cryptosporidiosis were reported with an incidence rate of 2.4 cases per 100,000 population. Over the last 5 years (2012-2016), an average of 24 cases were reported to Public Health annually with a 5-year average incidence rate of 3.2 cases per 100,000 population. The incidence rate in NB showed some fluctuations over the years, however, it showed a noticeable increase in comparison with the national rate in 2015 and 2016.

Graph 13. Cryptosporidiosis Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



In 2017, the highest number of cryptosporidium infections were reported in Region 1 and Region 2 (6 cases and 4 cases respectively), which was consistent with the average counts of the previous 5 years. However, in 2017, the incidence rate was highest in Region 4 (6.4 cases per 100,000 population).

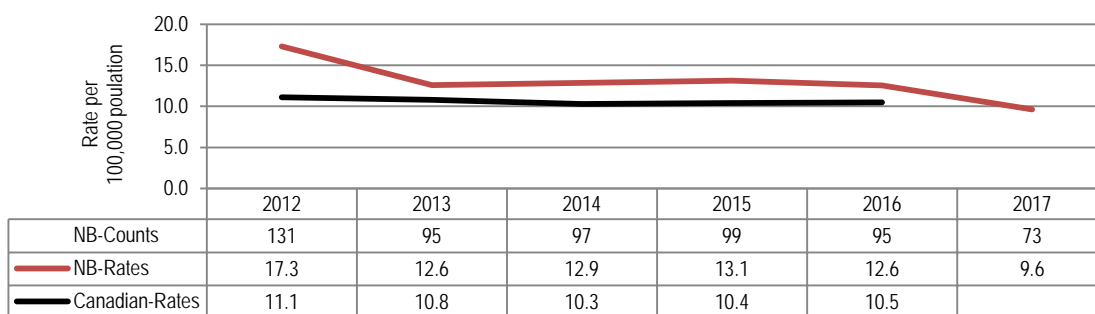
For 2017, the number of reported female cases was higher than the number of reported male cases (10F:8M); while the average counts for both sexes over the past five years were very close to each other (13F :12M). The age group 30-39 in 2017 reported the highest number of cases (6 cases), followed by age group 1-4; 20-24 and 40-59 years (3 cases each). It is interesting to note that, in 2017, the highest incidence rate was reported in children 1-4 year old (10.7 cases per 100,000 population).

The annual changes in the incidence rate by age group should be interpreted with caution; the relatively low number of cases can result in major fluctuations in the rate from year to year.

6.3 Giardiasis

In 2017, the incidence rate of giardiasis was 9.6 per 100,000 population, resulting from 73 cases reported to Public Health. This was lower than the average incidence rate and case counts reported in the previous five years 2012-2016; which were 13.7 per 100,000 population and 103 cases respectively. Over the years, there were slight fluctuations in the incidence rate of giardiasis; and the NB rate was consistently higher than the national rate over the period of 2012-2016.

Graph 14. Giardiasis Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.

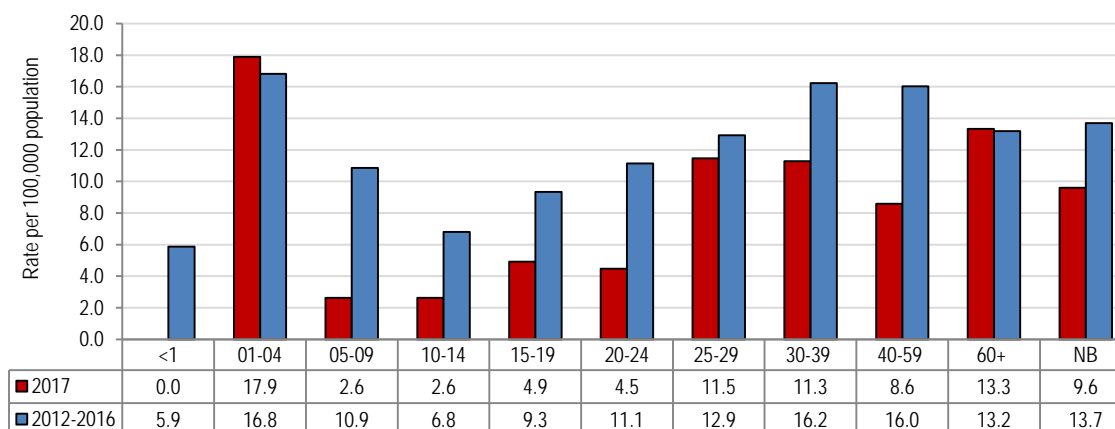


In 2017, the male incidence rate and case counts (11.5 cases per 100,000 population, and 43 cases respectively) were higher than those for females (7.8 cases per 100,000 population, and 30 cases respectively), which is consistent with what was observed for the average incidence rates and case counts over the past five years.

In 2017, the majority of the cases were in Region 1, Region 2, and Region 3 (19 cases, 12 cases, and 29 cases respectively), which was consistent with the regional distribution of cases reported over the previous five years. In 2017, the highest incidence rate was reported in Region 3 (16.4 cases per 100,000 population).

The highest proportions of cases in 2017 were reported in age groups 30-39, 40-59, and 60+ years (10 cases, 19 cases, and 28 cases respectively), which was consistent with the observation noted in the last five years. However, there was a noted decrease in the incidence rate for most age groups as compared to the 5-years average as presented in graph 15.

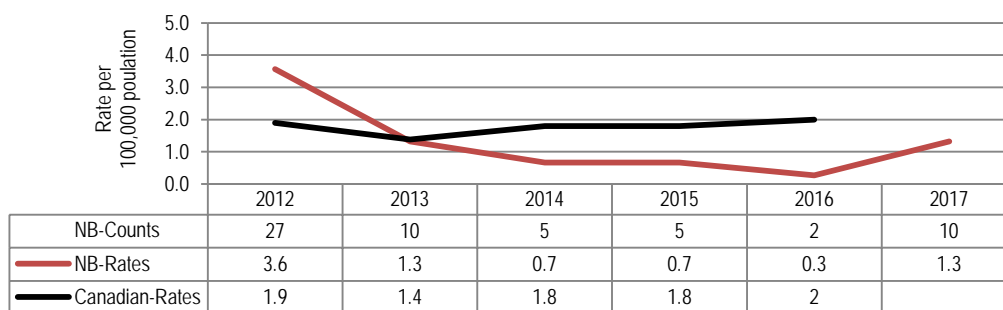
Graph 15. Incidence rate of Giardiasis by age group in New Brunswick, 2012-2017.



6.4 *E.coli* 0157:H7

In 2017, the incidence rate of *E.coli* 0157:H7 infection was 1.3 per 100,000 population resulting from 10 cases reported to Public Health. This was similar to the average incidence rate and case counts reported in the previous five years (1.3 per 100,000 population and 10 cases respectively). Overall, NB rates have been lower than the national rates except for year 2012, in which NB rates were higher due to the occurrence of multiple *E.coli* 0157:H7 outbreaks.

Graph 16. *E.coli* 0157 Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



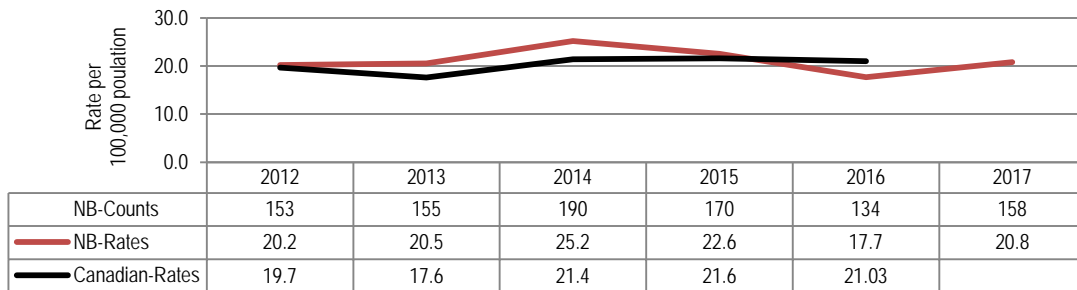
In 2017, the majority of cases were reported in Region 1 (7 cases, incidence rate 3.2 per 100,000 population), followed by Region 2 (3 cases, incidence rate 1.7 per 100,000 population). The female counts were higher than the male counts (8 F: 2 M), which is consistent with what was observed in the previous five years. Fourty percent of the cases in 2017 were in the age group of 40-59 years.

The annual changes in the *E.coli* 0157:H7 incidence rate by regional distribution, gender, and age groups should be interpreted with caution; the relatively low number of cases can result in major fluctuations in the rate from year to year.

6.5 Salmonellosis

In 2017, the incidence rate of salmonellosis was 20.8 per 100,000 population which accounted for 158 cases reported to Public Health. The average incidence rate and case counts were lower than those reported over the last five years: 21.2 per 100,000 population and 160 cases per year respectively. Overall, the trend in NB incidence rates was comparable to that of the national incidence rates in the last five years.

Graph 17. Salmonellosis Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.

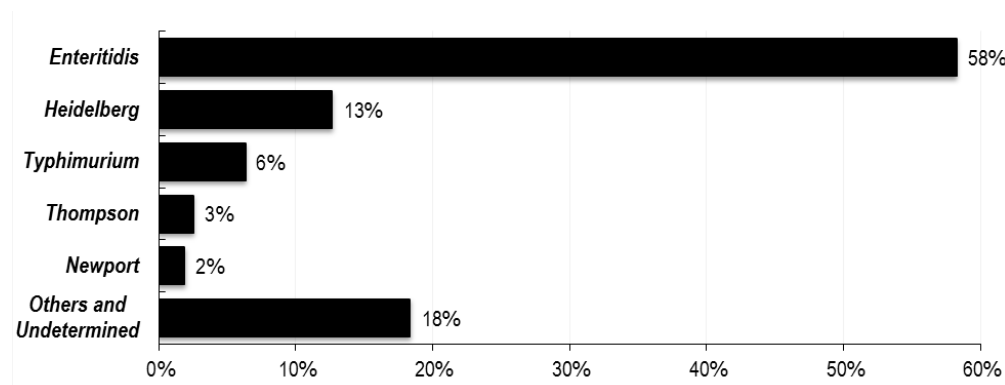


In 2017, the highest reported numbers of cases were reported in Region 1, followed by Region 2, and then Region 3 (53 cases, 32 cases, and 27 cases respectively). However, Region 5 reported the highest incidence rate in 2017 (43.2 per 100,000 population), which is constant with what was observed in the previous five years (Region 5 reported the highest average incidence rate, 41.4 per 100,000 population).

For 2017, the majority of *Salmonella* cases were males (83 cases, incidence rate 22.1 per 100,000 population) in comparison with females (75 cases, incidence rate 19.5 per 100,000 population). The majority of cases were in the age group of 40-59 followed by 60+ years (51 cases and 42 cases respectively). These age groups reported the highest average case counts in the previous five years (44 cases in age group 40-59 years; and 48 cases in age group 60+ years).

The most prevalent *Salmonella* serotypes in 2017 were *S. enteritidis* (58%), followed by *S. heidelberg* (13%), *S. typhimurium* (6%), *S. thompson* (3%), and then *S. newport* (2%). However, others and undetermined serotypes accounted for 18% of the reported cases. Twenty three different serotypes were reported under this category.

Graph 18. *Salmonella* species breakdown in New Brunswick, 2017.



6.6 Other Enteric Diseases

Other enteric diseases that are reportable are: shigellosis, *Vibrio* species, listeriosis, Hepatitis A, yersiniosis, and typhoid fever. In 2017, there was a decrease in case counts and incidence rates of these diseases. For Hepatitis A there was (1 case, 0.1 per 100,000 population) reported in 2017 in comparison with the 5-year average (3 cases, 0.4 per 100,000 population); for yersiniosis (1 case, 0.1 per 100,000 population) reported compared to the 5-year average (3 cases, 0.4 per 100,000 population); for shigellosis (3 cases, 0.4 per 100,000 population) reported compared to the 5-year average (6 cases, 0.7 per 100,000 population); for *Vibrio* species (3 cases, 0.4 per 100,000 population) reported compared to the 5-year average (4 cases, 0.5 per 100,000 population); and for listeriosis (4 cases, 0.5 per 100,000 population) reported compared to the 5-year average (5 cases, 0.6 per 100,000 population).

For typhoid fever, zero cases were reported both in 2017 and in the period between 2012-2016. For further details on counts and rates of other enteric diseases, please refer to Appendix 3.

6.7 Summary of Enteric Outbreaks

For 2017, 53 regional outbreaks were reported. Sixty six percent of these outbreaks occurred in institutional non-residential settings (35 outbreaks: 31 in daycares, 1 in day camp, and 2 in primary schools); 28% in institutional residential settings (15 outbreaks: 14 in long-term facility, and 1 in hospital); 4% in private events (2 outbreaks, 1 of them in catered event); and 2% in a food establishment (1 outbreak in a restaurant). The majority of the outbreaks took place in Region 3 (21 outbreaks, 39.6% of total outbreaks reported), followed by Region 2 (14 outbreaks, 26.4%), Region 1 (8 outbreaks, 15.1%), Region 4 and Region 5 (each 4 outbreaks, 7.5%), and Region 6 and Region 7 (each 1 outbreak, 1.9%).

The organism was identified in 26% of the outbreaks, and was unknown in 74%, which is close to the observation noted in the previous year. Of those outbreaks with known organism (n=14), norovirus was identified in 11 outbreaks (21% of total reported outbreaks); sapovirus in 2 outbreaks (4% of total reported outbreaks); and *Salmonella* heidelberg in 1 outbreak (2% of total reported outbreaks).

No multi-regional outbreaks were reported during 2017. However, at the national level, there were six outbreaks reported where NB was involved. Five out of the six outbreaks were *Salmonella* enteritidis outbreaks associated with chicken products, and 1 outbreak was *E. coli* O157:H7 associated with romaine lettuce.

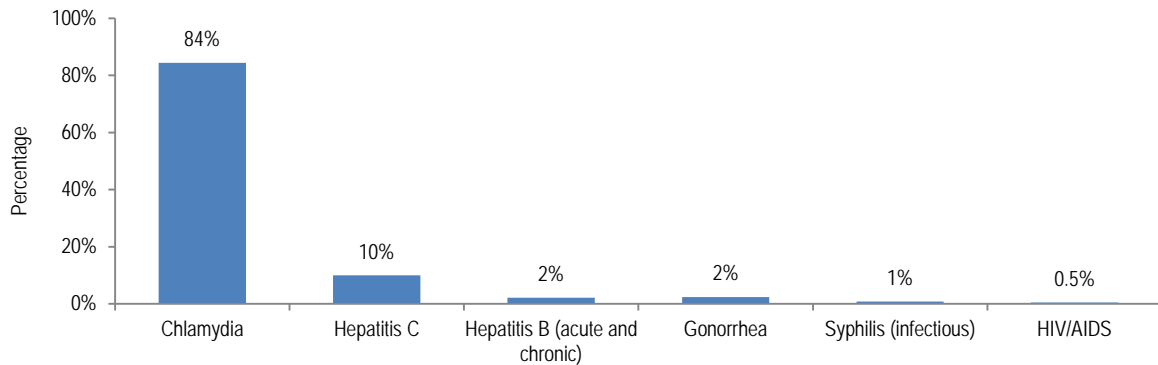
For further details in settings and organism distribution, please refer to Appendix 3.

7. Sexually Transmitted and Blood Borne Infections (STBBI)

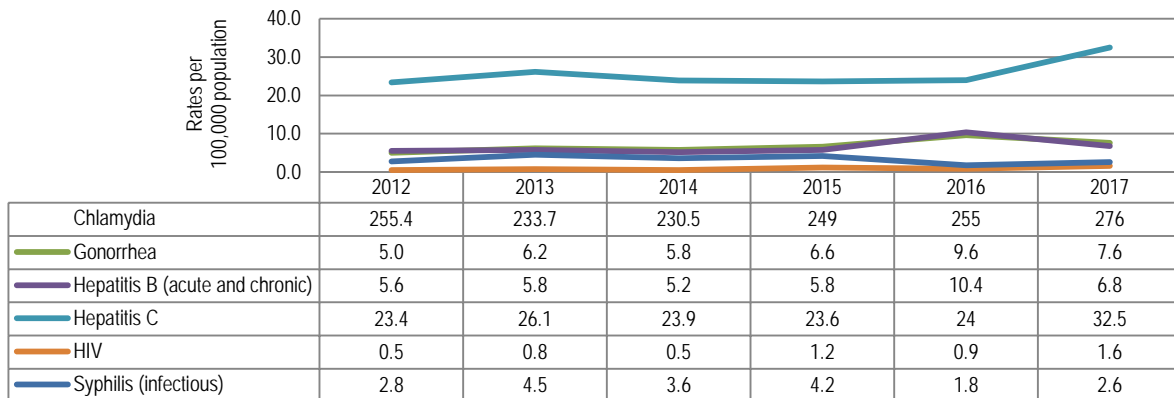
Sexually transmitted and bloodborne infections (STBBI) and their serious consequences can be prevented and reduced through sexual health promotion, harm reduction programs, early detection, treatment, and notification of sexual and drug use partners.

In 2017, the most common reported STBBI was chlamydia, followed by hepatitis C (unspecified), gonorrhea and chronic hepatitis B.

Graph 19. Sexually Transmitted and Blood Borne Infections (STBBI) in New Brunswick, 2017.



Graph 20. Incidence Rates of some Sexually Transmitted and Blood Borne Infections (STBBI) in New Brunswick, 2012-2017.



7.1. Chlamydia

Chlamydia is the most commonly reported sexually transmitted infection.

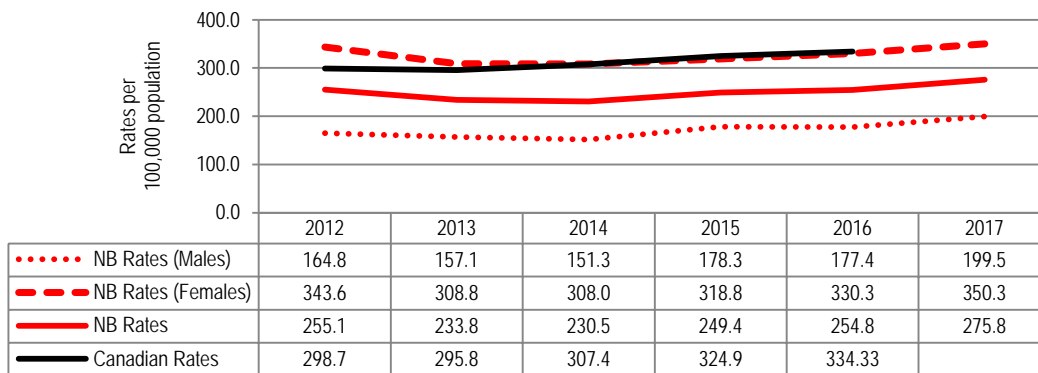
In 2017, 2095 chlamydia cases were reported with an incidence rate of 275.8 per 100,000 population. This was the highest number of chlamydia cases reported ever. In the previous 5 years, the average case count was 1849 cases per year, with a 5-year average incidence rate of 244.7 per 100,000 population. An upward trend in reported cases has been observed between 2015 and 2017. Overall, the incidence rate for New Brunswick is lower than the Canadian rate.

Females remain largely overrepresented among chlamydia cases, accounting for approximately two thirds of all notifications (64.2%) in 2017.

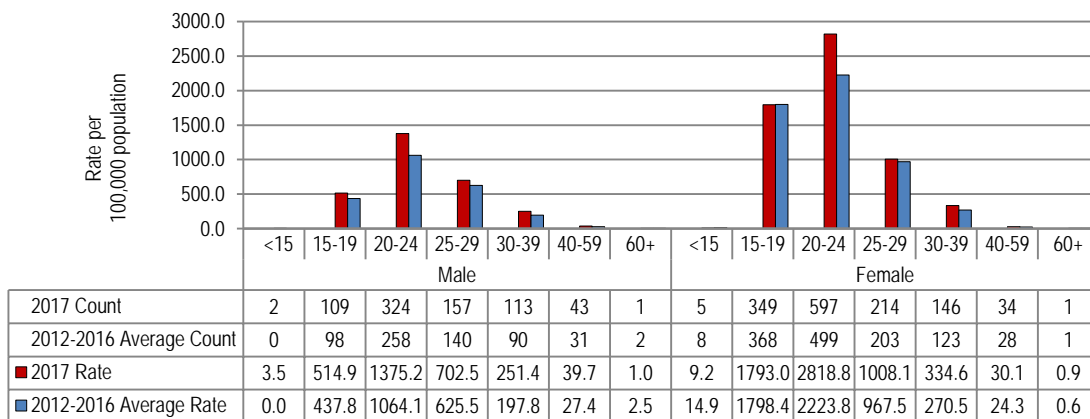
In 2017, higher incidence rates were observed in all age groups, compared to their 5-year average, with the highest incidence rate observed amongst young adults aged 20 to 24 years old in both males and females.

Compared to 2016, the highest increases in incidence rates were observed in Region 3, followed by Region 2 and then Region 1.

Graph 21. Chlamydia Incidence Rates per 100,000 population Overall and by Sex for New Brunswick and Canada, 2012-2017.



Graph 22. Chlamydia Case Counts and Incidence Rate per 100,000 by Sex and Age group, New Brunswick, 2017 compared to previous 5-year average.



7.2. Gonorrhoea

In 2017, 58 cases of gonorrhoea were reported to Public Health with an incidence rate of 7.6 cases per 100,000 people. In the past 5 years, the average case count was 50 cases per year, with a 5-year average incidence rate of 6.7 per 100,000 population. Rates for gonorrhoea in New Brunswick are well below national rates.

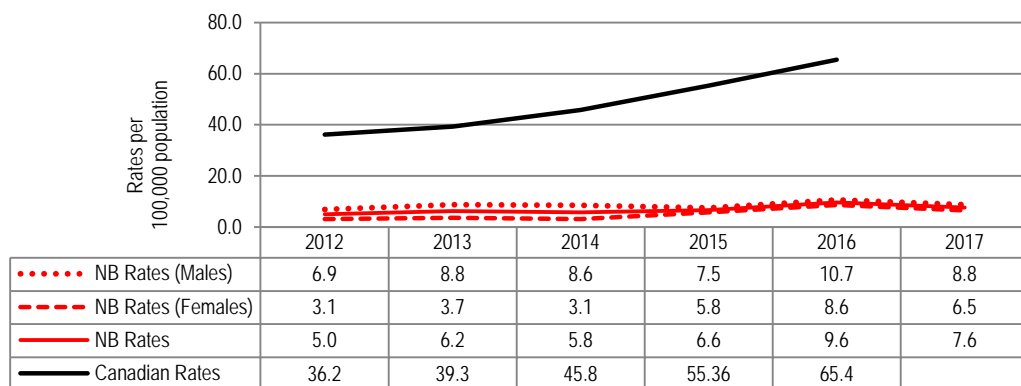
Most of the cases were reported in Regions 2 (22 cases), Region 1 (19 cases) and Region 3 (11 cases). Reported gonorrhoea cases were lower than the 5-year average in all the regions for both males and females, with the exception of Region 2 where the reported cases of both sexes were higher than average.

The 5-year average female to male ratio for gonorrhoea was 1:1.7. A disproportionate increase in female cases compared to male cases started to be observed in 2015 and continued to 2017 with a female to male ratio of 1:1.3.

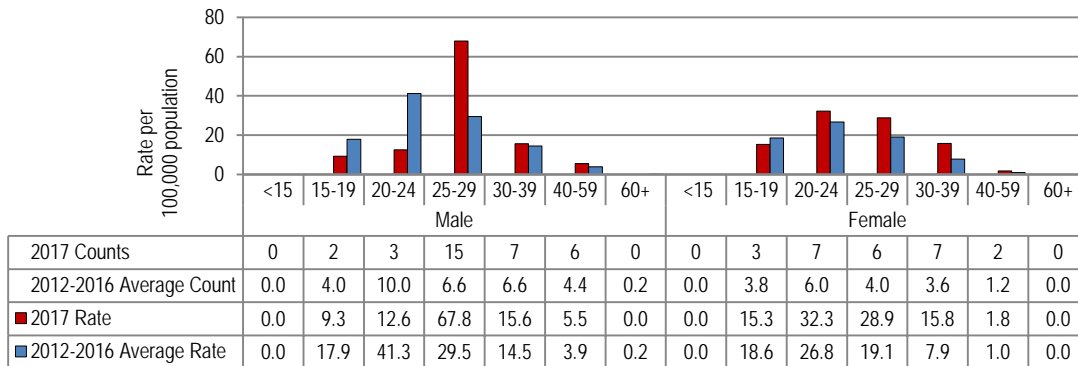
In 2017, there was a shift towards older age groups in both male and female cases compared to the previous 5-year average. The increase in the male cases was mainly noted among individuals aged 25 to 39 years old, with the highest incidence observed among those aged 25 to 29 years old. On the other hand, the increase in female cases was mainly among those aged 20 to 35 years old age, with the highest incidence observed among those in the 25 to 29 years age group.

The changes in annual age-specific and region-specific rates for gonorrhoea should be interpreted with caution; low numbers can cause large fluctuations in rates.

Graph 23. Gonorrhoea Incidence Rates per 100,000 population Overall and by Sex for New Brunswick and Canada, 2012-2017.



Graph 24. Gonorrhea Case Counts and Incidence Rate per 100,000 by Sex and Age group, New Brunswick, 2017 compared to previous 5-year average.



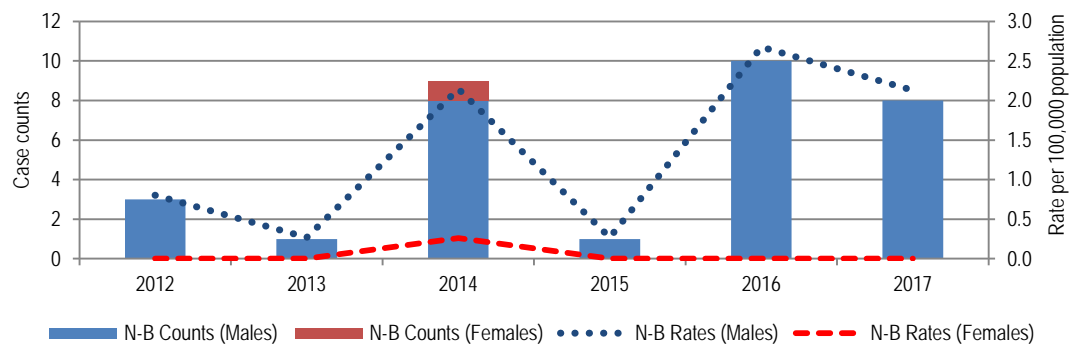
7.3. Hepatitis B

7.3.1. Acute hepatitis B

In 2017, there were 8 cases of acute hepatitis B reported to Public Health with an incidence rate of 1.1 cases per 100,000 people. In the past 5 years, the average case count was 5 cases per year, with a 5-year average incidence rate of 0.6 per 100,000 population.

All the cases were males, 7 were from Region 1. The median age of the cases was 52 years old (age range 37- 57 years). Approximately 40% of the cases identified themselves as Men having Sex with Men (MSM), while the other cases were heterosexual. None had previously received the hepatitis B vaccine.

Graph 25. Acute Hepatitis B Case Counts and Rates by sex per 100,000 population in New Brunswick, 2012-2017



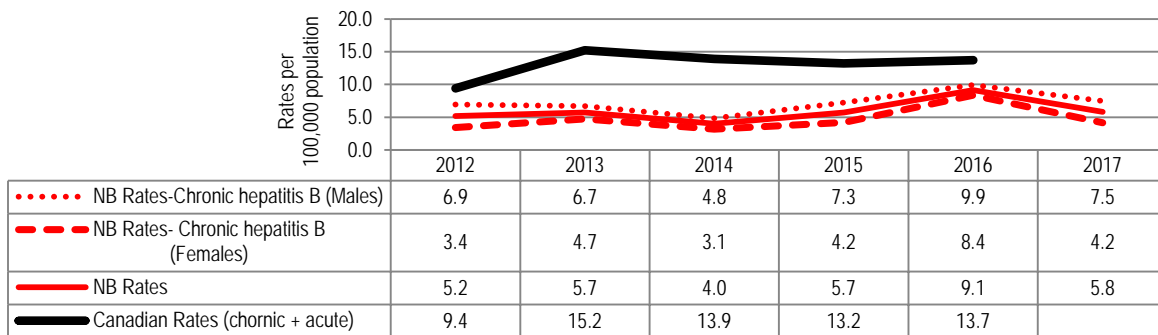
7.3.2. Chronic hepatitis B

In 2017, 44 cases of chronic hepatitis B were reported to Public Health with an incidence rate of 5.8 cases per 100,000 people; this is similar to the average case count and incidence rate reported over the 5 previous years (45 cases and 5.9 cases per 100,000 population, respectively) In 2017, most of the cases were reported among new comers from endemic areas (72%) which is also consistent with previous years.

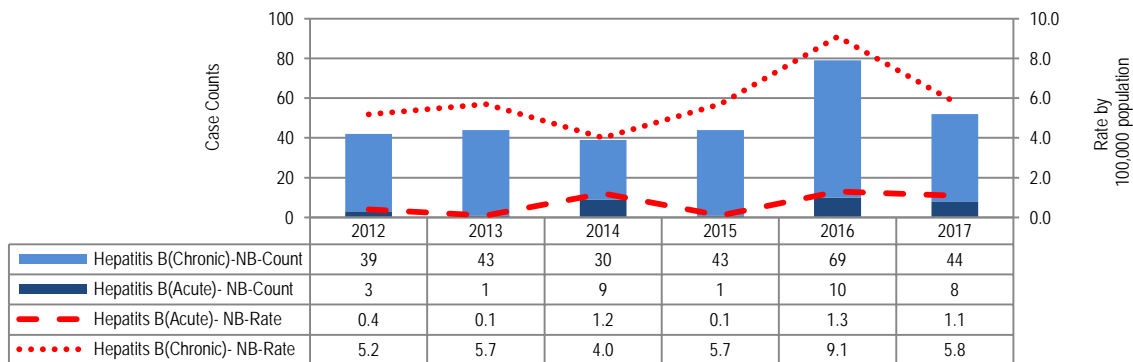
Eighty percent of the cases were reported in Region 1 (52.3%) and Region 3 (27.3%).

Males represented 63.6% of all chronic hepatitis B cases reported, with 32% among those aged 30 to 39 years old and 21% among those aged 25 to 29 years old. Among females, 62.5% were between 30 and 39 years old and 18.8% were in the 20-24 years age group. Cases aged 25-29 years old had the highest rate among males, whereas cases aged 30-39 years old had the highest rates among females.

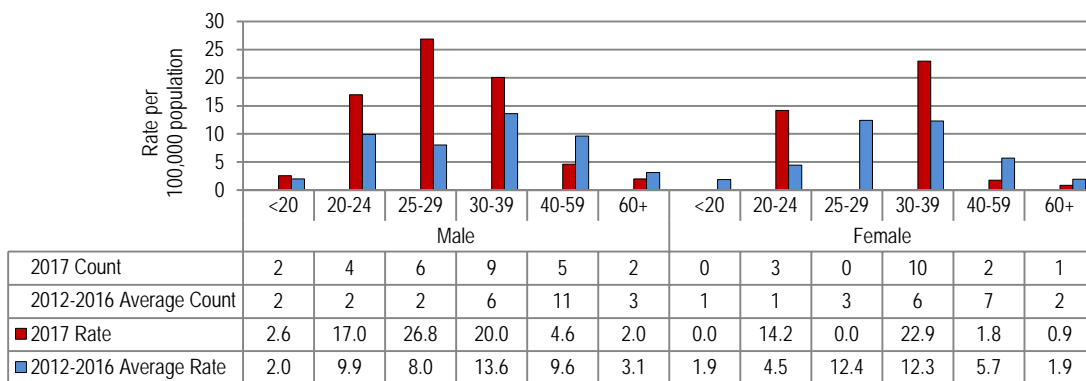
Graph 26. Hepatitis B (acute and chronic) Incidence Rates per 100,000 population. Overall and by Sex for New Brunswick and Canada, 2012-2017.



Graph 27. Chronic and Acute Hepatitis B Case Counts and Rates per 100,000 in New Brunswick, 2012-2017.



Graph 28. Chronic Hepatitis B Case Counts and Incidence Rate per 100,000 by Sex and Age groups, New Brunswick, 2017 compared to previous 5-year average.



7.4. Hepatitis C

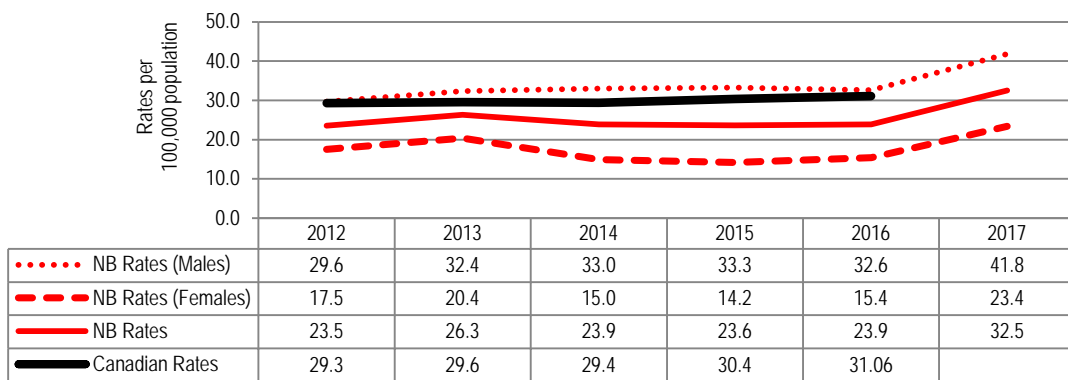
In 2017, the incidence rate of hepatitis C diagnosis was 32.5 cases per 100,000 people with 247 cases of hepatitis C reported to Public Health, of which 13 were confirmed new infections (i.e. documented seroconversion to anti-HCV positive in a person who was previously seronegative within the last 12 months). This is much higher than the average of 183 diagnosed cases over the past 5 years which corresponded to a 5-year average incidence rate of 24.3 per 100,000 population.

Forty-three percent of the cases were reported in Region 1, 19% were reported from each Region 2 and Region 3 and 14% in Region 7.

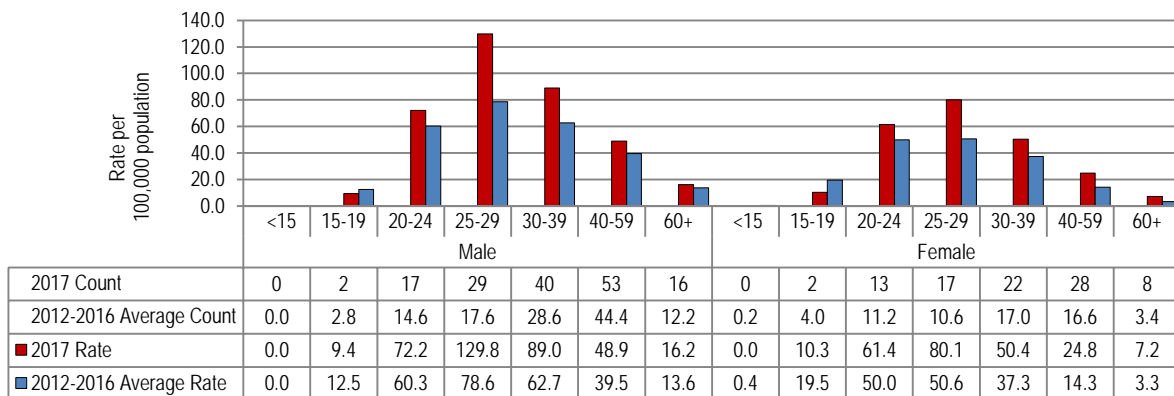
Approximately two-thirds (63.6%) of all reported cases were males. Fifty-five percent of the male cases were among individuals aged 20 to 39 years old, with the highest incidence in those aged 25 to 29 years old. Similarly among females, 57.8% of the newly diagnosed cases were aged 20 to 39 years old, with the highest incidence among those in the 25-29 year olds.

Intravenous (IV) drug use and sharing drug equipments remain the most prevalent risk factors among the hepatitis C cases in New Brunswick. Eighty-nine percent of all cases, providing information on their drug usage, had used or were currently using any type of drugs (injectable and non injectable) with 70% of them sharing drug equipments. Among the 74% who had used or were currently using IV drugs, 50% shared needles.

Graph 29. Hepatitis C Incidence Rates per 100,000 population Overall and by Sex for New Brunswick and Canada, 2012-2017.



Graph 30. Hepatitis C Case Counts and Incidence Rate per 100,000 by Sex and Age groups, New Brunswick, 2017 compared to previous 5-year average



7.5. HIV/AIDS

7.5.1. HIV

In 2017, the incidence rate of HIV diagnosis was 1.6 cases per 100,000 people with 12 cases (3 females and 9 males) of HIV, newly diagnosed in Canada, reported to Public Health. Over the last 5 years, there was an average of 6 cases of HIV per year, with a 5-year average incidence rate of 0.8 cases per 100,000 population. Rates for HIV in New Brunswick fall below national rates.

Among the reported cases in 2017, six cases (50%) were new comers to Canada, and would have acquired the infection prior to their arrival in the country, and six cases were locally acquired in Canada.

Since 2012, most cases of HIV among males (71%) were seen in the populations of men having sex with men (MSM); whereas in females, the most common reported risk factor for infection was coming from an endemic country (77%).

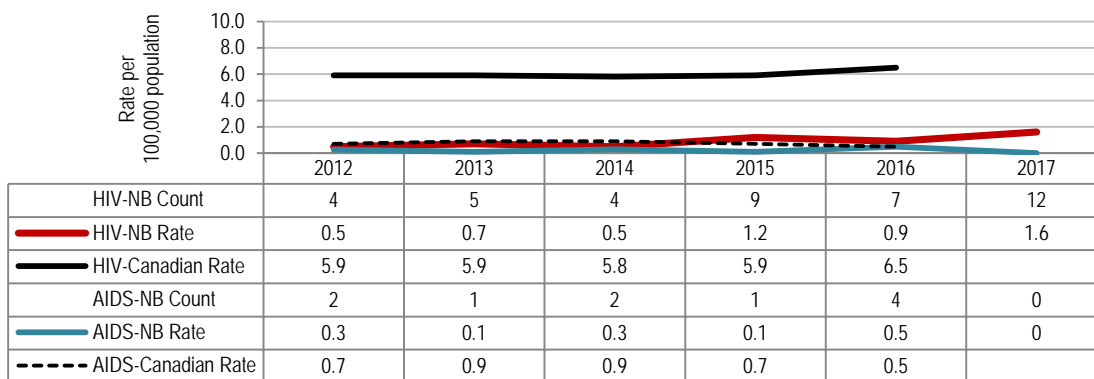
7.5.2. AIDS

Rates for AIDS in New Brunswick continue to be well below national rates.

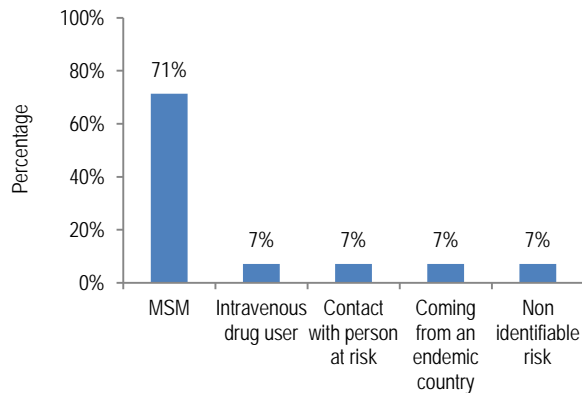
In 2017, there were no cases of AIDS reported to Public Health. Over the last 5 years, there was an average of 2 cases of new reported AIDS cases per year, with a 5-year average incidence rate of 0.3 cases per 100,000 population.

The annual changes in the HIV and AIDS incidence rates should be interpreted with caution; the relatively low number of cases can result in major fluctuations in the rate from year to year.

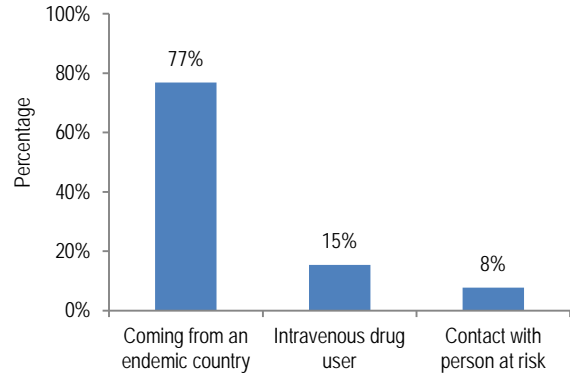
Graph 31. HIV and AIDS Case Counts and Incidence Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



Graph 32. Risk factors of HIV Infection Among Males in NB, 2012-2017 (N=28)



Graph 33. Risk factors of HIV Infection Among Females in NB, 2012-2017 (N=13)



7.6. Infectious Syphilis

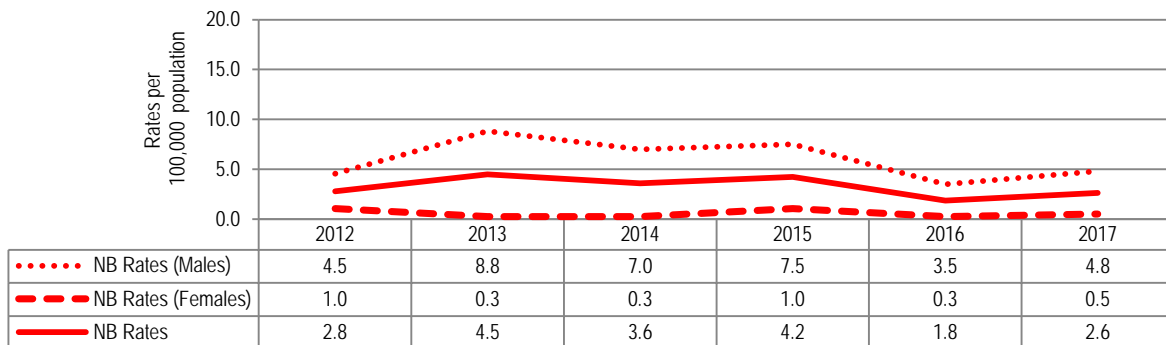
In 2017, there were 20 cases of infectious syphilis reported to Public Health with an incidence rate of 2.6 cases per 100,000 people. Over the last 5 years, there was an average of 26 cases reported per year, with a 5-year average incidence rate of 3.4 cases per 100,000 population.

Cases were reported from all regions except Region 6. Region 1 accounted for 40% of all cases reported in 2017.

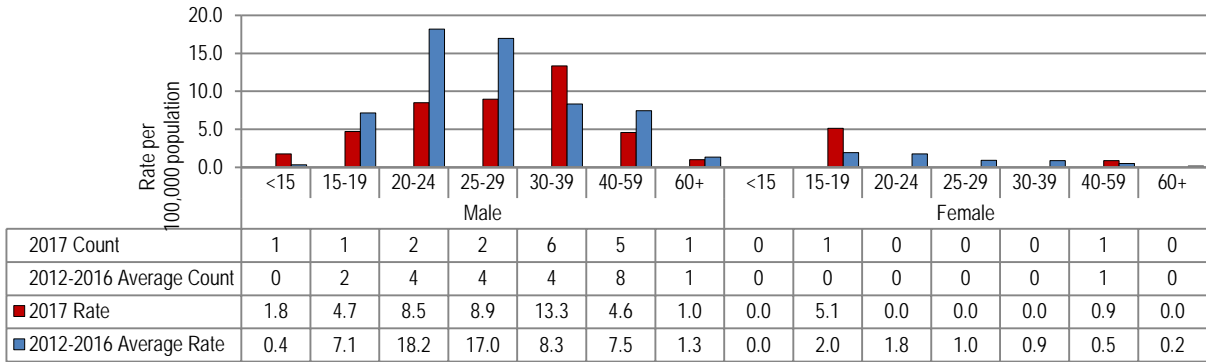
Most of the cases were primary or secondary syphilis (15 cases), 4 were early latent and 1 case was congenital. All but two cases reported in 2017 were males with the highest incidence rate being observed among the 30-39 years old age group. All the male cases, who provided information on their sexual orientation, identified themselves as MSM.

The changes in annual rates for syphilis should be interpreted with caution; low numbers can cause large fluctuations in rates.

Graph 34. Infectious Syphilis Incidence Rates per 100,000 population Overall and by Sex for New Brunswick, 2012-2017.



Graph 35. Infectious Syphilis Case Counts and Incidence Rate per 100,000 by Sex and Age groups, New Brunswick, 2017 compared to previous 5-year average.



For further details on counts and rates of reportable STBBIs in New Brunswick, please refer to Appendix 4 of this report.

8. Vectorborne and Zoonotic diseases

New Brunswick continues to have a low risk that is reflected in the sporadic cases and low incidence rates of vectorborne and zoonotic infections.

8.1 Lyme Disease

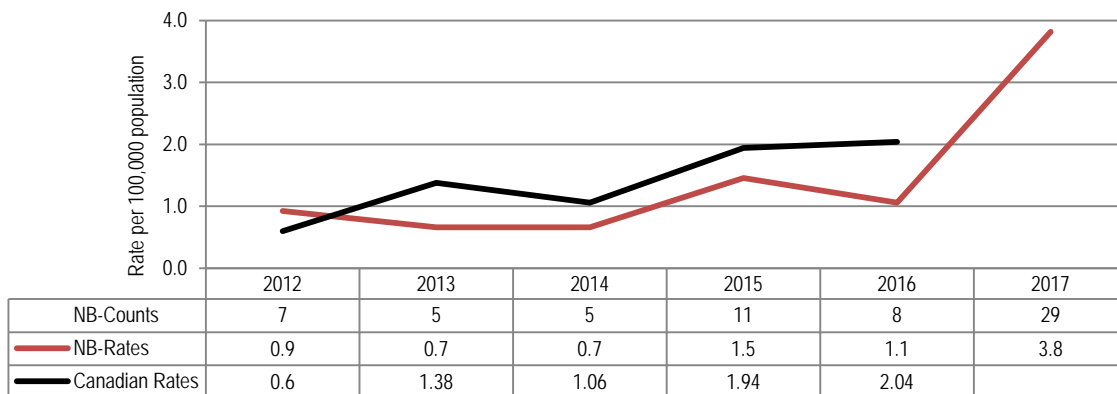
National Lyme disease surveillance began in 2009 and enhanced national surveillance was implemented in 2011. Lyme disease is a serious illness that can be spread by the bite of infected blacklegged ticks. Lyme disease is treatable with antibiotics when diagnosed at the early stages; however, if treatment is delayed disseminated illness may occur and serious symptoms result.

Although it is possible to be bitten by an infected tick anywhere in New Brunswick, the risk is highest in areas where tick populations are established or appear to be established. Locations where tick populations are established or emerging are considered as risk areas. Based on provincial tick surveillance and reports of human disease, communities that are identified as risk areas during 2017 include:

- January 2017 to August 2017: St. John county, Kings county, and Charlotte county (including Grand Manan Island).
- September 2017 to December 2017: Westmorland county, Albert county, St. John county, Kings county, and Charlotte county.

In 2017, 29 confirmed cases of Lyme disease were reported to Public Health, with an incidence rate of 3.8 per 100,000 population which is higher than what was reported in 2016 (8 cases, 1.1 per 100,000 population). An average of 7 cases was reported in the last 5 years 2012-2016 (range 5-11 cases) with an average incidence rate of 1.0 per 100,000 population. In comparison with the national rate, there was a fluctuation over the previous years. However, since 2013, NB rate was lower than the national rate.

Graph 36. Lyme disease Case Counts and Incidence Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



The majority of cases in 2017 were males (22 cases males, 7 cases females). Region 2 reported the majority of cases with 28 cases, and Region 1 reported only 1 case. For age, 12 cases were reported among the 40-59 years age group, 7 cases among age group 60+ years, and 4 cases in the age group 5-9 years.

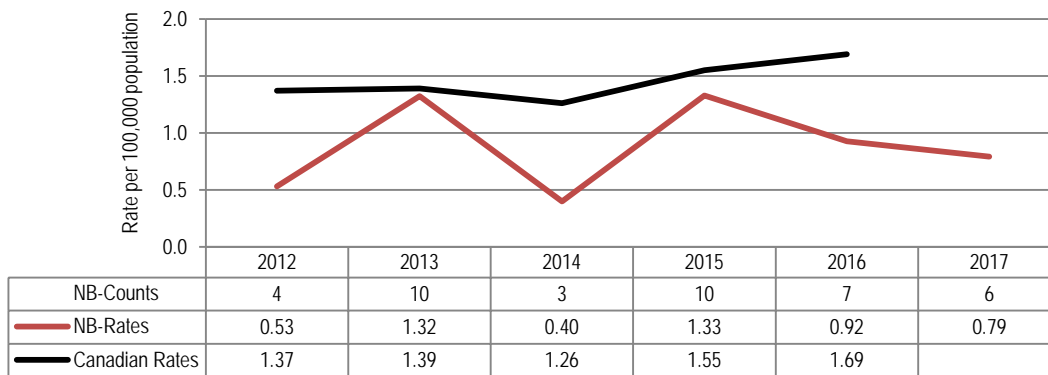
In 2017, the majority of cases (28 cases) were locally acquired, and among those, the majority (19 out of 28 cases) were reported in St. John county.

The annual changes in the lyme disease incidence rates should be interpreted with caution; the relatively low number of cases can result in major fluctuations in the rate from year to year.

8.2 Other Vectorborne and Zoonotic diseases

In 2017, 6 cases of malaria were reported with an incidence rate of 0.8 per 100,000 population, which is a slight decrease in the average counts and rates reported in the previous five years (7 cases, 0.9 per 100,000 population). All cases were travel-related. There were fluctuations in the incidence rate over years, however, the NB rate was always lower than the national rate.

Graph 37. Malaria Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



In 2017, of the 6 reported cases, there were 5 females, and 1 male. Region 1 and Region 2 each reported 3 cases. . The majority of cases were in age group 20-24 years (4 cases), and then age group 5-9 years and 40-59 years each reported 1 case.

For other vectorborne and zoonotic diseases, in 2017, there were 2 cases of Zika, and 1 case each of Q-fever and Leptospirosis. For Yellow Fever, Tularemia, West Nile Virus and Rabies there were no cases reported.

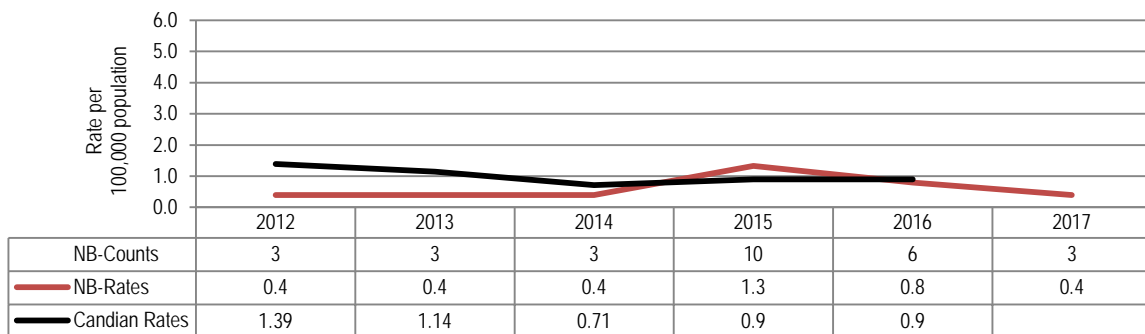
For further details on counts and rates of different vectorborne and zoonotic diseases, please refer to Appendix 5.

9. Respiratory and Direct Contact Diseases

9.1. Legionellosis

In 2017, a drop in the reported legionella incidence rate and case counts was noted (0.4 per 100,000 population, 3 cases) in comparison to 2016 (0.8 per 100,000 population, 6 cases). The 5-year average rate reported was of 0.7 per 100,000 population and an average count of 5 cases. The majority of the cases were reported in Region 1 (2 cases) followed by Region 6 (1 case). Two out of the 3 reported cases were females and all three were in the age group of 45 years old and above. The NB rate was lower than the national rate except for 2015.

Graph 38. Legionella Case Counts and Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



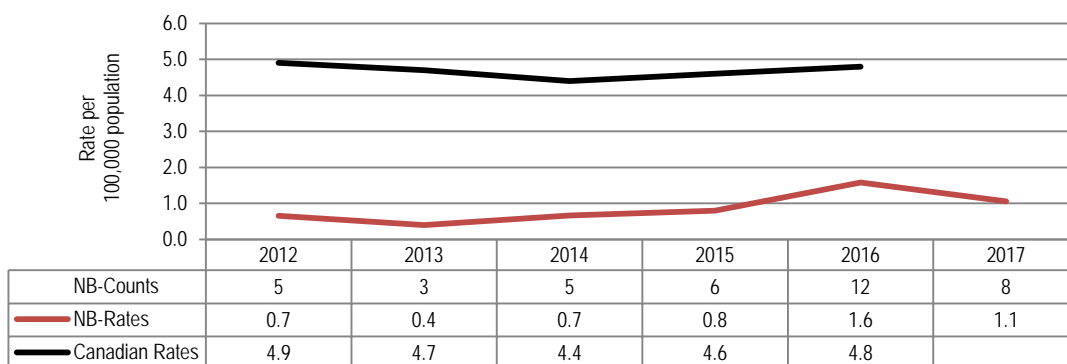
9.2. Tuberculosis (active)

In 2017, there were 8 confirmed cases of tuberculosis (TB) reported with an incidence rate of 1.1 per 100,000 population, which is lower than the number of cases reported in 2016 (counts 12 cases, incidence rate 1.6 per 100,000 population). The average case count of the previous five years in NB was 6 cases with an average incidence rate of 0.8 per 100,000 population. Overall, the number of reported cases in NB is low (range 3 to 12) and is consistently lower than the national rates.

For 2017, pulmonary TB counted for the majority of the cases (7 cases, 87.5% of total reported), followed by primary respiratory (1 case, 12.5% of total reported). The majority of cases were foreign-born (5 cases, 62.5% of total reported), followed by Canadian born non-aboriginal (2 cases, 25% of total reported), then aboriginal (1 case, 12.5% of total reported). Females accounted for 75% of the cases (6 cases). The age group of 60+ years accounted for the majority of cases (4 cases, 50%), followed by 20-39 years (3 cases, 37.5%), then 40-59 years (1 case, 12.5%). Region 1 accounted for the majority of cases (4 cases, 50%), followed by Region 2, Region 3, Region 6, and Region 7 (1 case each, 12.5%). For the 12 cases reported in 2016, 2 cases were cured (negative culture at the end of treatment), 7 cases treatment completed (without culture at the end of treatment), 2 cases had died and 1 case with unknown outcome since the case was transferred to another country.

The annual changes in tuberculosis incidence rate should be interpreted with caution; the relatively low number of cases can result in major fluctuations in the rate from year to year.

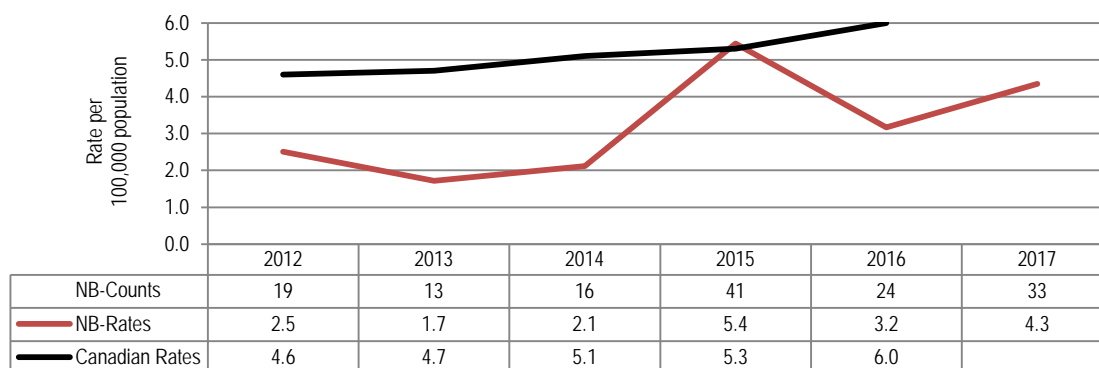
Graph 39. Tuberculosis Case Counts and Incidence Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



9.3. Invasive Group A Streptococcal disease (iGAS)

In 2017, there were 33 confirmed cases of iGAS (incidence rate 4.3 per 100,000 population), which was higher than the number of confirmed cases reported in 2016 (24 confirmed cases, incidence rate 3.2 per 100,000 population); and higher than the previous five years (2012-2016) average count and rate (23 cases, 2.9 per 100,000 population). In comparison with 2015 and 2016 where M1 type counted for the majority of reported cases (58.5% and 29% respectively), in 2017, the majority of confirmed cases were M89 type (7 cases, 21.2%), followed by M1 type (6 cases, 18.2%). The two types combined counted for 40% of reported cases in 2017. NB incidence rates of iGAS are consistently lower than the Canadian rates except for 2015 which was slightly higher than the national rate.

Graph 40. Invasive Group A Streptococcal disease (iGAS) Case Counts and Incidence Rates per 100,000 population for New Brunswick and Canada, 2012-2017.



In 2017, the majority of cases were in the 60+ age group (12 cases, 36.4%), followed by the 40-59 age group (9 cases, 27.3%), 30-39 age group (5 cases, 15.2%), 20-29 years (4 cases, 12.1%), and <20 years (3 cases, 9.1%). The case count was higher in females than in males (18 cases, 54.5%).

Region 2 counted for the majority of the cases (13 cases, 39.4%), followed by Region 1 (9 cases, 27.7%), then by Region 3 (7 cases, 21.2%); and finally by Region 6 (4 cases, 12.1%). Other regions reported no cases during 2017.

9.4. Group B Streptococcal Infection of Newborn

In 2017, only 1 case was reported to Public Health with incidence rate of 15 per 100,000 live births. From 2012-2016, the case count fluctuates between 1 and 5 cases annually. The average case count in the previous 5 years was 2 cases, with average incidence rate of 34.9 per 100,000 live births.

For further details regarding respiratory and direct contact diseases please refer to Appendix 6.

Appendix 1. List of Notifiable Diseases and Reportable Events

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

2018



Timeline	Notifiable diseases and events	To be reported by	
		Laboratory	Clinicians (Clinical illness)
<p>Verbally within one hour</p> <p>Please attach a label for your region that specifies the telephone number to be used during and after business hours</p> <p>AND</p> <p>In writing by the end of the next working day</p> <p>Please attach a label for your region that specifies mailing address and fax number</p>	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	✓	✓
	Polio myelitis due to wild type poliovirus	✓	✓
	Severe acute respiratory syndrome	✓	✓
	Sm allpox	✓	✓
	Unusual clusters of suspect notifiable disease cases	✓	✓
Yellow fever	✓	✓	
<p>Verbally within 24 hours</p> <p>Please attach a label for your region that specifies the telephone number to be used during and after business hours</p> <p>AND</p> <p>In writing within seven days</p> <p>Please attach a label for your region that specifies mailing address and fax number</p>	Brucellosis	✓	✓
	Campylobacteriosis	✓	✓
	Cryptosporidiosis	✓	✓
	Cyclosporiasis	✓	✓
	Escherichia coli infection (Verotoxigenic)	✓	✓
	Exposure to a suspected rabid animal	✓	✓
	Giardiasis	✓	✓
	Guillain-Barre 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 (including 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	✓	✓
Yersiniosis	✓	✓	
<p>In writing within seven days</p> <p>Please attach a label for your region that specifies mailing address and fax number</p>	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 (including congenital)	✓	✓
	Tetanus	✓	✓
Toxoplasmosis	✓	✓	
Vancomycin-resistant Enterococci	✓	✓	

Appendix 2. Tables for Vaccine Preventable Diseases

Table 2.1. Notifiable vaccine-preventable diseases reported in New Brunswick in 2012-2017: counts and incidence rates per 100,000 population.

	NB											
	2012		2013		2014		2015		2016		2017	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Vaccine-Preventable Diseases												
Diphtheria	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Haemophilus influenzae (unspecified)	3	0.4	5	0.7	8	1.1	4	0.5	9	1.2	15	2.0
Invasive Meningococcal Disease ^Ω	6	0.8	2	0.3	3	0.4	5	0.7	0	0.0	1	0.1
Invasive Pneumococcal Disease [§]	60	7.9	74	9.8	50	6.6	79	10.5	63	8.3	60	7.9
Measles	0	0.0	3	0.4	0	0.0	0	0.0	0	0.0	1	0.1
Mumps	1	0.1	5	0.7	2	0.3	0	0.0	1	0.1	3	0.4
Pertussis [¥]	1421	187.7	4	0.5	9	1.2	80	10.6	66	8.7	74	9.7
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	20	4.4	22	4.9	20	4.6	26	6.0	11	2.6	17	4.0

Source: RDSS (Reportable Disease Surveillance System) database for all vaccine preventable diseases, except Invasive Meningococcal Disease, Invasive Pneumococcal Disease, and Pertussis for 2012

^Ω Source: Invasive Meningococcal Disease enhanced surveillance database

[§] Source: Invasive Pneumococcal Disease enhanced surveillance database

[¥] Source: Pertussis Enhanced database for year 2012.

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Table 2.2. Notifiable vaccine-preventable diseases reported in New Brunswick in 2017 by Region: counts and incidence rates per 100,000 population.

	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
Vaccine-Preventable Diseases																
Diphtheria	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)	7	3.2	2	1.1	2	1.1	1	2.1	0	0.0	2	2.7	1	2.2	15	2.0
Invasive Meningococcal Disease ^Ω	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Invasive Pneumococcal Disease [§]	20	9.2	8	4.6	13	7.3	3	6.4	1	3.9	10	13.4	5	11.1	60	7.9
Measles	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Mumps [†]	1	0.5	0	0.0	2	1.1	0	0.0	0	0.0	0	0.0	0	0.0	3	0.4
Pertussis [‡]	8	3.7	15	8.6	34	19.2	0	0.0	0	0.0	4	5.4	13	28.8	74	9.7
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	10	7.9	0	0.0	5	4.6	1	4.2	0	0.0	1	2.8	0	0.0	17	4.0

Source: RDSS (Reportable Disease Surveillance System) database for all vaccine preventable diseases, except Invasive Meningococcal Disease, Invasive Pneumococcal Disease, and Pertussis for 2012

^Ω Source: Invasive Meningococcal Disease enhanced surveillance database

[§] Source: Invasive Pneumococcal Disease enhanced surveillance database

[‡] Source: Pertussis Enhanced database for year 2012.

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Table 2.3. Notifiable vaccine-preventable diseases reported in New Brunswick in 2017 by age group and sex: counts and incidence rates per 100,000 population.

		NB														Total Rate							
		Age groups																					
		<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	Total	Rate
Vaccine-Preventable Diseases																							
Diphtheria	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	1	7.2	1	5.2	0	0.0	0	0.0	1	4.2	0	0.0	0	0.0	2	1.8	6	6.1	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	0	0.0	1	0.9	3	2.7	4	1.0
	Total	0	0.0	1	3.6	1	2.6	0	0.0	0	0.0	1	2.2	0	0.0	0	0.0	3	1.4	9	4.3	15	2.0
Invasive Meningococcal Disease ^Ω	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	1	30.4	0	0.0	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	0.3
	Total	1	15.0	0	0.0	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	0.1
Invasive Pneumococcal Disease [§]	Male	0	0.0	3	21.6	2	10.3	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	8	7.4	20	20.3	34	9.1
	Female	0	0.0	3	21.4	1	5.4	0	0.0	0	0.0	0	0.0	0	0.0	2	4.6	5	4.4	15	13.4	26	6.8
	Total	0	0.0	6	21.5	3	7.9	0	0.0	0	0.0	0	0.0	1	2.3	2	2.3	13	5.9	35	16.7	60	7.9
Measles	Male	0	0.0	0	0.0	0	0.0	0	0.0	1	4.7	0	0.0	0	0.0	0	0.0	0	0.0	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	1	2.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Mumps	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	0	0.0	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	1	4.7	0	0.0	1	0.9	0	0.0	2	0.5
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	4.6	0	0.0	1	0.5	0	0.0	3	0.4
Pertussis [¥]	Male	2	59.2	2	14.4	10	51.5	6	30.3	3	14.2	2	8.5	0	0.0	2	4.4	6	5.5	2	2.0	35	9.3
	Female	0	0.0	7	49.9	6	32.3	4	22.0	8	41.1	1	4.7	2	9.4	2	4.6	8	7.1	1	0.9	39	10.1
	Total	2	30.0	9	32.2	16	42.1	10	26.3	11	27.1	3	6.7	2	4.6	4	4.5	14	6.3	3	1.4	74	9.7
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	1	29.6	1	7.2	1	5.2	2	10.1	1	4.7	1	4.2	0	0.0	1	2.2	0	0.0	0	0.0	8	3.7
	Female	1	30.4	0	0.0	1	5.4	2	11.0	0	0.0	1	4.7	0	0.0	4	9.2	0	0.0	0	0.0	9	4.3
	Total	2	30.0	1	3.6	2	5.3	4	10.5	1	2.5	2	4.5	0	0.0	5	5.6	0	0.0	0	0.0	17	4.0

Source: RDSS (Reportable Disease Surveillance System) database for all vaccine preventable diseases, except Invasive Meningococcal Disease, Invasive Pneumococcal Disease, and Pertussis for 2012

^Ω Source: Invasive Meningococcal Disease enhanced surveillance database

[§] Source: Invasive Pneumococcal Disease enhanced surveillance database

[¥] Source: Pertussis Enhanced database for year 2012.

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Appendix 3. Tables for enteric, food and waterborne diseases

Table 3.1. Notifiable enteric, food and waterborne diseases reported in New Brunswick in 2012-2017: counts and incidence rates per 100,000 population.

	NB											
	2012		2013		2014		2015		2016		2017	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Enteric, Food and Waterborne Diseases												
Campylobacteriosis	158	20.9	212	28.1	229	30.4	174	23.1	162	21.4	211	27.8
Cryptosporidiosis	27	3.6	16	2.1	17	2.3	29	3.8	32	4.2	18	2.4
<i>E. coli</i> O157	27	3.6	10	1.3	5	0.7	5	0.7	2	0.3	10	1.3
Giardiasis	131	17.3	95	12.6	97	12.9	99	13.1	95	12.6	73	9.6
Hepatitis A	3	0.4	9	1.2	0	0.0	1	0.1	1	0.1	1	0.1
Listeriosis	4	0.5	9	1.2	2	0.3	4	0.5	5	0.7	4	0.5
Salmonellosis	153	20.2	155	20.5	190	25.2	170	22.6	134	17.7	158	20.8
Shigellosis	5	0.7	7	0.9	5	0.7	4	0.5	7	0.9	3	0.4
Typhoid Fever	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Vibrio species	5	0.7	3	0.4	3	0.4	5	0.7	4	0.5	3	0.4
Yersiniosis	3	0.4	5	0.7	5	0.7	2	0.3	0	0.0	1	0.1

Source: Enteric database

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Table 3.2. Notifiable enteric, food and waterborne diseases reported in New Brunswick in 2017 by Region: counts and incidence rates per 100,000 population.

	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
Enteric, Food and Waterborne Diseases																
Campylobacteriosis	53	24.5	34	19.5	41	23.1	36	77.0	11	43.2	30	40.3	6	13.3	211	27.8
Cryptosporidiosis	6	2.8	4	2.3	3	1.7	3	6.4	1	3.9	0	0.0	1	2.2	18	2.4
<i>E. coli</i> O157	7	3.2	3	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	1.3
Giardiasis	19	8.8	12	6.9	29	16.4	3	6.4	1	3.9	6	8.1	3	6.7	73	9.6
Hepatitis A	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Listeriosis	2	0.9	2	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	0.5
Salmonellosis	53	24.5	32	18.3	27	15.2	5	10.7	11	43.2	21	28.2	9	20.0	158	20.8
Shigellosis	2	0.9	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.4
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	2	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.4
Yersiniosis	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1

Source: Enteric database

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division: May 2018.

Table 3.3. Notifiable enteric, food and waterborne diseases reported in New Brunswick in 2017 by age group and sex: counts and incidence rates per 100,000 population.

		NB														Total		Rate					
		Age groups																					
		<1		1-4		5-9		10-14		15-19		20-24		25-29						30-39		40-59	
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate		
Enteric, Food and Waterborne Diseases																							
Campylobacteriosis	Male	1	29.6	6	43.1	0	0.0	1	5.0	10	47.2	6	25.5	5	22.4	10	22.2	34	31.4	35	35.5	108	28.8
	Female	0	0.0	4	28.5	0	0.0	1	5.5	5	25.7	9	42.5	12	56.5	11	25.2	26	23.0	35	31.3	103	26.8
	Total	1	15.0	10	35.8	0	0.0	2	5.3	15	36.9	15	33.5	17	39.0	21	23.7	60	27.1	70	33.3	211	27.8
Cryptosporidiosis	Male	0	0.0	2	14.4	1	5.2	0	0.0	0	0.0	0	0.0	0	0.0	3	6.7	2	1.8	0	0.0	8	2.1
	Female	0	0.0	1	7.1	0	0.0	0	0.0	1	5.1	3	14.2	1	4.7	3	6.9	1	0.9	0	0.0	10	2.6
	Total	0	0.0	3	10.7	1	2.6	0	0.0	1	2.5	3	6.7	1	2.3	6	6.8	3	1.4	0	0.0	18	2.4
E. coli O157	Male	0	0.0	0	0.0	0	0.0	0	0.0	1	4.7	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0	2	0.5
	Female	0	0.0	1	7.1	0	0.0	0	0.0	1	5.1	0	0.0	0	0.0	1	2.3	4	3.5	1	0.9	8	2.1
	Total	0	0.0	1	3.6	0	0.0	0	0.0	2	4.9	0	0.0	1	2.3	1	1.1	4	1.8	1	0.5	10	1.3
Giardiasis	Male	0	0.0	2	14.4	0	0.0	0	0.0	2	9.4	1	4.2	4	17.9	6	13.3	14	12.9	14	14.2	43	11.5
	Female	0	0.0	3	21.4	1	5.4	1	5.5	0	0.0	1	4.7	1	4.7	4	9.2	5	4.4	14	12.5	30	7.8
	Total	0	0.0	5	17.9	1	2.6	1	2.6	2	4.9	2	4.5	5	11.5	10	11.3	19	8.6	28	13.3	73	9.6
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	0	0.0	0	0.0	0	0.0	1	4.7	0	0.0	0	0.0	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	1	2.3	0	0.0	0	0.0	0	0.0	1	0.1
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	4	4.1	4	1.1
	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	4	1.9	4	0.5
Salmonellosis	Male	1	29.6	2	14.4	6	30.9	3	15.1	4	18.9	7	29.7	7	31.3	9	20.0	20	18.5	24	24.4	83	22.1
	Female	0	0.0	2	14.3	3	16.1	1	5.5	5	25.7	4	18.9	4	18.8	7	16.0	31	27.4	18	16.1	75	19.5
	Total	1	15.0	4	14.3	9	23.7	4	10.5	9	22.1	11	24.6	11	25.2	16	18.1	51	23.0	42	20.0	158	20.8
Shigellosis	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	1	0.9	0	0.0	2	0.5
	Female	0	0.0	0	0.0	0	0.0	1	5.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3
	Total	0	0.0	0	0.0	0	0.0	1	2.6	0	0.0	0	0.0	1	2.3	0	0.0	1	0.5	0	0.0	3	0.4
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	1	5.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	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	1	0.9	1	0.3
	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	2	1.0	3	0.4
Yersiniosis	Male	1	29.6	0	0.0	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	0.3
	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	1	15.0	0	0.0	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	0.1

Source: Enteric database

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Table 3.4. Regional Enteric Clusters/Outbreaks in 2017 by Type of Setting.

	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	NB
Settings where clusters/outbreaks were reported:								
Institutional - Non-residential	5	10	13	3	3	0	1	35
Institutional - Residential	2	4	7	1	0	1	0	15
Private Events	1	0	0	0	1	0	0	2
Food establishment	0	0	1	0	0	0	0	1
Total	8	14	21	4	4	1	1	53

Table 3.5. Regional Enteric Clusters/Outbreaks in 2017 by Type of Organism.

	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	NB
Organism:								
Norovirus	4	1	4	0	0	1	1	11
Sapovirus	0	1	1	0	0	0	0	2
Salmonella Heidelberg	0	0	1	0	0	0	0	1
No organisms identified	4	12	15	4	4	0	0	39
Total	8	14	21	4	4	1	1	53

Appendix 4. Tables for Sexually Transmitted and Bloodborne infections

Table 4.1. Notifiable sexually transmitted and bloodborne infections reported in New Brunswick in 2012-2017: counts and incidence rates per 100,000 population.

	NB											
	2012		2013		2014		2015		2016		2017	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Sexually Transmitted and Bloodborne Infections												
AIDS	2	0.3	1	0.1	2	0.3	1	0.1	4	0.5	0	0.0
HIV	4	0.5	6	0.8	4	0.5	9	1.2	7	0.9	12	1.6
Chlamydia (genital)	1931	255.1	1767	233.8	1738	230.5	1880	249.4	1928	254.8	2095	275.8
Gonorrhea (genital)	38	5.0	47	6.2	44	5.8	50	6.6	73	9.6	58	7.6
Hepatitis B (Acute)	3	0.4	1	0.1	9	1.2	1	0.1	10	1.3	8	1.1
Hepatitis B (Chronic)	39	5.2	43	5.7	30	4.0	43	5.7	69	9.1	44	5.8
Hepatitis C	177	23.4	197	26.1	180	23.9	178	23.6	181	23.9	247	32.5
Syphilis (Infectious)	21	2.8	34	4.5	27	3.6	32	4.2	14	1.8	20	2.6
Syphilis (All)	43	5.7	48	6.4	46	6.1	45	6.0	31	4.1	33	4.3

Source:

RDSS (Reportable Disease Surveillance System) database for all sexually transmitted and blood borne diseases data, except HIV and AIDS and Syphilis(infectious) for years 2010-2012

§ HIV/AIDS Case Report Surveillance System database

Φ Enhanced Syphilis Database for Syphilis (infectious) data for years 2011-2012

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018

Table 4.2. Notifiable sexually transmitted and bloodborne infections reported in New Brunswick in 2017 by Region: counts and incidence rates per 100,000 population.

	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
Sexually Transmitted and Bloodborne Infections																
Chlamydia (genital)	707	326.8	371	212.7	652	368.1	89	190.3	43	168.9	172	230.9	61	135.4	2095	275.8
Gonorrhoea (genital)	19	8.8	22	12.6	11	6.2	1	2.1	0	0.0	4	5.4	1	2.2	58	7.6
Hepatitis B (Acute)	7	3.2	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	1.1
Hepatitis B (Chronic)	23	10.6	4	2.3	12	6.8	1	2.1	1	3.9	2	2.7	1	2.2	44	5.8
Hepatitis C	106	49.0	46	26.4	46	26.0	0	0.0	4	15.7	10	13.4	35	77.7	247	32.5
Syphilis (Infectious) ^Φ	8	3.7	3	1.7	4	2.3	1	2.1	2	7.9	0	0.0	2	4.4	20	2.6
Syphilis (All)	12	5.5	5	2.9	9	5.1	2	4.3	2	7.9	1	1.3	2	4.4	33	4.3

Source: RDSS (Reportable Disease Surveillance System) database for all sexually transmitted and blood borne diseases data, except HIV and AIDS and Syphilis(infectious) for years 2010-2012

^Φ Enhanced Syphilis Database for Syphilis (infectious) data for years 2011-2012

Note: HIV and AIDS data is not available by Region

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018

Table 4.3. Notifiable sexually transmitted and bloodborne infections reported in New Brunswick in 2017 by age group and sex: counts and incidence rates per 100,000 population.

		NB																Total		Rate					
		Age groups																							
		<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
Sexually Transmitted and Bloodborne Infections																									
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	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		
HIV §	Male	0	0.0	0	0.0	0	0.0	0	0.0	1	4.2	0	0.0	3	6.7	4	3.7	1	1.0	9	2.4				
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.8	1	0.9	3	0.8				
	Total	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	0	0.0	3	3.4	6	2.7	2	1.0	12	1.6				
Chlamydia (genital)	Male	0	0.0	0	0.0	0	0.0	2	10.1	109	514.9	324	1375.2	157	702.5	113	251.4	43	39.7	1	1.0	749	199.5		
	Female	0	0.0	1	7.1	0	0.0	4	22.0	349	1793.0	597	2818.8	214	1008.1	146	334.6	34	30.1	1	0.9	1346	350.3		
	Total	0	0.0	1	3.6	0	0.0	6	15.8	458	1127.2	921	2058.6	371	851.3	259	292.4	77	34.8	2	1.0	2095	275.8		
Gonorrhea (genital)	Male	0	0.0	0	0.0	0	0.0	0	0.0	2	9.4	3	12.7	15	67.1	7	15.6	6	5.5	0	0.0	33	8.8		
	Female	0	0.0	0	0.0	0	0.0	0	0.0	3	15.4	7	33.1	6	28.3	7	16.0	2	1.8	0	0.0	25	6.5		
	Total	0	0.0	0	0.0	0	0.0	0	0.0	5	12.3	10	22.4	21	48.2	14	15.8	8	3.6	0	0.0	58	7.6		
Hepatitis B (Acute)	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	4.4	6	5.5	0	0.0	8	2.1		
	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	2	2.3	6	2.7	0	0.0	8	1.1		
Hepatitis B (Chronic)	Male	0	0.0	0	0.0	0	0.0	0	0.0	2	9.4	4	17.0	6	26.8	9	20.0	5	4.6	2	2.0	28	7.5		
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	14.2	0	0.0	10	22.9	2	1.8	1	0.9	16	4.2		
	Total	0	0.0	0	0.0	0	0.0	0	0.0	2	4.9	7	15.6	6	13.8	19	21.4	7	3.2	3	1.4	44	5.8		
Hepatitis C	Male	0	0.0	0	0.0	0	0.0	0	0.0	2	9.4	17	72.2	29	129.8	40	89.0	53	48.9	16	16.2	157	41.8		
	Female	0	0.0	0	0.0	0	0.0	0	0.0	2	10.3	13	61.4	17	80.1	22	50.4	28	24.8	8	7.2	90	23.4		
	Total	0	0.0	0	0.0	0	0.0	0	0.0	4	9.8	30	67.1	46	105.6	62	70.0	81	36.6	24	11.4	247	32.5		
Syphilis (Infectious) ^Φ	Male	1	29.6	0	0.0	0	0.0	0	0.0	1	4.7	2	8.5	2	8.9	6	13.3	5	4.6	1	1.0	18	4.8		
	Female	0	0.0	0	0.0	0	0.0	0	0.0	1	5.1	0	0.0	0	0.0	0	0.0	1	0.9	0	0.0	2	0.5		
	Total	1	15.0	0	0.0	0	0.0	0	0.0	2	4.9	2	4.5	2	4.6	6	6.8	6	2.7	1	0.5	20	2.6		
Syphilis (All)	Male	1	29.6	0	0.0	0	0.0	0	0.0	1	4.7	2	8.5	5	22.4	6	13.3	8	7.4	2	2.0	25	6.7		
	Female	0	0.0	0	0.0	0	0.0	0	0.0	1	5.1	1	4.7	1	4.7	0	0.0	2	1.8	3	2.7	8	2.1		
	Total	1	15.0	0	0.0	0	0.0	0	0.0	2	4.9	3	6.7	6	13.8	6	6.8	10	4.5	5	2.4	33	4.3		

Source: RDSS (Reportable Disease Surveillance System) database for all sexually transmitted and blood borne diseases data, except HIV and AIDS and Syphilis(infectious) for years 2010-2012

§ HIV/AIDS Case Report Surveillance System database

Φ Enhanced Syphilis Database for Syphilis (infectious) data for years 2011-2012

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Appendix 5. Tables for Vectorborne and Zoonotic Diseases

Table 5.1. Notifiable vectorborne and zoonotic diseases reported in New Brunswick in 2012-2017: counts and incidence rates per 100,000 population.

	NB											
	2012		2013		2014		2015		2016		2017	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Vectorborne and Zoonotic diseases												
Leptospirosis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Lyme Disease	7	0.9	5	0.7	5	0.7	11	1.5	8	1.1	29	3.8
Malaria	4	0.5	10	1.3	3	0.4	10	1.3	7	0.9	6	0.8
Q fever	2	0.3	1	0.1	2	0.3	0	0.0	1	0.1	1	0.1
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	0	0.0	1	0.1	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	0	0.0	2	0.3	2	0.3

Table 5.2. Notifiable vectorborne and zoonotic diseases reported in New Brunswick in 2017 by Region: counts and incidence rates per 100,000 population.

	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
Vectorborne and Zoonotic diseases																
Leptospirosis	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Lyme Disease	1	0.5	28	16.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	29	3.8
Malaria	3	1.4	3	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	0.8
Q fever	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
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	2	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.3

Source: RDSS (Reportable Disease Surveillance System) database

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Table 5.3. Notifiable vectorborne and zoonotic diseases reported in New Brunswick in 2017 by age group and sex: counts and incidence rates per 100,000 population.

		NB																					
		Age groups																					
		<1		1-4		5-9		10-14		15-19		20-24		25-29		30-39		40-59		60+		Total Rate	
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate				
Vectorborne and Zoonotic diseases																							
Leptospirosis	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	0	0.0	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	1	2.3	0	0.0	0	0.0	0	0.0	1	0.1
Lyme Disease	Male	0	0.0	0	0.0	3	15.5	3	15.1	2	9.4	0	0.0	1	4.5	0	0.0	8	7.4	5	5.1	22	5.9
	Female	0	0.0	0	0.0	1	5.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	3.5	2	1.8	7	1.8
	Total	0	0.0	0	0.0	4	10.5	3	7.9	2	4.9	0	0.0	1	2.3	0	0.0	12	5.4	7	3.3	29	3.8
Malaria	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.2	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3
	Female	0	0.0	0	0.0	1	5.4	0	0.0	0	0.0	3	14.2	0	0.0	0	0.0	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	4	8.9	0	0.0	0	0.0	1	0.5	0	0.0	6	0.8
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	1	0.9	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	0.5	0	0.0	1	0.1
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	1	4.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	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	1	3.9	0	0.0	0	0.0	1	0.3
	Total	0	0.0	0	0.0	1	2.5	0	0.0	0	0.0	0	0.0	0	0.0	1	2.0	0	0.0	0	0.0	2	0.3

Source: RDSS (Reportable Disease Surveillance System) database

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Appendix 6. Tables for Respiratory and Direct Contact diseases

Table 6.1. Notifiable respiratory and direct contact diseases reported in New Brunswick in 2012-2017: counts and incidence rates per 100,000 population.

	NB											
	2012		2013		2014		2015		2016		2017	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Respiratory and Direct Contact diseases												
Invasive Group A Streptococcal disease (iGAS) [§]	19	2.5	13	1.7	16	2.1	41	5.4	24	3.2	33	4.3
Group B Streptococcal Infection of Newborn [¶]	5	70.2	3	43.3	1	14.5	1	14.9	2	29.9	1	15.0
Legionellosis [†]	3	0.4	3	0.4	3	0.4	10	1.3	6	0.8	3	0.4
Tuberculosis [‡]	5	0.7	3	0.4	5	0.7	6	0.8	12	1.6	8	1.1

Table 6.2. Notifiable respiratory and direct contact diseases reported in New Brunswick in 2017 by Region: counts and incidence rates per 100,000 population.

	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
Respiratory and Direct Contact diseases																
Invasive Group A Streptococcal disease (iGAS) [§]	9	4.2	13	7.5	7	4.0	0	0.0	0	0.0	4	5.4	0	0.0	33	4.3
Group B Streptococcal Infection of Newborn [¶]	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	15.0
Legionellosis [†]	2	0.9	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3	0	0.0	3	0.4
Tuberculosis [‡]	4	1.8	1	0.6	1	0.6	0	0.0	0	0.0	1	1.3	1	2.2	8	1.1

§ Source: iGas enhanced database

†Source: RDSS (Reportable Disease Surveillance System) database

‡Source: Active TB enhanced Database

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates received from Statistics Canada, Demography Division; May 2018.

Rates for Group B Streptococcal infection of newborn were calculated based on live birth estimates from Statistics Canada, Demography Division. Date modified August 13, 2018.

Table 6.3. Notifiable respiratory and direct contact diseases reported in New Brunswick in 2017 by age group and sex: counts and incidence rates per 100,000 population.

		NB																					
		Age groups																					
		<1		1-4		5-9		10-14		15-19		20-24		25-29		30-39		40-59		60+		Total	
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Respiratory and Direct Contact diseases																							
Invasive Group A Streptococcal disease (iGAS) [§]	Male	0	0.0	0	0.0	0	0.0	2	10.1	0	0.0	2	8.5	0	0.0	1	2.2	4	3.7	6	6.1	15	4.0
	Female	0	0.0	1	7.1	0	0.0	0	0.0	0	0.0	0	0.0	2	9.4	4	9.2	5	4.4	6	5.4	18	4.7
	Total	0	0.0	1	3.6	0	0.0	2	5.3	0	0.0	2	4.5	2	4.6	5	5.6	9	4.1	12	5.7	33	4.3
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	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	1	0.9	1	0.9	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	1	0.5	2	1.0	3	0.4
Tuberculosis [‡]	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	2	2.0	2	0.5
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.7	1	4.7	1	2.3	1	0.9	2	1.8	6	1.6
	Total	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	1	2.3	1	1.1	1	0.5	4	1.9	8	1.1

§ Source: iGas enhanced database

†Source: RDSS (Reportable Disease Surveillance System) database

‡Source: Active TB enhanced Database

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were population estimates from Statistics Canada, Demography Division; release date May 2018.