

**New Brunswick Report on Sexually Transmitted
and Blood Borne Infections, 2016**

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New Brunswick Report on Sexually Transmitted and Blood Borne Infections

Enhanced surveillance data, 2016

1. Introduction

Under the Public Health Act of New Brunswick, select sexually transmitted and blood borne infections (STBBIs) are reported to Regional Public Health and subsequently to the Office of the Chief Medical Officer of Health (OCMOH). Included among these STBBIs are chlamydia, gonococcal Infections, syphilis, hepatitis B, hepatitis C, and Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS). In 2016, an enhanced surveillance program for all reportable STBBIs except chlamydia was implemented to better describe risk factors among patients and identify at-risk groups for the purpose of informing the prevention and control of STBBIs in New Brunswick.

2. Methodology

Data collection begins in the seven Health Regions in New Brunswick (See map in Appendix 1). All positive laboratory-confirmed cases are sent to Regional Public Health. Basic information on all reportable STBBIs is entered into the Reportable Diseases Surveillance System (RDSS). In addition, cases (excluding chlamydia) are followed up with an enhanced surveillance questionnaire by Public Health Nurses to assess risk factors. Information obtained from the enhanced surveillance is entered into a database designed for that purpose. The seven Health Regions extract a monthly line list of all cases and send the data to the Office of the Chief Medical Officer of Health (OCMOH).

3. Data 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 which 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. Numbers and rates in the report are based on 2016 notifications received as April 2017, 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 the Public Health Agency of Canada (PHAC) that are used in this report are also subject to change.

4. Definitions used

Men Having Sex with Men (MSM): Sexual orientation can be homosexual, bisexual.

Types of sexual partners:

- Regular partner: a sexual partner with whom you have an emotional connection
- Casual partner: a sexual partner with whom you have no emotional connection
- Anonymous partner: a sexual partner of unknown identity

Paraphernalia: snorting, sniffing or smoking equipment used during illicit drug use.

5. Overview of STBBI epidemiology in New Brunswick, 2016

The most common reported STBBI is chlamydia, followed by hepatitis C (unspecified) and chronic hepatitis B.

In 2016, higher incidence rates of chlamydia, gonorrhoea, chronic and acute hepatitis B, and AIDS were observed compared to the previous 5-year average. However, incidence rates remained stable for cases of hepatitis C and HIV and incidence rate was lower for Syphilis .

Individuals aged 20 to 39 years old were the highest affected (highest incidence rates) by overall reportable STBBIs.

Graph 1. Sexually Transmitted and Blood Borne Infections (STBBI) in New Brunswick, 2016

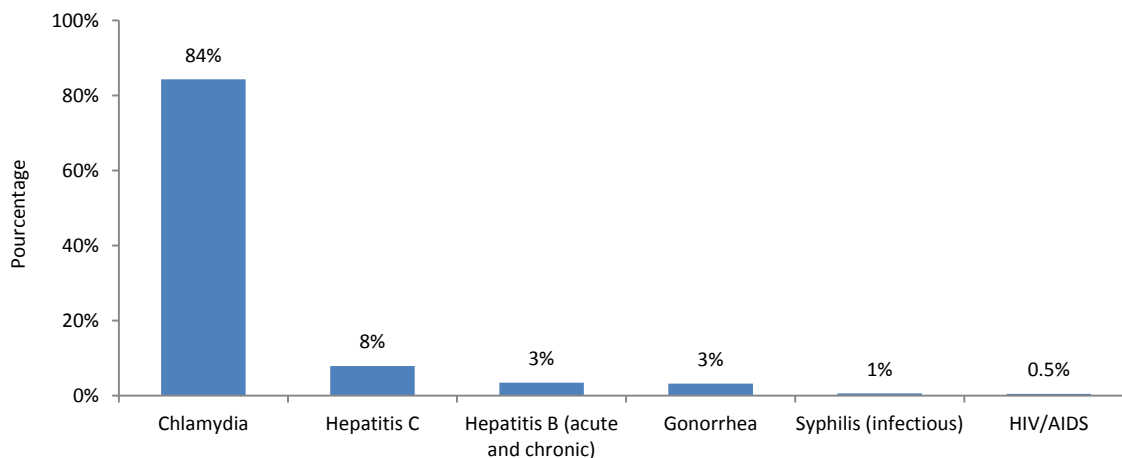
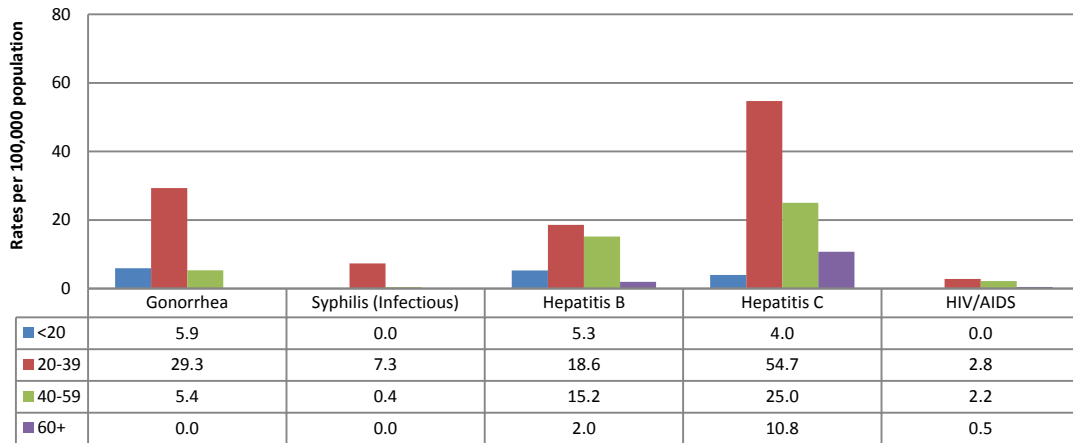
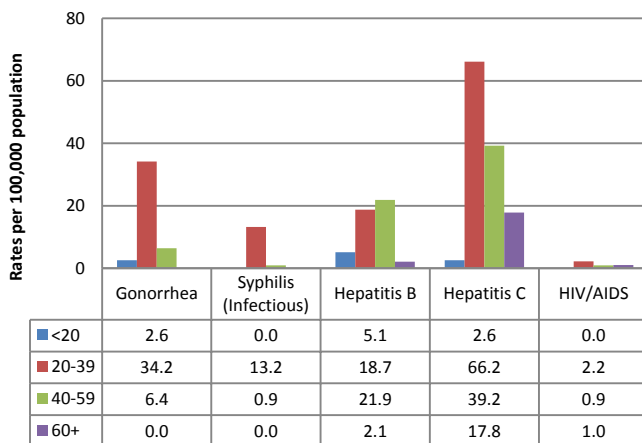


Figure 1. Age specific incidence rates by sex for different reportable STBBIs (excluding Chlamydia), New Brunswick, 2016

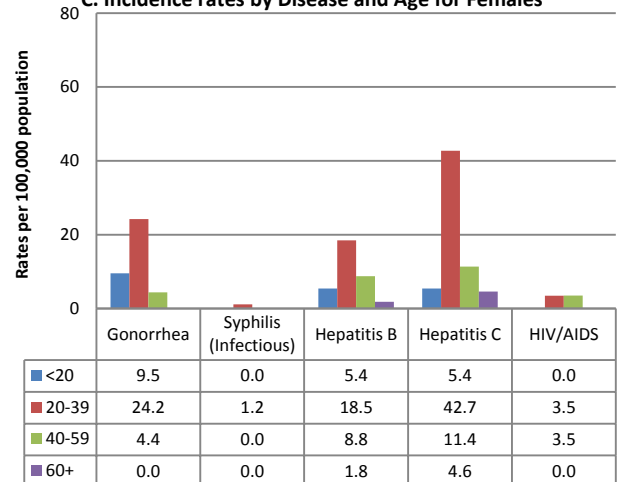
A. Incidence rates by Disease and Age without Chlamydia



B. Incidence rates by Disease and Age for Males



C. Incidence rates by Disease and Age for Females



6. Specific Diseases

A. Chlamydia

i. Overview

Chlamydia is the most commonly reported sexually transmitted infection.

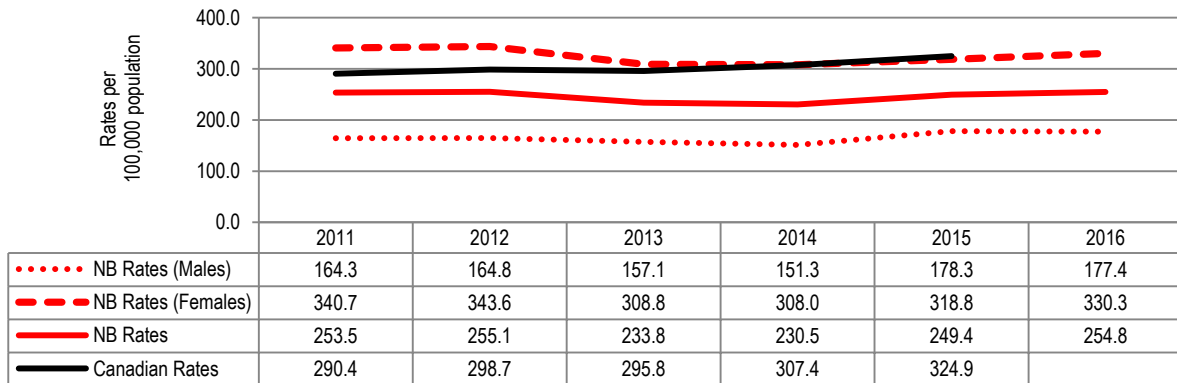
In 2016, 1928 chlamydia cases were reported with an incidence rate of 254.8 per 100,000 population. In the past 5 years, the average case count was 1846 cases per year, with a 5-year average incidence rate of 244.5 per 100,000 population. After a slight decrease in 2013 and 2014, the incidence rate increased in 2015 and 2016 to comparable levels to years prior to 2013. Overall, the incidence rate for New Brunswick is lower than the Canadian rate.

Females remain largely overrepresented among chlamydia cases, accounting for more than two thirds of all notifications (66%) in 2016.

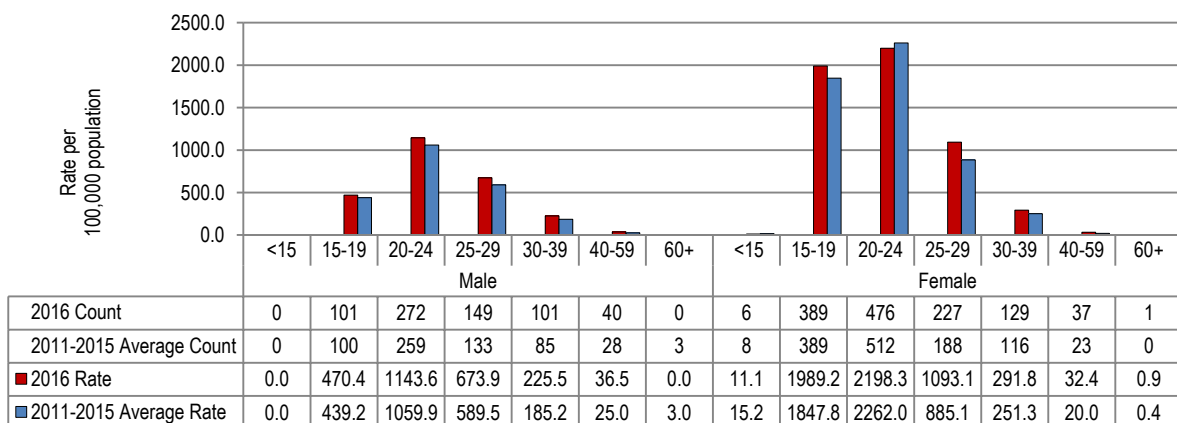
In 2016, higher incidence rates were observed in all age groups, compared to their 5-year average, with the highest incidence rate observed amongst young adults aged 20 to 24 years old in both males and females.

Compared to 2015, the highest increases in incidence rates were observed in Region 4, followed by Region 5 and Region 3.

Graph 2. Chlamydia Incidence Rates per 100,000 population Overall and by Sex for New Brunswick and Canada, 2011-2016



Graph 3. Chlamydia Case Counts and Incidence Rate per 100,000 by Sex and Age group, New Brunswick, 2011-2016



B. Gonorrhoea

i. Overview

In 2016, 73 cases of gonorrhoea were reported to Public Health with an incidence rate of 9.6 cases per 100,000 people. This is the highest number of cases and incidence rate reported in 10 years. Despite this increase, rates for gonorrhoea in New Brunswick continue to be well below national rates¹.

Most of the cases were reported in Regions 1 (30 cases), Region 3 (21 cases) and Region 2 (14 cases). 68% of the cases (50 cases) occurred in the second half of 2016, of which 23 cases were females.

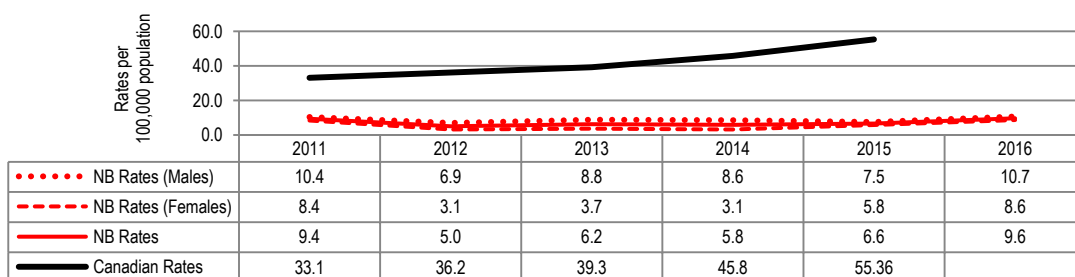
The number of reported male cases (n=40) slightly increased compared to the previous 5-year average (n=32). Four male cases had previously repeated gonorrhoea infections.

An increasing trend started to be observed among females in 2014 and 2015, and continued in 2016. A similar increase was noted in 2010 and 2011, possibly related to increase testing due to the chlamydia campaign at that time, as well as the 2010-2012 syphilis outbreak.

On average, male cases were almost double female cases: 5-year average female to male ratio was 1:1.8. There was a disproportionate increase in female cases compared to male cases that was observed in 2015 which continued in 2016 with a female to male ratio of 1:1.2.

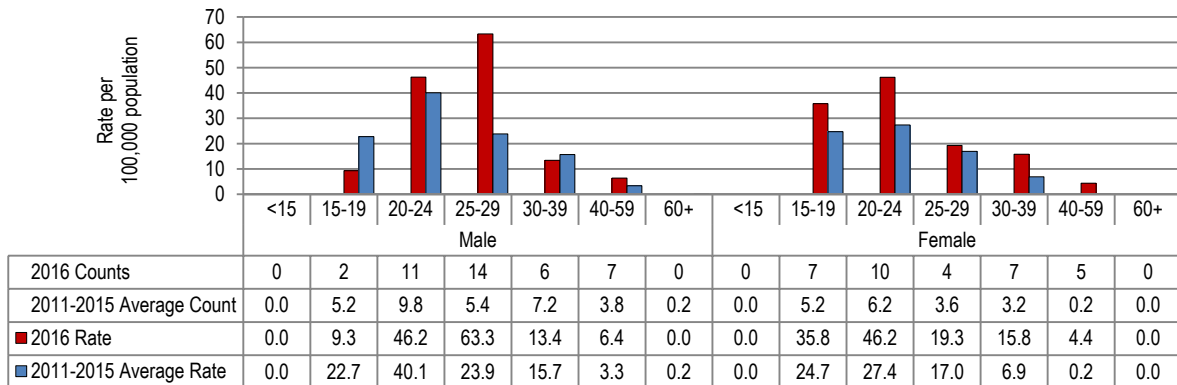
The increase in the male cases was mainly noted among individuals aged 20 to 29 years old, with the highest incidence observed among those aged 25 to 29 years old. On the other hand, the increase in female cases was mainly among those aged 15 to 24 years old age, with the highest incidence observed among those in the 20 to 24 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 4. Gonorrhoea Incidence Rates per 100,000 population Overall and by Sex for New Brunswick and Canada, 2011-2016



¹ National data are presumably a mix of genital and extra-genital gonorrhoea cases

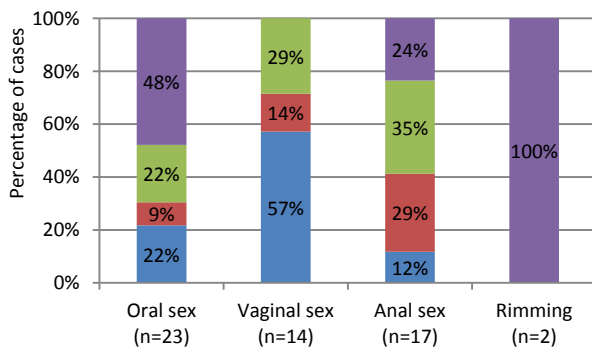
Graph 5. Gonorrhea Case Counts and Incidence Rate per 100,000 by Sex and Age group, New Brunswick, 2011-2016



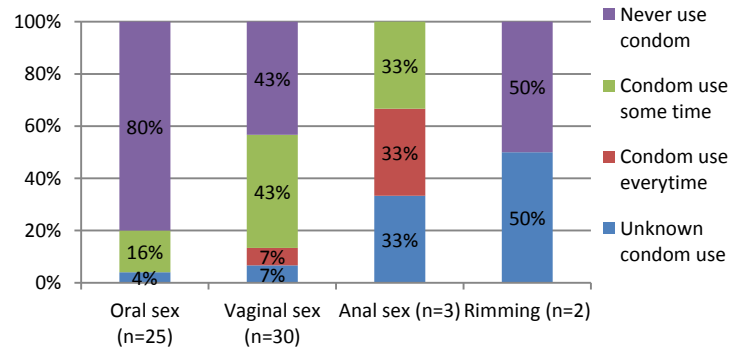
ii. Risk Factors

Among males who provided information on their sexual orientation, 53% identified themselves as men having sex with men (MSM), whereas 12.5% of females have identified themselves as bisexual. High-risk sexual behavior was noted in both male and female gonorrhea cases. In the 60 days prior to the interview, 20% of male cases and 12% of female cases had 3 or more sexual partners. 60% of male cases had casual or anonymous sexual partners; whereas, 54% of female cases had casual or anonymous partners. Practicing unsafe sex, whether vaginal, oral or anal, was noted in both male and female cases. This was particularly prominent in those practicing oral sex, for which 96% of females and 70% of males have either never used condoms or rarely used it in the 12 months prior to the interview.

Graph 6. Condom use among male gonorrhea cases* in New Brunswick, 2016



Graph 7. Condom use among female gonorrhea cases* in New Brunswick, 2016



* only cases reporting practicing oral, vaginal, anal sex or rimming are represented

Table 1. Socio-demographic and behavioral risk factors in male and female gonorrhea cases in 2016, New Brunswick

| Sociodemographic and behavioral RF | Males (N=40) | Females (N=33) |
|---|----------------------|-----------------------|
| Median age in years (range) | 5 18-58) | 25 (16-57) |
| Reason for testing | | |
| Symptomatic | 28 | 15 |
| Routine STI check-up | 2 | 8 |
| Pregnancy screening | N/A | 3 |
| Contact of case | 4 | 4 |
| Unknown | 6 | 3 |
| Co-infection | Chlamydia: 8, HIV: 1 | Chlamydia: 9 |
| Sexual orientation | | |
| Heterosexual | 15 | 28 |
| Homosexual | 16 | 0 |
| Bisexual | 1 | 4 |
| Unknown | 8 | 1 |
| # of sexual partners | | |
| 1 | 10 | 16 |
| 2 | 9 | 13 |
| 3-≤9 | 8 | 4 |
| #of cases by type of sexual partners* | | |
| Regular | 17 | 24 |
| Casual | 12 | 18 |
| Anonymous | 12 | 2 |
| Out of province | 11 | 8 |
| Practicing oral sex: Yes/Total answered | 23/27 | 25/28 |
| % condom use for oral sex | | |
| Never | 48% | 80% |
| Some of the time | 22% | 16% |
| Every time | 9% | 0% |
| Unknown | 21% | 4% |
| Practicing vaginal sex: Yes/Total answered | 14/24 | 30/31 |
| % condom use for vaginal sex | | |
| Never | 21% | 43% |
| Some of the time | 29% | 43% |
| Every time | 14% | 7% |
| Unknown | 36% | 7% |
| Practicing anal sex: Yes/Total answered | 17/23 | 3/18 |
| % condom use for anal sex | | |
| Never | 24% | 0% |
| Some of the time | 35% | 33% |
| Every time | 29% | 33% |
| Unknown | 12% | 33% |

*Not mutually exclusive.

C. Hepatitis B

Acute HBV infection can clear spontaneously or progress to chronic infection.

i. Acute hepatitis B

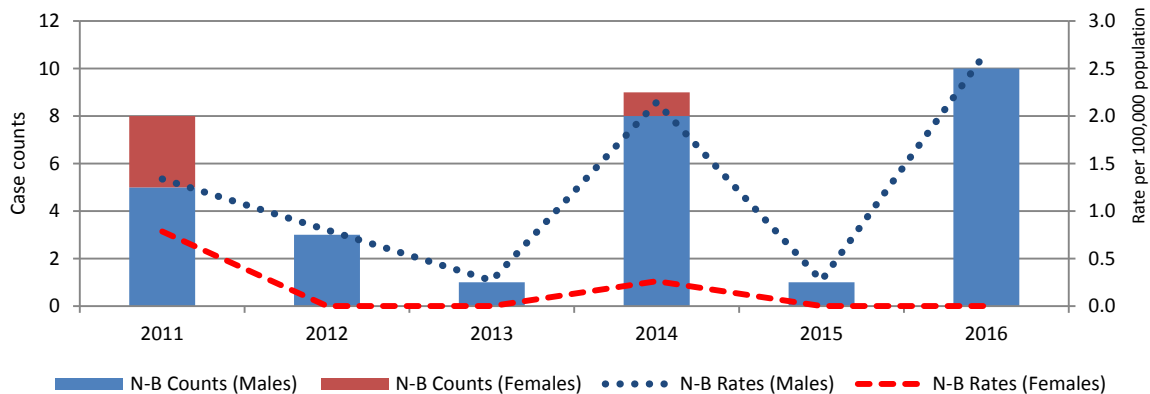
⇒ Overview

In 2016, there were 10 cases of acute hepatitis B reported to Public Health with an incidence rate of 1.3 cases per 100,000 people. This was the highest number of cases reported in the last 10 years. All the cases were males from Region 1. The median age of the cases was 47 years old (age range 23- 58 years). Individuals aged between 45 and 59 years old represented 70% of all cases. Most of the cases (60%) were reported between September and November 2016.

⇒ Risk Factors

Seventy percent of the cases identified themselves as MSM. None had previously received the hepatitis B vaccine. Most of the cases reported high-risk sexual behavior. Forty percent had 10 or more sexual contacts in the last 12 months; all of the contacts were anonymous. All of those who provided information on their pattern of condom use while practicing oral sex (5 cases) never used condoms. Cases who provided information on their pattern of condom use with anal sex (3 cases) used condoms some of the time. Half of the cases reported using non-injection street drugs, with only one reporting sharing drug paraphernalia.

Graph 8. Acute Hepatitis B Case Counts and Rates by sex per 100,000 population in New Brunswick, 2011-2016



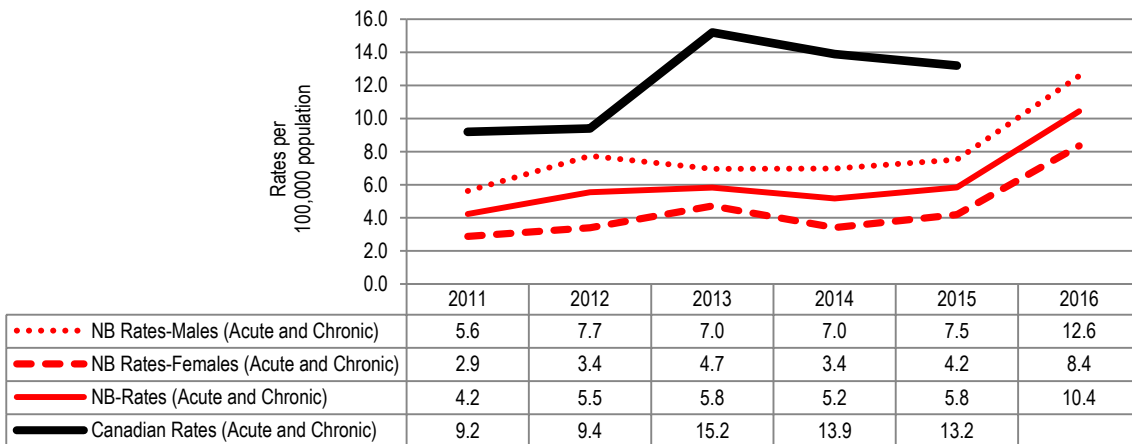
ii. Chronic hepatitis B

⇒ Overview

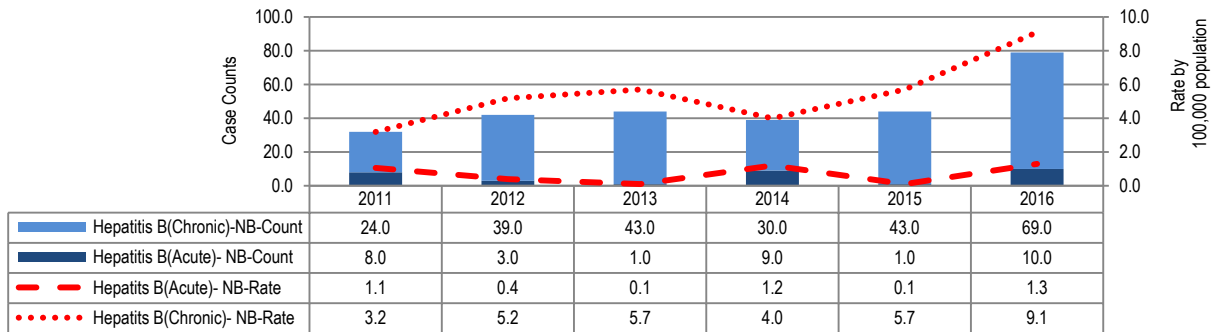
In 2016, 69 cases of chronic hepatitis B were reported to Public Health with an incidence rate of 9.1 cases per 100,000 people. Most of the cases were reported among new immigrants (64%). These cases were mainly from endemic countries. The remainder of chronic hepatitis B cases might still have some new immigrants among them; however, this could not be confirmed by the information we are currently collecting. The number of cases reported in 2016 was the highest reported in the last 10 years.

Ninety-four percent of the cases were reported in Region 3 (41%), Region 1 (38%) and Region 2 (16%). Males represented 56% of all chronic hepatitis B cases reported, with 35% among those age 40 to 49 years old and 19% among this age 30 to 34 years old. Among females, 22% were between 35 and 39 years old and 16% were in the 25-29 years age group. Cases aged 30-39 years old had the highest rate among males, whereas cases aged 25-29 years old had highest rates old among females. The median age of all cases was 37 years old (range 11-75 years).

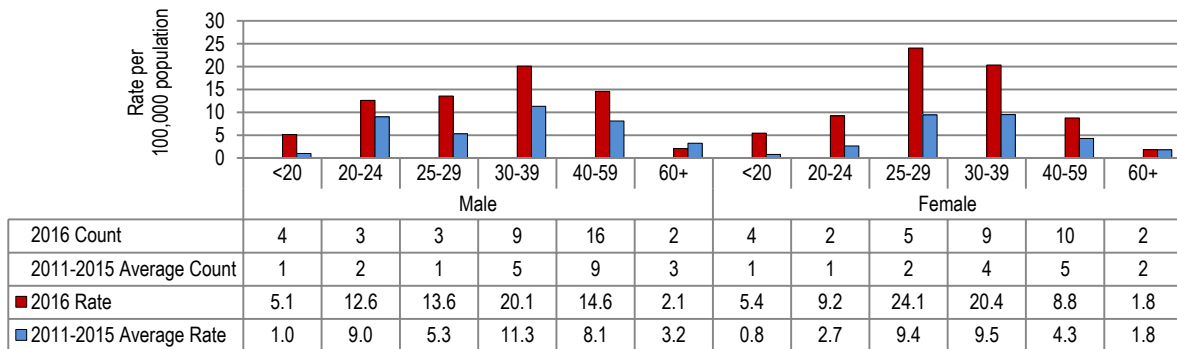
Graph 9. Hepatitis B (acute and chronic) Incidence Rates per 100,000 population Overall and by Sex for New Brunswick and Canada, 2011-2016



Graph 10. Chronic and Acute Hepatitis B Case Counts and Rates per 100,000 in New Brunswick, 2011-2016



Graph 11. Chronic Hepatitis B Case Counts and Incidence Rate per 100,000 by Sex and Age groups, New Brunswick, 2011-2016



⇒ **Risk Factors**

Risk factors are only presented for the chronic hepatitis B cases who probably had acquired their infection in Canada² (n=25).

Some chronic hepatitis B cases were missing information about their risk factors. Nine cases (43% of cases with completed answers) reported living in the same household with other hepatitis B cases. Among those with reported risk factors, all cases identified themselves as heterosexuals. 77% reported not using condoms regularly when performing oral or vaginal sex in the last 12 months. Three cases reported having received blood transfusion (no dates available); five cases underwent surgery (surgery dates ranged from 2005 to 2015). Seven cases (41% of cases with available answer to this question) reported sharing their personal hygiene items with others.

² These cases might still have acquired their infection outside of Canada; however, this could not be confirmed by the information we are currently collecting.

Table 2. Socio-demographic and behavioral risk factors in male and female chronic hepatitis B cases in New Brunswick, 2016.

| Sociodemographic and behavioral RF | Males (N=15) | Females (N=10) |
|---|---------------------|-----------------------|
| Median age in years (range) | 34 (11-75) | 32 (13-71) |
| Reason for testing | | |
| Symptomatic | 1 | 1 |
| Routine blood work | 6 | 3 |
| Pregnancy screening | N/A | 4 |
| Contact of case | 4 | 2 |
| Other | 4 | 0 |
| Co-infection | --- | Syphilis:1 |
| Living with a Hepatitis B case in same household | 5 | 4 |
| Partner | 1 | 1 |
| Parent | 2 | 2 |
| Sibling | 2 | 1 |
| Sharing personal hygiene items with others | 6 | 1 |
| Sexual orientation | | |
| Heterosexual | 11 | 8 |
| Homosexual | 0 | 0 |
| Bisexual | 0 | 0 |
| Unknown | 4 | 2 |
| # of sexual partners | | |
| 0 | 1 | 2 |
| 1 | 9 | 5 |
| 2 | 1 | 1 |
| 3-≤9 | 0 | 0 |
| Unknown | 4 | 2 |
| # of cases by type of sexual partners* | | |
| Regular | 9 | 7 |
| Casual | 0 | 0 |
| Anonymous | 0 | 0 |
| Out of province | 0 | 0 |
| Practicing oral sex: Yes/Total answered | 2/3 | 2/3 |
| % condom use for oral sex | | |
| Never | 100% | 100% |
| Some of the time | 0% | 0% |
| Every time | 0% | 0% |
| Unknown | 0% | 0% |
| Practicing vaginal sex: Yes/Total answered | 5/6 | 4/5 |
| % condom use for oral sex | | |
| Never | 60% | 50% |
| Some of the time | 20% | 25% |
| Every time | 0% | 0% |
| Unknown | 20% | 25% |

*Not mutually exclusive.

D. Hepatitis C

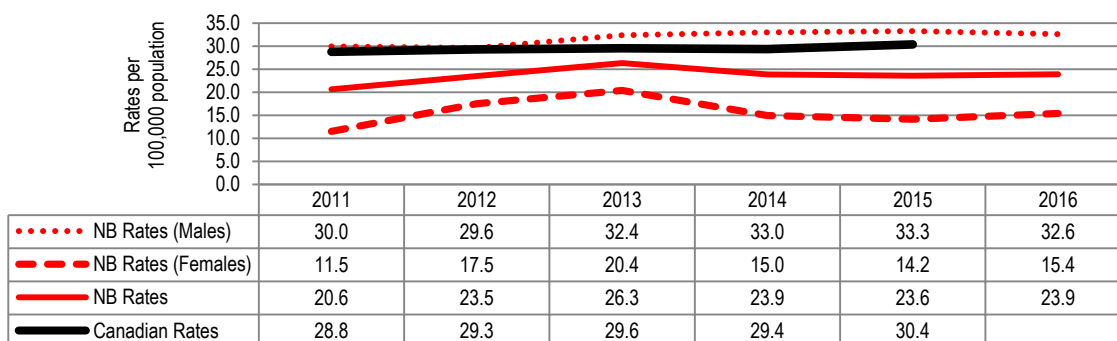
Hepatitis C is the most commonly reported blood-borne infection in New Brunswick.

i. Overview

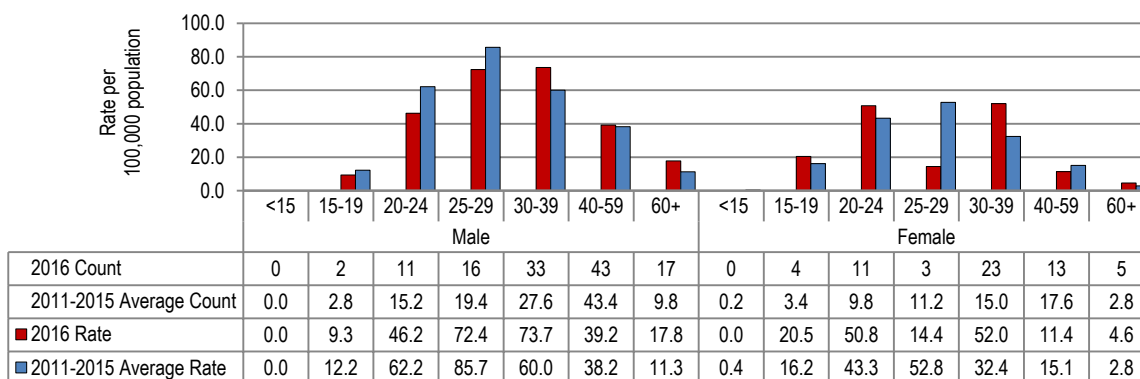
In 2016, the incidence rate of hepatitis C diagnosis was 23.9 cases per 100,000 people with 181 cases of hepatitis C reported to Public Health, of which 11 were confirmed new infections (i.e. documented seroconversion to anti-HCV positive in a person who was previously seronegative within the last 12 months). Two-thirds (67%) of all reported cases were males. Forty-three percent of the male cases were among individuals aged 25-39 years old, with the highest incidence in those aged 30 to 34 years old. Among females, 63% of the newly diagnosed cases were aged 20 to 39 years old, with the highest incidence among those in the 35-39 year olds. The number of hepatitis C cases was more or less stable over the last 10 years.

More than one third of the cases (35%) were reported in Region 1, 18% were reported in Region 2, 17% in Region 3 and 16% in Region 7.

Graph 12. Hepatitis C Incidence Rates per 100,000 population Overall and by Sex for New Brunswick and Canada, 2011-2016.



Graph 13. Hepatitis C Case Counts and Incidence Rate per 100,000 by Sex and Age groups, New Brunswick, 2011-2016



ii. Risk Factors

On average, 60% of the cases provided answers to the questions related to risk factors. This percentage was particularly lower for questions related to sexual behavior.

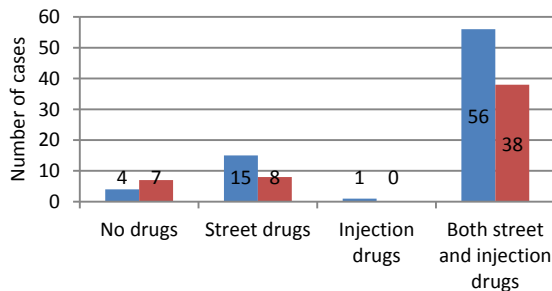
Of the 121 cases who provided an answer to whether they were using illicit drugs, 118 cases (91%) answered that they were using drugs with the majority (80 %) using both injection and non-injection drugs. More than half of the cases (51%) reported sharing needles, and around two thirds (66%) shared drug paraphernalia. 71% had tattoos and 45% had body piercings. Thirty-eight percent of cases, with an answer to this question, were admitted to a correctional facility in the previous 12 months.

Despite the fact that hepatitis C is mainly a blood born infection and that sexual route does not play a major role in its transmission³, the prevalence of high-risk sexual behavior was high among our cases. Fourteen percent of the cases had been previously diagnosed with an STI. One fourth of the cases, who provided information on the number of their sexual partners (60% of all cases), reported having 2 or more partners in the last 12 months. Of those who reported practicing oral sex in the last 12 months, 75% were mostly not using condoms.

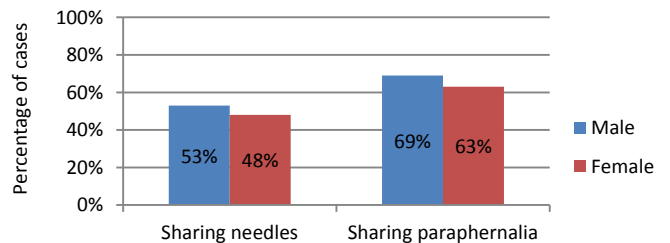
Out of those with completed answer to this question (61% of all cases), 28% reported living with a household member infected with hepatitis C.

Prevalence of risk factors among newly infected cases was comparable to the other hepatitis C cases with the exception of the risk factors related to sexual behavior, which was not noted among the newly infected individuals.

Graph 14. Illicit drug use in male and female Hepatitis C cases* in New Brunswick, 2016.



Graph 15. Needles/paraphernalia sharing in male and female Hepatitis C cases* in New Brunswick, 2016.



*only cases providing answers are represented

³ Chan DP, Sun HY, Wong HT, Lee SS, Hung CC. Sexually acquired hepatitis C virus infection: a review. Int J Infect Dis. 2016;49:47–58. [http://www.ijidonline.com/article/S1201-9712\(16\)31073-6/fulltext](http://www.ijidonline.com/article/S1201-9712(16)31073-6/fulltext)

Table 3. Socio-demographic and behavioral risk factors in male and female hepatitis C cases in New Brunswick, 2016.

| Sociodemographic and behavioral RF | Males (N=122) | Females (N=59) |
|---|----------------------------|-----------------------|
| Median age in years (range) | 39 (18-75) | 35 (17-65) |
| Newly acquired infections | 8 | 3 |
| Reason for testing | | |
| Symptomatic | 15 | 6 |
| High-risk behaviour (IVDU) | 9 | 10 |
| Methadone program screening | 27 | 16 |
| Pregnancy screening | N/A | 5 |
| Contact of case | 6 | 6 |
| Screening in correctional facilities | 5 | 4 |
| Other | 22 | 9 |
| Unknown | 38 | 3 |
| Co-infection | Chlamydia:2; Hepatitis B:1 | Chlamydia:2 |
| Living with a Hepatitis C case in same household | 18 | 14 |
| Partner | 7 | 11 |
| Parent | 1 | 0 |
| Son/Daughter | 1 | 1 |
| Sibling | 2 | 1 |
| Roommate | 5 | 1 |
| Sharing personal hygiene items with others: Yes/total answered | 12/62 | 7/38 |
| Using illicit drugs : Yes/total answered | 72/76 | 46/53 |
| Street drugs | 15 | 8 |
| Injection drugs | 1 | 0 |
| Both | 56 | 38 |
| Shared needles: Yes/total answered | 25/47 | 13/27 |
| Shared paraphernalia: Yes/total answered | 45/65 | 29/46 |
| Admitted to a correctional facility: Yes/total answered | 30/65 | 10/39 |
| Sexual orientation | | |
| Heterosexual | 64 | 42 |
| Homosexual | 3 | 0 |
| Bisexual | 0 | 2 |
| Unknown | 55 | 15 |
| # of sexual partners | | |
| 0 | 11 | 9 |
| 1 | 36 | 23 |
| 2 | 7 | 6 |
| 3-more than 9 | 9 | 3 |
| Unknown | 59 | 18 |
| # of cases by type of sexual partners* | | |
| Regular | 46 | 31 |
| Casual | 17 | 6 |
| Anonymous | 4 | 4 |
| Out of province | 3 | 4 |

| Sociodemographic and behavioral RF (cont.) | Males (N=122) | Females (N=59) |
|---|----------------------|-----------------------|
| Practicing oral sex: Yes/Total answered | 31/42 | 22/31 |
| % condom use for oral sex | | |
| Never | 58% | 50% |
| Some of the time | 13% | 32% |
| Every time | 10% | 4% |
| Unknown | 19% | 14% |
| Practicing vaginal sex: Yes/Total answered | 41/51 | 28/35 |
| % condom use for oral sex | | |
| Never | 0% | 43% |
| Some of the time | 29% | 21.5% |
| Every time | 12% | 21.5% |
| Unknown | 59% | 14% |
| Practicing anal sex: Yes/Total answered | 6/36 | 5/27 |

*Not mutually exclusive.

E. HIV/AIDS

i. HIV

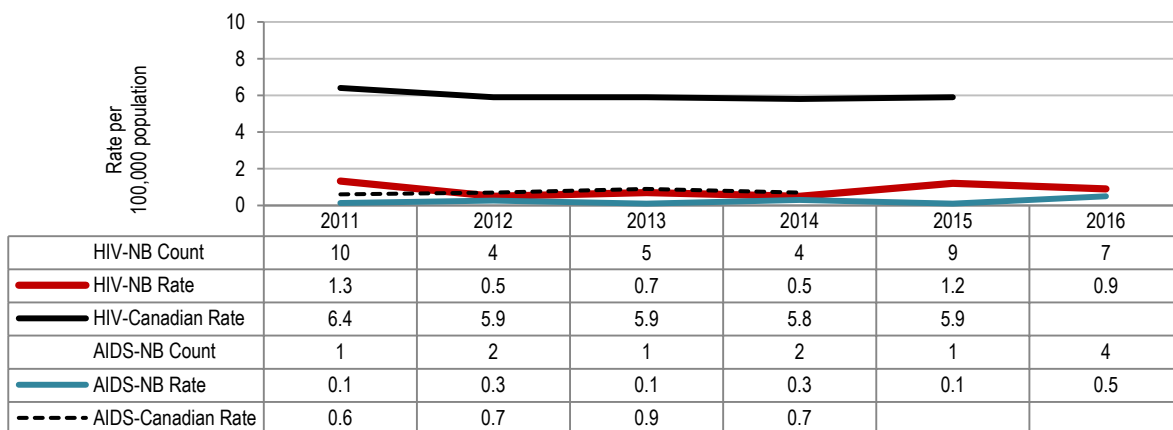
Rates for HIV in New Brunswick continue to be well below national rates.

In 2016, there were seven cases (5 females and 2 males) of newly diagnosed HIV reported to Public Health, with an incidence rate of 0.9 cases per 100,000 people. Four cases (57%) were new immigrants to Canada, and would have acquired the infection prior to their arrival in the country. Among cases who would probably have acquired the infection within Canada (n=3), two were sexual partners and one was an illicit drug user.

Among all the cases, three had co-infections: one with hepatitis C, one with hepatitis B and one with both hepatitis B and syphilis.

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 16. HIV and AIDS Case Counts and Incidence Rates per 100,000 population for New Brunswick and Canada, 2011-2016.



ii. AIDS

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

In 2016, there were four cases (2 males and 2 females) of newly diagnosed AIDS reported to Public Health with an incidence rate of 0.5 cases per 100,000 people. All but one were new comers to New Brunswick (whether from another country or another province).

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.

F. Infectious Syphilis

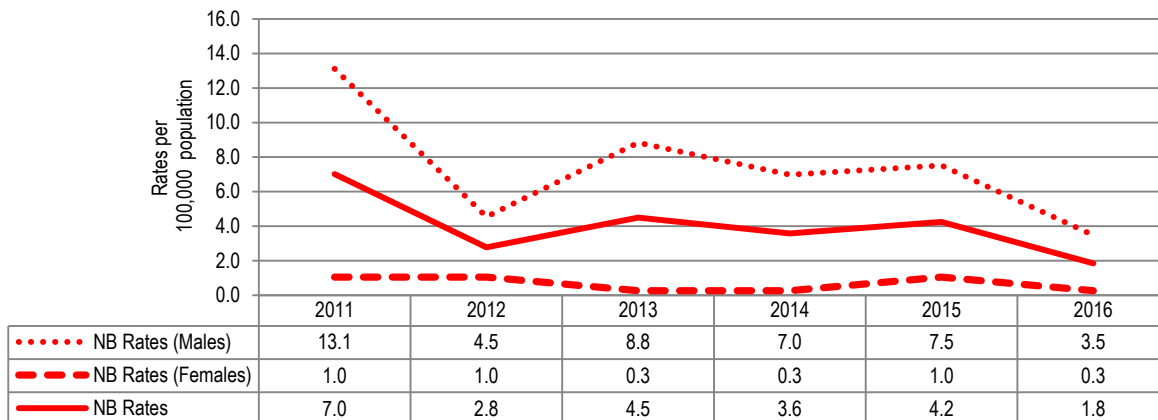
i. Overview

In 2016, there were 14 cases of infectious syphilis reported to Public Health with an incidence rate of 1.8 cases per 100,000 people. Cases reported in 2016 were the lowest reported since the syphilis outbreak was declared over in early 2013. However, most of the cases occurred in the fourth quarter of 2016 during which 8 cases (57% of total cases in 2016) were reported. Risk factors of cases reported in the first 3 quarters of 2016 were comparable to those reported in the last quarter.

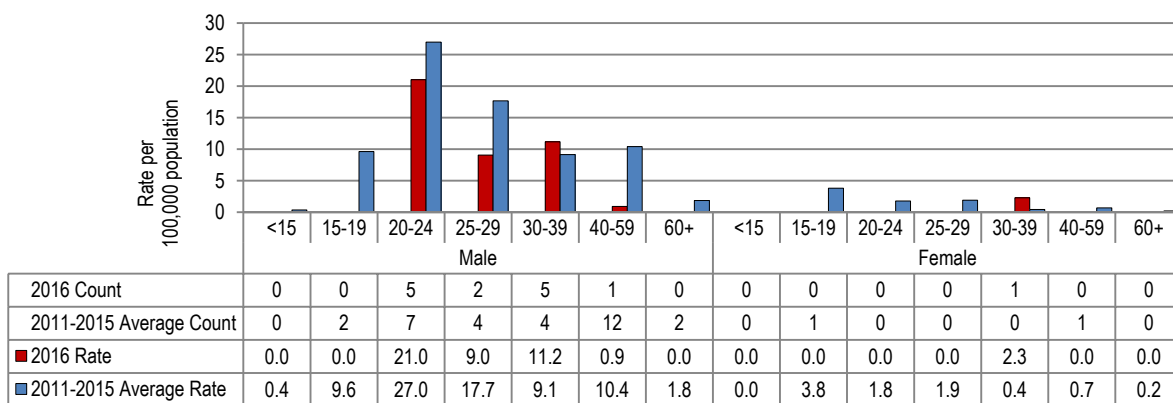
All but one case reported in 2016 were males. Infections primarily occurred among males aged 20-34 years (86% of all cases). The median age of all cases was 30 years old (range: 21-47). Cases in the last quarter of 2016 were slightly older than those reported in the first three quarters: median age 31 versus 24 years respectively.

Most of the cases were reported from Regions 1 (n=6) and 3 (n=5).

Graph 17. Infectious Syphilis Incidence Rates per 100,000 population Overall and by Sex for New Brunswick and Canada , 2011-2016.



Graph 18. Infectious Syphilis Case Counts and Incidence Rate per 100,000 by Sex and Age groups, New Brunswick, 2011-2016



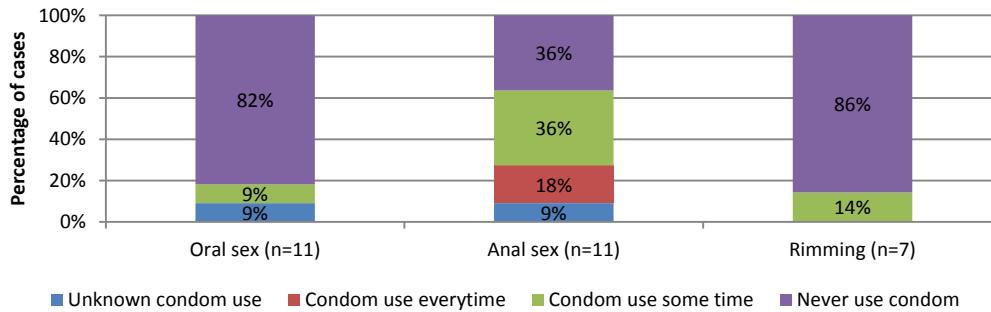
The changes in annual rates for syphilis should be interpreted with caution; low numbers can cause large fluctuations in rates.

ii. Risk Factors

All the male cases identified themselves as MSM with the most common risk factors reported for syphilis infections being not practicing safe sex and having multiple sexual partners. Among cases reported in 2016, 69% of cases did not use a condom while performing oral, vaginal or anal sex in the last 12 months. Never using condoms was higher among those who reported performing rimming (86%) and oral sex (81%) versus those performing anal sex (36%). Thirty-six percent reported having two or three sexual partners, and more than one quarter (27%) reported having five or more sexual partners in the last 12 months, with 46% reporting having casual or anonymous sexual contacts. Half of the cases used illicit drugs, mostly non-injection, in the last 12 months. Three had concurrent coinfection with

other STIs (2 with chlamydia and 1 with hepatitis B); while four had been previously diagnosed with other STIs (2 chlamydia, 1 gonorrhoea and 1 syphilis).

Graph 19. Condom use among in male cases of infectious syphilis * in New Brunswick, 2016.



*only cases reporting practicing oral, anal sex or rimming are represented

Table 4. Socio-demographic and behavioral risk factors in infectious syphilis male cases in New Brunswick, 2016

| Sociodemographic and behavioral RF | Males (N=13) |
|--|---------------------------------|
| Median age in years (range) | 28 (21-47) |
| Reason for testing | |
| Symptomatic | 4 |
| Routine STI check-up | 4 |
| Pregnancy screening | N/A |
| Contact of case | 5 |
| Other | 0 |
| Co-infection | Chlamydia: 2, Hepatitis B: 1 |
| Sexual orientation | |
| Heterosexual | 0 |
| Homosexual | 12 |
| Bisexual | 0 |
| Unknown | 1 |
| # of sexual partners | |
| 1 | 4 |
| 2 | 2 |
| 3-≤9 | 6 |
| Unknown | 1 |
| #of cases by type of sexual partners* | |
| Regular | 12 |
| Casual | 5 |
| Anonymous | 3 |
| Out of province | 5 |

| Sociodemographic and behavioral RF (cont.) | Males (N=13) |
|---|---------------------|
| Practicing oral sex: Yes/Total answered | 11/12 |
| % condom use for oral sex | |
| Never | 82% |
| Some of the time | 9% |
| Every time | 0% |
| Unknown | 9% |
| Practicing anal sex: Yes/Total answered | 11/12 |
| % condom use for anal sex | |
| Never | 36.5% |
| Some of the time | 36.5% |
| Every time | 18% |
| Unknown | 9% |
| Practicing rimming: Yes/Total answered | 7/9 |
| % condom use with rimming | |
| Never | 86% |
| Some of the time | 14% |
| Every time | 0% |
| Unknown | 0% |

*Not mutually exclusive.

7. Summary and conclusion

In 2016, higher incidence rates of chlamydia, gonorrhea, chronic and acute hepatitis B, and AIDS were observed compared to the previous 5-year averages. However, incidence rates remained stable for cases of hepatitis C and HIV.

Missing information related to the sexual history, drug use history as well other risk factors was noted for some diseases e.g. Hepatitis C and Hepatitis B (both acute and chronic) which did not allow for further analysis and interpretation of patterns of behavior among different age groups.

For sexually transmitted infections, all cases reported high-risk sexual behavior, with the most prominent being the practice of unsafe oral sex, in addition to the other types of sex.

For blood borne infections, illicit drug use (whether injectable or non-injectable) and sharing needles or paraphernalia was very prominent among the cases.

Effective messaging related to practicing safe sex as well as reducing harm while using illicit drugs is crucial to control and prevent STBBIs in New Brunswick.

Appendix 1
Map of New Brunswick Health Regions



Appendix 2: STBBIs in New Brunswick in 2011-2016 (counts and incidence rates by 100,000 population)

| | NB | | | | | | | | | | | |
|---|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | |
| | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate |
| Sexually Transmitted and Bloodborne Infections | | | | | | | | | | | | |
| AIDS | 1 | 0.1 | 2 | 0.3 | 1 | 0.1 | 2 | 0.3 | 1 | 0.1 | 4 | 0.5 |
| HIV | 10 | 1.3 | 4 | 0.5 | 6 | 0.8 | 4 | 0.5 | 9 | 1.2 | 7 | 0.9 |
| Chlamydia (genital) | 1917 | 253.7 | 1931 | 255.1 | 1767 | 233.8 | 1738 | 229.6 | 1880 | 249.4 | 1928 | 254.8 |
| Gonorrhea (genital) | 71 | 9.4 | 38 | 5.0 | 47 | 6.2 | 44 | 5.8 | 50 | 6.6 | 73 | 9.6 |
| Hepatitis B (Acute) | 8 | 1.1 | 3 | 0.4 | 1 | 0.1 | 9 | 1.2 | 1 | 0.1 | 10 | 1.3 |
| Hepatitis B (Chronic) | 24 | 3.2 | 39 | 5.2 | 43 | 5.7 | 30 | 4.0 | 43 | 5.7 | 69 | 9.1 |
| Hepatitis C | 156 | 20.6 | 177 | 23.4 | 197 | 26.1 | 180 | 23.8 | 178 | 23.6 | 181 | 23.9 |
| Syphilis (Infectious) | 58 | 7.7 | 21 | 2.8 | 34 | 4.5 | 27 | 3.6 | 32 | 4.2 | 14 | 1.8 |
| Syphilis (All) | 72 | 9.5 | 43 | 5.7 | 48 | 6.4 | 46 | 6.1 | 45 | 6.0 | 31 | 4.1 |

Appendix 3: STBBIs in New Brunswick in 2016 by Region (counts and incidence rates by 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) | 652 | 305.0 | 343 | 197.5 | 588 | 333.7 | 84 | 179.0 | 46 | 179.8 | 171 | 227.3 | 44 | 97.0 | 1928 | 254.8 |
| Gonorrhea (genital) | 30 | 14.0 | 14 | 8.1 | 21 | 11.9 | 1 | 2.1 | 1 | 3.9 | 5 | 6.6 | 1 | 2.2 | 73 | 9.6 |
| Hepatitis B (Acute) | 10 | 4.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 10 | 1.3 |
| Hepatitis B (Chronic) | 26 | 12.2 | 11 | 6.3 | 28 | 15.9 | 2 | 4.3 | 0 | 0.0 | 1 | 1.3 | 1 | 2.2 | 69 | 9.1 |
| Hepatitis C | 64 | 29.9 | 33 | 19.0 | 30 | 17.0 | 3 | 6.4 | 8 | 31.3 | 14 | 18.6 | 29 | 64.0 | 181 | 23.9 |
| Syphilis (Infectious) | 6 | 2.8 | 1 | 0.6 | 5 | 2.8 | 0 | 0.0 | 1 | 3.9 | 1 | 1.3 | 0 | 0.0 | 14 | 1.8 |
| Syphilis (All) | 12 | 5.6 | 2 | 1.2 | 9 | 5.1 | 0 | 0.0 | 1 | 3.9 | 7 | 9.3 | 0 | 0.0 | 31 | 4.1 |

Appendix 4: STBIs in New Brunswick in 2016 by age group and sex (counts and incidence rates by 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 | 1 | 0.9 | 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 | 1 | 2.3 | 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 | 0 | 0.0 | 1 | 1.1 | 2 | 0.9 | 1 | 0.5 | 4 | 0.5 | | |
| HIV § | Male | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.2 | 0 | 0.0 | 1 | 2.2 | 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 | 2.3 | 3 | 2.6 | 0 | 0.0 | 5 | 1.3 | | |
| | Total | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 2.2 | 1 | 2.3 | 2 | 2.2 | 3 | 1.3 | 0 | 0.0 | 7 | 0.9 | | |
| Chlamydia (genital) | Male | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 101 | 470.4 | 272 | 1143.6 | 149 | 673.9 | 101 | 225.5 | 40 | 36.5 | 0 | 0.0 | 663 | 177.4 | | |
| | Female | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 33.2 | 389 | 1989.2 | 476 | 2198.3 | 227 | 1093.1 | 129 | 291.8 | 37 | 32.4 | 1 | 0.9 | 1265 | 330.3 | | |
| | Total | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 15.9 | 490 | 1194.3 | 748 | 1646.2 | 376 | 876.9 | 230 | 258.4 | 77 | 34.4 | 1 | 0.5 | 1928 | 254.8 | | |
| Gonorrhea (genital) | Male | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 9.3 | 11 | 46.2 | 14 | 63.3 | 6 | 13.4 | 7 | 6.4 | 0 | 0.0 | 40 | 10.7 | | |
| | Female | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 7 | 35.8 | 10 | 46.2 | 4 | 19.3 | 7 | 15.8 | 5 | 4.4 | 0 | 0.0 | 33 | 8.6 | | |
| | Total | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 9 | 21.9 | 21 | 46.2 | 18 | 42.0 | 13 | 14.6 | 12 | 5.4 | 0 | 0.0 | 73 | 9.6 | | |
| Hepatitis B (Acute) | Male | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.2 | 0 | 0.0 | 1 | 2.2 | 8 | 7.3 | 0 | 0.0 | 10 | 2.7 | | |
| | 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 | 1 | 2.2 | 0 | 0.0 | 1 | 1.1 | 8 | 3.6 | 0 | 0.0 | 10 | 1.3 | | |
| Hepatitis B (Chronic) | Male | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 10.2 | 2 | 9.3 | 3 | 12.6 | 3 | 13.6 | 9 | 20.1 | 16 | 14.6 | 2 | 2.1 | 37 | 9.9 | | |
| | Female | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 5.5 | 3 | 15.3 | 2 | 9.2 | 5 | 24.1 | 9 | 20.4 | 10 | 8.8 | 2 | 1.8 | 32 | 8.4 | | |
| | Total | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 8.0 | 5 | 12.2 | 5 | 11.0 | 8 | 18.7 | 18 | 20.2 | 26 | 11.6 | 4 | 2.0 | 69 | 9.1 | | |
| Hepatitis C | Male | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 9.3 | 11 | 46.2 | 16 | 72.4 | 33 | 73.7 | 43 | 39.2 | 17 | 17.8 | 122 | 32.6 | | |
| | Female | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 20.5 | 11 | 50.8 | 3 | 14.4 | 23 | 52.0 | 13 | 11.4 | 5 | 4.6 | 59 | 15.4 | | |
| | Total | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 14.6 | 22 | 48.4 | 19 | 44.3 | 56 | 62.9 | 56 | 25.0 | 22 | 10.8 | 181 | 23.9 | | |
| Syphilis (Infectious) [Ⓞ] | Male | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 21.0 | 2 | 9.0 | 5 | 11.2 | 1 | 0.9 | 0 | 0.0 | 13 | 3.5 | | |
| | Female | 0 | 0.0 | 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 | 1 | 0.3 | | |
| | Total | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 11.0 | 2 | 4.7 | 6 | 6.7 | 1 | 0.4 | 0 | 0.0 | 14 | 1.8 | | |
| Syphilis (All) | Male | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 7 | 29.4 | 3 | 13.6 | 8 | 17.9 | 1 | 0.9 | 4 | 4.2 | 23 | 6.2 | | |
| | Female | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 9.6 | 4 | 9.0 | 2 | 1.8 | 0 | 0.0 | 8 | 2.1 | | |
| | Total | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 7 | 15.4 | 5 | 11.7 | 12 | 13.5 | 3 | 1.3 | 4 | 2.0 | 31 | 4.1 | | |