First Nations Health Protection Report Alberta 2024

First Nations and Inuit Health Branch (ISC) – Alberta Region

Indigenous Services Canada
Services aux Autochtones Canada

Canada

Message from the Senior Medical Officer of Health

We are very pleased to bring you the First Nations Health Protection Report 2024. We hope that this Alberta region wide report, along with the community specific report that each First Nation will receive, is a useful tool to support your public health work.

This is our second published Health Protection Report since the Covid 19 global pandemic. It was compiled in 2025, at a time when we experienced a resurgence in Measles cases in Alberta. Childhood immunization continues to be our best tool to prevent diseases such as Measles that have a high rate of complications including hospitalization and even death.

We hope this report supports your health planning. There is still work to be done for First Nations to "catch up" on childhood immunizations that were missed during the Covid 19 pandemic. Well known inequities, such as rates of syphilis infection, are still present. It is encouraging to see that there are lower rates of enteric illness and several notifiable diseases on reserve in Alberta. We celebrate the successes and continue to support your work in responding to local health concerns and outbreaks.

I want to underscore the importance of reporting and capturing data in electronic systems that are integrated with the province. On reserve, the electronic system most commonly used is the Community Health and Immunization Program (CHIP), which has proven immensely useful to support the response to the Covid 19 pandemic and other vaccine preventable diseases such as Pertussis and Measles. CHIP securely manages the high quality immunization data that First Nations heath staff use to plan immunization activities.

I want to end by thanking the community health staff, ISC region Communicable Disease Control team, Environmental Public Health Officers, ISC epidemiology team, Environmental Public Health Data team, Community Based Water Monitors, and all others that are involved in capturing and reporting the public health data in this report.

Most importantly, we thank First Nations leadership for their trust and support in working with us to improve health outcomes.

Sincerely,

Dr. Chris Sarin, on behalf of the ISC Medical Officer of Health team

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Highlights

***We acknowledge that the systems that collect the data in this report are not currently structured to capture and report on strengths-based indicators. The following pages show inequities between First Nations peoples and non-First Nations peoples in Alberta that result from historical and current trauma and the experience of racism. The MOHs in Alberta region are committed to working with First Nations to identify ways that future reports can shift towards more strength-based approaches, and to remove barriers to Nations' access to their own data*.**

Routine Immunizations

- The COVID-19 pandemic had a negative impact on immunization rates in First Nations communities in Alberta.
- Coverage rates, by one year of age and by two years of age, decreased for all vaccines between 2019 and 2021 followed by increases from 2022 to 2024.
- Immunization coverage rates by seven years of age decreased for dTap-IPV (63% in 2019 to 45% in 2023), MMR (67% in 2019 to 48% in 2023) and Var (65% in 2019 to 48% in 2023) followed by slight increases in 2024.
- Immunization coverage rates by 13 years of age decreased significantly between 2019 and 2021 for both HPV (55% in 2019 to 18% in 2021) and HBV (62% in 2019 to 17% in 2021) followed by increases from 2022 to 2024 (35% for HPV and 32% for HBV).
- From 2019 to 2023, immunization coverage rates by 17 years of age decreased from 62% to 43% for dTap and from 59% to 38% for MenC-ACYW followed by an increase in coverage rates for both vaccines in 2024 (50% for dTap and 47% for MenC-ACYW).

Respiratory Illnesses

- There were no reported influenza cases in First Nations communities in Alberta in 2020-21 because seasonal influenza circulation was suppressed due to non-pharmaceutical public health measures that were put in place during the COVID-19 pandemic.
- In 2024-25, there were 58 hospitalized influenza cases and 35 hospitalized COVID-19 cases in First Nations communities in Alberta.
- Seniors 65 years and older had the highest hospitalization rates for influenza and COVID-19 in 2024-25.
- There were 8 deaths among people who tested positive for influenza and fewer than five deaths among people who tested positive for COVID-19 in 2024-25.
- There was a decrease in the number of people in First Nations communities receiving a dose of the influenza vaccine from 17,336 people in 2019-20 to 10,759 people in 2024-25.
- A total of 5,886 people received a dose of the COVID-19 vaccine in 2024-25 and this is a large decrease from the 48,068 people that received a dose in 2020-21.
- A total of 8,956 people living in First Nations communities in Alberta received a dose of the Pneu-C20 vaccine during the 2024-25 respiratory virus season.

- In 2024, the incidence rate of IPD was 73 cases per 100,000 population. This represents a decrease compared to 2023 but remains higher than the rates recorded between 2019 and 2022.

Notifiable Diseases

- First Nations people living on reserve experienced lower rates of lab confirmed enteric infections in 2023 than First Nations people living off reserve and non-First Nations people.
- In Alberta, there was an increase in the rates of invasive group A streptococcal disease (iGAS) in 2023 (56 cases per 100,000 population) compared to 2022 (44 cases per 100,000 population).
- There were 7 active cases of pulmonary tuberculosis among First Nations people living on reserve in Alberta in 2024.
- Among First Nations people and non-First Nations people in Alberta, the rate of infectious syphilis decreased in 2023 compared to 2021 and 2022.
- Among First Nations people in Alberta, congenital syphilis cases increased steadily from 11 cases in 2018 to 61 cases in 2022 followed by a decrease to 38 cases in 2023.
- In 2023, there were 74 newly diagnosed cases of HIV among First Nations people in Alberta (18 on reserve and 56 off reserve).
- There was an overall decrease in rates of hepatitis C from 2018 to 2023 among First Nations people and non-First Nations people in Alberta.

Animal Exposure

- There were 2,139 animal exposures reported in First Nations communities across Alberta between 2019-20 and 2024-25; among them, 366 animal exposures occurred in 2024-25.
- From 2019-20 to 2024-25, among documented exposures, approximately
  - 94% involved dogs, and 85% of those dogs were domestic.
  - 97% involved bites.
  - 84% were provoked.
  - 55% were male.
  - 32% occurred on the calf.

Drinking Water Safety Monitoring

- In 2024-25,
  - 83% of the scheduled microbiological water sampling and testing was accomplished.
  - four communities achieved 100% of annual scheduled sampling and testing of public and semi-public water supplies.
  - a higher proportion of samples from private wells or cisterns tested positive for total coliforms or *E.coli* compared to public and semi-public water supplies.
  - a higher proportion of homes connected to a cistern had at least one positive test result for *E.coli* than those connected to a well.

- 54 Drinking Water Advisories (DWAs) were issued for public and semi-public water supplies, with 5 of those lasting over 90 days.
- there were no long-term drinking water advisories for public or semi-public water supplies in First Nations communities in Alberta as of March 31, 2025.
- line breaks or pressure losses in the distribution system (83%) was the most common water quality reason for issuing a DWA in public water supplies, and 31% of DWAs were associated with treatment/distribution equipment failure or damage.
- 240 DWAs were issued for private homes serviced by either a well or cistern.

Environmental Public Health Inspections

- A total of 1,936 facility inspections were carried out in 2024-25. Food facilities (42%), housing (17%) and institutions (16%) were the top three types of facility inspections carried out.
- A total of 332 housing inspections were completed, and 2,687 deficiencies were observed in 2024-25. In 2024-25,
    - 24.5% of housing deficiencies were related to exterior issues. Deficient exterior doors and windows; eaves and drainages; and roof, cladding and attic were the top three exterior deficiencies observed from 2020-21 to 2024-25.
    - 33.9% of housing deficiencies were related to interior structural issues. Problems with water and moisture damage (24%), floors (18%), and walls (18%) were the most common interior housing deficiencies observed.
- There were 2,162 deficiencies observed during 812 food facility inspections in 2024-25.
    - The top two critical deficiencies observed were related to hand sinks (9.1%), followed by surface and equipment sanitation (7.4%).
    - The top two non-critical deficiencies observed were related to operations and procedures (20.0%), followed by general construction and maintenance (12.7%).

Regional Communicable Disease Control

Communicable Disease Control

ISC's Communicable Disease Control (CDC) activities are part of an overall regional public health program that aims to reduce the incidence, spread and impacts of communicable diseases and improve the health of First Nations people through disease prevention and control, and health promotion activities on reserve [1].

CDC is a mandatory program in all First Nations communities in Alberta [2]. Working closely with partners, the CDC program focuses on notifiable diseases, immunization, outbreak management, sexually transmitted and blood-borne infections, tuberculosis and communicable disease emergencies [1].

In Alberta, the ISC Medical Officers of Health (MOHs) are designated under the Alberta Public Health Act [3] to ensure that follow-up and reporting of notifiable diseases and other related activities are carried out in accordance with the Public Health Act and the related communicable disease regulations for people living on reserve in Alberta.

CDC program components within ISC-Alberta that are discussed in this report include:

- Routine Immunizations
- Respiratory Infections
- Notifiable Diseases

DATA SOURCES

1. Case Data

COVID-19 ER System – Community reported cases of COVID-19 are entered into the COVID-19 ER system by the ISC CDC program.

ISC-AB CDC Program Influenza Data – The CDC program within ISC-AB tracks all reported influenza cases, hospitalizations and deaths among individuals living in First Nations communities in Alberta.

Primary Care Alberta (PCA) Tuberculosis Data– Active tuberculosis cases among individuals living in First Nations communities in Alberta are reported to the ISC-AB CDC Team.

ISC-AB NDR Database – With the exception of Sexually Transmitted Infections (STIs) and Human Immunodeficiency Virus (HIV) cases, the CDC program within ISC-AB tracks reported notifiable diseases among individuals living in First Nations communities in Alberta.

Government of Alberta, Primary and Preventative Health Services (PPHS) NDR- NDR case data (including STIs and HIV) for First Nations and non-First Nations people in Alberta is provided by PPHS. First Nations status is assigned by PPHS through linkage of datasets to their First Nations Registry.

2. Immunization Data

OKAKI Community Health and Immunization Program (CHIP) Slice – The majority of First Nations communities in Alberta report immunization data through OKAKI CHIP. This data includes immunization doses administered to individuals in community and reported in CHIP, as well as doses administered to community members outside of community and imported into CHIP as of October 21, 2025 (respiratory immunizations)/May 15, 2025 (routine immunizations).

ISC-AB Communicable Disease Control (CDC) Program Data – Communities that do not report data through CHIP Slice, send immunizations reports directly to the ISC-AB CDC team.

3. Population Data

Indigenous Services Canada (ISC), and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), Indian Registration System (IRS)[1] - The data file was obtained from the Statistics and Measurement Directorate of ISC and CIRNAC. The data contain demographic information about First Nations people registered to bands in Alberta, irrespective of where they live. First Nations people registered to Bands outside of Alberta and living in Alberta are not captured in the IRS population counts for Alberta.

[1] Population for First Nations people living off reserve is obtained by subtracting First Nations on reserve and Crown land population (ISC-IRS) from total First Nations population (Government of Alberta, PPHS)

The counts were extracted from the Indian Registration System (IRS) as of December 31 of the given calendar year and had not been adjusted for late reporting of births or deaths.

[1]Government of Alberta, PPHS Population – Population data is provided by PPHS for First Nations people and non-First Nations people in Alberta. First Nations status is assigned by PPHS through linkage of datasets to their First Nations Registry.

OKAKI CHIP Slice- Population, as of October 10, 2025 (respiratory immunizations)/May 15, 2025 (routine immunizations) reported in CHIP Slice is used to calculate routine immunization rates for all communities that report immunization data through CHIP Slice.

DATA LIMITATIONS

Data may include non-First Nations individuals who access services on reserve and/or individuals living off reserve who seek services on reserve.

1. Case Data

- **COVID-19** - COVID-19 testing eligibility (who is and is not eligible for testing) has changed throughout the course of the pandemic and impacts the number of people being tested and the number of cases being identified. Data does not capture all cases during recent respiratory virus seasons because only deaths and hospitalizations due to COVID-19 are reportable.
- **Influenza** - data does not capture all cases during a specified respiratory virus season because only deaths and hospitalizations due to influenza are reportable. Also, not all people with influenza symptoms are tested.
- **NDR** - Record of place of residence for First Nations people (i.e. on or off reserve) may not always be accurate or is sometimes missing as First Nations individuals are not required to provide this information.
- The numerator and denominator for case rates may have different data sources.

2. Immunization Data

- Age is calculated at time of immunization. A person immunized with multiple doses may be classified into different age groups depending on the persons age at the time of receiving each dose.
- Members assigned to a given First Nation community in OKAKI CHIP may not be a registered status First Nation member of that community.
- Members assigned to a given First Nations community in OKAKI CHIP may not reside in the community. The definition and use of In Stats in Okaki CHIP slice differs from one community to another therefore All Stats are used for immunization data to ensure that everyone in the system is captured in the data.
- Vaccine doses administered outside of Alberta or off reserve and not yet imported into CHIP Slice will not be captured.

3. Population Data

- <u>ISC and CIRNAC, IRS population file:</u>
  - An individual's information on the IRS is usually updated on the reporting of a life event to the First Nation's Indian Registration Administrator (IRA), although some bands may update the system more frequently. Perhaps the greatest limitation on Indian Register data involves the late reporting of these life events. "It is estimated that of all births reported in 2022, approximately 90.2% had actually occurred prior to 2022" [4]. This is not out of the ordinary since it is common practice for children to be registered between the ages of 1 to 5. A second error type is introduced because individuals can remain on the Indian Register for some time after they are deceased. A certificate of death or a confirmation of presumed death is normally required to remove a name from the Indian Register [4].
  - A second major limitation involves residency codes. Similar to life events, residency codes tend to be updated by the IRA when a life event is reported (although some bands may again update the system more frequently). This makes it possible for an individual to move back and forth between on and off reserve, without having his or her information updated if a life event was not reported. Furthermore, the residency field is optional when the IRA updates the system [4].
  - On-reserve populations for each First Nation community should not be taken to represent the true population for the following reasons:
    a. They contain no information on any non-registered individuals who may be living on reserve or Crown lands.
    b. They contain no information on any individuals registered to other bands who may be living on reserve or Crown lands.
    c. Because the item "Reserve & Crown Land" is a roll-up of residency fields in the IRS, they may include counts pertaining to registrants residing on reserve or crown lands belonging to other bands.
  - The "Reserve & Crown Land" category may also include individuals living on lands affiliated with First Nations communities operating under Self-Government agreements [4].

- <u>Government of Alberta, PPHS- NDR Custom Tables for ISC-AB</u>**-** PPHS assigns First Nations Status by linking datasets to their First Nations Registry. Their First Nations registry would include anyone ever having registered with the Alberta Health Care Insurance Plan (AHCIP) as either status First Nation or Inuit and would also include some Alberta residents belonging to out of province bands. Non-Status First Nations and Metis people can't be identified in the AHCIP population registry so would not be included. The registry also includes individuals on accounts where the main account holder is First Nations (even though the individual may not be).

1. Routine Immunizations

Immunization is proven to be one of the best ways to protect against many infectious diseases that can cause severe illness and even death. It is estimated that immunization has saved 154 million lives worldwide since 1974 [5] . Examples of positive impacts of immunization include: the elimination of smallpox from the world, extremely rare occurrences of tetanus and diphtheria in Canada and the reduction in the number of cases and severity of diseases like pertussis and measles.

Vaccine hesitancy is seen among a number of groups, including Indigenous Peoples, due to historic and ongoing medical racism. Experiences of mistreatment, trauma and stigma in the healthcare system can result in impacts that cross generations. Inequitable access to healthcare and immunization can also contribute to differences in vaccine coverage rates. In 2021 in Canada, children who lived in remote areas had lower coverage rates for routine immunizations than those living in less remote locations. Despite challenges, many communities have been successful in implementing effective initiatives to facilitate vaccination [5].

The diseases that can be prevented by the current immunization program that are discussed in this section are: chickenpox, diphtheria, *Haemophilus influenzae* type b, hepatitis B, human papillomavirus, measles, meningococcal disease, mumps, pertussis, pneumococcal disease, polio, rotavirus, rubella, and tetanus. The Routine Immunization Schedule (Appendix A), which begins soon after birth and extends throughout life is designed to provide the best protection against these diseases. The most intensive part of the schedule is during the first two years of life. "Infants and young children are particularly susceptible to vaccine preventable diseases because their immune systems are less able to fight infection" [8]. By following the routine immunization schedule, children "will be immunized against diseases at the safest and most effective ages and stages" [6]. Immunization targets are set to help reduce the incidence of vaccine-preventable diseases and ensure that outbreaks are controlled [7].

Immunization protects the body from specific infections by safely exposing the immune system to something that resembles the disease-causing organism. Vaccines contain either weakened or inactivated forms of a virus, or small, harmless pieces of a bacterium. These components cannot cause the actual illness, but they stimulate the immune system to respond as if a real infection were present. As a result, the body produces antibodies and develops immunological memory, allowing it to recognize and fight the infection more effectively in the future.. Vaccines used in Canada are safe and effective. Just like any medication, vaccines can cause reactions. Most reactions are mild. Severe reactions, such as an allergic reaction to the vaccine, are rare [9]. In contrast, infection with these bacteria and viruses can cause severe complications and even death [10] . Since these diseases can circulate widely in groups without protection, immunization is one of the most important public health interventions that protect both the individual and the population at large.

This section of the report will present data summarizing the proportion of people living in First Nations communities in Alberta that were immunized as recommended by the Routine Immunization Schedule (Appendix A). In conjunction with community specific reports, the information may be used to guide immunization program planning and evaluation in communities and the region. Note that vaccine doses administered outside of Alberta or off reserve and not yet imported into CHIP Slice will not be captured.

DEFINITIONS

- **Immunization coverage** is the proportion of the population within a specific age group immunized on time as recommended.
- **Immunization uptake** is the proportion of the population within a specific age group that have started but not completed the recommended immunization series by the recommended age.
- **Immunization target** is the critical proportion of the population needed to be immunized in order to achieve the best protective effects of immunization or to develop community immunity.

METHODOLOGY

Immunization rates are determined using the antigen proxy method, where immunizations for a particular antigen are used as proxies for the vaccine. This allows for comparability across different scenarios when different vaccines are available.

Immunization rates are based on birth cohorts and reported by age. In order to be considered immunized, a child must have received their age-appropriate dose(s) by their birthday (ie. If a child receives a dose after their first birthday, they are not counted as having received that dose by age one). In regards to the birth cohort, the 2024 immunization coverage for one-year-olds reflects the immunization rates of children born in 2023.

1.1. Pre-School Immunizations

Immunizations for One-Year-Old Children

The immunizations recommended for the first year of life are diphtheria, tetanus, pertussis, polio, *Haemophilus influenza* type b and hepatitis B (DTaP-IPV-Hib-HB), meningococcal type C (MenconC), 13-valent pneumococcal conjugate (Pneu-C), and rotavirus (ROT). According to the immunization schedule (Appendix A), children should receive 3 doses of DTaP-IPV-Hib-HB, 1 dose of MenconC, 3 doses of Pneu-C and 2 doses of ROT by one year of age. In order to achieve optimal protective effects of immunization, 95% of one-year-olds should have completed the recommended immunizations (80% for Rotavirus) [11].

Figure 1-1 shows the proportion of children in First Nations communities in Alberta who had started the routine immunization series, and may or may not have completed the series, according to the recommended schedule, by one year of age. Immunization series completion by one year of age decreased for all vaccines between 2019 and 2021 followed by increases from 2022 to 2024. The COVID-19 pandemic had a global impact on health services, including childhood immunizations [12] and could be part of the reason why there was a drop in childhood immunization rates in First Nations communities in Alberta from 2019 to 2021.

It is recommended that all required immunizations be administered at the same visit. However, Figure 1-1 indicates that this may not be happening consistently; for example, the coverage and uptake were different for DTaP-IPV-Hib-HB aneu. Immunization coverage was higher for MenconC than the remaining vaccines and this is likely because only one dose of MenconC is recommended for one-year-olds.

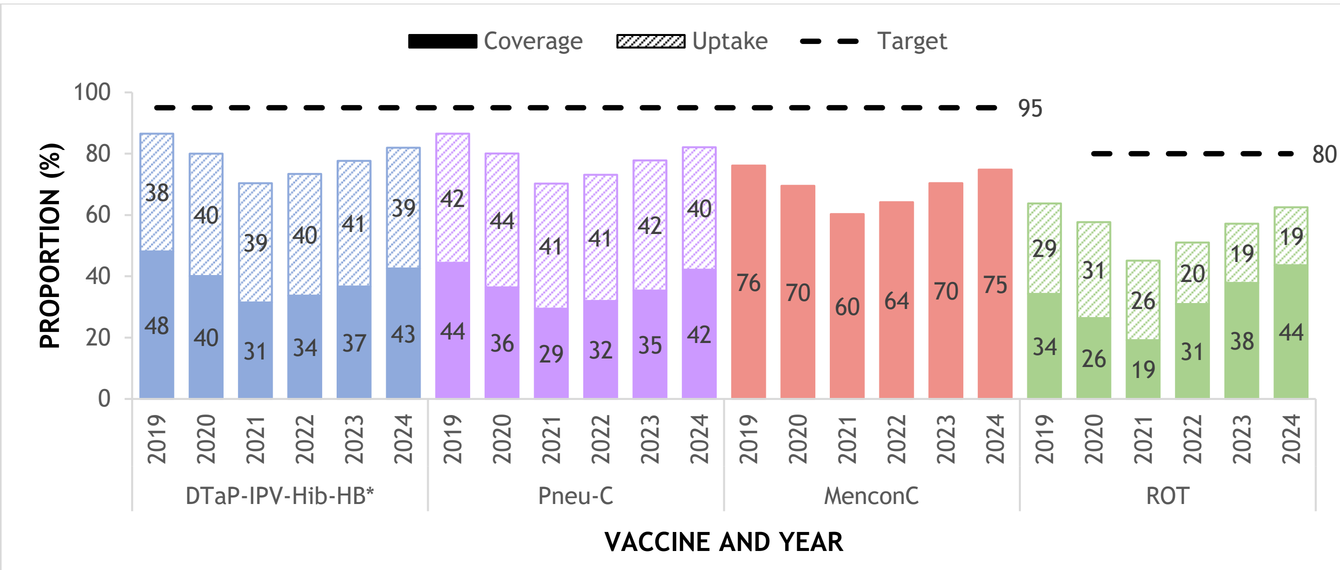

Figure 1-1: Immunization coverage and uptake for DTaP-IPV-Hib-HB, Pneu-C, MenconC and ROT, by one year of age, First Nations communities in Alberta, 2019-2024

Source: OKAKI CHIP Slice (May 15, 2025) and ISC, ISC-Alberta Region, Communicable Disease Control Database.

*DTaP-IPV-Hib-HB- for children born on or after March 1, 2018. Children born before March 1, 2018 will get DTaP-IPV-Hib at ages 2, 4 and 6 months and Hepatitis B in school.

Figure 1-2 shows significant variation in immunization coverage and uptake for DTaP-IPV-Hib-HB by First Nations community in 2024. There were 21 communities with a coverage rate higher than the 43% regional coverage rate.

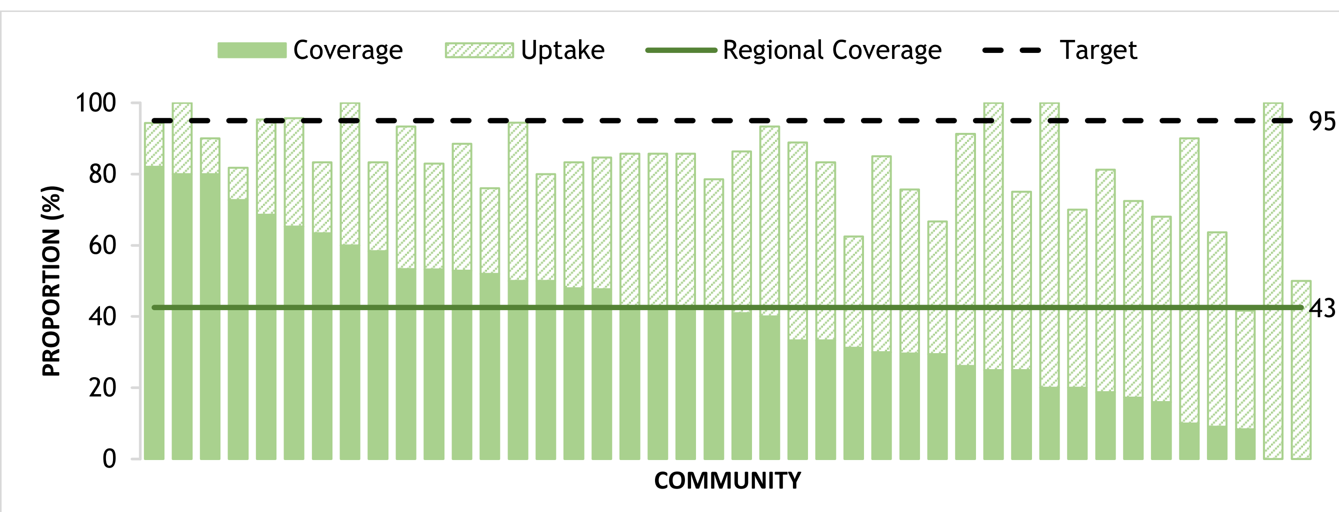

Figure 1-2: Immunization coverage and uptake for DTaP-IPV-Hib-HB by community, by one year of age, First Nations communities in Alberta, 2024

Source: OKAKI CHIP Slice (May 15, 2025) and ISC, ISC-Alberta Region, Communicable Disease Control Database.

Immunizations for Two-Year-Old Children

The vaccines recommended for the second year of life are: DTaP-IPV-Hib, Pneu-C, MenconC and MMR-Var. According to the immunization schedule (Appendix A), children should receive 2 doses of MenconC, 4 doses of Pneu-C, 2 doses of MMR-Var (1 dose prior to 2022) and 4 doses of DTaP-IPV-Hib by two years of age. However, a series is considered complete for Hib if at least one dose was given on or after 15 months of age. There are also modified series for MenconC and Pneu-C depending on the age when the first dose was administered. In order to achieve optimal protective effects of immunization, 95% of two-year-olds should have completed the recommended immunizations [11].

As of January 2021, two doses of MMR-Var are required prior to two years of age whereas previously the second dose was given at age 4-6 years. With 2021 being a program transition year (with children on both schedules), immunization coverage includes children who received at least one dose by two years of age. From 2022 onwards, immunization coverage only includes children who received two doses prior to two years of age and uptake includes those who received only one dose.

Figure 1-3 shows the coverage and uptake for DTaP-IPV, Hib, Pneu-C, MenconC and MMR-Var for two-year-olds from 2019 to 2024. Immunization series completion rates for all vaccines, with the exception of MMR-Var, experienced a decline between 2019 and 2021, followed by a subsequent increase from 2022 through 2024. The COVID-19 pandemic and its impact on service provision could be part of the reason why there was a drop in immunization rates in First Nations communities in Alberta from 2019 to 2020 and 2021 [12].

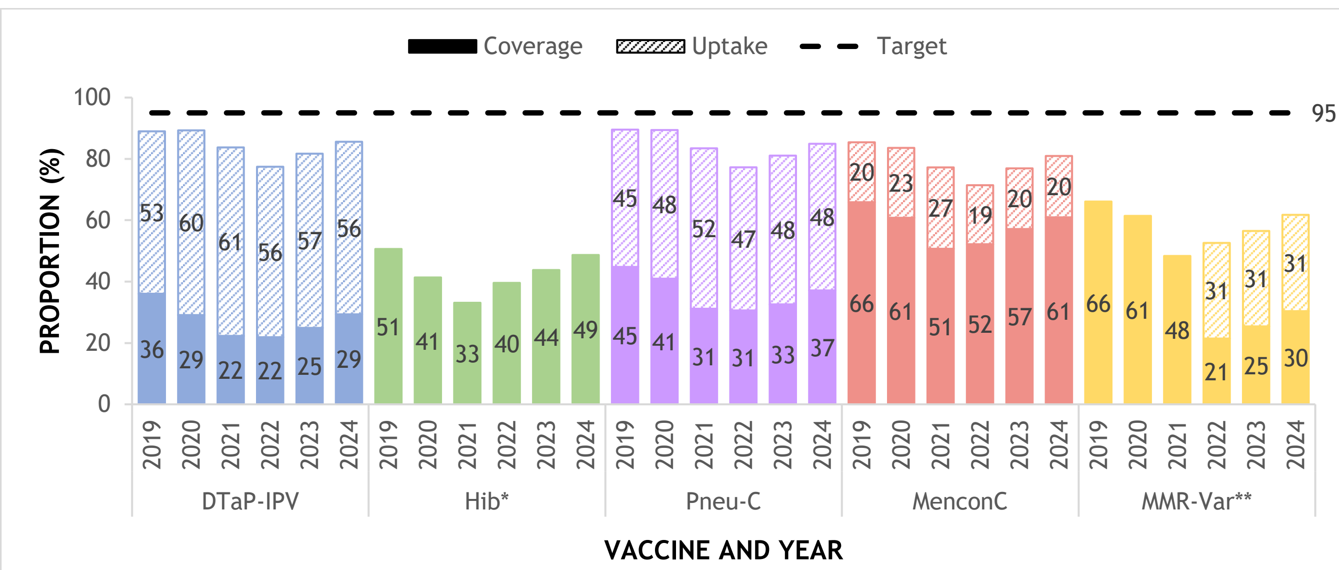

Figure 1-3: Immunization coverage and uptake for DTaP-IPV, Hib, Pneu-C, MenconC, and MMR-Var, by two years of age, First Nations communities in Alberta, 2019-2024

Source: OKAKI CHIP Slice (May 15, 2025) and ISC, ISC-Alberta Region, Communicable Disease Control Database.

*For two-year-old children, a series is considered complete for Hib if at least one dose was given on or after 15 months of age.

**For children born in 2020 and later, a series is considered complete for MMR-Var if two doses were received prior to two years of age. Prior to this, one dose of MMR-Var prior to two years of age was considered series complete for that age with an additional dose given between 4 and 7 years.

Note: MMR-Var coverage rates from 2019 to 2021 cannot be compared to coverage rates from 2022 to 2024 since there was a change in the routine immunization schedule between these time periods.

Figure 1-4 shows immunization coverage and uptake for DTaP-IPV by First Nations community in Alberta in 2024. There was significant variability in coverage and uptake between different communities. The regional coverage rate was 29%.

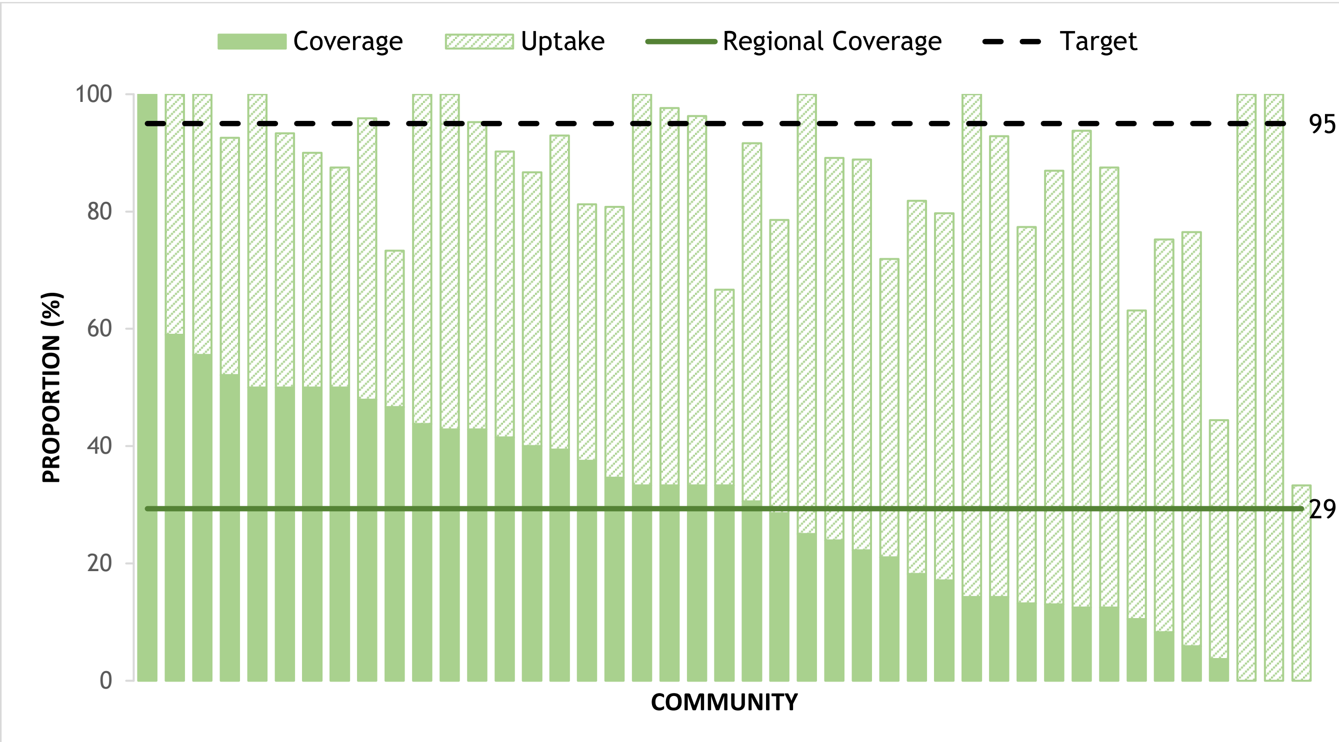

Figure 1-4: Immunization coverage and uptake for DTaP-IPV by community, by two years of age, First Nations communities in Alberta, 2024

Source: OKAKI CHIP Slice (May 15, 2025) and ISC, ISC-Alberta Region, Communicable Disease Control Database.

Immunizations for Seven-Year-Old Children

Routine preschool childhood immunizations should be completed by age six. An assessment at seven years of age provides a review of the rate of completion for the recommended immunizations. MMR-Var and dTap-IPV immunizations are provided if required at the time of assessment while Pneu-C and MenconC are evaluated as a final measure of coverage. According to the immunization schedule (Appendix A), children born before 2020 should receive 1 dose of dTap-IPV and 1 dose of MMR-Var[2] between four and six years of age. In order to achieve optimal protective effects of immunization, 95% of seven-year-olds should have completed the recommended immunizations.

Figure 1-5 shows immunization series completion rate for dTap-IPV, MMR and Var by seven years of age between 2019 and 2024. Note that dTap-IPV is only used as a preschool booster if a primary series of DTaP-IPV has been completed. During the six-year period from 2019 to 2024, immunization series completion rate by seven years of age decreased for dTap-IPV (63% in 2019 to 45% in 2023), MMR (67% in 2019 to 48% in 2023) and Var (65% in 2019 to 48% in 2024) followed by slight increases in 2024.

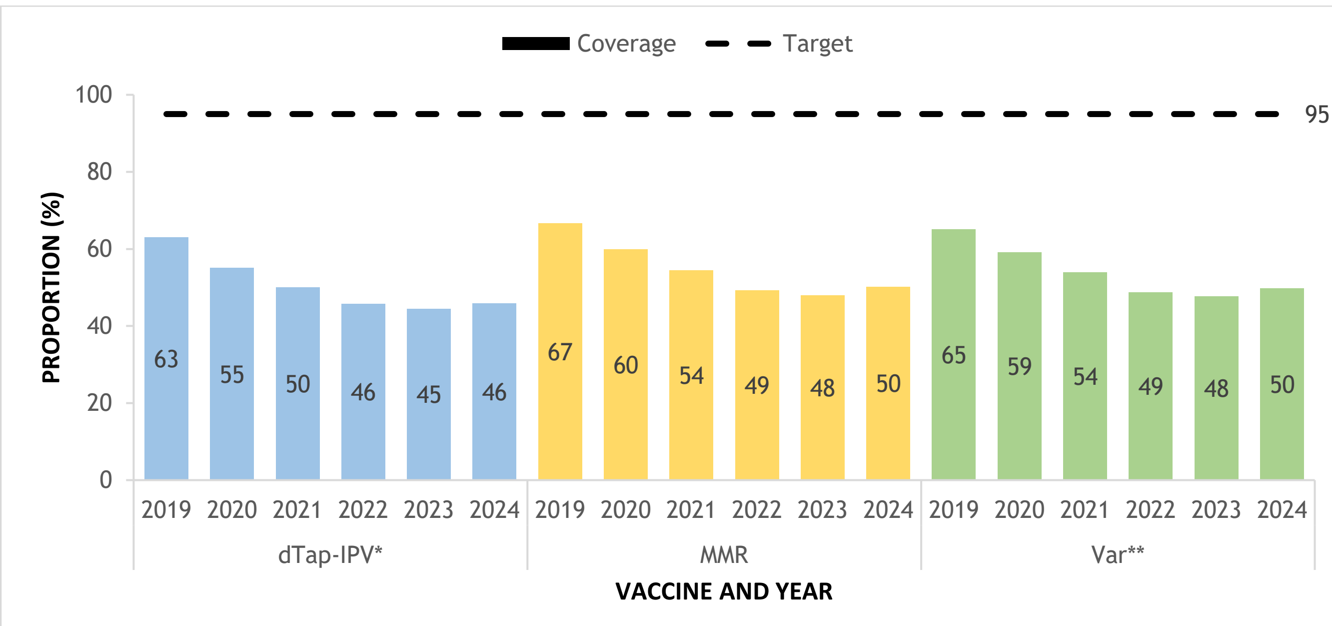

Figure 1-5: Immunization coverage and uptake for dTap-IPV and MMR, by seven years of age, First Nations communities in Alberta, 2019-2024

Source: OKAKI CHIP Slice (May 15, 2025) and ISC, ISC-Alberta Region, Communicable Disease Control Database.
*dTap-IPV includes data for diphtheria containing vaccines.
**Also includes children with a history of disease.

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[2] Only children born prior to 2020 will routinely receive the second dose of MMR-Var between the ages of four and six years. For children born in 2020 and later, the second dose of MMR-Var is now part of the 18-month routine immunizations.

Figure 1-6 shows immunization coverage for dTap-IPV among seven-year-olds by First Nations community in 2024. There was significant variability in coverage between communities. Coverage rates varied between communities and ranged from 0% to 80%. The regional immunization coverage (46%) for dTap-IPV was significantly lower than the target of 95%.

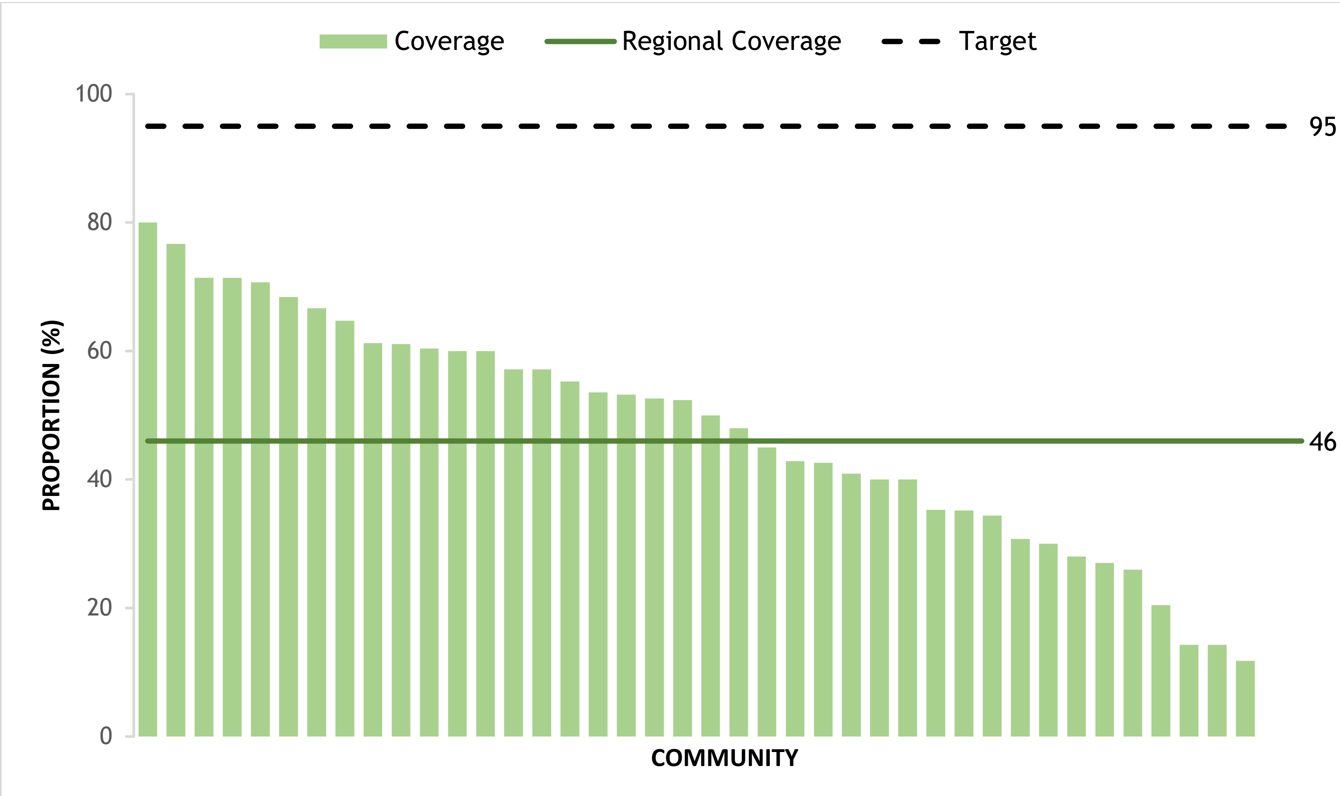


Figure 1-6: Immunization coverage for dTap-IPV by community, by seven years of age, First Nations communities in Alberta, 2024*

Source: OKAKI CHIP Slice (May 15, 2025) and ISC, ISC-Alberta Region, Communicable Disease Control Database.

*dTap-IPV includes data for diphtheria containing vaccines.

1.2. Adolescent Immunizations

Immunization data from OKAKI CHIP Slice was used for this section, but grade status was not recorded for some students in this database; as such, age was used instead of grade (i.e. Age 13 for Grade 6, and age 17 for Grade 9).

Immunizations by Thirteen Years of Age (Grade 6 Students)

Human Papillomavirus (HPV) and Hepatitis B (HBV) vaccines are routinely offered in Grade 6 (Appendix A). In order to achieve optimal protective effects of immunization, 90% of 13-year-old children should have completed the recommended immunizations.

Figure 1-7 shows the coverage and uptake of HBV and HPV in First Nations communities in Alberta between 2019 and 2024 by 13 years of age. Immunization coverage rates by 13 years of age decreased significantly between 2019 and 2021 for both HPV (55% in 2019 to 18% in 2021) and HBV (62% in 2019 to 17% in 2021) followed by increases from 2022 to 2024 (35% for HPV and 32% for HBV).

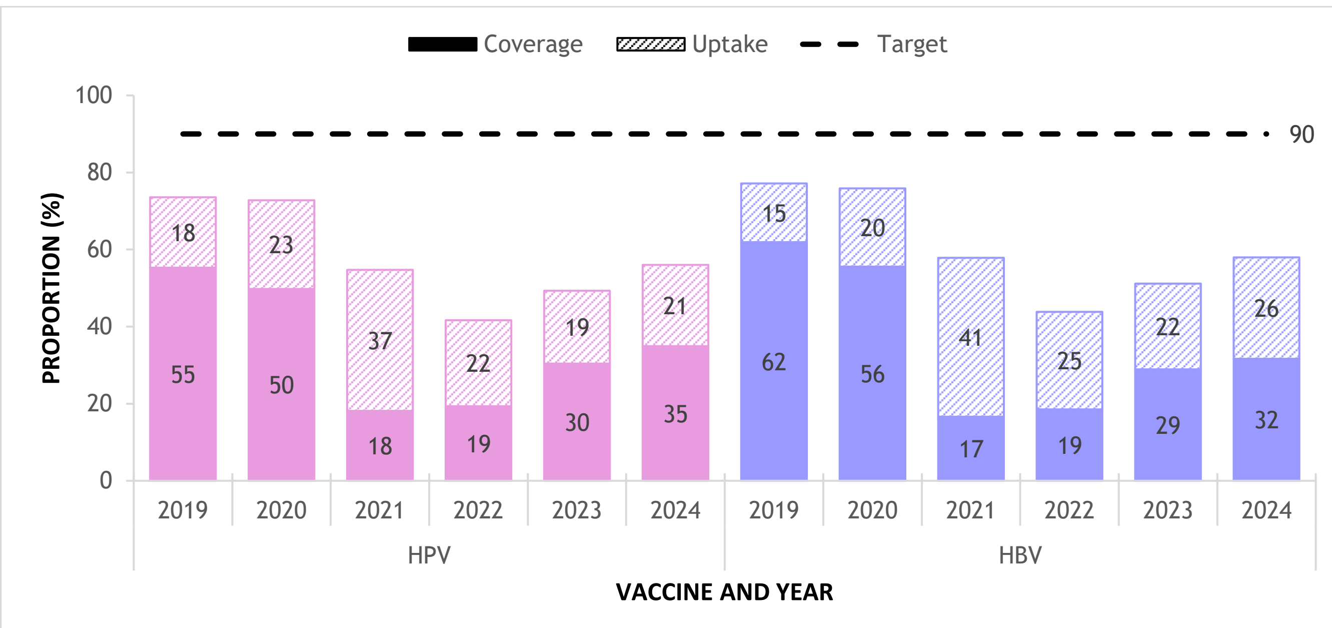


Figure 1-7: Immunization coverage and uptake for HBV and HPV, by thirteen years of age, First Nations communities in Alberta, 2019-2024

Source: OKAKI CHIP Slice (May 15, 2025)

Note: Two or three doses of HPV and HBV are offered depending on age of first dose and health status.

Immunizations by Seventeen Years of Age (Grade 9 Students)

According to the immunization schedule (Appendix A), one dose each of dTap and meningococcal A/C/Y/W135 (MenC-ACYW) are routinely offered to students in Grade 9. The meningococcal immunization provides protection against serogroups A, C, Y and W135 and is offered at the same time as the dTap booster. In order to achieve optimal protective effects of immunization, 90% of 17-year-olds should have completed dTap and MenC-ACYW immunizations.

Figure 1-8 shows the immunization coverage for dTap and MenC-ACYW in First Nations communities in Alberta between 2019 and 2024 by 17 years of age. From 2019 to 2023, immunization coverage rates by 17 years of age decreased from 62% to 43% for dTap and from 59% to 38% for MenC-ACYW followed by an increase in coverage rates for both vaccines in 2024 (50% for dTap and 47% for MenC-ACYW).

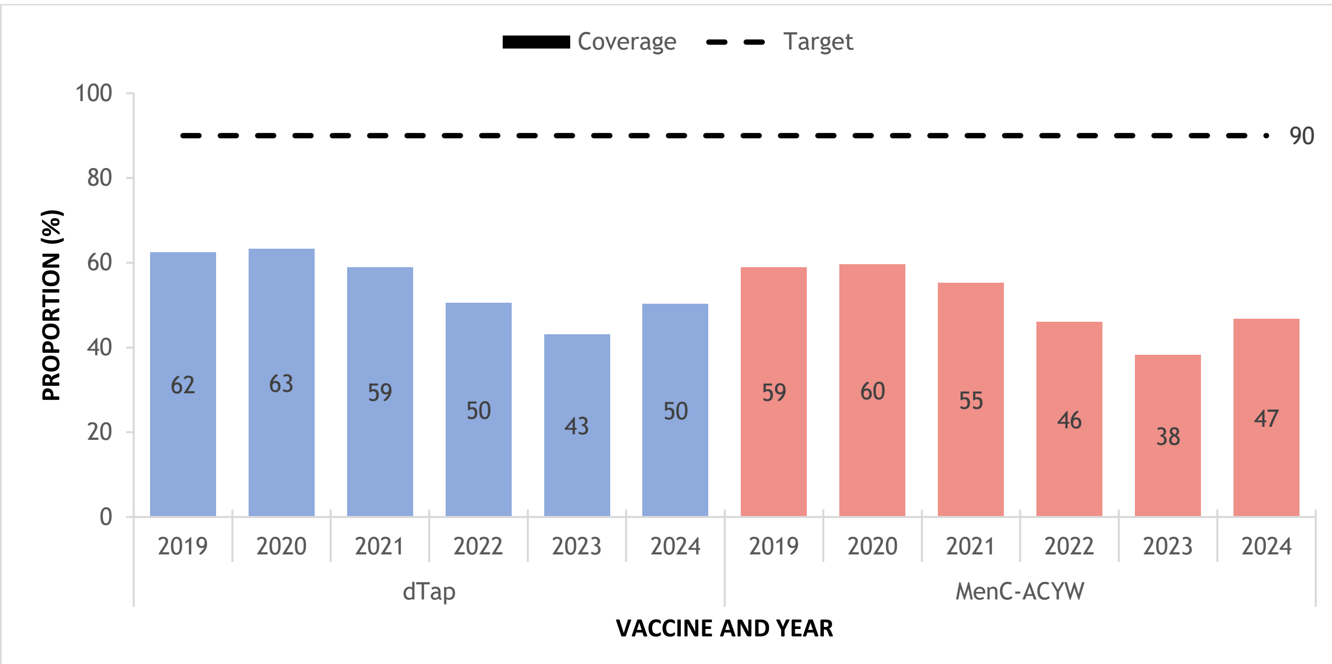


Figure 1-8: Immunization coverage for dTap and MenC-ACYW, by seventeen years of age, First Nations communities in Alberta, 2019 to 2024

Source: OKAKI CHIP Slice (May 15, 2025)

2. Respiratory Illnesses

2.1. Influenza

Influenza is a contagious respiratory illness caused by influenza virus and considered as a notifiable disease in Canada [13]. Global annual influenza incidence ranges from 5 to 10% in adults and from 20 to 30% in children [14]. Influenza viruses spread mainly through respiratory droplets expelled during coughing, sneezing, and talking; and may also be transmitted through contact with infected respiratory secretions and then touching mouth, nose or eyes [15, 16, 17]. Symptoms begin 1-4 days after infection, and while most people recover within a week, influenza can lead to severe illness or death [15, 16, 17]. In fact, influenza is one of the top 10 leading causes of death in Canada [15]. Indigenous people, seniors, children under six years of age, pregnant women and people with chronic health conditions are at an increased risk of influenza-related complications or hospitalization [15].

Influenza Severe Outcomes

The data in this section only captures hospitalized and deceased lab confirmed influenza cases that were reported to ISC-AB CDC program, as such, it does not represent a complete picture of influenza cases occurring in First Nations communities in Alberta. Note that there were no reported influenza cases in First Nations communities in Alberta during the 2020-21 respiratory virus season because seasonal influenza circulation was suppressed due to non-pharmaceutical public health measures that were put in place during the COVID-19 pandemic [18].

Figure 2-1 shows hospitalized influenza cases (including incidental hospitalizations) in First Nations communities in Alberta for the 2019-20 to 2024-25 respiratory virus seasons. There were 58 hospitalized cases in 2024-25 which is lower than the hospitalizations during the 2023-24 respiratory virus season but higher than the number of hospitalizations seen in the 2021-22 and 2022-23 seasons.

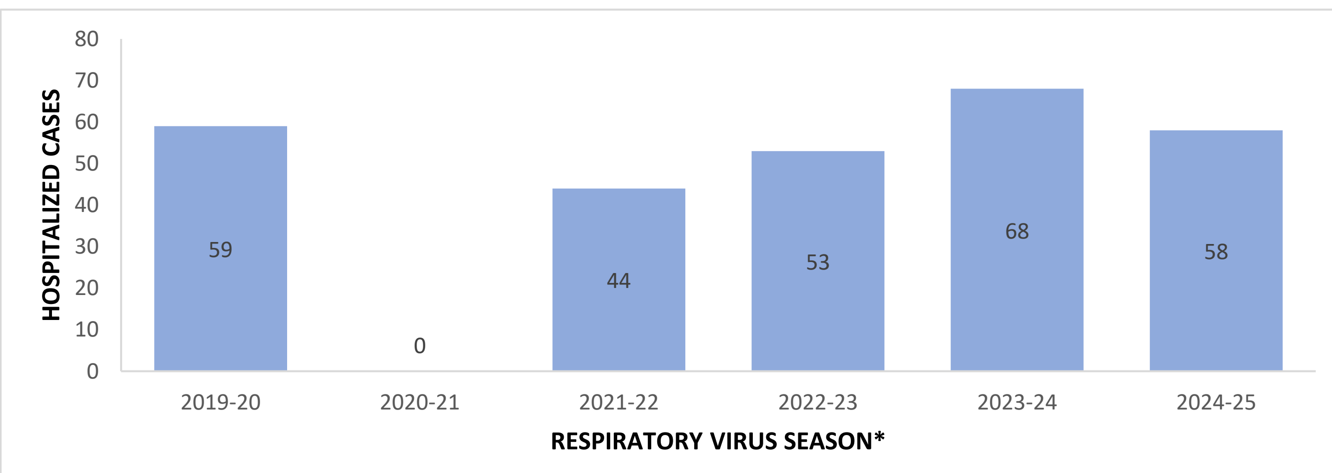


Figure 2-1: Hospitalized influenza cases by Respiratory Virus season, First Nations communities in Alberta, 2019-20 to 2024-25.

Source: ISC-Alberta Region CDC Program. *The Respiratory Virus season follows the FluWatch calendar. FluWatch is the national surveillance system in Canada that monitors the spread of influenza and influenza-like illnesses (ILI) year-round [19].

The influenza hospitalization rate in First Nations communities for the 2024-25 respiratory virus season was 69 cases per 100,000 population while the Alberta general population had an influenza hospitalization rate of 76 cases per 100,000 population (data not shown) [20].

Figure 2-2 shows the influenza hospitalization rate by age group from 2019-20 to 2024-25. In 2019-20, the under 9-year age group had the highest hospitalization rate while the 65+ age group had the highest rate during the 2021-22 to 2024-25 seasons.

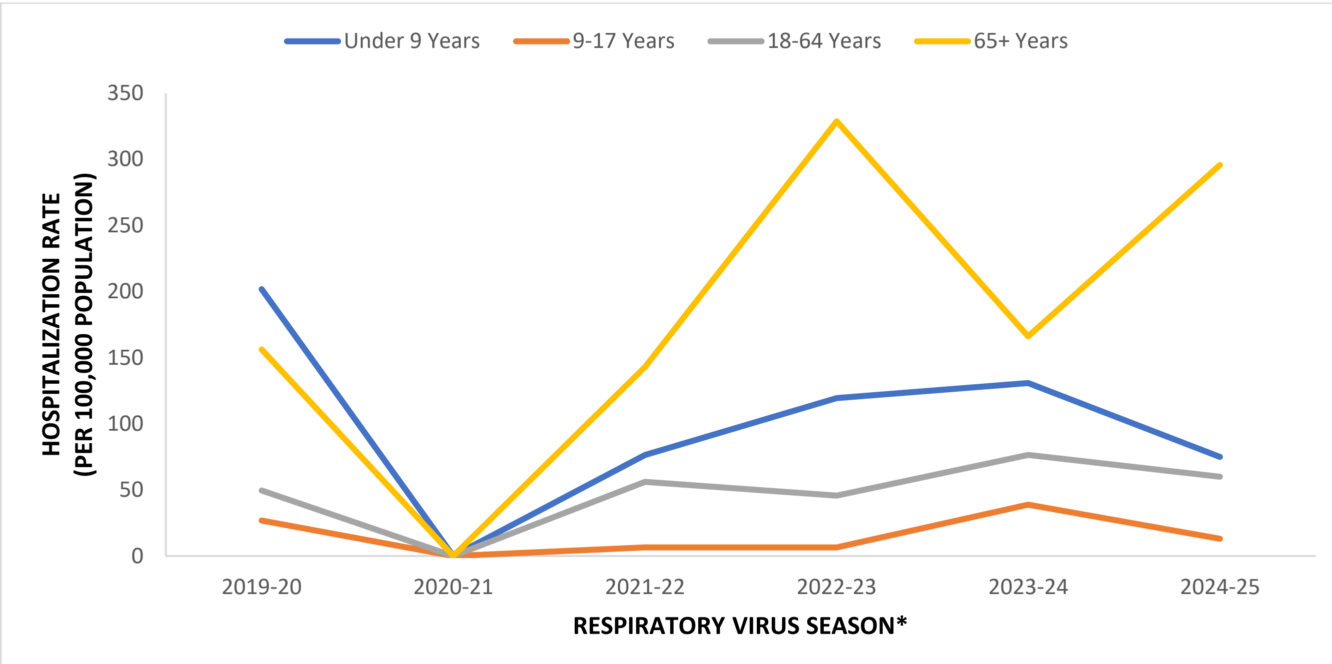


Figure 2-2: Influenza hospitalization rate per 100,000 population by Respiratory Virus season and age group, First Nations communities in Alberta, 2019-20 to 2024-25.

*The Respiratory Virus season follows the FluWatch calendar. FluWatch is the national surveillance system in Canada that monitors the spread of influenza and influenza-like illnesses (ILI) year-round [19].

During the 2024-25 respiratory virus season, there were 8 influenza related deaths which is slightly lower than the 10 deaths reported in each of the 2022-23 and 2023-24 seasons. With the exception of the 2020-21 season, in which there were no deaths, the 2019-20 and 2021-22 respiratory virus seasons saw fewer than five influenza related deaths (data not shown).

Influenza Immunizations

Vaccination is safe and it is the most effective way to prevent influenza and its complications [15, 16, 17]. A new vaccine is created every year because the type or strain of influenza virus usually changes from year to year. The effectiveness of the influenza vaccine can also wear off. For these reasons, the seasonal influenza immunization is offered every year [21, 22].

In Alberta, everyone over the age of 6 months is eligible to receive free seasonal influenza immunizations each year. It is very important for individuals, especially those at high risk of developing influenza-related complications, and their contacts to be immunized every year at the beginning of the respiratory virus season (mid-October to November). Children 6 months through 8 years of age, who are receiving the immunization for the first time, should receive two doses at least four weeks apart [21].

The number of individuals who received at least one dose of the influenza vaccine decreased each year from 17,336 in 2019-20 to 10,759 in 2024-25 (Figure 2-3). A decrease in the total number of influenza vaccine doses administered was also observed in the Alberta general population in 2024-25 compared to previous respiratory virus seasons [23].

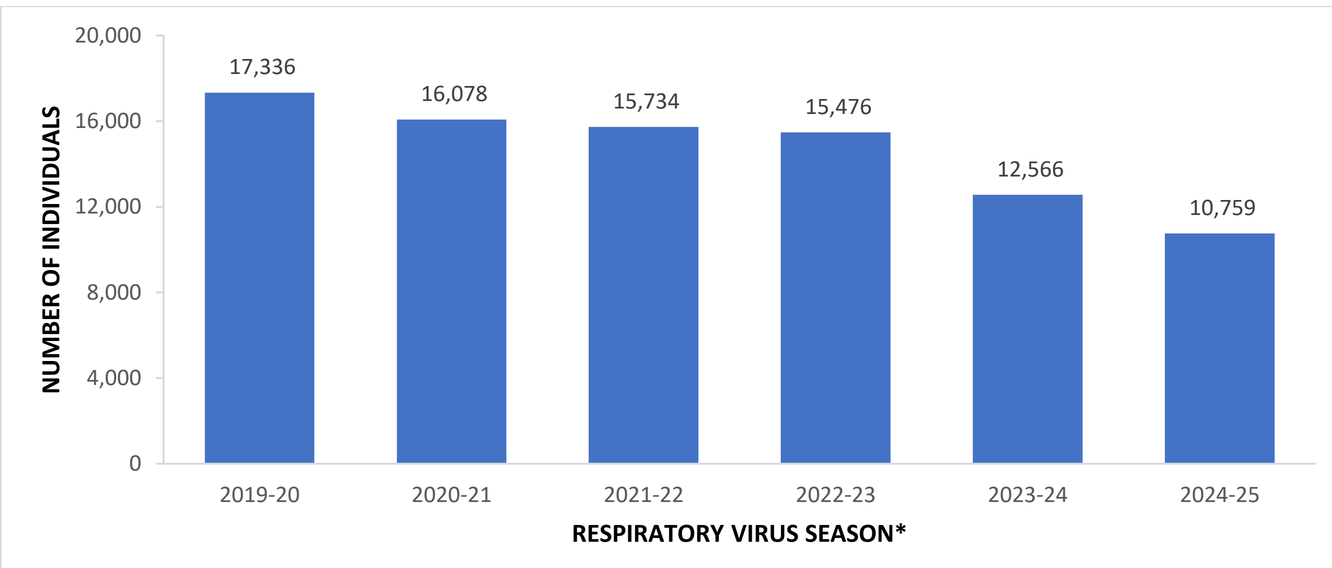


Figure 2-3: Number of individuals who received at least one dose of the influenza vaccine by Respiratory Virus season, First Nations communities in Alberta, 2019-20 to 2024-25
Source: OKAKI CHIP Slice (October 7, 2025) and ISC-Alberta Region CDC Program.
*The Respiratory Virus season follows the FluWatch calendar. FluWatch is the national surveillance system in Canada that monitors the spread of influenza and influenza-like illnesses (ILI) year-round [19].

Figure 2-4 shows the cumulative percentage of individuals who received at least one dose of the influenza vaccine in 2024-25 in First Nations communities in Alberta by age group and immunization week. The majority of the influenza immunizations are administered in fall (October-December). A higher proportion of individuals in the 65+ age group received the influenza immunization compared to younger age groups. Overall, 9% of people living in First Nations communities in Alberta received at least one dose of the influenza vaccine in 2024-25.

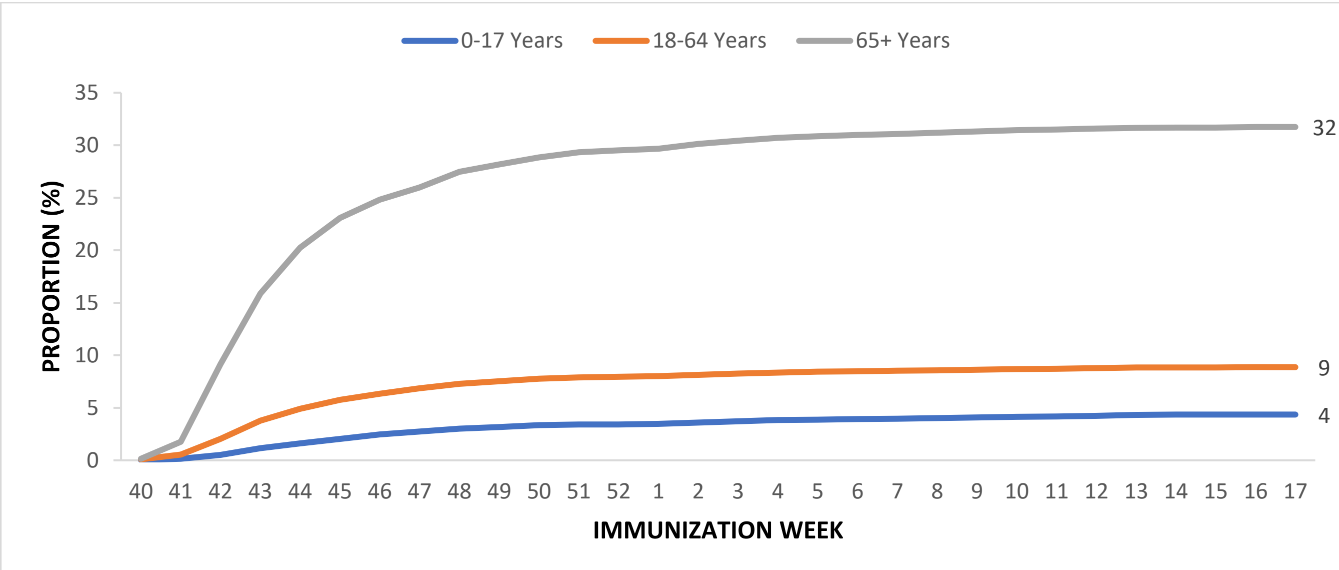


Figure 2-4: Cumulative influenza immunization coverage rate by age group and week, First Nations communities in Alberta, 2024-25
Source: OKAKI CHIP Slice (October 7, 2025)

2.2. COVID-19

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. The World Health Organization (WHO) declared COVID-19 a Public Health Emergency of International Concern (PHEIC) on January 30, 2020, and a pandemic on March 11, 2020 [24]. The first presumptive COVID-19 case was identified in Alberta on March 5, 2020, and the first case among First Nations people living on reserve in Alberta was reported to ISC on April 21, 2020, with an onset date of April 17, 2020. On May 5, 2023, WHO announced that COVID-19 no longer fit the definition of a PHEIC meaning that the pandemic itself is not over but the global emergency it caused is [25].

Most people with COVID-19 will experience mild to moderate symptoms and will recover without any treatment. Some people are at a higher risk of more severe symptoms or outcomes from COVID-19 than other people. People with a higher risk include older adults, pregnant individuals, those with certain chronic medical conditions, immune compromised individuals and those living with obesity [26].

COVID-19 Hospitalizations

Hospitalization of a laboratory confirmed COVID-19 case is counted when the reason for admission is either directly resulting from the disease or when the disease is a contributing factor for the admission. Prior to February 2022, the reason for hospitalization was not available and therefore, hospitalization data before and after the reporting change cannot be directly compared [27].

Figure 2-5 shows the number of COVID-19 hospitalizations from 2022-23 to 2024-25. The number of COVID-19 related hospitalizations decreased from 61 in 2022-23 to 35 hospitalizations in 2024-25.

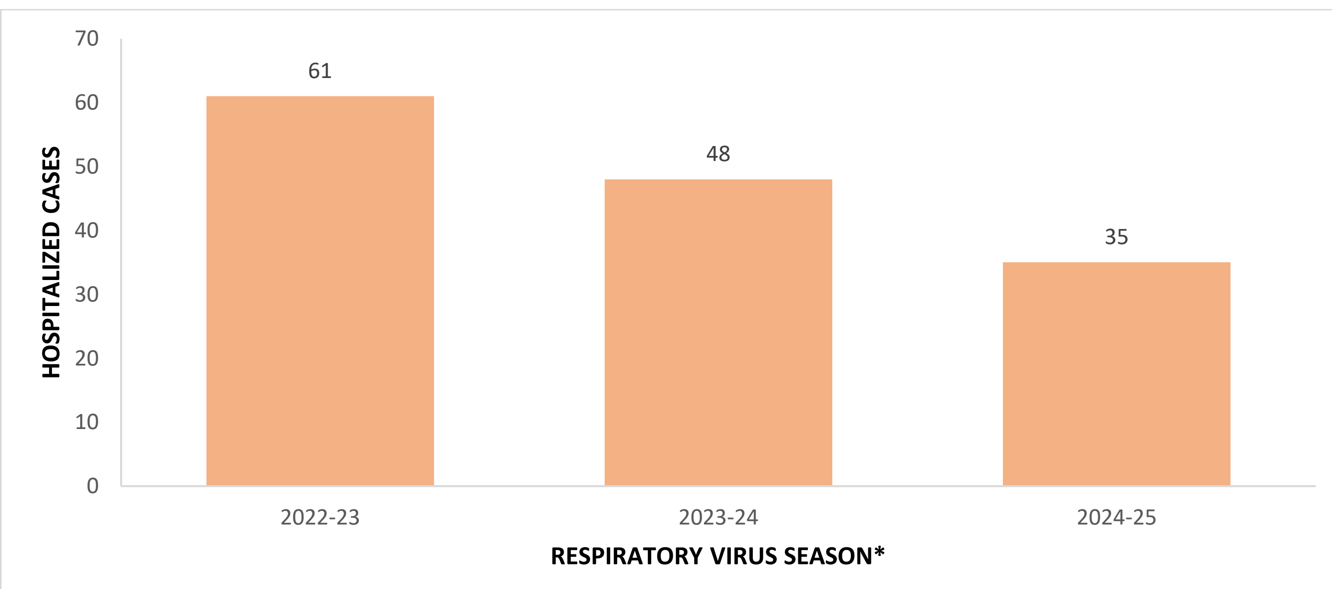


Figure 2-5: Hospitalized COVID-19 cases by Respiratory Virus season, First Nations communities, 2022-23 to 2024-25.

Source: Community Reports to ISC-AB & ISC COVID-19 ER System via Synergy in Action (October 10, 2025). *The Respiratory Virus season follows the FluWatch calendar. FluWatch is the national surveillance system in Canada that monitors the spread of influenza and influenza-like illnesses (ILI) year-round [19].

The COVID-19 hospitalization rate in First Nations communities for the 2024-25 season was 42 cases per 100,000 population while the Alberta general population had a rate of 69 cases per 100,000 population (data not shown) [20].

Figure 2-2 shows the COVID-19 hospitalization rate in First Nations communities by age group from 2022-23 to 2024-25. The 65+ age group had the highest hospitalization rate for all seasons followed by the under 9-year age group.

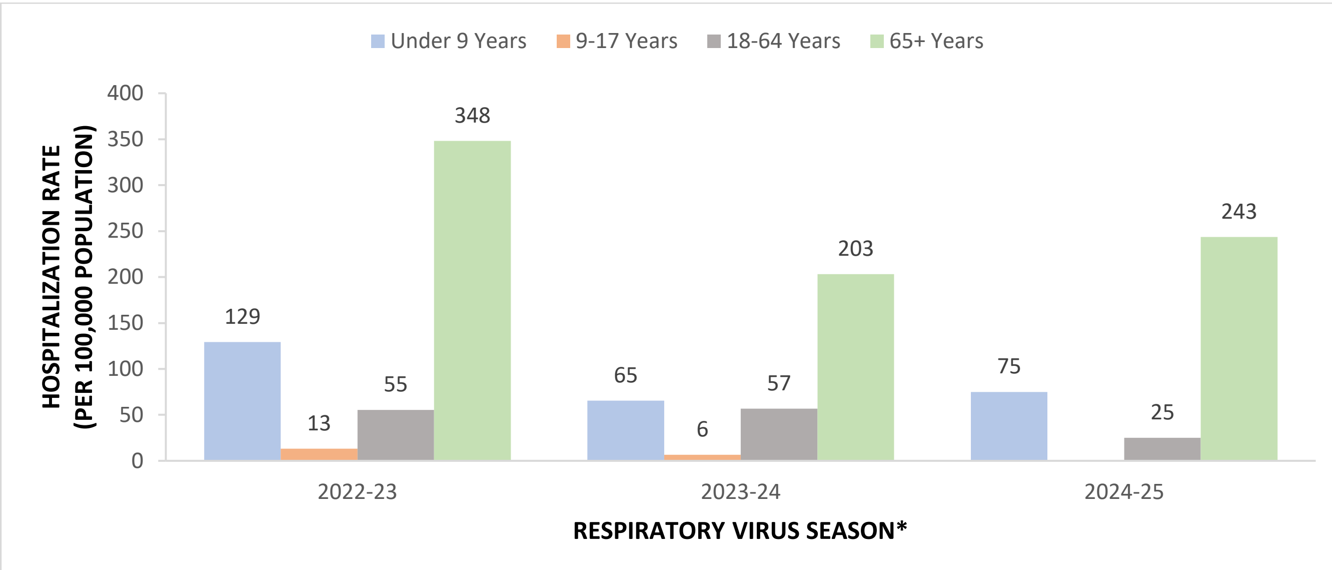


Figure 2-6: COVID-19 hospitalization rate per 100,000 population by Respiratory Virus season and age group, First Nations communities in Alberta, 2022-23 to 2024-25.

Source: Community Reports to ISC-AB & ISC COVID-19 ER System via Synergy in Action (October 10, 2025) *The Respiratory Virus season follows the FluWatch calendar. FluWatch is the national surveillance system in Canada that monitors the spread of influenza and influenza-like illnesses (ILI) year-round [19]. Note: Due to change in reporting of hospitalized cases, this figure only contains data from 2022-23 to 2024-25, as these years can be compared.

There were 5 COVID-19 related deaths in 2022-23 and less than five deaths during each of the 2023-24 and 2024-25 respiratory virus seasons (data not shown).

COVID-19 Immunizations

One of the most effective ways of protecting ourselves and others from COVID-19 is through vaccination. The vaccines that are used in Canada have shown to be safe, and effective in preventing severe disease outcomes associated with a COVID-19 infection such as hospitalization and death [28].

Figure 2-7 shows the number of individuals who received at least one dose of a COVID-19 vaccine by season. More than 45,000 people received doses during each of the 2020-21 and 2021-22 seasons. In 2022-23, the number of people who received a dose of the COVID-19 vaccine dropped significantly to 8,305 and continued to drop in 2023-24 (7,727 people) and 2024-25 (5,886 people).

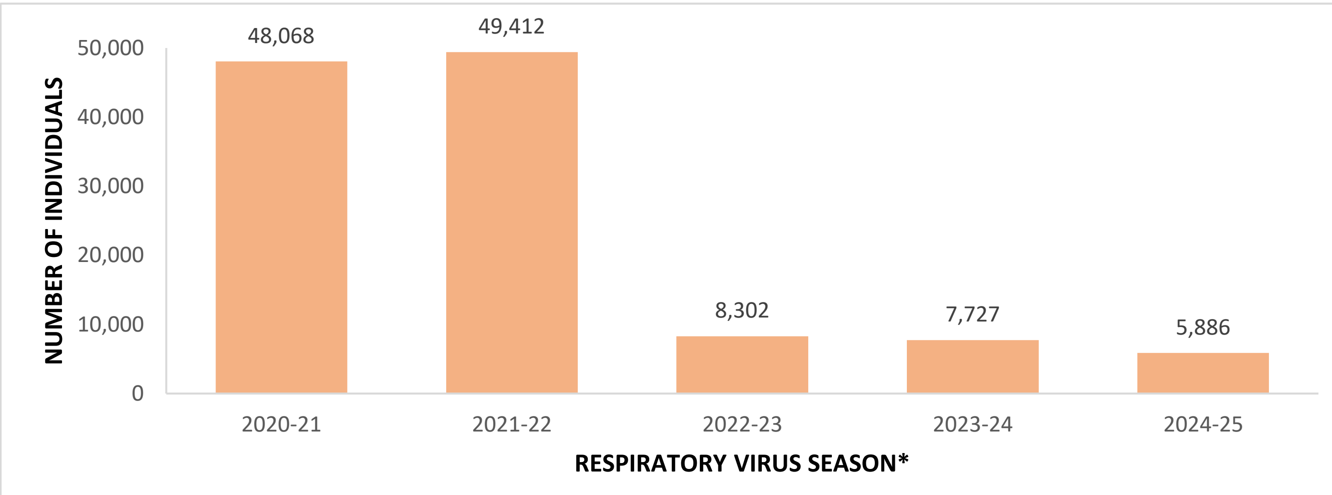


Figure 2-7: Number of individuals who received at least one dose of the COVID-19 vaccine by Respiratory Virus season, First Nations communities in Alberta, 2020-21 to 2024-25.
Source: OKAKI CHIP Slice (October 21, 2025). *The Respiratory Virus season follows the FluWatch calendar. FluWatch is the national surveillance system in Canada that monitors the spread of influenza and influenza-like illnesses (ILI) year-round [19].

Figure 2-8 shows the cumulative percentage of individuals who received at least one dose of the COVID-19 vaccine in 2024-25 in First Nations communities in Alberta by age group and immunization week. The majority of COVID-19 immunizations are administered in fall (October-December). A higher proportion of individuals in the 65+ age group received the COVID-19 immunization compared to younger age groups. Overall, 5% of people living in First Nations communities in Alberta received at least one dose of the COVID-19 vaccine in 2024-25.

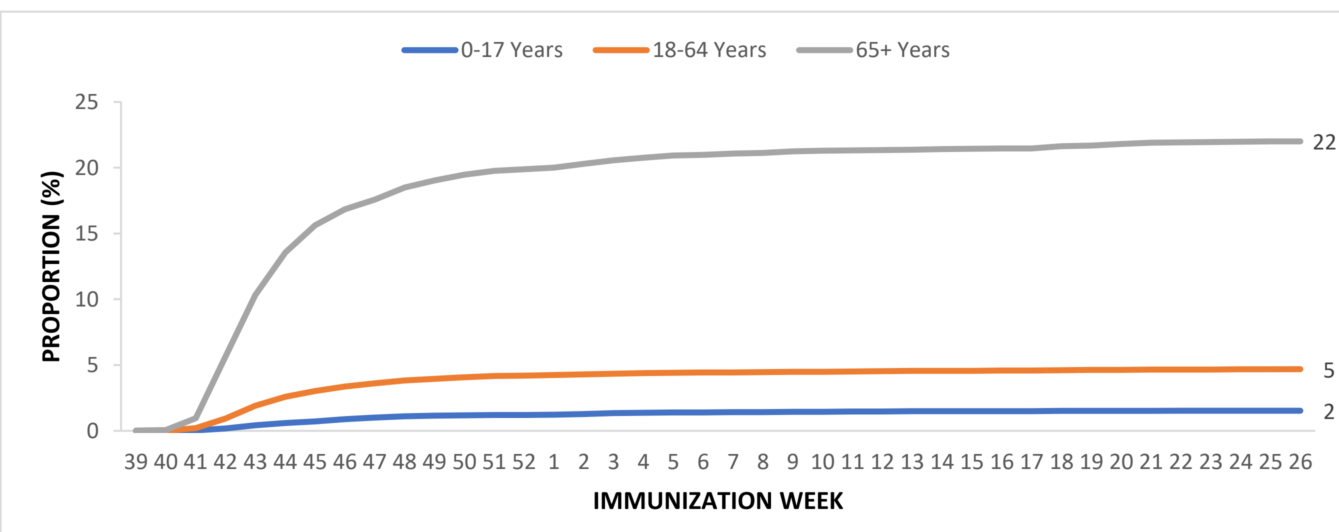


Figure 2-8: Cumulative COVID-19 immunization coverage rate by age group and week, First Nations communities in Alberta, 2024-25
Source: OKAKI CHIP Slice (October 21, 2025)

2.3. Pneumococcal

Invasive Pneumococcal Disease

Invasive pneumococcal disease (IPD) is a bacterial infection caused by *Streptococcus pneumoniae* which can be transmitted through direct contact, respiratory droplets, or indirect contact with respiratory secretions from an infected person or carrier. Young children, people over the age of 65 years and those with certain chronic conditions are at a higher risk of infection. Some IPD infections can be prevented through immunization. The most common forms of IPD are pneumonia, bacteremia and meningitis [29].

In 2024, the incidence rate of IPD was 73 cases per 100,000 population. This represents a decrease compared to 2023 but remains higher than the rates recorded between 2019 and 2022 (Figure 2-9).

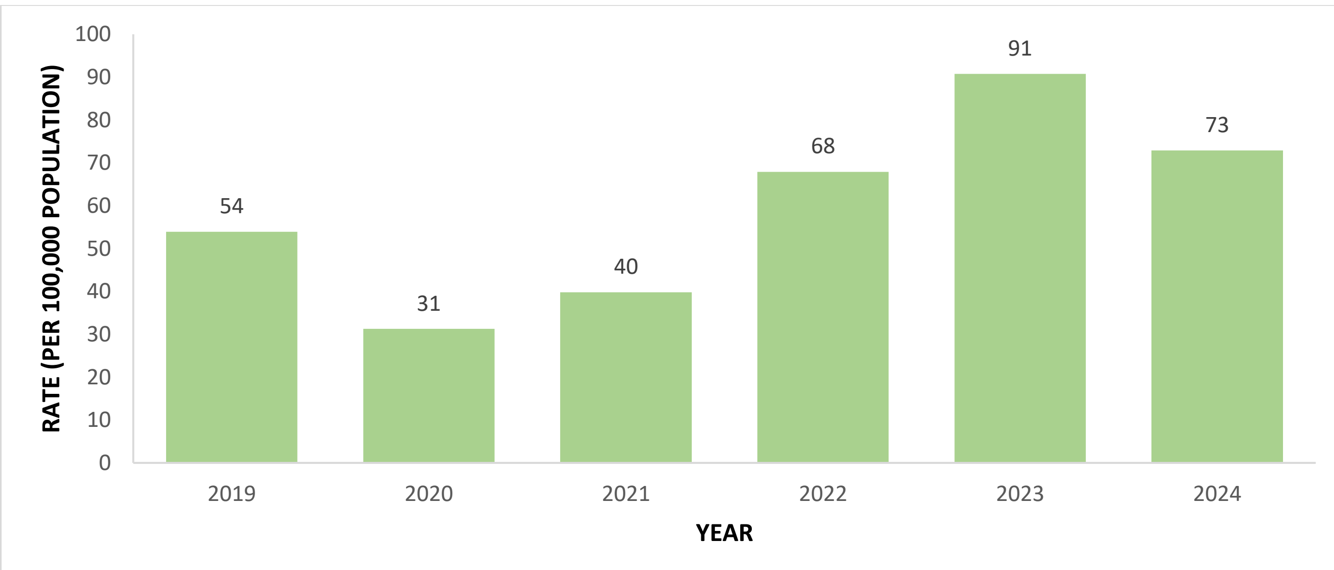


Figure 2-9: Rate of invasive pneumococcal disease in First Nations communities in Alberta, 2019-2024
Sources: ISC AB CDC Database; ISC, Indian Registry System

In 2024, IPD infection rates were lowest among individuals aged 5–14 and 15–24 years. Rates then rose progressively with age, reaching the 45+ age groups. Incidence rates were comparable across the 45–54, 55–64, and 65+ age categories (Figure 2-10).

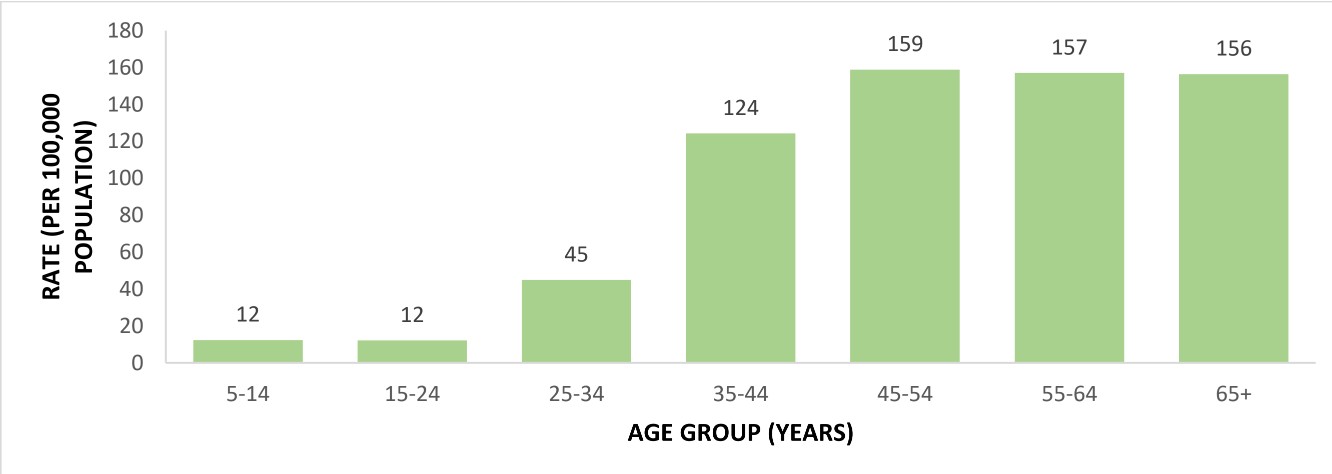


Figure 2-10: Rates of invasive pneumococcal disease by age group in First Nations communities in Alberta, 2024
Sources: ISC AB CDC Database; ISC, Indian Registry System
Note: ISC-IRS Population under 5 years of age is likely to be underestimated due to late reporting of births which can cause an overestimation of the rate therefore rate will not be calculated for this age group.

Pneumococcal Immunizations

Pneumococcal vaccines are available for routine immunization of children under the age of two and adults over the age of 64, as well as anyone who is at an increased risk of infection. Vaccine schedules vary by age, vaccine history and risk for IPD [30].

The pneumococcal 23-valent polysaccharide vaccine (PPV23) was previously offered to eligible people at high risk of invasive pneumococcal disease to protect against 23 types of Streptococcus pneumoniae bacteria [31]. As of November 15, 2024, the National Advisory Committee on Immunization (NACI) now recommends one dose of either Pneu-C20 or Pneu-C21 vaccines for individuals at increased risk for IPD and adults 65 years of age and older.

First Nations, Métis, and Inuit people of all ages are considered to be at increased risk for IPD and regardless of previous IPD history, immunization with a pneumococcal conjugate vaccine is recommended [32].

The results in this section only include pneumococcal immunization data from communities that report through OKAKI CHIP.

Table 2-1 presents data for people living in First Nations communities in Alberta who received at least one dose of PPV23 at 65 years or older. This number is calculated as follows: the number of people who received the PPV23 vaccine in the reporting year plus the number of people with documentation of PPV23 vaccine from previous years.

Table 2-1: Number and proportion of individuals who have received at least one dose of PPV23/Pneu-C20 after the age of 65 years, First Nations communities in Alberta, 2019-20 to 2024-25.

Target Group	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
65 years and older	1821 (35.7%)	2066 (36.0%)	2391 (37.4%)	2781 (38.5%)	3140 (39.4%)	3547 (40.4%)

Source: OKAKI CHIP Slice (September 15, 2025). Note: OKAKI assigns the dates for the years in the table above and includes data from week 35 of one year to week 34 of the next year. For example, 2019-20 includes data from week 35 of 2019 to the end of week 34 of 2020.

Previously, First Nations people who were under 65 years of age, were only recommended for immunization with PPV23 if they were considered "at risk". As of November 15, 2024, one dose of either Pneu-C20 or Pneu-C21 vaccines are recommended for all First Nations, Métis and Inuit individuals regardless of age.

Figure 2-11 shows the number of people that received the Pneu-C20 vaccine during the 2024-25 Respiratory Virus season by age group. The largest number of immunizations were administered to children who were under five years of age (3,117) which is likely due to routine childhood immunizations. A total of 8,956 people living in First Nations communities in Alberta received a dose of the Pneu-C20 vaccine during the 2024-25 respiratory virus season.

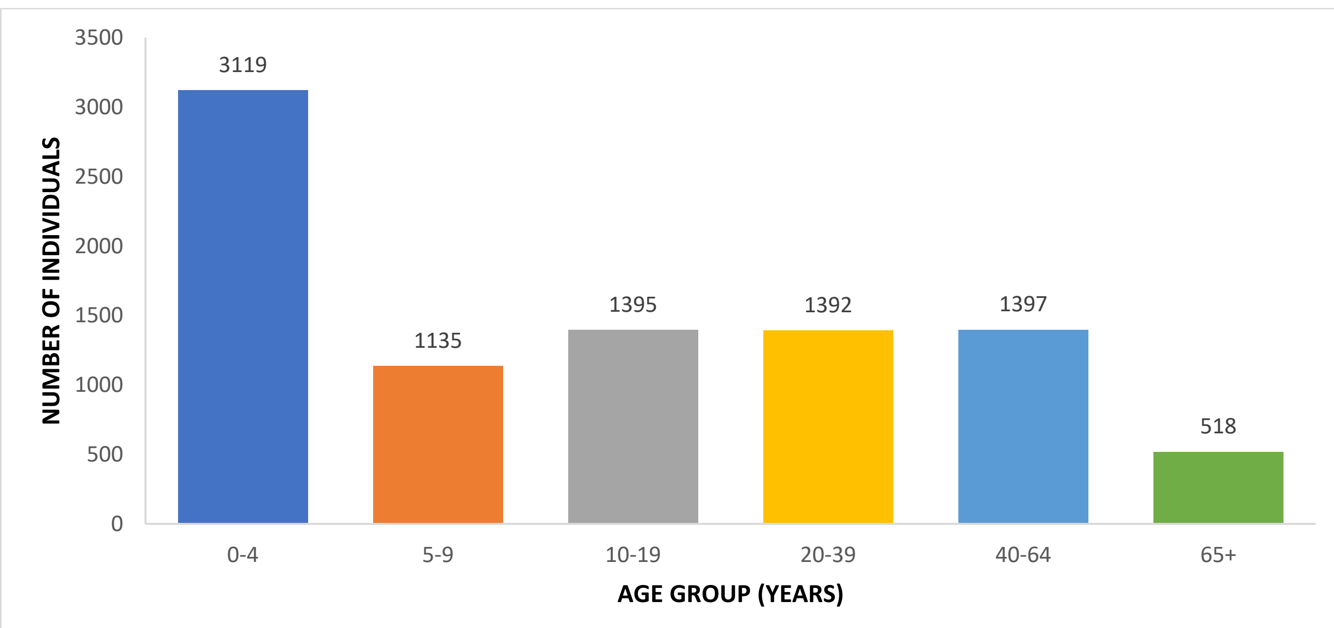


Figure 2-11: Number of individuals who received at least one dose of the Pneu-C20 vaccine by age group, First Nations communities in Alberta, 2024-25.
Source: OKAKI CHIP Slice (September 15, 2025).

3. Notifiable Infectious Diseases

The Communicable Diseases Regulation under the Alberta Public Health Act identifies specific notifiable diseases of public health importance that are required to be reported to the Chief Medical Officer of Health for the Province of Alberta [33, 3]. Depending on the disease, notifiable diseases are reportable by the fastest means possible (FMP) for those diseases requiring immediate notification or within 48 hours for all other notifiable diseases so that preventative actions can be taken to prevent spread to others. For a complete list of notifiable diseases, see Schedules 1 and 2 of the Communicable Diseases Regulation [33].

The case management and follow-up of all notifiable sexually transmitted infections (STIs) and Human Immunodeficiency Virus (HIV) infections are carried out by the Partner Notification Nurses of Primary Care Alberta. Community based staff may be consulted for assistance as needed. Community based health staff ensure that appropriate follow-up of all other notifiable diseases is conducted in a timely manner to prevent further spread of disease.

ISC- Alberta Region maintains a regional Notifiable Disease Report (NDR) database that contains information from NDRs submitted by community-based staff. For this report, the notifiable diseases were grouped into six categories:

- **Blood-Borne Infections (BBI)**- HIV, Hepatitis B and Hepatitis C
- **Enteric Infections**- amoebiasis, botulism, brucellosis, campylobacteriosis, cryptococcus, cryptosporidiosis, cyclosporiasis, verotoxigenic *Escherichia coli*, giardiasis, Hepatitis A, Hepatitis E, listeriosis, paratyphoid fever, salmonellosis, shellfish poisoning, shigellosis, typhoid fever, *Vibrio cholerae* infection (O1, 139, non-O1, non-O139), *Vibrio parahaemolyticus* infection and yersiniosis [34]
- **STIs**- chlamydia, gonorrhea, muco-purulent cervicitis, non-gonococcal urethritis and syphilis
- **Tuberculosis (TB)**
- **Vaccine-Preventable Infections (VPI)**- diphtheria, Haemophilus influenzae serotype B, invasive meningococcal disease, measles, mumps, pertussis, invasive pneumococcal disease, poliomyelitis, rubella, tetanus and varicella
- **Other**- include all other non-STI reportable diseases that are not captured by the above disease groups, i.e. Invasive group A streptococcal infection

Note that most of the data in this section extends only to 2023, as provincial data for 2024 were not yet available at the time of reporting

Overview and Summary of Notifiable Disease Reports (NDRs)

Sexually transmitted infections (STIs) continue to account for the majority of notifiable diseases among First Nations people (90%) and non-First Nations people (74%) in Alberta in 2023 (Data not shown). This trend is also observed across Canada [35]. Considering that STIs account for a large proportion of all notifiable diseases, they will be analyzed separately from the other notifiable disease groups in this report.

In 2023, First Nations people living off reserve experienced the highest rate of lab confirmed infections for all disease groups listed in Figure 3-1. First Nations people living on reserve experienced the lowest rate of lab confirmed enteric infections (Figure 3-1).

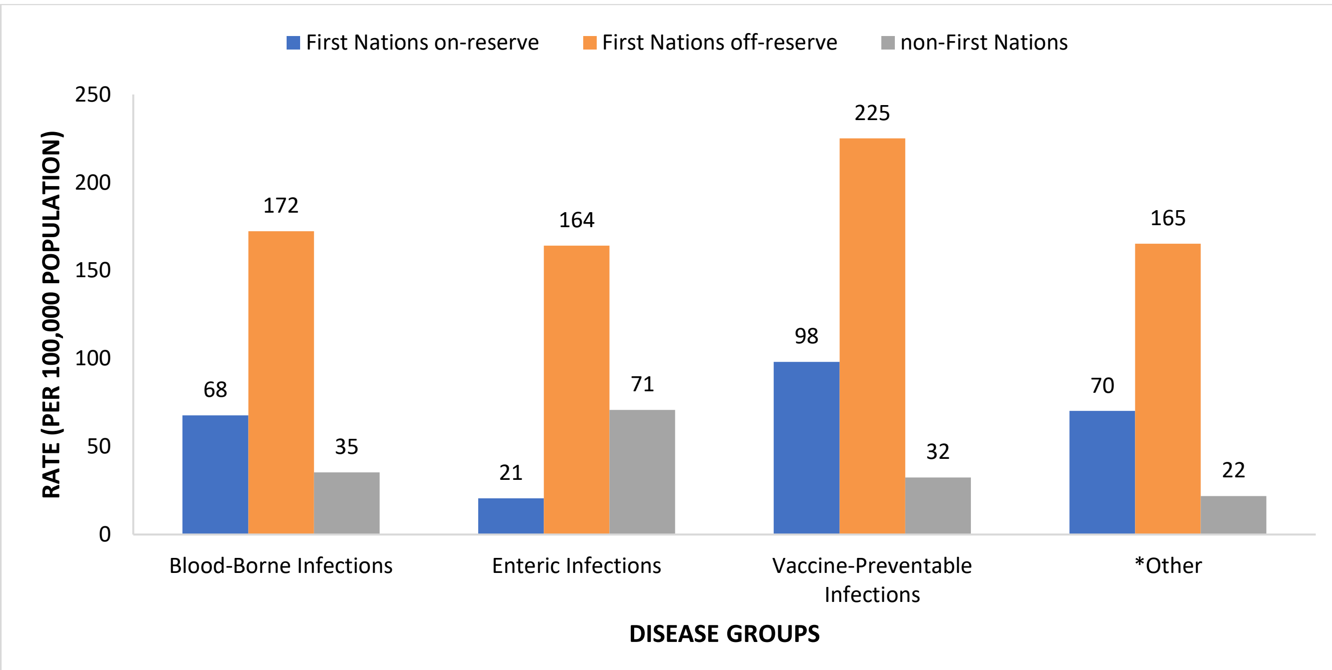


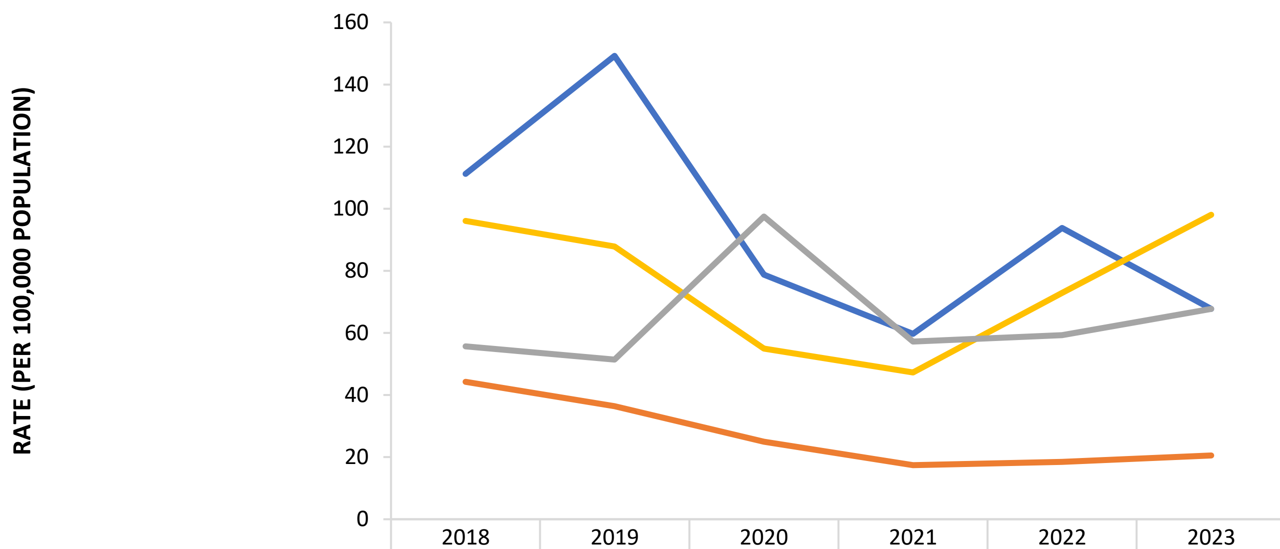
Figure 3-1: Rates of select notifiable diseases by disease group and population group in Alberta, 2023

Source: ISC Alberta CDC Database; ISC, Indian Registry System; Government of Alberta, PPHS

*Other includes all other reportable diseases that are not sexually transmitted, blood-borne, enteric, vaccine-preventable or TB infections, i.e. invasive group A streptococcal infection

Figure 3-2 shows the rates of select notifiable disease groups among people living in First Nations communities in Alberta from 2018 to 2023. Blood-borne infections accounted for the highest rate of notifiable diseases for all years from 2018 to 2022, except in 2020 where the rate of infections in the "other" group were highest. The rate of vaccine preventable infections have been increasing since 2021 and accounted for the highest rate of notifiable diseases in 2023 with 98 cases per 100,000 population.

The rate of infection for all disease groups decreased between 2020 and 2021 which is likely due to COVID-19 and the impacts that the restrictions from the pandemic had on the Canadian population. Some studies have shown that during the COVID-19 pandemic, changes in health seeking behavior, isolation requirements and restrictions on travel had an impact on certain reported disease rates by causing a decline in case counts across several pathogens [36].



	2018	2019	2020	2021	2022	2023
Blood-Borne Infections	111	149	79	60	94	68
Enteric Infections	44	36	25	17	19	21
Vaccine-Preventable Infections	96	88	55	47	73	98
Other	56	51	97	57	59	68

Figure 3-2: Rates of notifiable diseases by disease group, First Nations communities in Alberta, 2018-2023

Source: ISC Alberta CDC Database; ISC, Indian Registry System

In 2023, hepatitis C accounted for 66% of blood-borne infections, salmonellosis (29.4%) and campylobacteriosis (29.4%) accounted for 59% of enteric infections, invasive group A streptococcal disease accounted for 82% of infections in the "other" disease group and invasive pneumococcal disease accounted for 93% of vaccine-preventable infections in First Nations communities in Alberta (data not shown).

Table 3-1 shows counts of select notifiable diseases (excluding STIs and TB) reported in 2023 among First Nations people living on reserve in Alberta. Incidence rates for First Nations people living on reserve, First Nations people living off reserve and non-First Nations people living in Alberta are also shown in Table 3-1. Rates of diseases reported in Table 3-1 were lower among First Nations people living on reserve than First Nations people living off reserve. In 2023, First Nations people living on reserve also experienced lower rates of pertussis, campylobacteriosis and salmonellosis than non-First Nations people.

Among the diseases listed in Table 3-1, invasive pneumococcal disease represented the highest rate of disease among First Nations people living on reserve (91 cases per 100,000 population) and off reserve (213 cases per 100,000 population), followed by invasive Group A streptococcal disease (58 per 100,000 population for on-reserve and 140 per 100,000 population for off reserve) in Alberta in 2023. Pertussis represented the highest rate of disease among non-First Nations people (19 cases per 100,000 population) followed by campylobacteriosis (18 cases per 100,000 population).

Table 3-1: Select notifiable disease cases and incidence rates by population group in Alberta, 2023

		Rate (per 100,000 Population)		
Select notifiable diseases reported in 2023	**Number of cases reported among First Nations people living on reserve**	**First Nations people living on reserve**	**First Nations people living off reserve**	**Non-First Nations people**
Invasive Pneumococcal Disease	75	91	213	12
Invasive Group A Streptococcal Disease	48	58	140	13
Hepatitis C	37	45	107	8
Human Immunodeficiency Virus (HIV)	18	22	66	10
***Haemophilus influenzae* – non serotype b**	8	10	20	2
Pertussis	6	7	9	19
Campylobacteriosis	5	6	33	18
Salmonellosis	5	6	19	14

Note: Diagnosis date is used to determine year of infection.
Sources: ISC AB CDC Database; Government of Alberta, PPHS; ISC, Indian Registry System

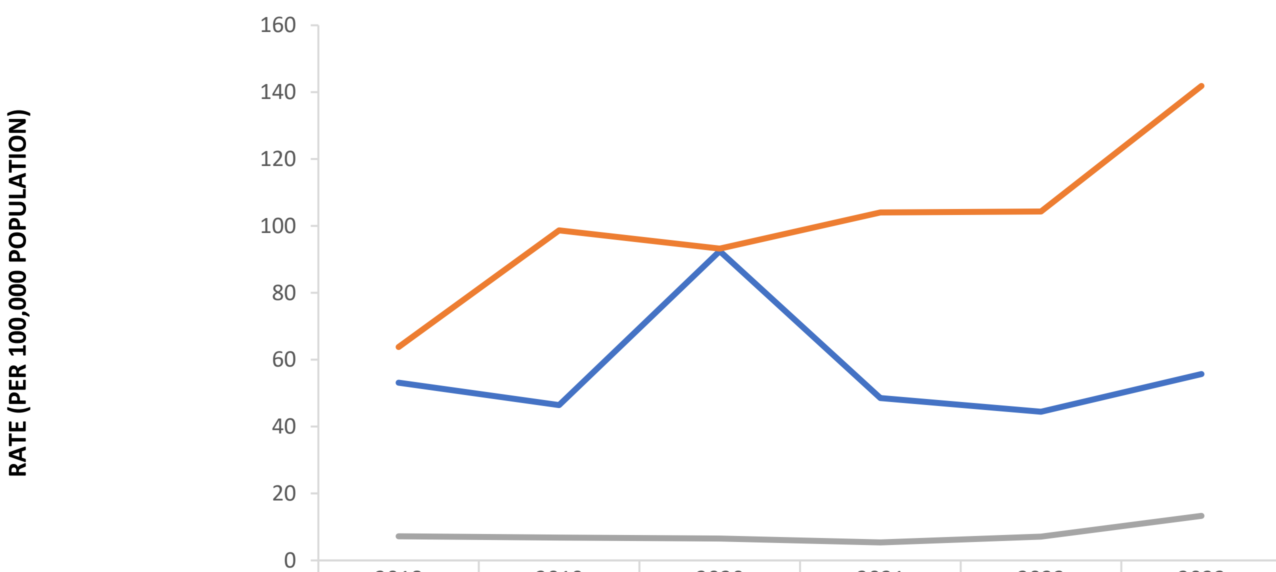
3.1. Invasive Group A Streptococcal Disease

Invasive group A streptococcal (iGAS) disease is a bacterial infection caused by *Streptococcus pyogenes* which is normally transmitted from person-to-person via respiratory droplets or direct contact with patients or carriers. The most serious manifestations of iGAS are streptococcal toxic shock syndrome and necrotizing fasciitis. iGAS was placed under surveillance in Alberta in 1998 and made reportable in August 1999 [37].

General risk factors for iGAS in adults include: crowded living conditions, alcohol abuse, injection drug use (IDU) and underlying health conditions such as diabetes mellitus, cardiovascular disease, cancer and HIV [38].

In children, Varicella is considered a risk factor for iGAS infections [38]. The Varicella (Var) vaccine is offered in a two-dose series to be completed by age 2 as part of the routine immunization schedule for children in Alberta.

Overall, in Alberta, there was an increase in the rates of iGAS in 2023 (56 cases per 100,000 population) compared to 2022 (44 cases per 100,000 population). The rates of iGAS among First Nations people living off reserve and non-First Nations people were the highest in 2023 compared to the previous five years. With the exception of the significant increase in the rate of iGAS infections among First Nations people living on reserve in 2020 (92 cases per 100,000 population), rates fluctuated between 44 cases per 100,000 population to 56 cases per 100,000 population (Figure 3-3).



	2018	2019	2020	2021	2022	2023
First Nations on reserve	53	46	92	49	44	56
First Nations off reserve	64	99	93	104	104	142
non-First Nations	7	7	7	5	7	13

Figure 3-3: Rates of invasive group A streptococcal disease by population group in Alberta, 2018-2023
Sources: ISC AB CDC Database; Government of Alberta, PPHS; ISC, Indian Registry System

In 2023, rates of iGAS infections among First Nations people living on reserve in Alberta fluctuated between age groups with the lowest rate in the 15-24 age group and the highest rate in the 65+ age group. Rates among First Nations people living off reserve were highest in the 35-54 age group while rates among non-First Nations people were highest in the 55+ age groups (Figure 3-4).

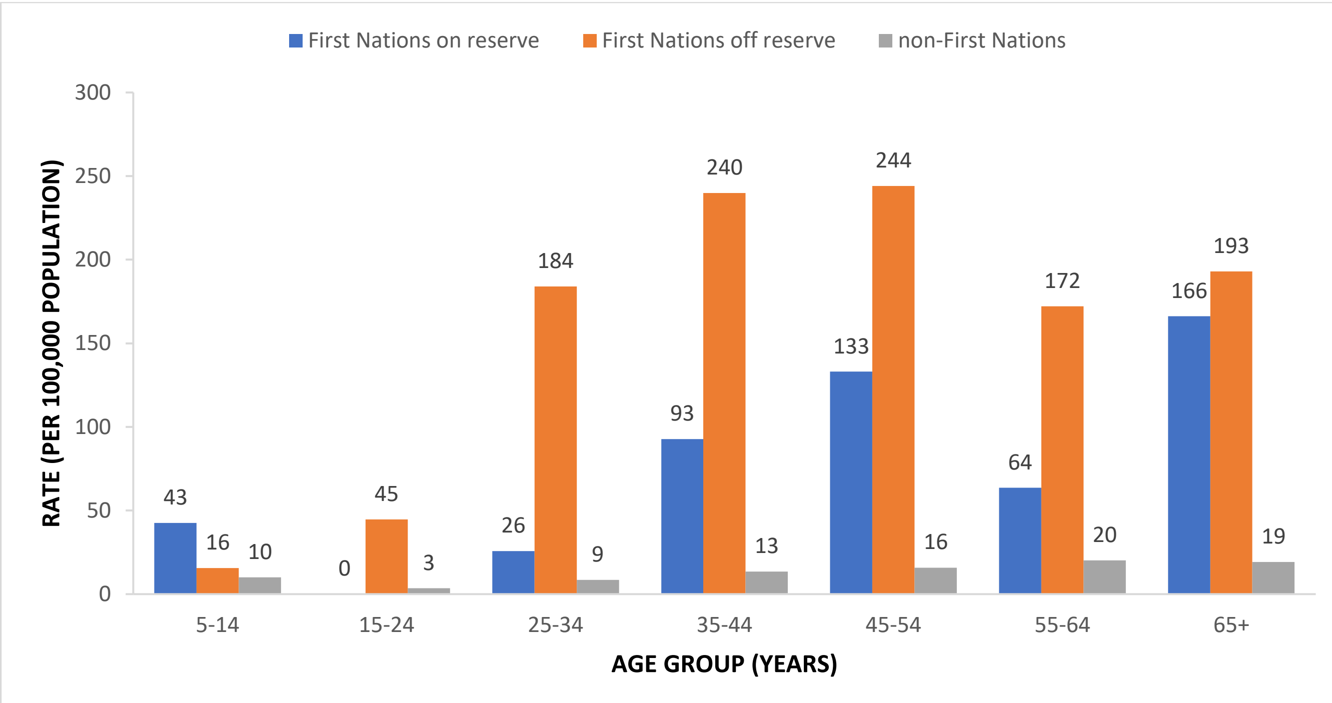


Figure 3-4: Rates of invasive group A streptococcal disease in Alberta by population group and age group, 2023

Sources: ISC AB CDC Database; Government of Alberta, PPHS; ISC, Indian Registry System

Note: ISC-IRS Population under 5 years of age is likely to be underestimated due to late reporting of births which can cause an overestimation of the rate therefore rate will not be calculated for this age group.

3.2. Tuberculosis

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* (MTB). Approximately 5% of people who get infected with MTB will progress directly to active TB disease. The other 95% of people will experience a period of mycobacterial latency, referred to as a latent TB infection (LTBI), where the bacteria lay dormant. During the period of TB infection, the immune system maintains the TB bacteria in a state of dormancy so that they do not cause illness and cannot be spread to others. TB infections will reactivate later in life and become active TB disease in about 5% of people with LTBI. The risk of reactivation increases in people who are immune suppressed because of comorbidities, medications, or are under five years of age [39].

Active TB

The number of active TB cases in First Nations communities in Alberta fluctuated over time with an average of 8 cases per year over a 20-year period (2005-2024). There were no cases in 2017, and less than five cases reported in 2019 and 2022 (Figure 3-5).

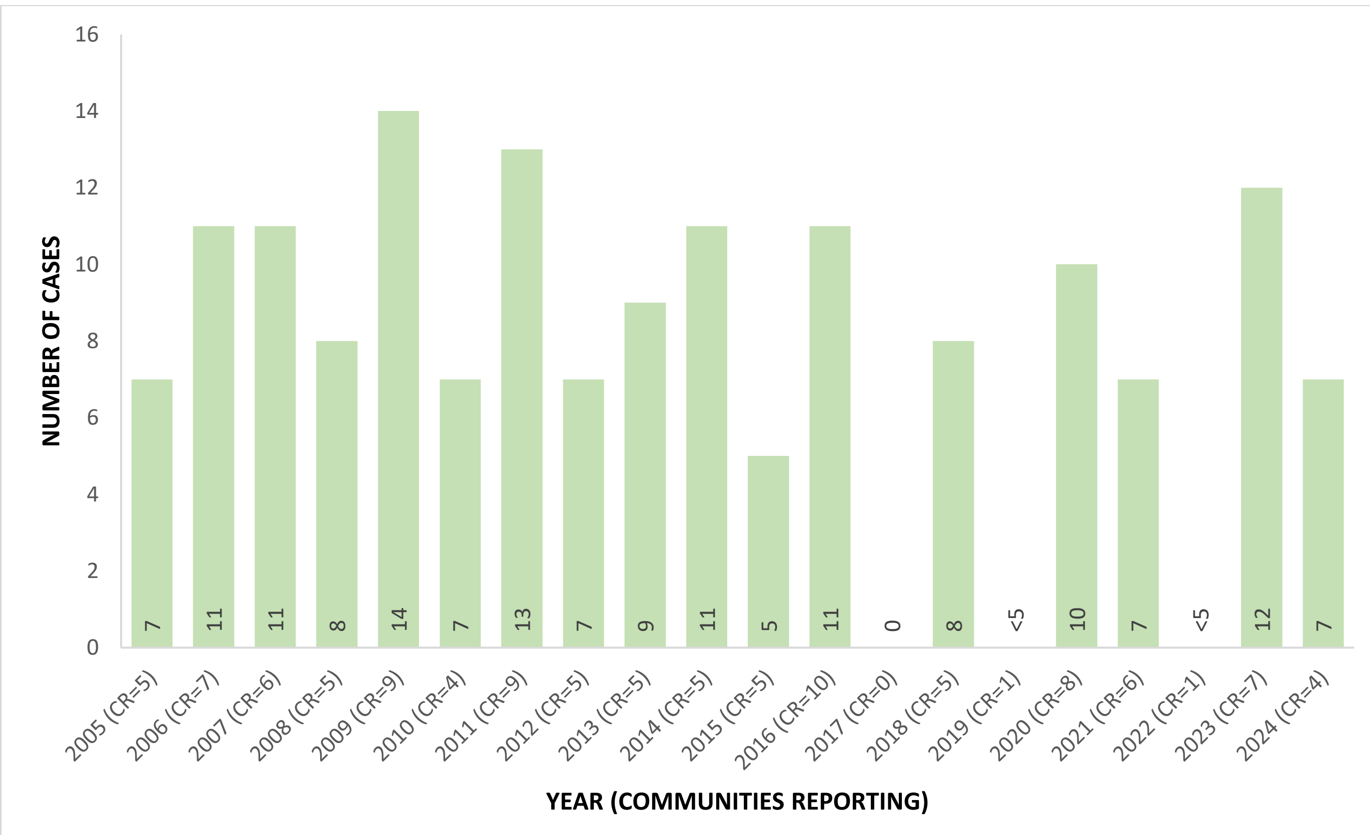


Figure 3-5: Number of active TB cases, First Nations communities in Alberta, 2005-2024
Abbreviation: CR= Number of communities reporting active TB cases; TB= tuberculosis.
Source: Primary Care Alberta; ISC, Indian Registry System.
Note: CR=5 between 2012 and 2015 are not the same communities for each of the years.

High Incidence TB

Communities that experience a high incidence of TB may benefit from enhanced TB surveillance and programming to limit the spread of TB. Enhanced interventions in high incidence communities should help reduce the overall rate of TB among First Nations people living on reserve by reducing spread thus reducing the number of TB cases in these communities. Examples of enhanced TB program interventions include active case finding and enhanced screening for TB infection in groups at risk [40].

A community with High Incidence TB is defined as a community with any one of the following:

1. Two or more cases of active TB in the current (reporting) year, of which at least one is primary TB or smear positive TB (for example 2024); or,
2. A five-year average incidence of TB that is greater than 100 cases per 100,000 population with at least one case in the previous three years (i.e. 2023, 2022 and 2021); or,
3. A five-year average incidence of TB that is less than 100 cases per 100,000 population but with two or more cases per year in at least two of the previous three years (i.e. 2023, 2022 and 2021) [40].

In 2024, two First Nations communities in Alberta met the above definition of high incidence TB.

3.3. Sexually Transmitted and Blood-Borne Infections

Sexually transmitted and blood-borne infections (STBBIs) remain a significant public health concern impacting all Albertans and disproportionally affecting First Nations people living in Alberta. Due to the increasing number of reported cases in recent years, Alberta announced that rates of gonorrhea and infectious syphilis had reached outbreak levels in the province in April 2016 [41]. Despite ongoing prevention and treatment efforts to combat STBBIs in Alberta, there was a sharp increase in the number of infectious and congenital syphilis cases in 2018. This prompted the Alberta Chief Medical Officer of Health to declare a continued province-wide syphilis outbreak in July 2019 [42, 43].

Most STBBIs are asymptomatic, and this can lead to an under-diagnosis which can affect the available data on incidence and prevalence of STBBIs. In 2018, 50% of Canadians reported having never been tested for STBBIs [44]. Testing rates are unknown, and the rate of testing could differ between age groups, males and females, and First Nations people and non-First Nations people. Differences in STBBI testing rates could contribute to differences in disease rates observed.

The COVID-19 pandemic affected the demand for and access to services related to STBBIs, including testing. A survey of organizations across Canada offering STBBI prevention, testing, and treatment services found that 44% reported a significant decline in their capacity to deliver services since the onset of the pandemic. This likely impacted the rates of STBBIs throughout the pandemic [45].

Rising rates of reported STBBIs in Alberta is a public health priority. The ISC-Alberta Regional STBBI program recognizes that each community is unique and has different priorities, resources and capabilities for STBBI programs and initiatives. To contribute to the reduction of STBBI rates in Alberta, the ISC-AB STBBI program offers services in prevention, testing, initiation of care and treatment and ongoing care and support.

Program priorities and initiatives include:

- Support and provide STBBI Test and Treat training for community health nurses.
- Collaboration with Primary and Preventative Health services, and Primary Care Alberta Provincial STI Program
- Collaborating with community stakeholders
- Support community-based efforts to connect clients to care.
- Support community-led models to reduce stigma.
- Integrate harm reduction approaches to meet the public health needs of groups more likely to be exposed to STBBI
- Provide STBBI resources for communities to adapt
- Provide educational tools for use in communities
- Offer additional staffing supported by the ISC Secondary Support and Advisory Team

Overview

Figure 3-6 shows the proportion of STI cases by notifiable STI type among First Nations people and non-First Nations people in Alberta in 2023. In 2023,

- chlamydia continued to be the most prevalent STI in Alberta among First Nations people (51%) and non-First Nations people (69%)
- gonorrhea was the second most prevalent STI in Alberta among First Nations people (26%) and non-First Nations people (17.4%)
- infectious syphilis accounted for 19.5% of STI cases among First Nations people and 6.4% of STI cases among non-First Nations people (Figure 3-6).

Note that when combined, blood-borne infections (Hepatitis B, Hepatitis C and HIV) accounted for less than five percent of STBBI cases among First Nations people in Alberta in 2023 (data not shown).

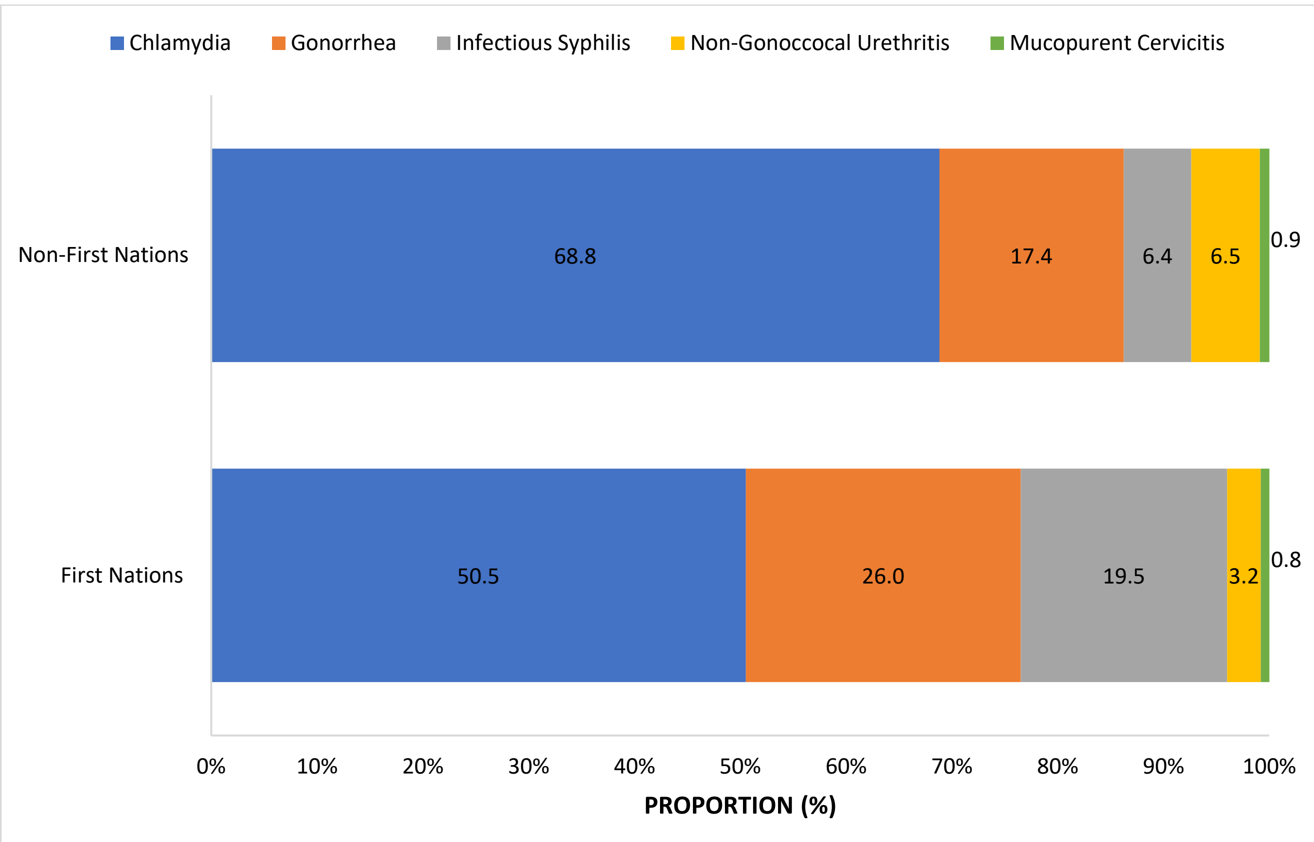


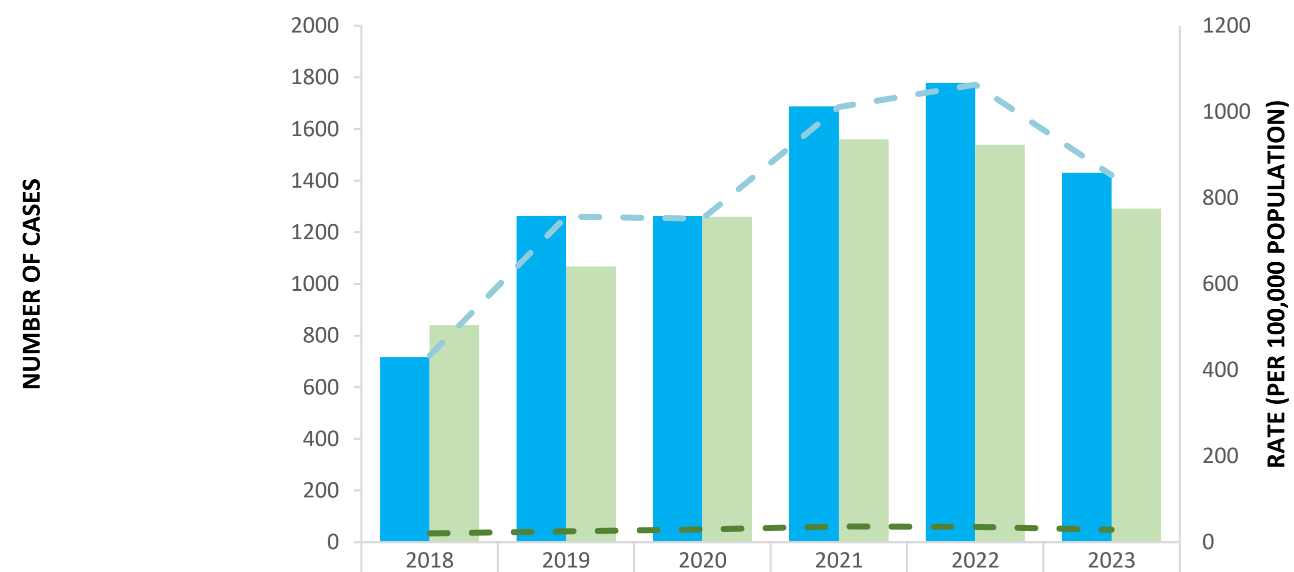
Figure 3-6: Proportion of STI cases by STI type and population group, 2023
Source: Government of Alberta, PPHS

Infectious Syphilis

Infectious syphilis is caused by *Treponema pallidum* bacteria and is usually transmitted by sexual contact but can also be transmitted by vertical (mother-to-child) transmission resulting in congenital syphilis. Many people with syphilis are asymptomatic but if symptoms do occur, they usually take 2-3 weeks to appear therefore frequent testing for syphilis is important for at-risk sexually active people in order to prevent the spread of infection [46, 43]. Syphilis rates continue to increase across Canada and around the world [43].

The age-standardized infectious syphilis rate among First Nations people (766 cases per 100,000 population) was approximately 27 times higher than the rate among non-First Nations people (28 cases per 100,000 population) in 2023 (data not shown).

In Alberta, there was a total of 2,723 infectious syphilis cases reported in 2023 with 1,431 cases reported among First Nations people. Among First Nations people and non-First Nations people in Alberta, the rate of infectious syphilis decreased in 2023 compared to 2021 and 2022. In 2023, the rate of infectious syphilis in Alberta was still higher than it was in 2018 and 2019 (Figure 3-7).



	2018	2019	2020	2021	2022	2023
First Nations (Cases)	716	1263	1262	1687	1778	1431
non-First Nations (Cases)	841	1067	1260	1560	1539	1292
First Nations (Rate)	433	757	751	1011	1063	852
non-First Nations (Rate)	20	25	30	36	35	29

Figure 3-7: Annual number and rate of reported infectious syphilis by population group in Alberta, 2018-2023

Source: Government of Alberta, PPHS

Among First Nations people in Alberta, there was an overall increase in infectious syphilis rates for all age groups between 2018 and 2022 followed by a decrease in rates in 2023. From 2018 to 2023, the 25-34 age group experienced the highest rate of infection (2,082 cases per 100,000 population in 2023) followed by the 20-24 age group (1,873 cases per 100,000 population in 2023) (Figure 3-8).

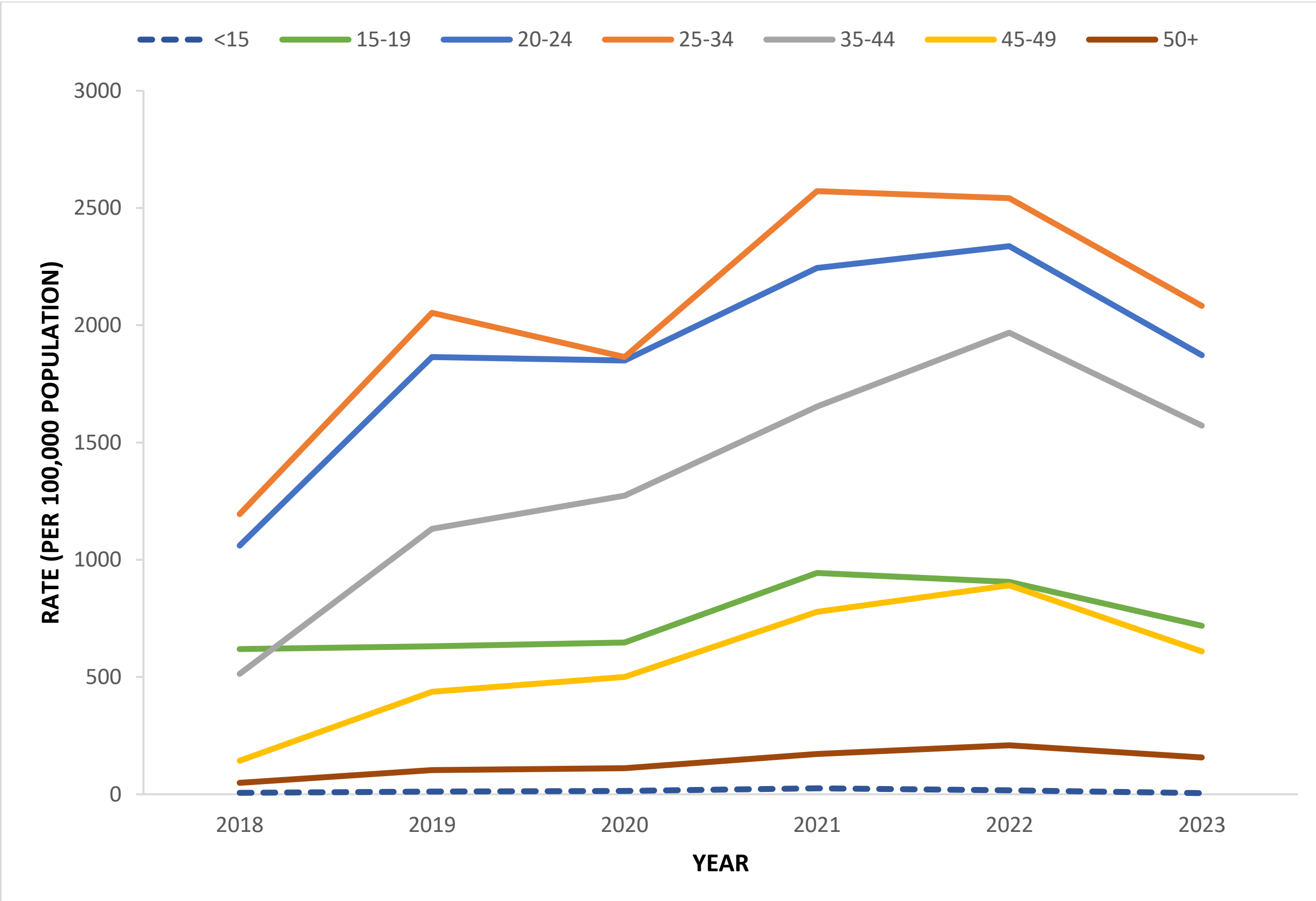
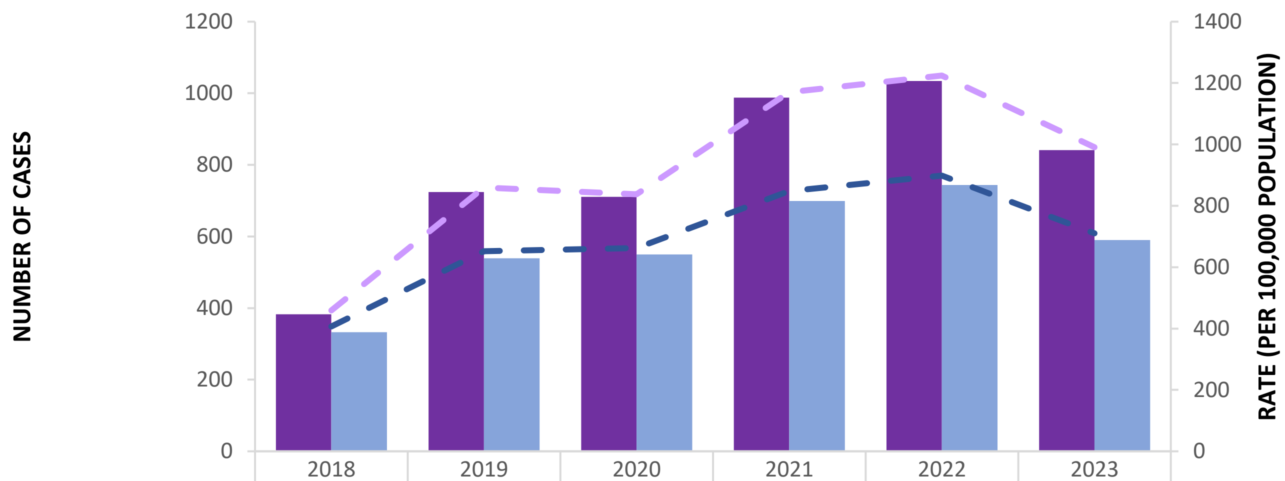


Figure 3-8: Rate of reported infectious syphilis cases among First Nations people in Alberta by age group, 2018-2023
Source: Government of Alberta, PPHS

Among non-First Nations people in Alberta, reported rates of infectious syphilis were higher in males than females for all years from 2018 to 2023 (data not shown in figure). Infectious syphilis rates among First Nations people in Alberta were higher in females than males for all years from 2018 to 2023 (Figure 3-9).

There was a general increase in infectious syphilis cases and rates from 2018 to 2022 followed by a decrease in cases and rate in 2023.

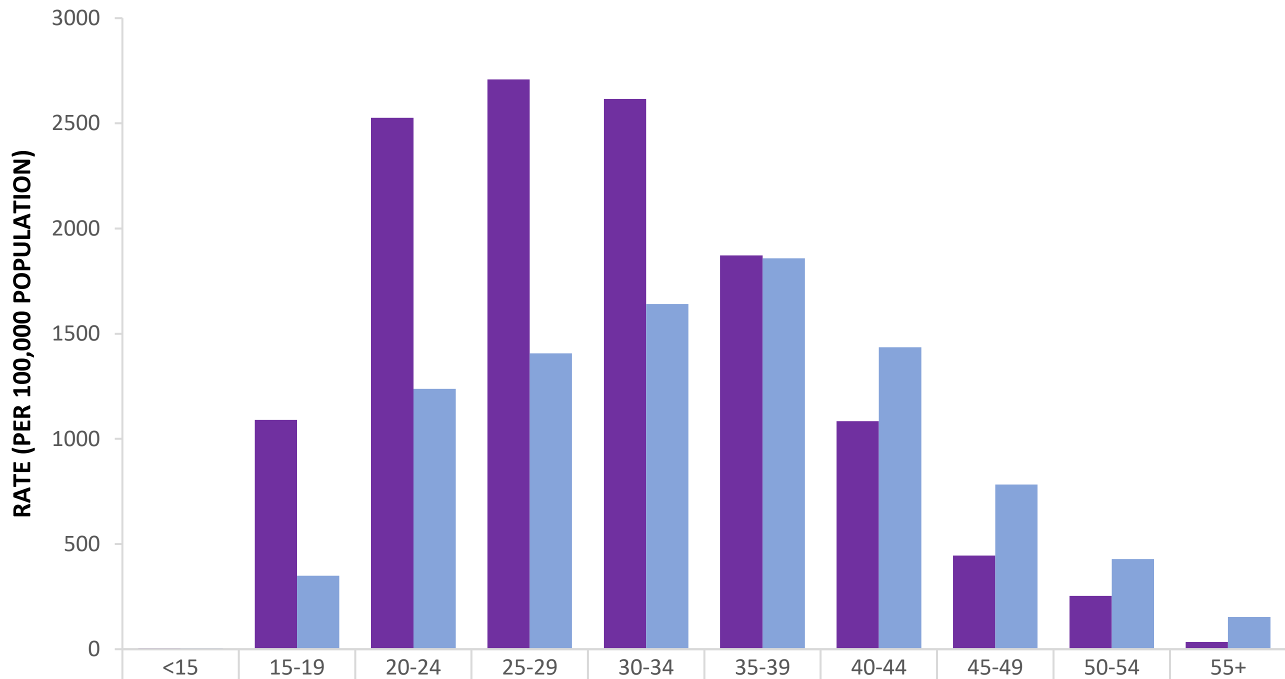


	2018	2019	2020	2021	2022	2023
Female (Cases)	383	724	711	988	1034	841
Male (Case)	333	539	550	699	744	590
Female (Rate)	459	859	838	1170	1224	991
Male (Rate)	407	652	662	848	898	711

Figure 3-9: Annual number and rate of infectious syphilis among First Nations People in Alberta by gender, 2018-2023

Note: One case was excluded from this figure as gender was not identified.
Source: Government of Alberta, PPHS

In 2023, the rate of infectious syphilis among First Nations females increased steadily from the <15 age group to the 25-29 age group followed by a decrease in rates to the 55+ age group. Among First Nations males in 2023, rates increased from the <15 age group to a high in the 35-39 age group followed by a decrease in rates to the 55+ age group (Figure 3-10). Rates were higher among females than males under age 35, but reversed in the 40+ age groups, where males had higher rates than females.



	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55+
Female	5	1089	2526	2709	2615	1873	1084	445	254	35
Male	5	349	1237	1407	1640	1858	1435	783	429	153

Figure 3-10: Rate of infectious syphilis cases among First Nations people in Alberta by age group and gender, 2023

Note: One case was excluded from this figure as gender was not identified.
Source: Government of Alberta, PPHS

Congenital Syphilis

Syphilis infections during pregnancy can result in congenital syphilis which can cause miscarriage, stillbirth or the death of a newborn. If congenital syphilis is not treated, developmental problems, seizures and other serious health issues can occur [46]. In Alberta, all pregnant people should be screened for syphilis during the first trimester and again at time of delivery. Pregnant individuals with a recent diagnosis of infectious syphilis or someone with on-going risk factors for syphilis should be screened monthly throughout pregnancy [47].

Among First Nations people in Alberta, congenital syphilis cases increased steadily from 11 cases in 2018 to 61 cases in 2022 followed by a decrease to 38 cases in 2023 (Figure 3-11). Congenital syphilis cases among non-First Nations people also increased from 6 cases in 2018 to 22 cases in 2022 followed by a decrease to 20 cases in 2023.

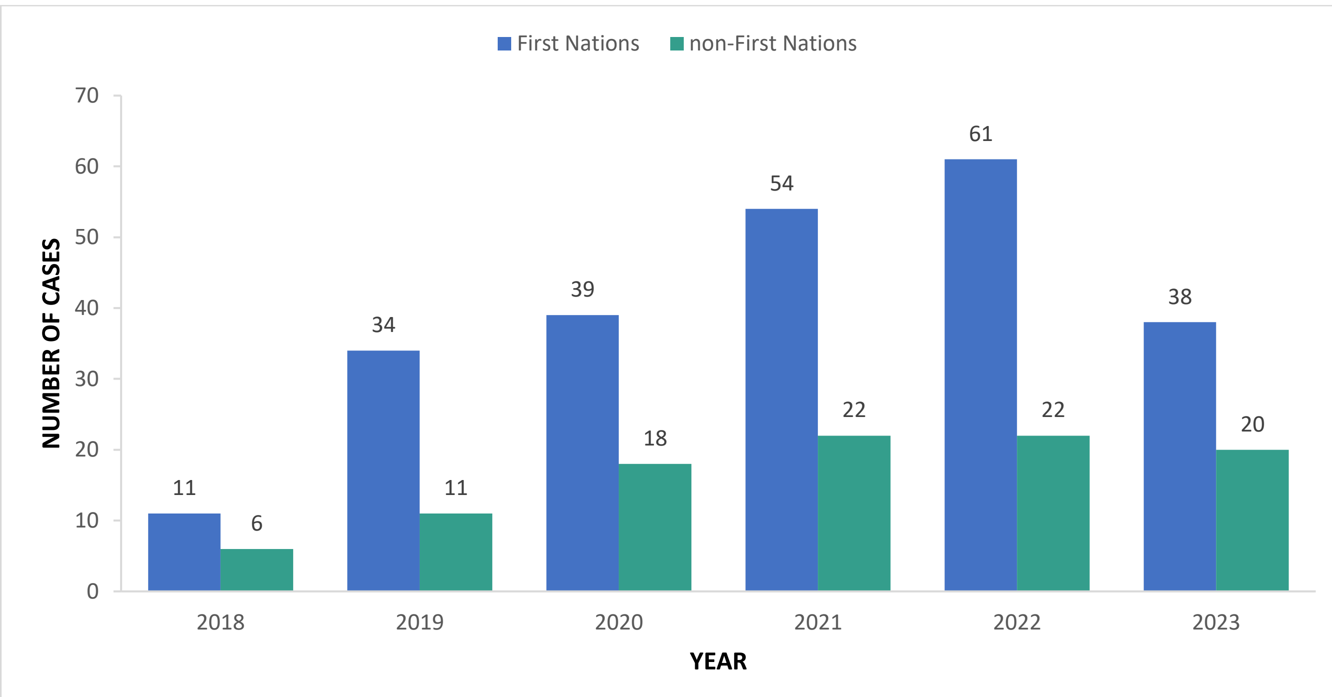


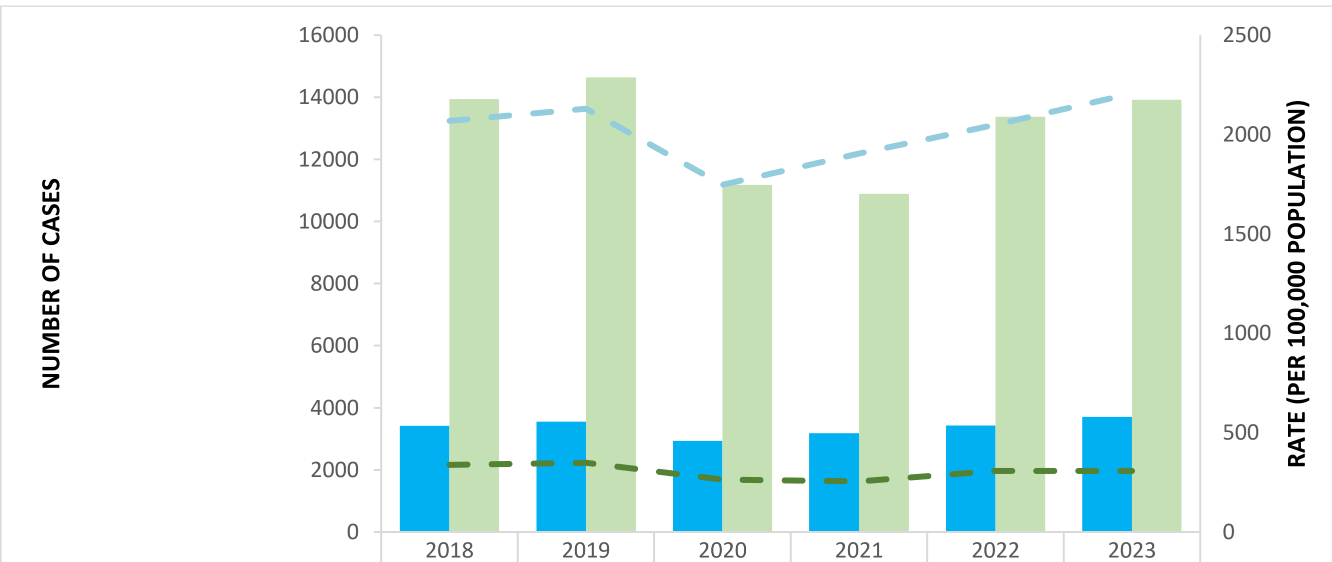
Figure 3-11: Annual number of reported congenital syphilis cases by population group in Alberta, 2018-2023
Source: Government of Alberta, PPHS

Chlamydia

Chlamydia is caused by *Chlamydia trachomatis* bacteria and can result in urethritis, epididymitis, cervicitis, acute salpingitis, or inclusion conjunctivitis and pneumonia in newborns. The majority of people with chlamydia infections are asymptomatic; therefore, infected individuals may remain undiagnosed and may contribute to the spread of the infection as well as under-representation of the burden of the disease in the population [48].

In 2023, the age standardized rate of reported chlamydia infections among First Nations people (1,851 cases per 100,000 population) was approximately six times higher than the rate among non-First Nations people in Alberta (317 cases per 100,000 population) (data not shown).

Among First Nations people and non-First Nations people in Alberta, the rate of chlamydia infections increased from 2018 to 2019 followed by a decrease in 2020 which could be due to the COVID-19 pandemic and the impact that it had on service provision. Rates among First Nations people increased yearly from 2020 to 2023 while the rate among non-First Nations people continued to decrease in 2021 followed by an increase in 2022 (Figure 3-12).

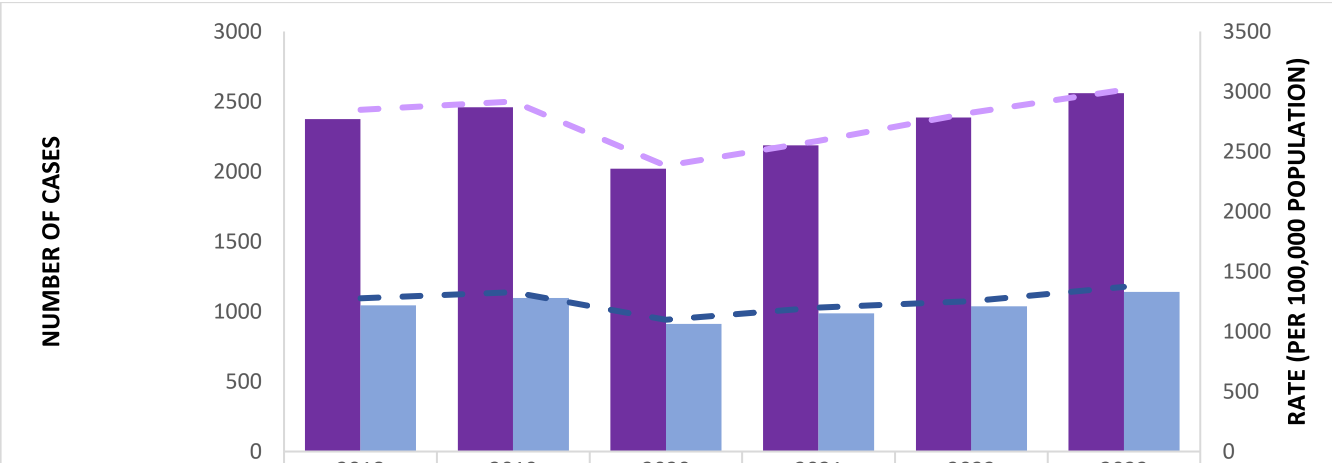


	2018	2019	2020	2021	2022	2023
First Nations (Cases)	3420	3555	2934	3177	3427	3705
non-First Nations (Cases)	13941	14639	11176	10892	13371	13921
First Nations (Rate)	2069	2130	1747	1904	2049	2206
non-First Nations (Rate)	337	348	263	255	308	307

Figure 3-12: Annual number and rate of reported chlamydia infections by population group in Alberta, 2018-2023

Source: Government of Alberta, PPHS

Among First Nations males and females, the rates of chlamydia infections increased between 2018 and 2019, decreased in 2020 followed by a yearly increase from 2020 to 2023. From 2018 to 2023, the rate of chlamydia infections among First Nations females was approximately two times higher than First Nations males (Figure 3-13).



	2018	2019	2020	2021	2022	2023
Female (Cases)	2375	2458	2021	2186	2385	2559
Male (Case)	1045	1097	912	988	1038	1139
Female (Rate)	2847	2917	2381	2589	2824	3014
Male (Rate)	1276	1328	1098	1198	1253	1372

Figure 3-13: Annual number and rate of reported chlamydia infections among First Nations people in Alberta by gender, 2018-2023

Note: 15 cases were excluded from this figure as gender was not identified.
Source: Government of Alberta, PPHS

Among First Nations people in Alberta, there was an overall decrease in the reported rates of chlamydia in the 15–19-year age group from 2018 to 2023 while there was an increase in rates for all other age groups. The 20-24 age group experienced the highest rates of chlamydia for all years from 2018 to 2023 (7,044 cases per 100,000 population in 2023). From 2018 to 2023, the largest increase in chlamydia rates among First Nations people in Alberta occurred in the 30-34 age group with an increase of 1,168 cases per 100,000 population in 2023 compared to 2018. With the exception of the 50+ age group, all age groups experienced a decrease in reported rates from 2019 to 2020 (Figure 3-14).

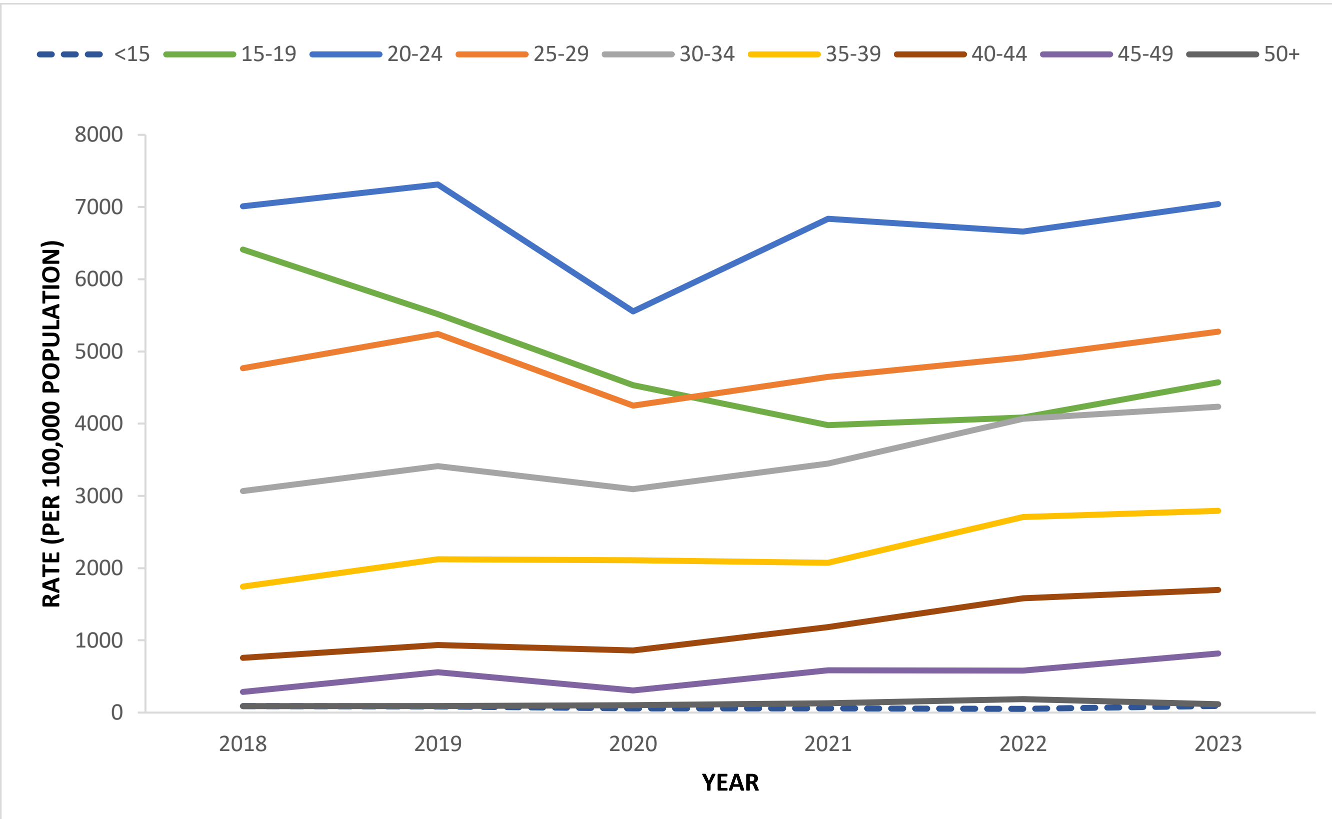


Figure 3-14: Rate of reported chlamydia infections among First Nations people in Alberta by age group, 2018-2023

Source: Government of Alberta, PPHS

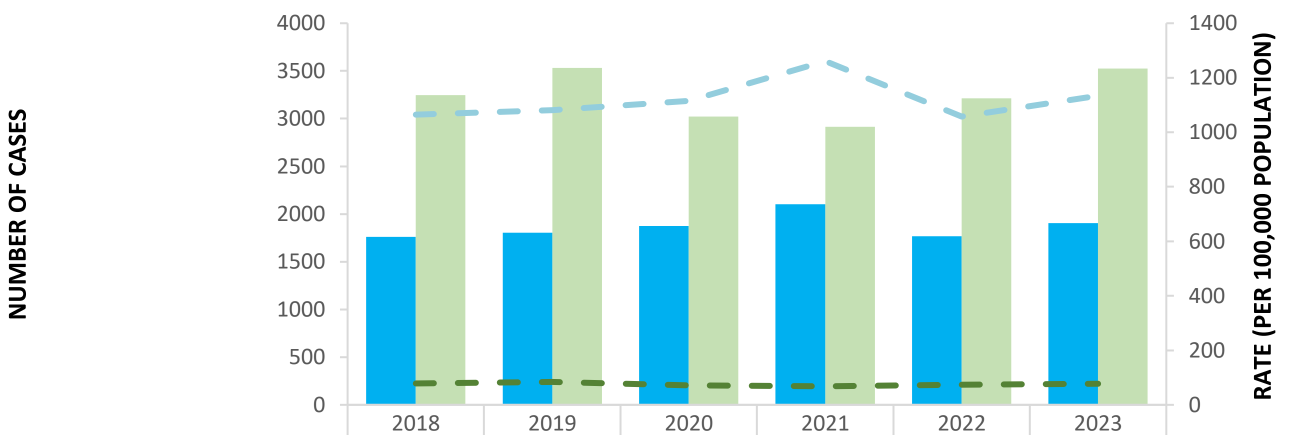
Gonorrhea

Gonorrhea is an STI that is caused by an infection with *Neisseria gonorrhoeae* bacteria. If left untreated, gonorrhea can cause pelvic inflammatory disease in women and epididymitis in men which can lead to infertility. Untreated gonorrhea can also spread through the bloodstream and infect other parts of the body, including joints. If a woman is infected with gonorrhea during pregnancy, the infection can be passed to the baby during birth and could cause blindness, joint infection or a blood infection [49].

Gonorrhea is the most commonly reported drug resistant STI in Canada and multi-drug resistant strains of gonorrhea have been increasing. Drug resistant strains have a competitive advantage over non-resistant strains resulting in treatment failure and continued transmission of infection [50]. Gonorrhea is also highly transmissible, and infections are often asymptomatic which can complicate treatment and control [51].

In 2023, the age standardized rate of reported gonorrhea cases among First Nations people (992 cases per 100,000 population) was approximately 13 times higher than the rate among non-First Nations people in Alberta (77 cases per 100,000 population) (data not shown).

The rate of gonorrhea among First Nations people increased from 1,065 cases per 100,000 population in 2018 to 1,261 cases per 100,000 population in 2021 followed by a decrease to 1,134 cases per 100,000 population in 2023. The rate among non-First Nations people increased from 79 cases per 100,000 population in 2018 to 84 cases per 100,000 population in 2019 followed by a decrease to 78 cases per 100,000 population in 2023 (Figure 3-15).



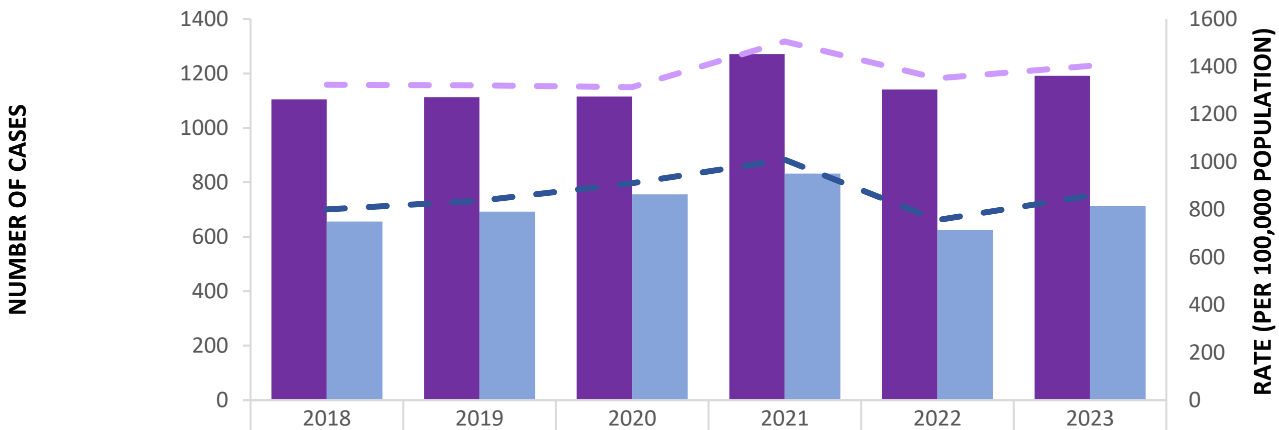
	2018	2019	2020	2021	2022	2023
First Nations (Cases)	1760	1805	1873	2104	1769	1905
non-First Nations (Cases)	3248	3533	3021	2913	3213	3525
First Nations (Rate)	1065	1082	1115	1261	1058	1134
non-First Nations (Rate)	79	84	71	68	74	78

Figure 3-15: Annual number and rate of reported gonorrhea infections by population group in Alberta, 2018-2023

Source: Government of Alberta, PPHS

Among First Nations males and females in Alberta, the rate of gonorrhea infections increased between 2018 and 2021 followed by a decrease in 2022 and an increase in 2023 (Figure 3-16).

On average, from 2018 to 2023, rates of gonorrhea among First Nations females were approximately 1.5 times higher than rates among First Nations males.



	2018	2019	2020	2021	2022	2023
Female (Cases)	1104	1113	1115	1271	1141	1191
Male (Case)	656	692	756	832	626	713
Female (Rate)	1323	1321	1314	1505	1351	1403
Male (Rate)	801	837	910	1009	756	859

Figure 3-16: Annual number and rate of reported gonorrhea infections among First Nations people in Alberta by gender, 2018-2023

Note: six cases were excluded from this figure as gender was not identified.
Source: Government of Alberta, PPHS

Figure 3-17 shows yearly rates of gonorrhea infections among First Nations people in Alberta from 2018 to 2023 by age group. The 25–29 age group consistently reported the highest rate of gonorrhea infections across most years, with two exceptions: in 2021, the 20–24 age group had the highest rate, and in 2023, the 30–34 age group experienced the highest rate. From 2018 to 2023, infection rates increased among individuals aged 30 and older, remained relatively stable in those under 15, and declined among people aged 15–29.

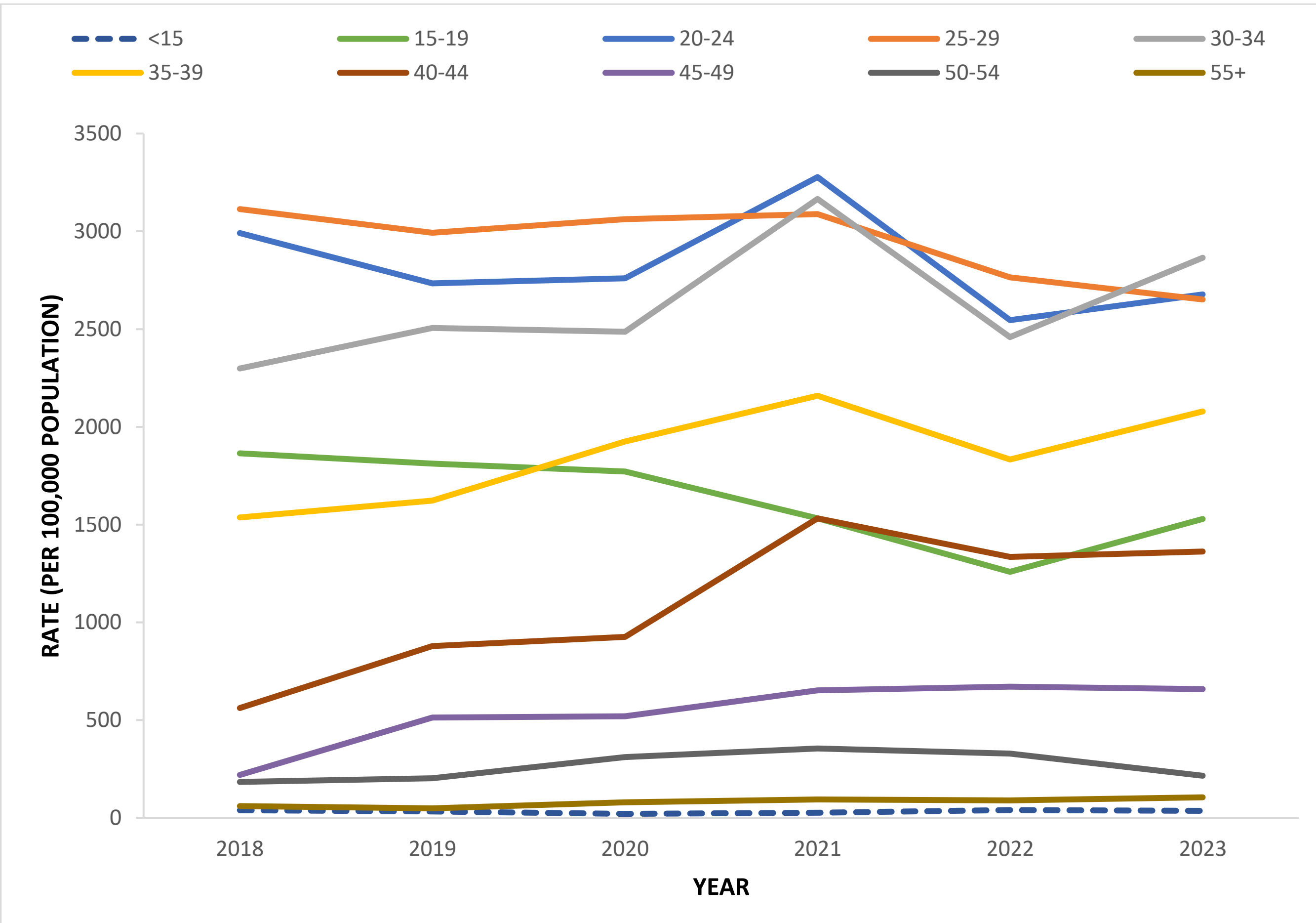


Figure 3-17: Rate of reported gonorrhea infections among First Nations people in Alberta by age group, 2018-2023

Note: one case was excluded from this figure as age was not identified.
Source: Government of Alberta, PPHS

Human Immunodeficiency Virus

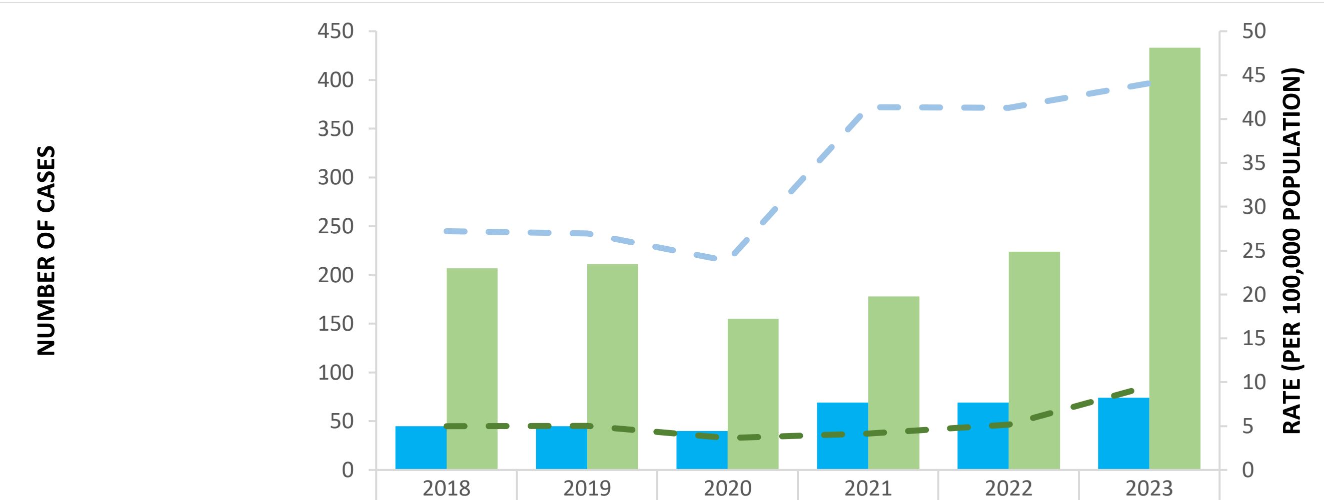
Human immunodeficiency virus (HIV) weakens the immune system which is the body's built-in defence against disease and illness [52]. Acquired immunodeficiency syndrome (AIDS) is the final stage of an HIV infection where the immune system is severely affected and individuals are more susceptible to opportunistic infections such as toxoplasmosis [53]. HIV can be transmitted through exposure to infected blood and/or bodily fluids. This includes sharing needles and drug equipment related to injection drug use (IDU) or having unprotected sex [52].

In 2023, there were 74 newly diagnosed cases of HIV among First Nations people in Alberta (18 on reserve and 56 off reserve). Of the 74 new cases, 37 were female and 37 were male. Cases of newly diagnosed HIV among First Nations people represent 15% of all cases in Alberta while First Nations people represent less than four percent of the population in the province.

The rate of HIV testing is unknown; and the rate of testing could differ between First Nations and non-First Nations people in Alberta. A higher rate of testing could lead to higher case detection.

In 2023, the age standardized rate of new HIV infections among First Nations people (44 cases per 100,000 population) was approximately four times higher that the rate among non-First Nations people in Alberta (10 cases per 100,000 population) (data not shown).

Between 2018 and 2023, the rate of new HIV cases among non-First Nations people was consistently lower than that of First Nations people. The rate of new HIV infections among First Nations people decreased from 27 cases per 100,000 population in 2018 to 24 cases per 100,000 population in 2020 followed by an increase to 44 cases per 100,000 population in 2023 (Figure 3-18).

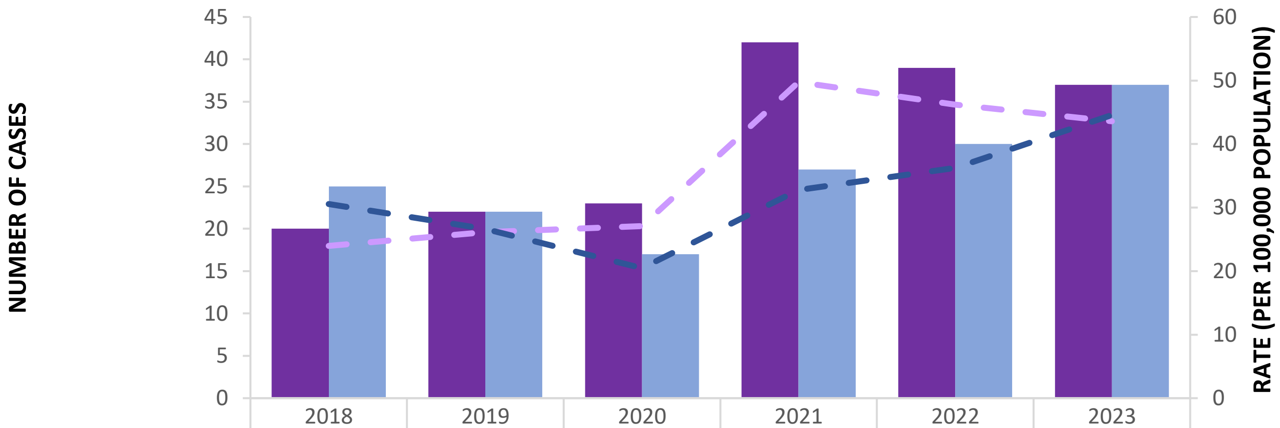


	2018	2019	2020	2021	2022	2023
First Nations (Cases)	45	45	40	69	69	74
non-First Nations (Cases)	207	211	155	178	224	433
First Nations (Rate)	27	27	24	41	41	44
non-First Nations (Rate)	5	5	4	4	5	10

Figure 3-18: Annual number and rate of new HIV infections by population group in Alberta, 2018-2023
Source: Government of Alberta, PPHS

Among First Nations males in Alberta, the number of reported HIV cases decreased from 25 cases in 2018 to 17 cases in 2020 followed by an increase to 37 cases in 2023. Among First Nations females in Alberta, the number of reported HIV cases increased from 20 cases in 2018 to 42 cases in 2021 followed by a decrease to 37 cases in 2023.

In Alberta, new HIV infection rates among First Nation males exceeded those of females in 2018 and fell below female rates from 2020 to 2022. Rates of new HIV infections were nearly equal between the two groups in 2019 and 2023 (Figure 3-19).

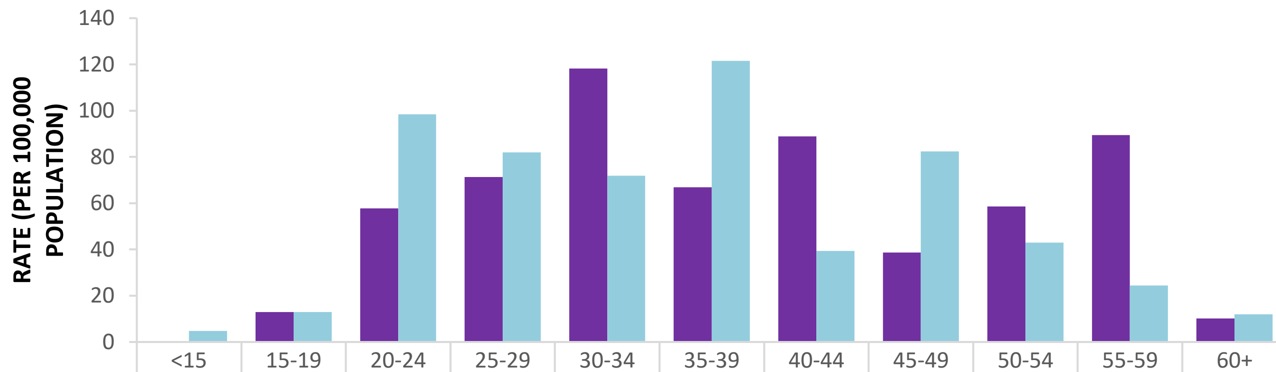


	2018	2019	2020	2021	2022	2023
Female (Cases)	20	22	23	42	39	37
Male (Cases)	25	22	17	27	30	37
Female (Rate)	24	26	27	50	46	44
Male (Rate)	31	27	20	33	36	45

Figure 3-19: Annual number and rate of HIV infections among First Nations people in Alberta by gender, 2018-2023

Note: one case was excluded from this figure as gender was not identified.
Source: Government of Alberta, PPHS

In 2023, the rate of new HIV infections among First Nations females increased from the <15 age group to the 30-34 age group followed by a fluctuation in rates to the 60+ age group. Among First Nations males, rates increased from the <15 age group to the 20-24 age group followed by a fluctuation in rates to the 60+ age group. Among First Nations people in Alberta in 2023, males in the 35-39 age group experienced the highest rate of new HIV infections per year followed by females in the 30-34 age group (Figure 3-20).



	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+
Female	0	13	58	71	118	67	89	39	59	89	10
Male	5	13	98	82	72	122	39	82	43	24	12

Figure 3-20: Rate of new HIV infections among First Nations people in Alberta, by gender and age group, 2023
Source: Government of Alberta, PPHS

Among First Nations people in Alberta who were diagnosed with HIV in 2023, 45% reported “heterosexual” as the exposure category while 27% reported “IDU” as the exposure category. The majority of non-First Nations cases (64%) reported “out of country” as the exposure category (Figure 3-21).

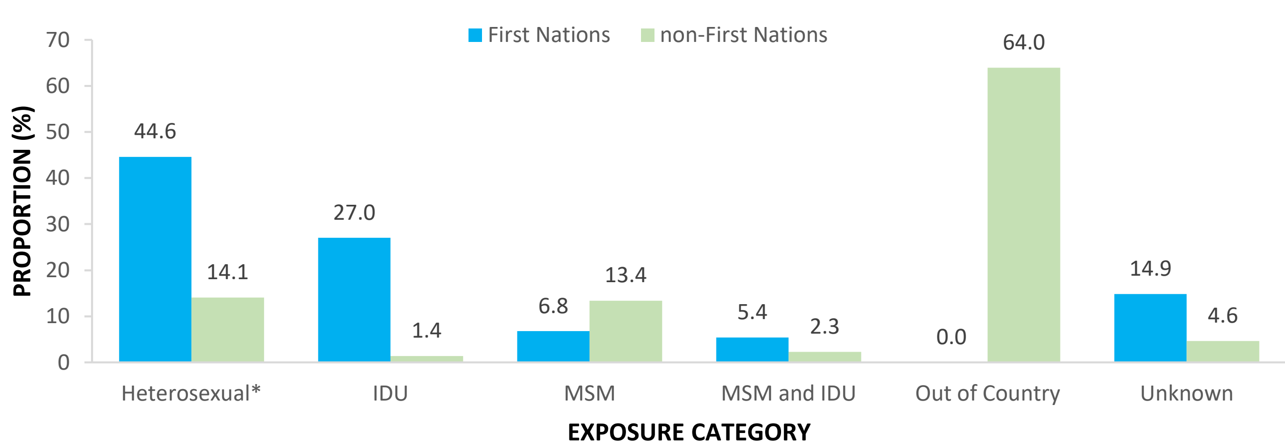


Figure 3-21: Proportion of new HIV cases in Alberta, by population group and risk exposure category, 2023
*The ”Heterosexual” category includes heterosexual cases with risk factors such as partner at risk and no identified risks.
Abbreviations: IDU=injection drug use; MSM= men who have sex with men.
Source: Government of Alberta, PPHS. *Note: there were less than five perinatal HIV cases in Alberta in 2023 and due to the small numbers, they were excluded from the figure.

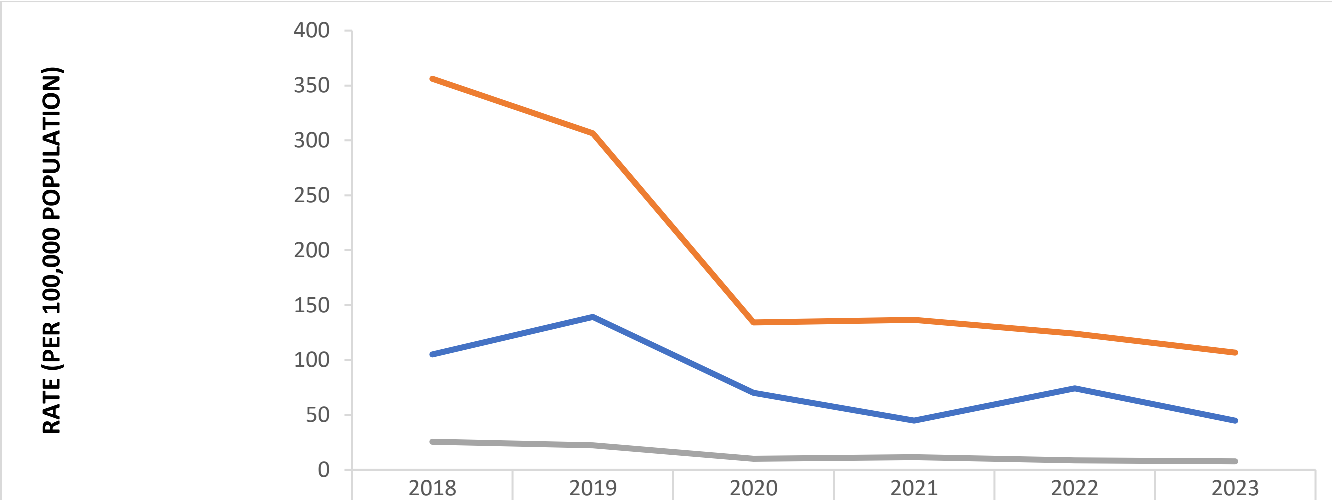
Hepatitis C

Hepatitis C Virus (HCV) is a bloodborne pathogen that can be transmitted through exposure to infected blood. Approximately 60-85% of all newly acquired HCV infections in Canada occur among injection drug users (IDU) [54, 55, 56]. Although HCV is curable, it “causes more years of life lost than any other infectious disease” in Canada and it is the “most burdensome infectious illnesses” in the country [57, 58].

More than 90% of people infected with HCV are either asymptomatic or experience mild symptoms of illness. Even without symptoms, anyone infected with HCV is infectious and can spread the virus to others [55].

Among First Nations people in Alberta, there were a total of 1,391 new cases of HCV reported between 2018 and 2023 with 357 cases among First Nations people living on reserve. First Nations people living off reserve experienced the highest rates of new HCV infections followed by First Nations people living on reserve and non-First Nations people in Alberta (Figure 3-22).

In Alberta, the rate of new HCV infections within First Nations communities rose from 105 cases per 100,000 population in 2018 to 139 cases per 100,000 in 2019, before declining to 45 cases per 100,000 in 2023. Overall, rates of new HCV infections decreased between 2018 and 2023 (Figure 3-22).

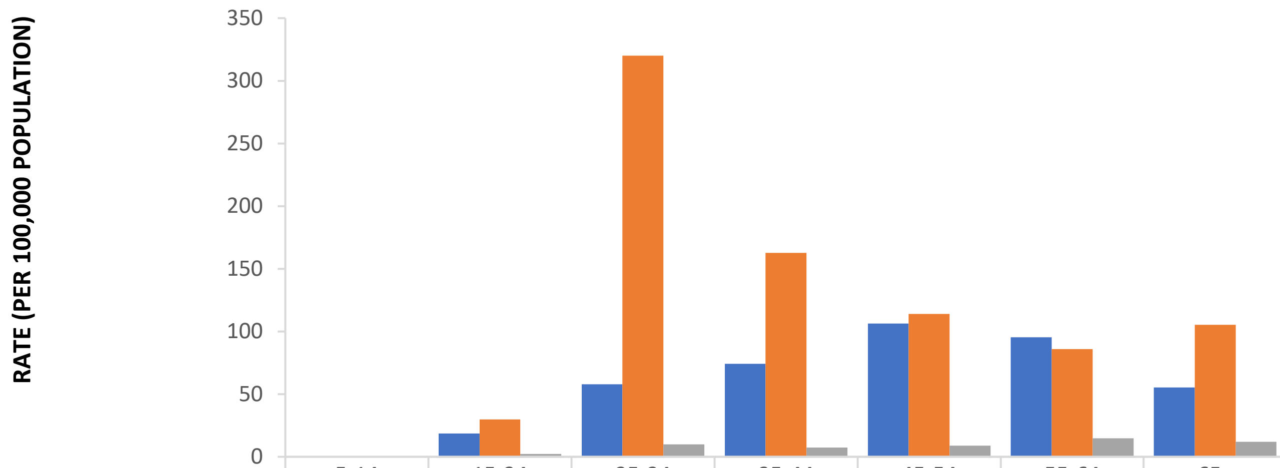


	2018	2019	2020	2021	2022	2023
First Nations on reserve	105	139	70	45	74	45
First Nations off reserve	356	306	134	136	124	107
non-First Nations	26	22	10	11	9	8

Figure 3-22: Rate of new HCV infections by population group in Alberta, 2018-2023
Sources: ISC AB CDC Database; Government of Alberta, PPHS; ISC, Indian Registry System

In 2023, HCV rates among:

- First Nations people living on reserve were highest in the 45-54 age group
- First Nations people living off reserve were highest in the 25-34 age group
- non-First Nations people were highest in the 55-64 age group (Figure 3-23).



	5-14	15-24	25-34	35-44	45-54	55-64	65+
First Nations on reserve	0	19	58	74	106	95	55
First Nations off reserve	0	30	320	163	114	86	105
non-First Nations	0	2	10	7	9	15	12

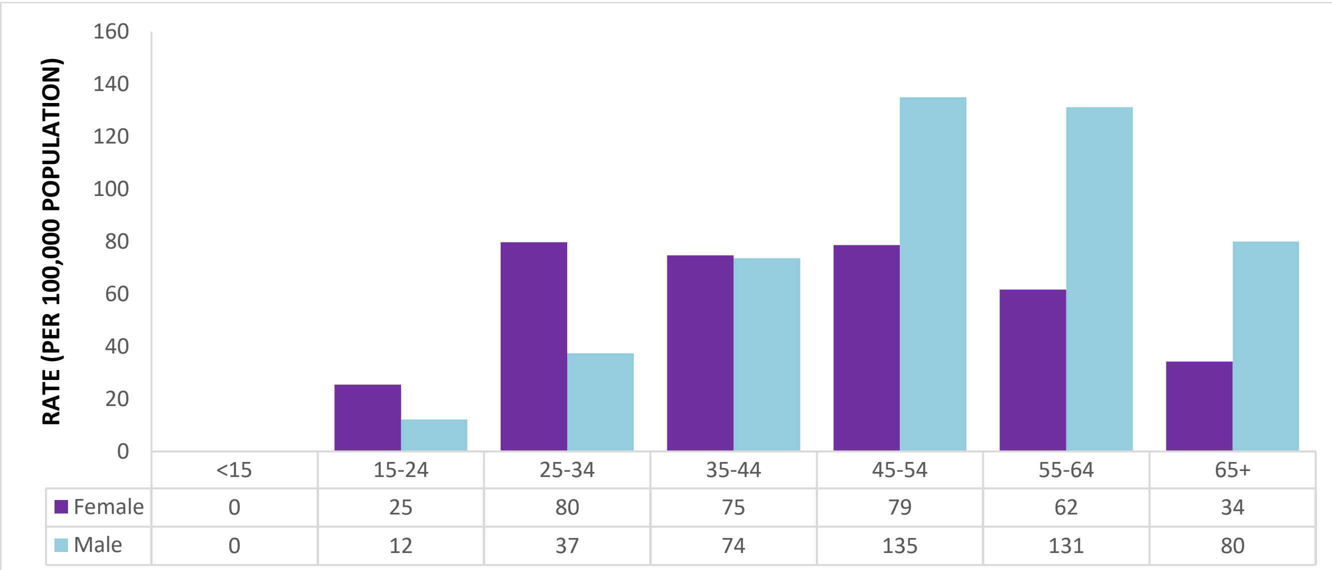
Figure 3-23: Rate of new HCV infections in Alberta by population group and age group, 2023

Sources: ISC AB CDC Database; Government of Alberta, PPHS; ISC, Indian Registry System

Note: ISC-IRS Population under 5 years of age is likely to be underestimated due to late reporting of births which can cause an overestimation of the rate therefore rate will not be calculated for this age group.

Among people living in First Nations communities in Alberta in 2023, rates of new HCV infections:

- were highest among males in the 45-54 age group followed by the 55-64 age group
- among females were highest in the 25-34 and 45-54 age groups
- were higher among females in the younger age groups and higher among males in the 45+ age groups (Figure 3-24).



	<15	15-24	25-34	35-44	45-54	55-64	65+
Female	0	25	80	75	79	62	34
Male	0	12	37	74	135	131	80

Figure 3-24: Rates of new HCV infections by age group and gender, First Nations communities in Alberta, 2023

Sources: ISC AB CDC Database; ISC, Indian Registry System

Regional Environmental Public Health Services

Environmental Public Health

Conditions in the natural and built environments impact a community's or person's ability to achieve and maintain good health. A healthy environment includes clean air, safe water and food supplies, properly designed, constructed and maintained housing and community facilities, as well as effective treatment and disposal of wastewater and solid waste [59]. Environmental Public Health Services (EPHS) in Alberta Region works to identify, prevent and mitigate environmental public health risks that could adversely impact the health of First Nations people and communities.

Working with First Nations communities, Environmental Public Health Officers (EPHOs) provide advice, guidance, education, public health risk assessments, inspections and recommendations to First Nations people, communities and their leadership to help them manage public health risks associated with the environment. The Alberta Public Health Act and its supporting regulations and standards outline specific requirements to ensure the ongoing public health and safety with respect to facilities and their operations as well as protocols for the investigation and reporting of communicable diseases. EPHS applies the same regulations and standards to facilities in First Nation communities in Alberta to ensure consistent and safe operations. Any communicable disease investigations carried out by ISC- AB are conducted in accordance with Alberta's Public Health Act and its supporting regulations, standards and protocols.

DATA SOURCES

1. Animal Exposure Data

Hedgehog Inspection Database –EPHS within ISC-AB tracks and investigates all reported animal exposures that occurred: 1. in First Nations communities or 2. Off reserve but the affected individual lives on reserve in Alberta.

2. Drinking Water Data

Drinking Water Quality Database via Environmental Public Health Information Suite (ELPHIS)– EPHS within ISC-AB records data regarding microbiological and chemical sampling and testing achieved, and test results for drinking water supplies in First Nations communities in Alberta. ELPHIS is a custom database and application that is owned and operated by EPHS, ISC-AB.

Drinking Water Advisory Database via Canadian Network for Public Health Intelligence (CNPHI)– Data for all drinking water advisories that have been issued in First Nations Communities in Alberta are recorded in this database by the EPHS within ISC-AB. This is a national database that is operated by CNPHI, which is a division within the Public Health Agency of Canada.

3. Environmental Public Health Inspection Data

Hedgehog Inspection Database – Details of all Environmental Public Health Inspections conducted by EPHOs within ISC-AB are captured in the Hedgehog Database.

DATA LIMITATIONS

1. Animal Exposure Data

Data only includes animal exposures reported to ISC-AB.

2. Drinking Water Data

Private water supplies (wells and cisterns) in First Nations communities in Alberta that are sampled is consistently changing; therefore, this report only includes the results from the homes sampled.

3. Environmental Public Health Inspection Data

Information from facility inspections is limited by how the data are coded in the database system.

House inspections are conducted on request only. As such, the findings are not representative of overall public health housing conditions in First Nations communities in Alberta.

4. Animal Exposures

Animal exposures can include bite and non-bite exposures. A bite exposure is one in which the animal's teeth penetrate the skin of the victim. A non-bite exposure is one in which the victim is scratched by an animal. The affected area could potentially become contaminated with infectious material from a rabid animal [60].

Animal exposures have the potential to pose a serious health risk to humans. In many cases, the physical injuries from animals, particularly dogs, have resulted in severe injuries including hospitalizations, surgeries and even death. There have been several documented cases of deaths resulting from animal bites in the past few years within the province of Alberta. Aside from the physical and psychological trauma that these exposures and injuries can cause, there is the possibility that an animal exposure can result in the transmission of rabies and other diseases to the victim. While the overall risk and incidence of rabies in humans in Alberta is rare, without post exposure prophylaxis, it is almost always fatal once symptoms develop [61].

ISC-AB investigates all reported animal exposures that involve victims or animals living on reserve in Alberta. Investigations are conducted by EPHOs in consultation with the ISC Medical Officer of Health (MOH)/designate and include follow-up with the victim and/or animal involved. A joint effort with Alberta Health Services may be required if either the animal or the victim reside off reserve [62]. Follow-up can include a discussion with the victim, locating the animal or contact with the animal owner, immunization, referrals and education.

A provoked animal exposure is one in which the human did something intentionally or unintentionally to trigger an animal, and the attack is a normal response from the animal. Examples include: interfering with an animal's food, attempting to trap or hurt an animal, entering an animal's home, yard or territory, petting or picking up an unfamiliar or frightened animal, approaching an animal's litter, and approaching an injured animal [62].

Dogs or cats that are infected with rabies will either die or demonstrate changes in behaviour within a 10-day period. Animal owners are required to keep their animal alive and under confined observation for at least 10 days after the animal exposure. If after 10 days, the animal is still alive and there are no behavioural changes, the animal is deemed as being free of rabies [63]. In Alberta, bats may also carry rabies. Bat samples are submitted to Canadian Food Inspection Agency (CFIA) for testing on a case-by-case basis.

Rabies post-exposure prophylaxis (RPEP) is effective in preventing rabies and is recommended by the MOH/designate on a case-by-case basis. A risk assessment is conducted to determine if a victim requires RPEP. RPEP (if required) includes the administration of rabies vaccines and/or rabies immunoglobulin [61].

Over the six-year period from 2019-20 to 2024-25, there was a total of 2,139 reported animal exposures in First Nations communities in Alberta. There was a decrease in the number of exposures in fiscal years 2020-21 and 2021-22 (Figure 4-1). Lockdowns and restrictions associated with the COVID-19 pandemic could be one of the reasons for the decrease in animal exposures seen in 2020-21 and 2021-22. Saleem et al., had conducted a study to look at the effect of COVID-19 lockdowns on the number of dog bites reported to an anti-rabies clinic in India. They concluded that lockdown had indirectly reduced the number of reported animal exposures [64].

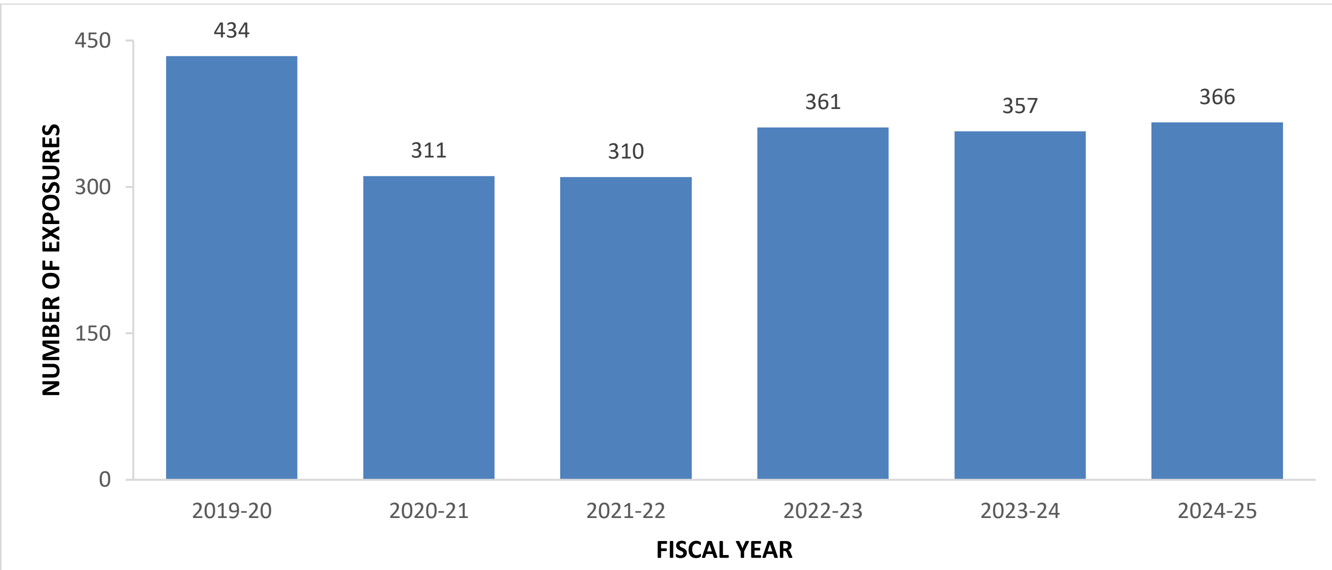


Figure 4-1: Number of reported animal exposures, First Nations communities in Alberta, 2019-20 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

Among the 2,139 reported animal exposures from 2019-20 to 2024-25:

- Animal species was not documented for 39 exposures.
- Dogs were involved in 94% of the exposures and cats were involved in 5%.
- Type of injury was documented for 1,980 exposures.
    - Approximately 97% of injuries involved a bite.
    - Among these exposures, 93% had a break in skin.

From 2019-20 to 2024-25, 1,964 exposures involved dogs. An average of 85% of these exposures involved domestic dogs (Figure 4-2).

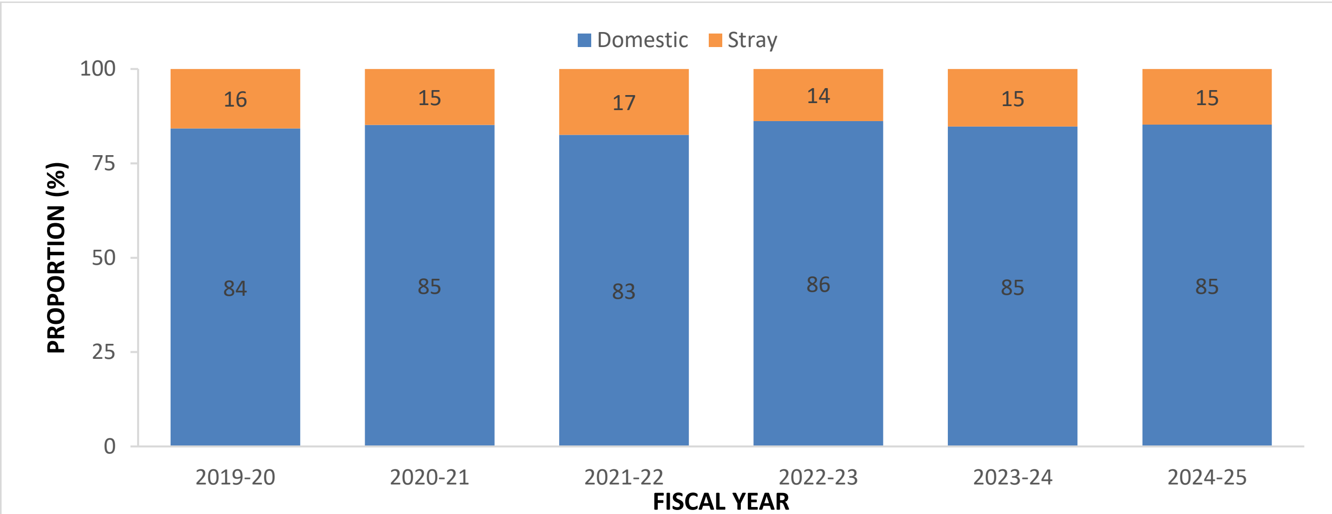


Figure 4-2: Proportion of exposures involving dogs by classification, First Nations communities in Alberta, 2019-20 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

From 2019-20 to 2024-25, 2,116 exposures were documented as provoked or unprovoked. The proportion of provoked exposures increased from 74% in 2019-20 to 93% in 2024-25 (Figure 4-3). Overall, 84% of exposures were provoked.

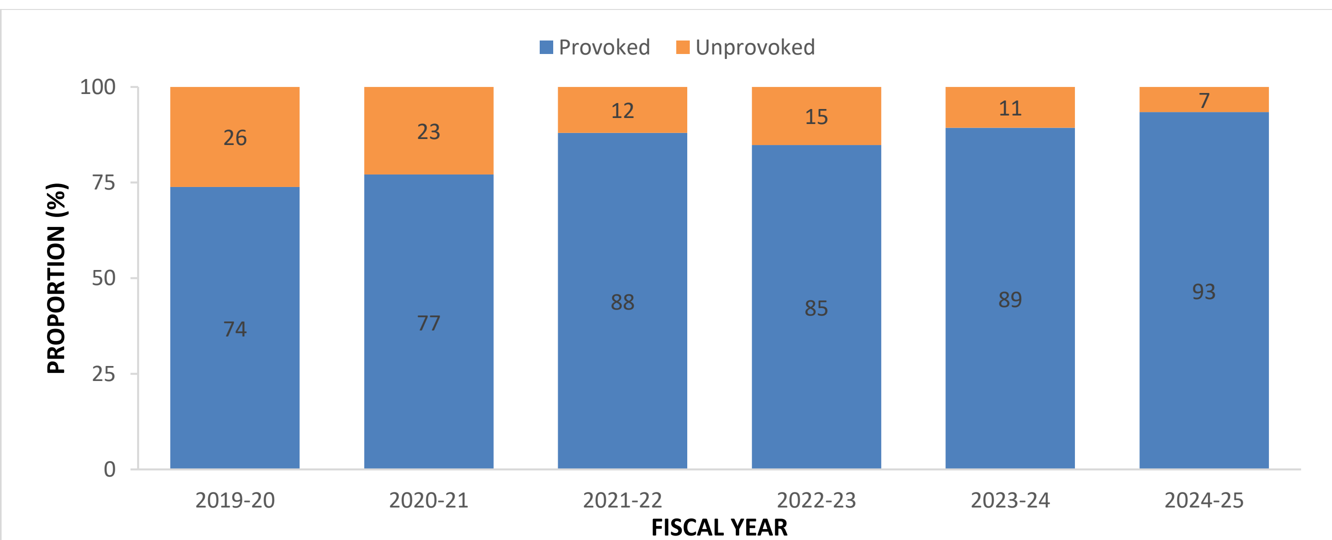


Figure 4-3: Proportion of exposures provoked or unprovoked, First Nations communities in Alberta, 2019-20 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

Overall, among all reported animal exposures from 2019-20 to 2024-25, the calf (32%), hand (17%) and arm (15%) are the most common locations of injury while the torso (3%), buttocks (3%) and foot (2%) are the least common (data not shown).

From 2019-20 to 2024-25, 1,979 exposures documented both victim's age and location of injury. Among them, 35% of victims in the 0-9 age group were bitten or scratched on the head or neck compared to 7% or less in the other age groups (Figure 4-4). Since children are smaller in stature, they are more likely to be bitten on the face or head which carries a higher risk of infection [61].

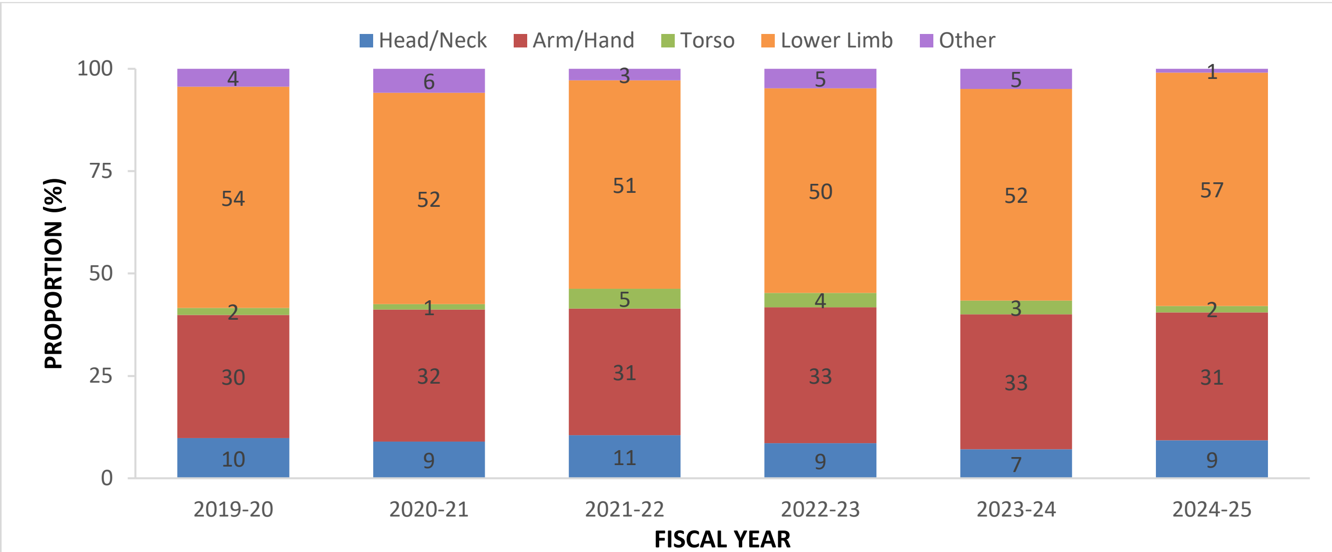


Figure 4-4: Proportion of reported animal exposures by location of injury and age group, First Nations communities in Alberta, 2019-20 to 2024-25 combined
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

From 2019-20 to 2024-25, age was recorded for 1,990 exposures. The age group with the highest proportion of reported animal exposures varied over time. In 2024-25, most animal exposures occurred in the 20-29 age group (22%) (Figure 4-5).

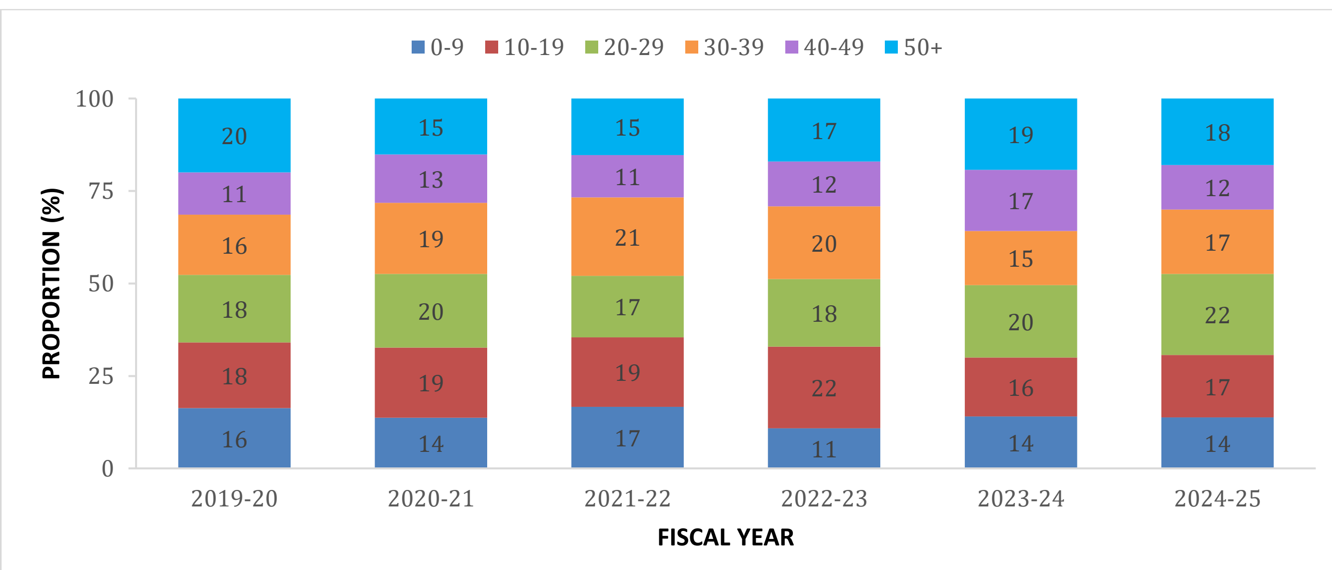


Figure 4-5: Proportion of reported animal exposures by age group, First Nations communities in Alberta, 2019-20 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

From 2019-20 to 2024-25, there were 1,991 exposures that had documented gender. Overall, more males (average of 55%) were involved in reported animal exposures each year. (Figure 4-6).

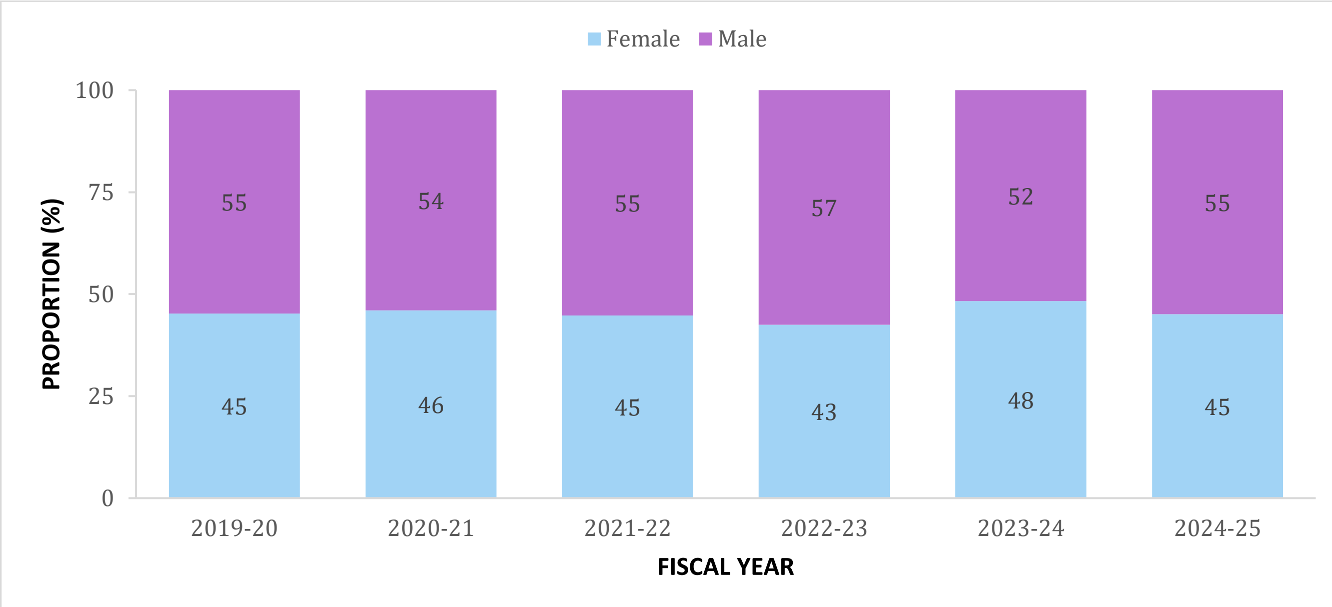


Figure 4-6: Proportion of reported animal exposures by gender, First Nations communities in Alberta, 2019-20 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

From 2019-20 to 2024-25, males were involved in a higher proportion of exposures than females for every age group. The largest difference was seen in the 0-9 and 40-49 age groups where males were involved in 58% of exposures (Figure 4-7).

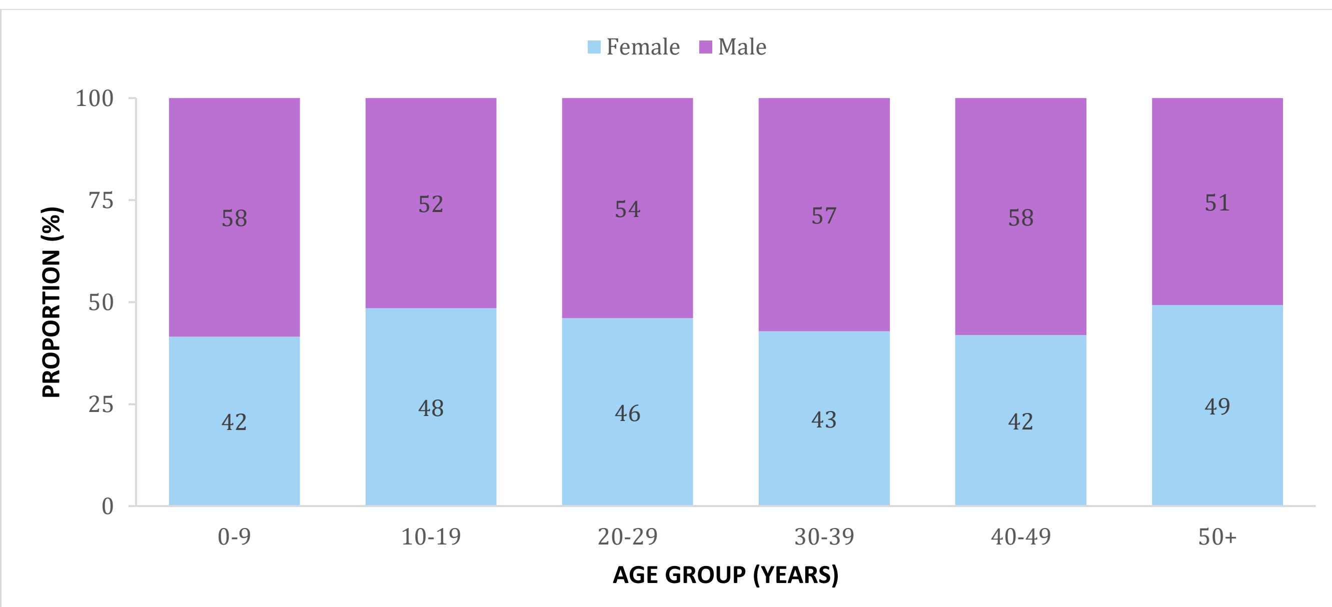


Figure 4-7: Proportion of reported animal exposures by gender and age group, First Nations communities in Alberta, 2019-20 to 2024-25 combined
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

5. Drinking Water Safety Monitoring

Access to safe drinking water is a basic need for good health. Growing populations place increased demand on drinking water supplies, therefore safeguards such as routine water sampling and testing must be carried out to prevent waterborne diseases and ensure drinking water safety.

Implementation of a drinking water monitoring system is an essential component of the multi-barrier approach [65], which has been shown to be the most effective way to manage drinking water risks from source to tap. Routine water sampling and testing, which includes bacteriological and chemical testing according to a set schedule and protocol, is extremely important to protect the health of communities.

The Drinking Water Safety Program is one of the eight mandatory programs within EPHS and involves monitoring the quality of drinking water supplies to ensure they meet the *Guidelines for Canadian Drinking Water Quality* [66].

Drinking water safety is a shared responsibility. EPHOs partner with key community individuals and organizations to ensure safe drinking water in First Nations communities in Alberta. These partners include Chiefs and Councils, public works departments, water treatment plant operators, water truck drivers, community-based water monitors (CBWMs), First Nations Technical Services Advisory Group (TSAG) circuit rider trainers, and Indigenous Services Canada (ISC) –Regional Operations representatives. CBWMs are an integral part of drinking water safety monitoring in First Nations communities in Alberta. CBWMs are trained and certified individuals in the community that conduct ongoing drinking water monitoring activities.[3] CBWMs are required to receive initial training and certification by EPHS, as well as refresher training every two years.

All drinking water test results are assessed by an EPHO against the *Guidelines for Canadian Drinking Water Quality* [66]. For adverse water test results, the EPHO provides advice and guidance to the community on the necessary actions to be taken to protect the health of community members. These actions may include the issuance of a Drinking Water Advisory (DWA). A DWA is an advisory to either individuals or the general public indicating that a specific water supply may be unsafe for consumption or, in some cases, any use.

[3] Community Based Water Monitors are required to successfully complete a two-day Drinking Water Quality Monitor Certification Training, delivered by EPHS.

5.1. Microbiological Sampling and Testing of Drinking Water Supplies

All First Nations communities in Alberta are required to conduct scheduled microbiological water sampling and testing of public[4] and semi-public[5] water supplies at locations identified by an EPHO in consultation with the First Nations' community-based water team[6]. CBWMs collect samples from water supplies, which are then shipped or transported to the Alberta Precision Labs (formerly called the Alberta Provincial Laboratory for Public Health or ProvLab) for microbiological testing[7].

Proportion of weekly scheduled water sampling and testing achieved

$$= \frac{\text{Number}^{8} \text{ of samples taken and tested in a week}}{\text{Total number of sampling points (locations) scheduled for testing in that week}} \times 100$$

The proportion of annual scheduled microbiological water sampling and testing of public and semi-public water supplies achieved by a community is the average of the proportions of the weekly achieved microbiological water sampling and testing for the community in a year.

Figure 5-1 shows the proportion of annual scheduled sampling and testing for public and semi-public water supplies achieved by First Nations communities in 2024-25. Thirty out of 50 communities achieved above 80%, with 20 achieving over 90% of annual scheduled water sampling and testing. Four communities achieved 100% of annual scheduled sampling and testing of public and semi-public water supplies.

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[4] A public water supply is defined as a drinking water supply that services 5 or more buildings or facilities and involves the distribution of water though pipes or other conveyances, such as water trucks. This type of water supply typically serves from 50 to 1,000 people.

[5] A semi-public water supply is defined as a drinking water supply that provides water to the public for human consumption, potentially, but not necessarily, through pipes or other structures such as cisterns or wells. This type of water supply typically serves fewer than 50 people.

[6] All public water supplies are monitored on a weekly basis and semi-public water supplies are monitored according to a set risk-based schedule. Semi-public water supplies include a wide range of water supply infrastructure that may be used sporadically and affect small populations. As a result, sampling follows a set schedule but may not be at weekly intervals.

[7] Water samples are tested for bacteriological indicator organisms (total coliforms and *E.coli.*).

[8] One sample taken and tested per each sampling point (location) per week is required. If more than one sample is taken and tested for any sampling point (location) in a given week, only one is included in the numerator.

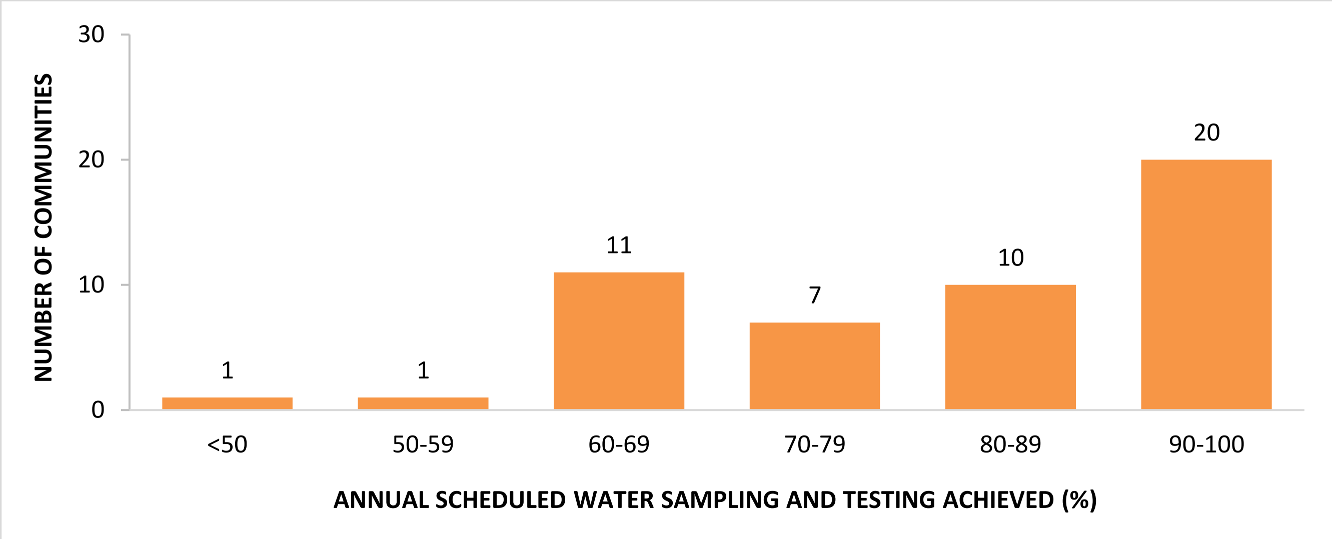

Figure 5-1: Distribution of the proportion of annual scheduled microbiological water sampling and testing for public and semi-public water supplies achieved by First Nations communities in Alberta, 2024-25
Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

Figure 5-2 shows the distribution of regional annual scheduled microbiological sampling and testing of public and semi-public water supplies achieved in First Nations communities in Alberta from 2015-16 to 2024-25. First Nations communities in Alberta achieved 88% of the scheduled microbiological water sampling and testing in 2018-19 which is the highest percentage attained over the 10-year period. In 2024-25, 83% of the scheduled microbiological water sampling and testing was accomplished.

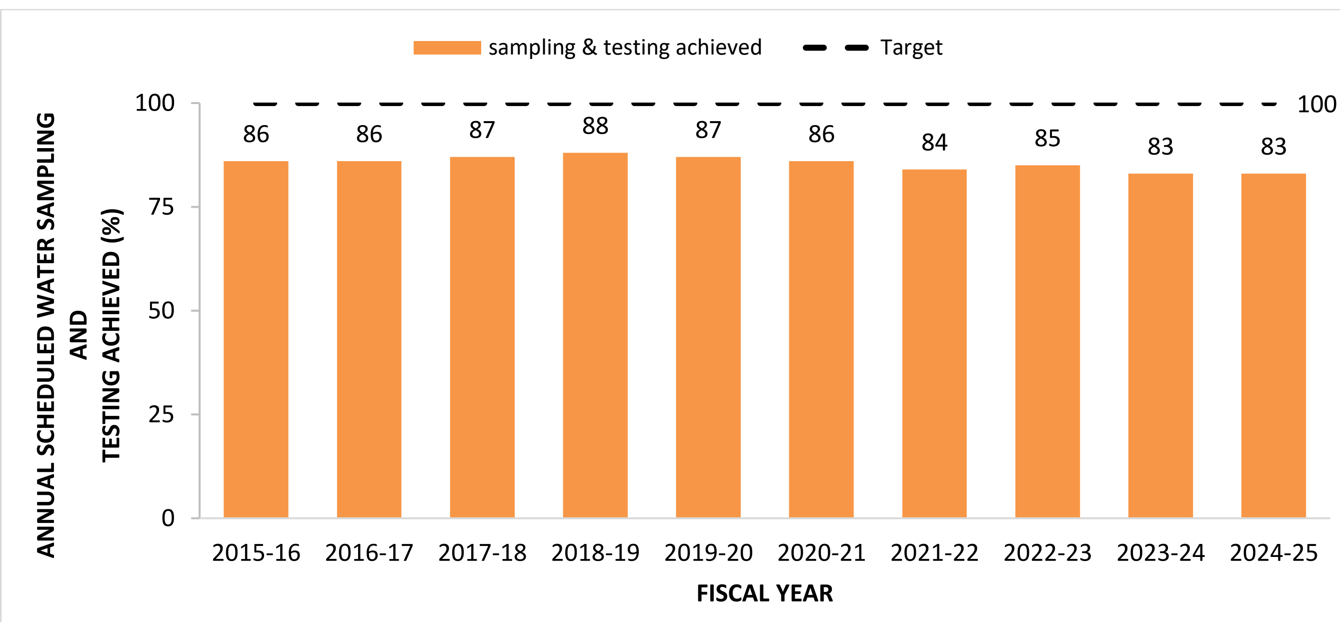

Figure 5-2: Regional annual scheduled microbiological sampling and testing of public and semi-public water supplies achieved by First Nations communities in Alberta, 2015-16 to 2024-25
Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

Microbiological Water Samples "Not Tested"

In addition to not conducting microbiological sampling from public and semi-public water supplies as scheduled in some First Nations communities, Figure 6-3 outlines some of the other factors contributing to not attaining 100% of annual scheduled microbiological sampling and testing in Alberta.

Alberta Precision Labs (APL) follow strict protocols for receipt and handling of samples in order to ensure the results are accurate and to meet accreditation standards. Samples must meet certain criteria to be suitable for testing or else they are rejected.

In 2024-25, 659 (4%) out of 16,357 routine water samples submitted to APL from public water supplies in First Nations communities were not tested for various reasons. The most common reason for not testing in 2024-25 was that the samples were received more than 24 hours after collection (61%), followed by date or time error on requisition (20%). In fact, these two were the dominant reasons for samples not tested in the past ten fiscal years (Figure 5-3). This highlights the ongoing logistical challenges posed by the existing courier system that transports the samples to APL. Changes have been implemented to address the specific courier issues that are tailored to community needs.

Among the samples not tested in the "Other" category, "sample was frozen" accounted for 8% of samples not tested in 2018-19 and 9% of samples not tested in 2019-20. "Non - urgent sample received during the weekend/holiday" accounted for 9% and "Sample received without coolant >6 hours after collection" accounted for 8% of samples not tested in 2023-24 (data not shown).

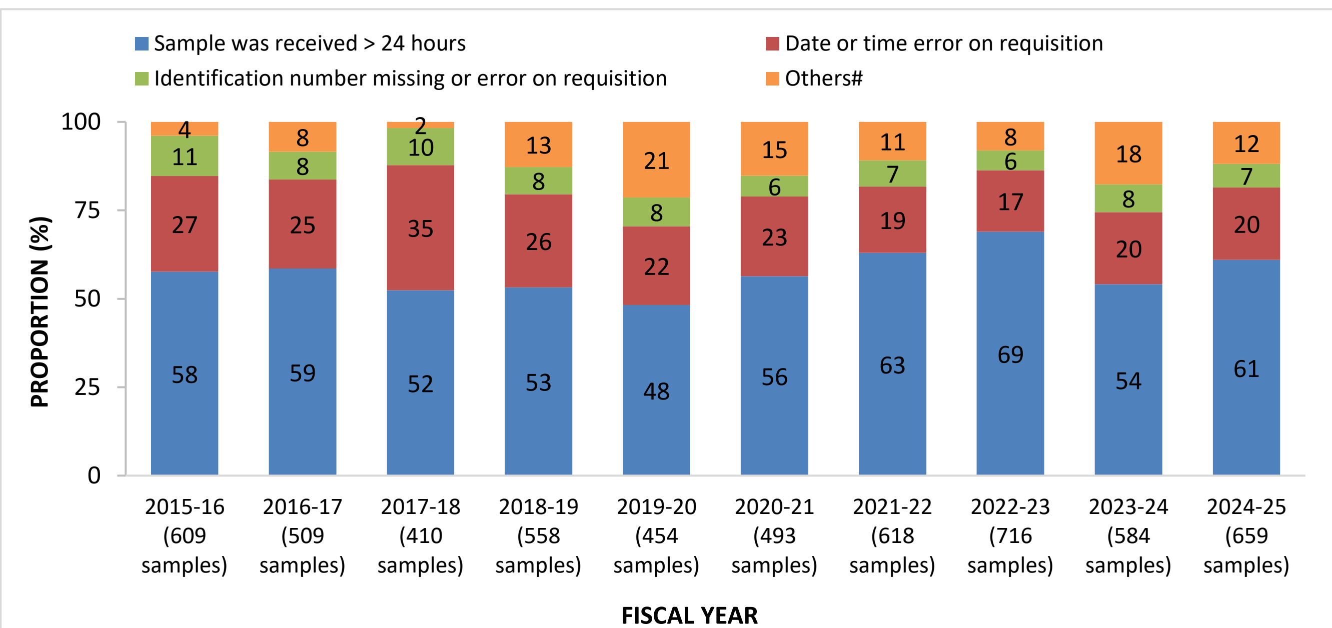

Figure 5-3: Reasons for not testing microbiological routine samples, First Nations communities in Alberta, 2015-16 to 2024-25

Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

Other includes sample was received without coolant > 6 hours, sample was frozen, and non-urgent sample received during the weekend/holiday etc.

Microbiological Water Testing Results

Monitoring drinking water for all disease-causing organisms (pathogens) that could be present is not technically or economically feasible [67]. Instead, water samples submitted for microbiological testing are tested for total coliforms and *Escherichia coli* (*E.coli),* which are indicator organisms that are used to verify water quality and safety.

Total coliforms are a group of closely related bacteria that are naturally found in our environment (e.g. surface water, soils, vegetation) and in the intestines of humans and warm-blooded animals. The total coliforms group includes *E.coli* as well as other types of coliform bacteria found naturally in the environment. The presence of total coliforms in a drinking water supply may indicate contamination in the supply, inadequate disinfection, leaks or cracks in the drinking water system, or poor drinking water system maintenance. Most *E.coli* strains are harmless, however some types of *E.coli* (e.g. *E.coli* O157:H7) are harmful to humans. The presence of *E.coli* in drinking water indicates that the water has been recently contaminated with feces and represents a risk to human health as pathogens may be present [67].

Table 5-1 display the number and percentage of water samples that had a positive test result for total coliforms or *E coli* by water supply type in 2024-25. Out of all the samples approximately:

- 0.9% of samples from public water supply systems, 3.0% from semi-public water supply systems, 18.0% from private wells, and 19.2% from private cisterns tested positive for total coliforms.
- 0.04% of samples from public water supply systems, none from semi-public water supply systems, 0.81% of from private wells, and 1.53% from private cisterns tested positive for *E. coli*.

Table 5-1: Number (percentage) of water samples that tested positive for total coliforms or E. coli by water supply type, First Nations communities in Alberta, 2024-25

Water supply type	Total number of samples tested	Samples that tested positive for total coliforms (%)	Samples that tested positive for *E. coli* (%)
Public Water Supply	16,357	143 (0.9%)	7 (0.04%)
Semi-Public Water Supply	1,828	54 (3.0%)	0 (0.00%)
Private Well	1,732	312 (18.0)	14 (0.81%)
Private Cistern	2,608	502 (19.2%)	40 (1.53%)

Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

Figure 5-4 and Figure 5-5 clearly show that a higher proportion of samples from private wells or cisterns tested positive for total coliforms or *E.coli* compared to public and semi-public water supplies. This is a significant public health concern as approximately two-thirds of homes in First Nations communities in Alberta are serviced by private water supplies.

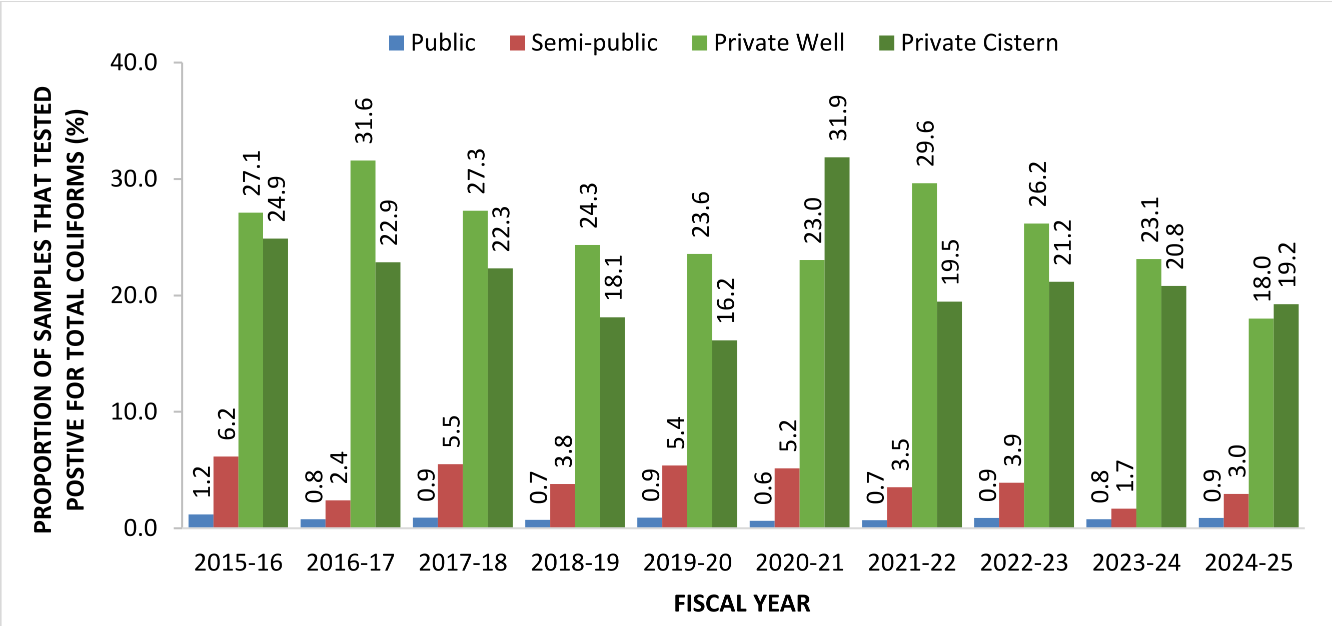

Figure 5-4: Proportion of water samples that tested positive for total coliforms by water supply type, First Nations communities in Alberta, 2015-16 to 2024-25
Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

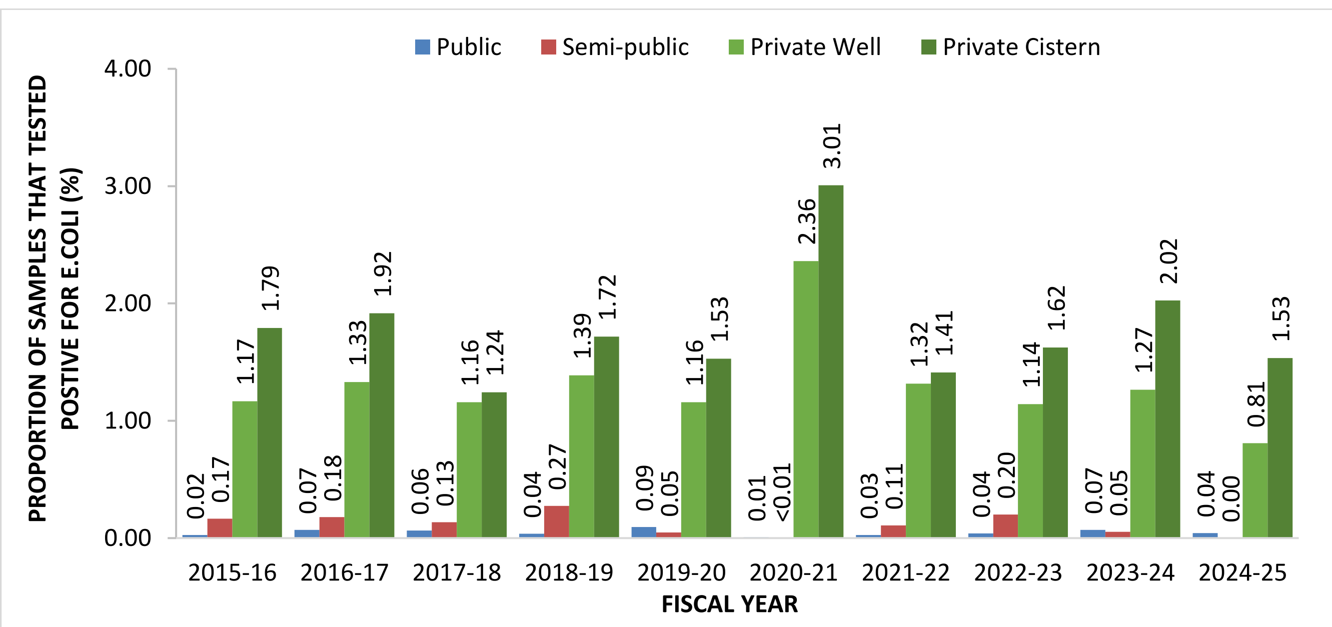

Figure 5-5: Proportion of water samples that tested positive for E. coli by water supply type, First Nations communities in Alberta, 2015-16 to 2024-25
Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

Table 5-2 displays the number and percentage of private homes connected to a well or a cistern that had at least one positive test result for total coliforms or *E coli* in 2024-25. Out of private homes approximately:

- 14.91% connected to a well and 17.94% connected to a cistern had at least one positive test result for total coliforms.
- 0.98% connected to a well and 1.96% connected to a cistern had at least one positive test result for *E. coli*.

Table 5-2: Number (percentage) of private homes connected to a well or a cistern that tested positive for total coliforms or E. coli, First Nations communities in Alberta, 2024-25

Water supply type	Total number of private homes* tested	Private homes with at least one positive test of total coliforms (%)	Private homes with at least one positive test of *E. coli* (%)
Private Well	1,328	198(14.91%)	13(0.98%)
Private Cistern	1,784	320(17.94%)	35(1.96%)

Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS.
*Not all private homes connected to a well or a cistern were sampled

Figure 5-6 and Figure 5-7 show the proportion of private homes connected to a well or a cistern with at least one positive test result for total coliforms or *E coli* from 2015-16 to 2024-25. A higher proportion of homes connected to a cistern had at least one positive test result for *E.coli* than those connected to a well. Results from Figure 5-5 also indicated a higher proportion of samples from homes connected to a cistern tested positive for *E.coli* than those connected to a well. The proper installation and routine maintenance of cisterns is a critical factor in ensuring safe drinking water in First Nations communities in Alberta.

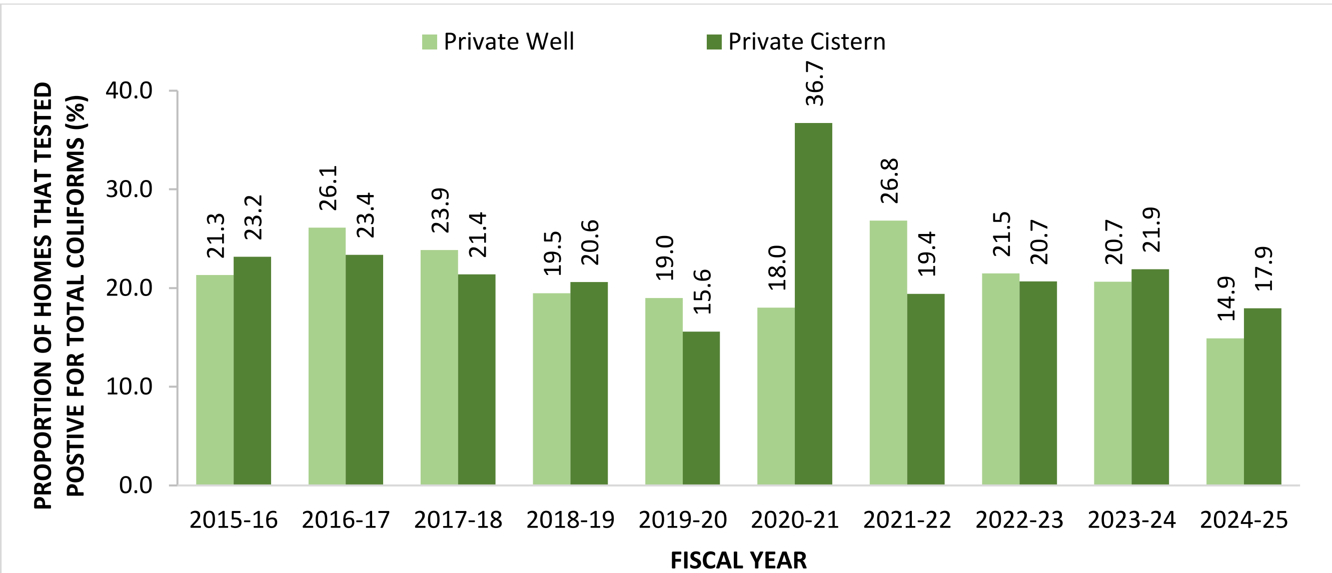

Figure 5-6: Proportion of private homes connected to wells or cisterns with at least one positive test for total coliforms, First Nations communities in Alberta, 2015-16 to 2024-26
Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

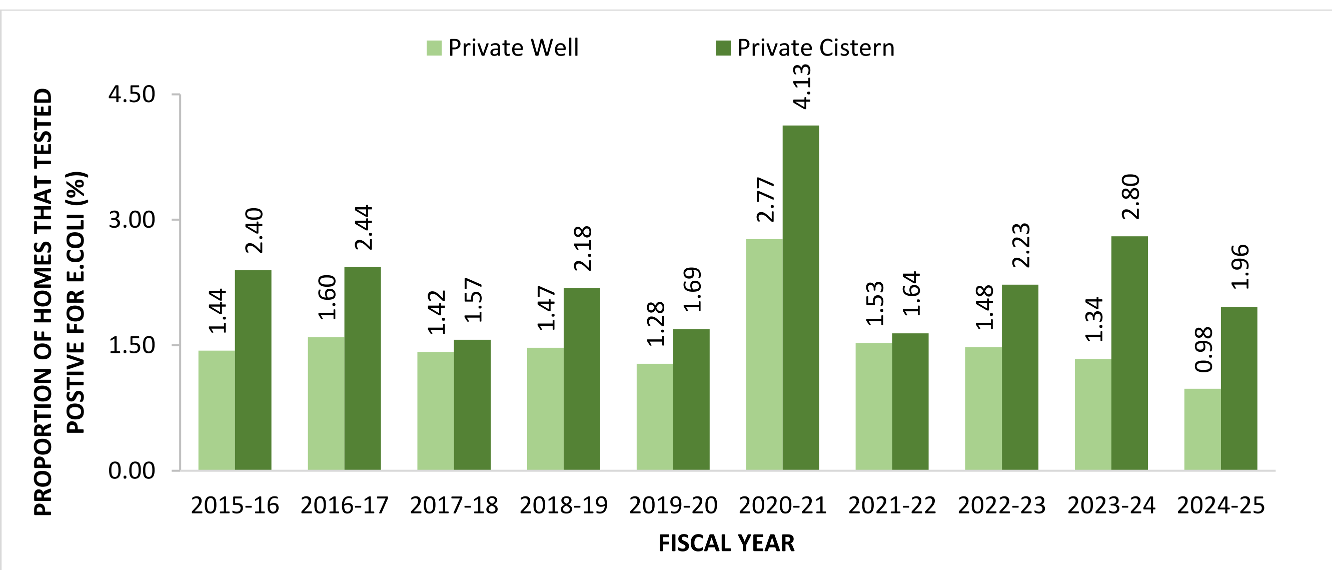

Figure 5-7: Proportion of private homes connected to wells or cisterns with at least one positive test for E. coli by water supply type, First Nations communities in Alberta, 2015-16 to 2024-25
Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

5.2. Chemical Sampling and Testing of Public Water Supplies

Routine chemical sampling and testing of public water supplies occurs twice per year in First Nations communities, once in the summer and once in the winter. Water samples are collected by an EPHO and submitted to an accredited laboratory (i.e., ALS) where they are tested for a suite of chemical and physical parameters listed in the Guidelines for Canadian Drinking Water Quality [66]. Results are reviewed by an EPHO, and the results, along with guidance and recommendations, are communicated to Chief and Council.

In addition to routine chemical sampling and testing, public water supplies are also routinely tested for disinfection by-products, specifically trihalomethanes (THMs) and haloacetic acids (HAAs). THMs and HAAs are a group of compounds that can form when the chlorine used to disinfect drinking water reacts with naturally occurring organic matter (e.g. decaying leaves and vegetation). The Guidelines for Canadian Drinking Water Quality includes a maximum acceptable concentration (MAC)[9] for THMs and HAAs in order to protect the public from potential increases in cancer risk over a 70 year exposure period [66, 68, 69]. It is important to note that the health risks from disinfection by-products, including THMs and HAAs, are much less than the risks from consuming water that has not been appropriately disinfected [68, 69].

The proportion of sampled public water systems that exceeded the MAC for THMs/HAAs in First Nations communities in Alberta ranged from 23% to 29% between 2015-16 to 2024-25, and it was 24% in 2024-25 (Table 5-3). Collective regional and national efforts continue in order to further reduce the number of water systems that exceed the MAC for THMs or HAAs.

Table 5-3: Number (proportion) of sampled public water systems that exceeded the maximum acceptable concentration for Trihalomethanes or Haloacetic Acids, First Nations communities in Alberta, 2015-16 to 2024-25

FISCAL YEAR	NUMBER OF SAMPLED PUBLIC WATER SYSTEMS THAT EXCEEDED THE MAC FOR THM OR HAA (%)
2015-16	19 (26%)
2016-17	18 (23%)
2017-18	20 (26%)
2018-19	21 (29%)
2019-20	21 (29%)
2020-21	18 (25%)
2021-22	19 (26%)
2022-23	19 (27%)
2023-24	20 (28%)
2024-25	17 (24%)

Source: ISC ISC-Alberta Region, Drinking Water Quality Database via ELPHIS

[9] **Maximum Acceptable Concentration (MAC)** – a value that has been established for certain substances that are known or suspected to cause adverse effects on health. The MAC for a substance is based on scientific research and has been derived to safeguard health assuming lifelong consumption of drinking water.

5.3. Drinking Water Advisories

Drinking Water Advisories (DWAs) are issued by EPHOs to notify individuals or the general public about what to do when drinking water supplies are found to be unsafe. There are three types of Drinking Water Advisories:

- **Boil Water Advisory** (BWA): An advisory indicating that a specific water supply could be unsafe for human consumption. Boiling water for at least one minute will make the water safe for consumption.
- **Do Not Consume Advisory** (DNC): An advisory indicating that a specific water supply is unsafe for human consumption under any circumstances. It is issued when a water supply contains a contaminant that poses a health risk which will not be removed by boiling.
- **Do Not Use Advisory** (DNU): An advisory indicating that a specific water supply is unsafe for human use (i.e. consumption or contact with the water may pose adverse health risks).

In 2024-25, a total of 240 DWAs were issued for private homes (82%), 12 DWAs were in place for semi-public water supplies (4%), and 42 DWAs were in place for public water supplies (14%) in First Nations communities across Alberta (Figure 5-8). Of the 54 DWAs for semi-public and public water supplies,

- all were BWAs.
- 52 DWAs were issued in 2024-25, while 2 were carried forward from 2023-24.
- 50 advisories had been rescinded as of March 31, 2025.

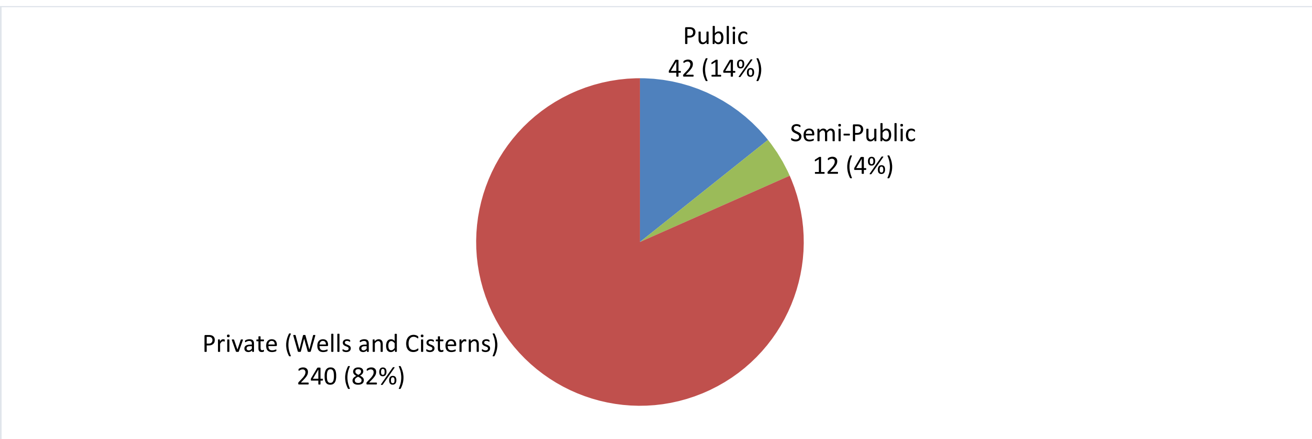

Figure 5-8: Drinking Water Advisories by water supply type, First Nations communities in Alberta, 2024-25
Source: ISC ISC-Alberta Region, Drinking Water Advisory Database via CNPHI

Table 5-4 shows the number of DWAs in place for semi-public and public water supplies as well as the number of communities impacted for the last 10 fiscal years. The number of DWAs varied over time. More DWAs were in place in 2023-24 (60 DWAs in 27 communities) compared to 2024-25 (54 DWAs in 25 communities).

Table 5-4: Drinking water advisories for semi-public and public water supplies, First Nations communities in Alberta, 2015-16 to 2024-25

FISCAL YEAR	NUMBER OF DWAS	NUMBER OF COMMUNITIES AFFECTED
2015-16	56	28
2016-17	77	36
2017-18	65	26
2018-19	87	29
2019-20	63	27
2020-21	61	24
2021-22	32	19
2022-23	51	28
2023-24	60	27
2024-25	54	25

Source: ISC ISC-Alberta Region, Drinking Water Advisory Database via CNPHI

Reasons for Drinking Water Advisories

Drinking water advisories can be issued for operational issues and water quality issues. Operational issues refer to the failure of equipment or processes normally involved in the production and treatment of safe drinking water. Water quality issues refer to findings in the treated water and are quite often the result of operational issues. For example, a chlorine pump failure (an operational issue) can lead to water being inadequately disinfected which could lead to the detection of total coliforms or *E.coli* in drinking water (water quality issue). It is also important to note that a DWA for a Public Water Supply may only affect a portion of the overall system. For example, a line break and resulting BWA may only affect a certain area and a number of homes in a community.

Public Water Supplies

Figure 5-9 shows the operational and water quality issues associated with the 42 DWAs in place for public water supplies in First Nations communities in Alberta in 2024-25. Line breaks or pressure losses[10] in the distribution system (83%) was the most common water quality reason for issuing a DWA. Thirteen (31%) DWAs were associated with Treatment / distribution equipment failure or damage.

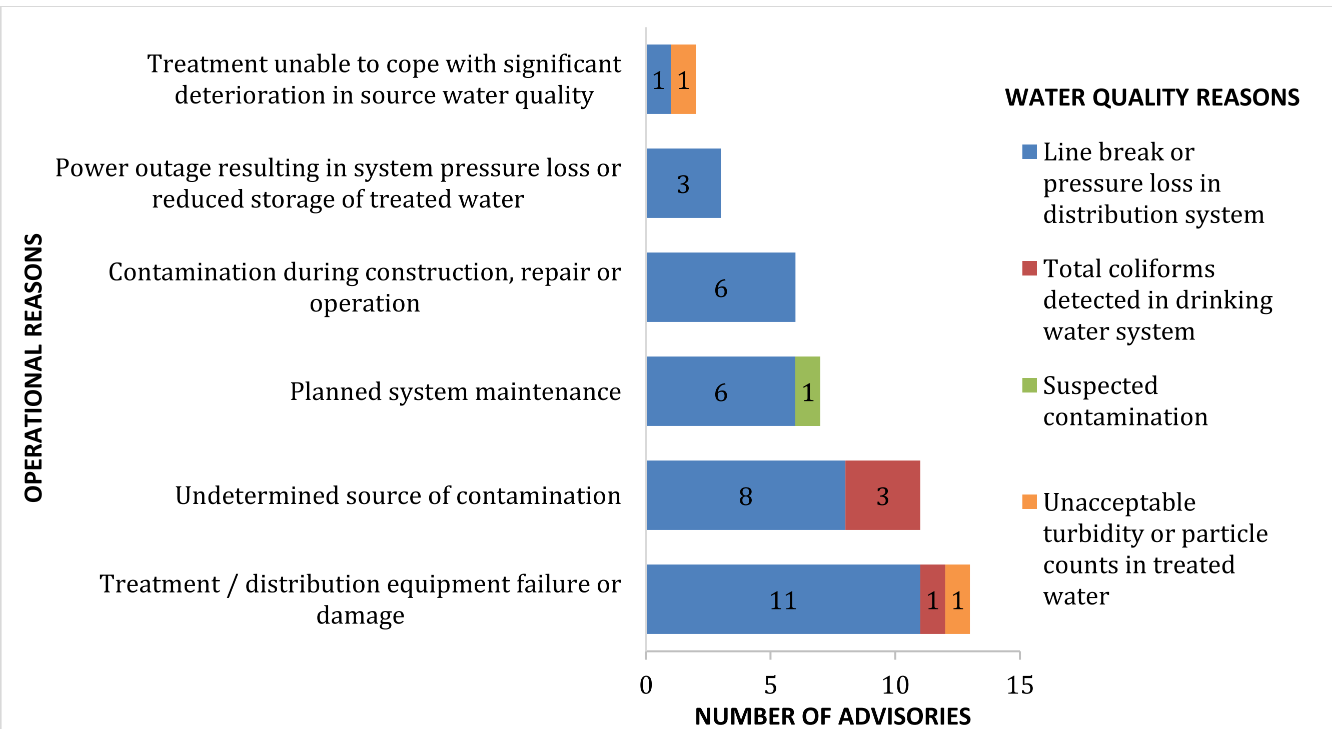

Figure 5-9: Drinking water advisories in public water supplies by operational and water quality reasons, First Nations communities in Alberta, 2024-25

Source: ISC ISC-Alberta Region, Drinking Water Advisory Database via CNPHI

[10] Line break or pressure loss is considered a public health risk or water quality concern due to the potential for contaminants that may enter the water when the line depressurizes.

SEMI-PUBLIC WATER SUPPLIES

Figure 5-10 shows the operational and water quality issues associated with the 12 DWAs issued for semi-public water supplies in First Nations communities in Alberta in 2024-25. All DWAs were issued due to the detection of total coliforms in the drinking water system. Eight (67%) DWAs were related to an undetermined source of contamination.

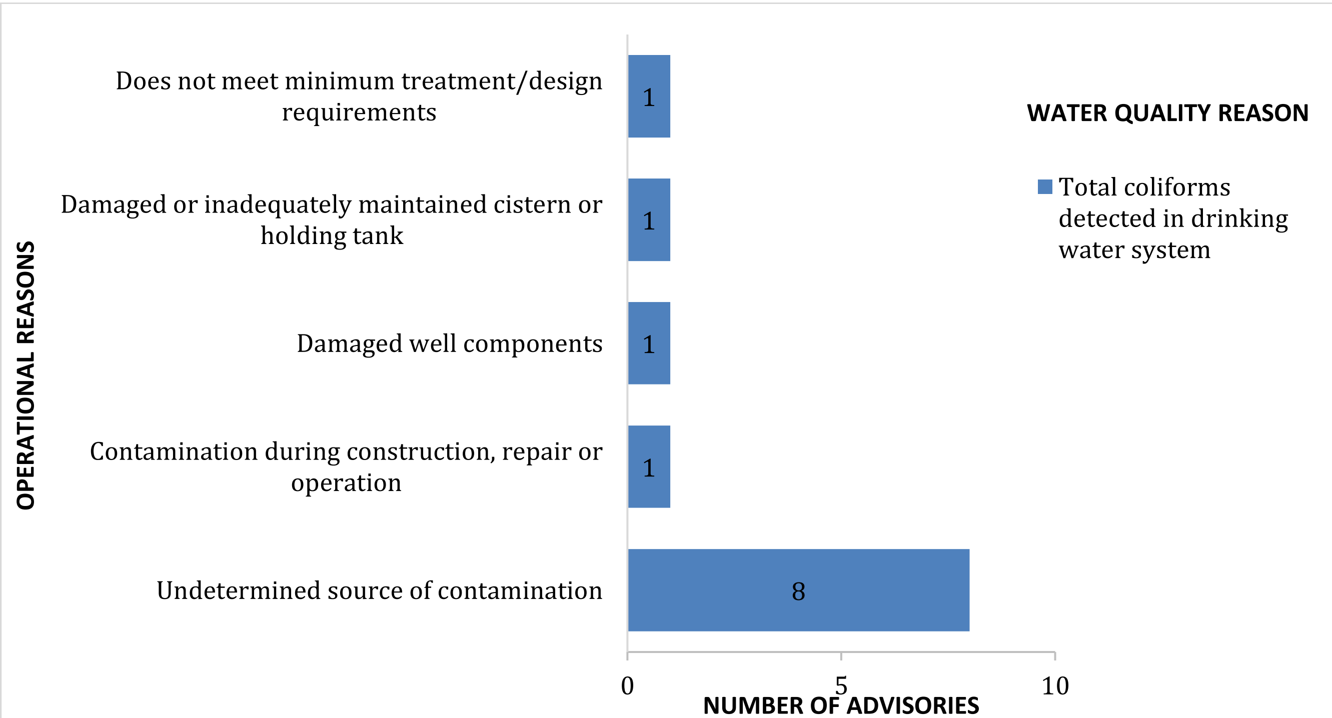

Figure 5-10: Drinking water advisories in semi-public water supplies by operational and water quality reason, First Nations communities in Alberta, 2024-25

Source: ISC ISC-Alberta Region, Drinking Water Advisory Database via CNPHI

Duration of Drinking Water Advisories

Figure 5-11 shows the duration of DWAs for public water supply systems from 2015-16 to 2024-25. The majority of DWAs lasted less than 15 days. The number of DWAs varied over time. There was one DWA which lasted 90 days and over in 2024-25.

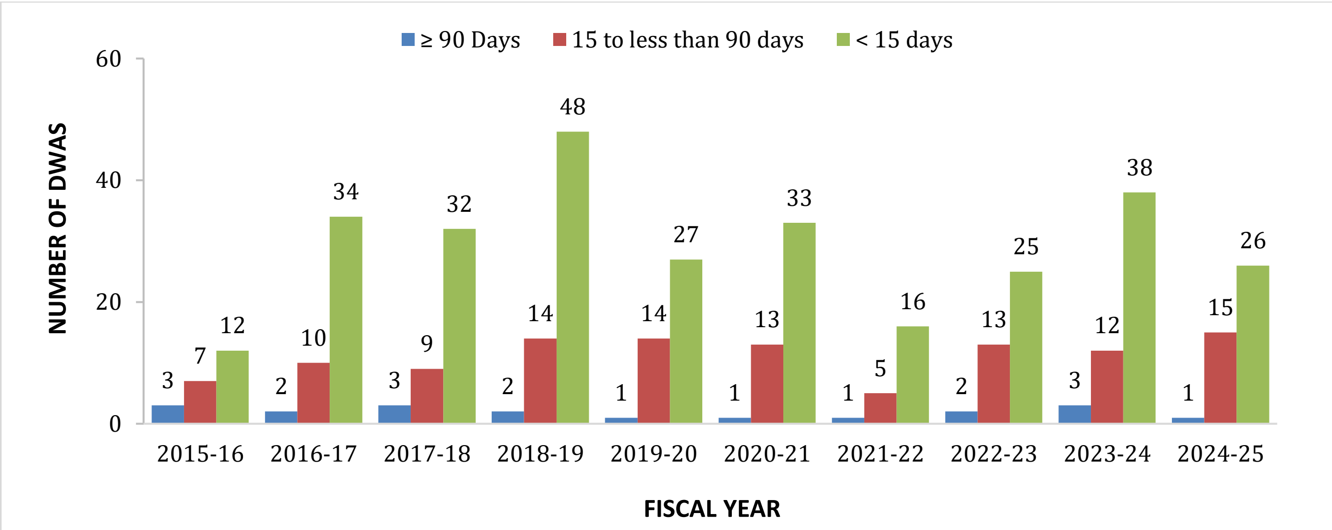

Figure 5-11: Duration of drinking water advisories for public water supply type, First Nations communities in Alberta, 2015-16 to 2024-25

Source: ISC ISC-Alberta Region, Drinking Water Advisory Database via CNPHI

Figure 5-12 shows the duration of DWAs for semi-public water supply systems from 2015-16 to 2024-25. With the exception of 2023-24, the majority of DWAs in each fiscal year lasted from 15 to 89 days. In 2024-25, 4 out of the 12 DWAs for semi-public water supplies lasted 90 days and over; and 7 lasted from 15 to 89 days.

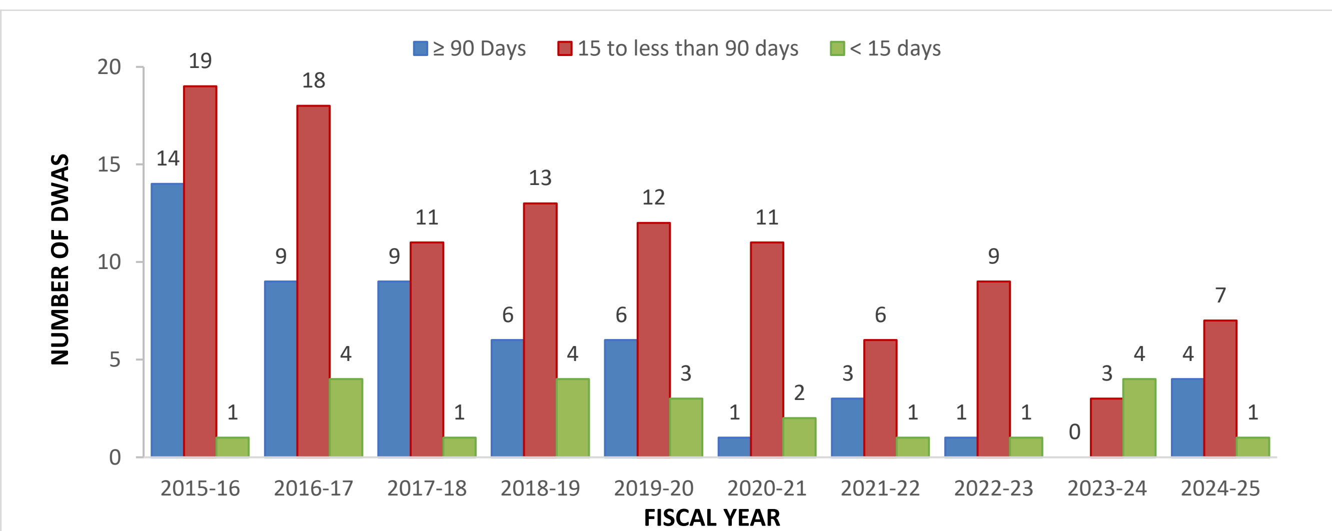

Figure 5-12: Duration of drinking water advisories for semi-public water supplies, First Nations communities in Alberta, 2015-16 to 2024-25

Source: ISC ISC-Alberta Region, Drinking Water Advisory Database via CNPHI

In 2024-25, 2% (1 out of 42) of DWAs for public water supplies lasted 90 days or longer compared to 33% (4 out of 12) for semi-public water supplies. On the other hand, 36% (15 out of 42) of DWAs for public water supplies lasted 15 to 89 days compared to 58% (7 out of 12) of DWAs for semi-public water supplies (Figure 5-11 and Figure 5-12). In general, DWAs lasted longer for semi-public water supplies than public water supplies. This difference may be attributed to a number of reasons including:

- Less attention may be paid to smaller water supplies during construction.
- Issues with public water supplies often take higher priority, as they serve larger populations compared to semi-public water supplies
- Semi-public water supplies often serve a business or organization that may not have sufficient resources to address the issue promptly.
- Semi-public water supplies may not be regularly maintained.

As of March 31, 2025, there were no long-term[11] DWAs affecting public and semi-public water supplies in First Nations communities in Alberta. The last long-term advisory in First Nations communities in Alberta was rescinded in September of 2020. ISC and TSAG collaborate with First Nations communities regularly to discuss the status of all current DWAs in communities and utilize a team–based approach to support and provide guidance in order to get DWAs lifted.

[11] The advisory has been in place for more than a year

6. Environmental Public Health Inspections

EPHOs conduct public health inspections in First Nations communities. This occurs in coordination with health center personnel and other community staff from departments such as Public Works and Housing.

6.1. Facility Inspections

Facility inspections are routinely conducted in accordance with the *Alberta Public Health Act* and associated regulations and standards as outlined in community-specific environmental public health work plans. The Act and its supporting regulations are used as guides for minimum requirements to protect the health and safety of the public.

A total of 1,936 facility inspections were carried out in 2024-25. Figure 6-1 shows that the top three types of facility inspections conducted were food (42%), housing (17%) and institutions such as childcare centres and schools (16%).

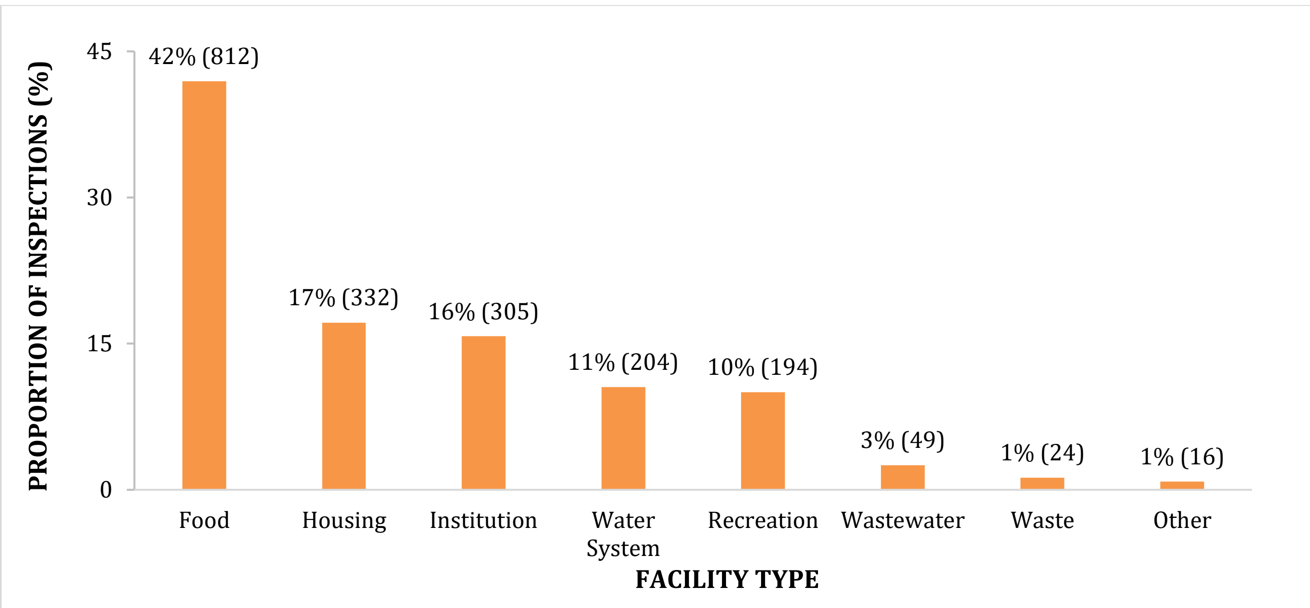

Figure 6-1: Distribution of inspections conducted by facility type, First Nations communities in Alberta, 2024-25

Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

Housing Inspections

The Ottawa Charter for Health Promotion [70] identifies safe shelter (housing) as a prerequisite for improving health. Healthy housing is widely recognized as an important determinant of health. Persistent overcrowding and shortage of housing remain a significant challenge in First Nations communities across Canada. These conditions contribute to increase risk of communicable disease transmission and inequities in health outcomes.

In Alberta's First Nations communities, housing inspections are carried out only upon request[12]. Currently no enforcement mechanisms are in place for ensuring compliance with the Alberta Minimum Housing and Health Standards [71] in First Nations communities. Consequently, once a housing inspection is complete, the responsibility for addressing any identified deficiencies lies with the First Nations community and the resident(s).

In 2024-25, a total of 332 housing inspections were completed in First Nations communities in Alberta resulting in 2,687 observed deficiencies. Of the housing deficiencies observed, 33.9% were related to interior structural issues and 24.5% were related to exterior issues (Table 6-1).

Refer to Appendix B for Environmental Public Health and Housing in First Nations Communities in Canada, 2023-24.

Table 6-1: Deficiencies observed during housing inspections, First Nations communities in Alberta, 2024-25

DEFICIENCY CATEGORY	NUMBER OF DEFICIENCIES*	PERCENTAGE
Interior	910	33.9%
Exterior	657	24.5%
Indoor Air Quality	204	7.6%
Mould	183	6.8%
Safety	169	6.3%
Electrical System	135	5.0%
Plumbing and Drainage System	132	4.9%
Pest Control	106	3.9%
Heating System	86	3.2%
Nuisance	56	2.1%
Water Quality	27	1.0%
Barrier Free Design	16	0.6%
Occupancy	6	0.2%
Total	**2,687**	**100.0%**

Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.
*Multiple deficiencies observed per inspection are recorded multiple times (e.g. structural damage at two different places in the same home are recorded two times)

[12] Housing inspections are completed based on requests/complaints, which results in the number varying from year to year.

Figure 6-2 shows deficiencies observed on the exterior of houses inspected in First Nations communities in Alberta in 2024-25. Deficient exterior doors and windows (35%); eaves and drainages (29%); roof, cladding and attic (21%); and decks, stairs and porch (10%) made up 95% of all observed deficiencies related to the exterior of houses. Deficient exterior doors and windows; eaves and drainages; and roof, cladding and attic were the top three exterior deficiencies observed in the five years (Figure 6-3).

In many cases the exterior deficiencies can cause or significantly contribute to the interior deficiencies observed. For example, moisture entering into a building through improperly functioning or damaged windows, doors, eaves and drainage can cause the building materials to deteriorate and potentially lead to mould growth which is a major public health concern.

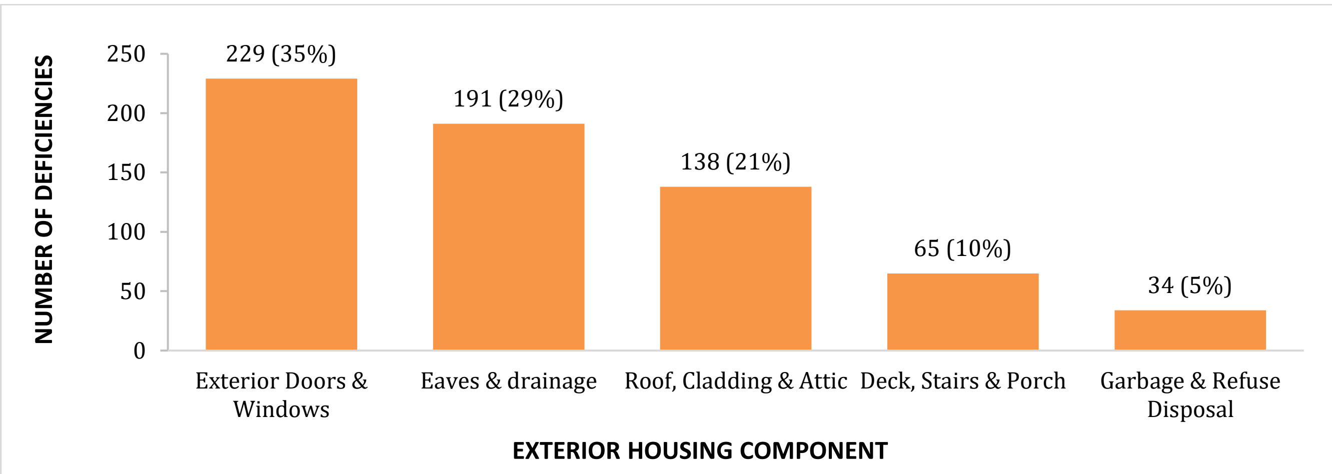

Figure 6-2: Number (proportion) of exterior deficiencies observed during housing inspections, First Nations communities in Alberta, 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

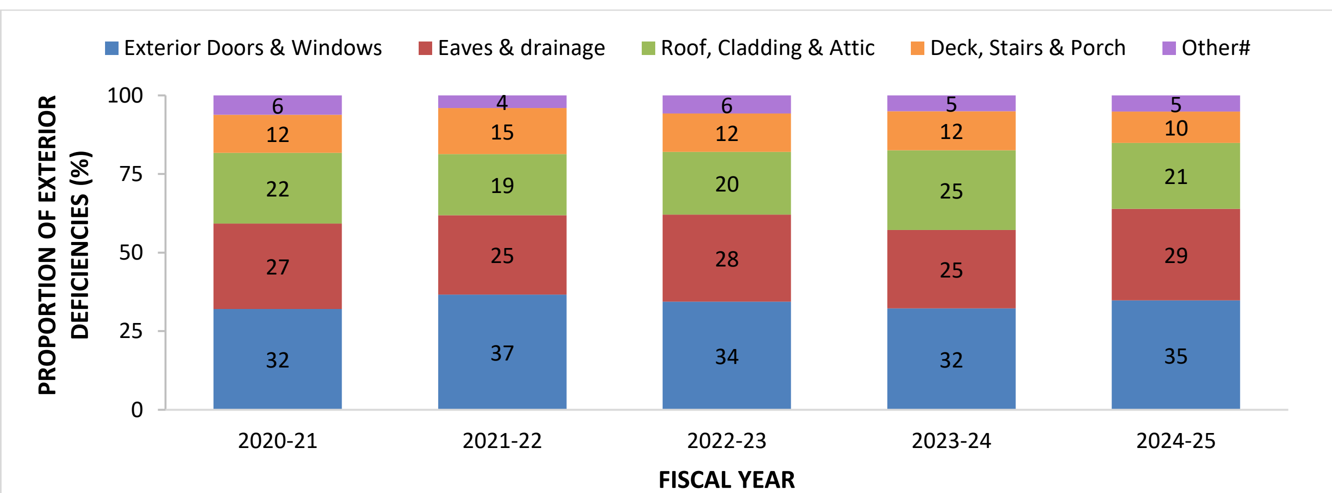

Figure 6-3: Proportion of exterior deficiencies observed during housing inspections, First Nations communities in Alberta, 2020-21 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.
Other includes Garbage & Refuse Disposal and/or Solid Waste Disposal.

Problems with water and moisture damage (24%), floors (18%), and walls (18%) were the most common interior housing deficiencies observed in 2024-25 (Figure 6-4). Those were also the most common interior housing deficiencies observed from 2020-21 to 2023-24, accounting for 59-62% of interior deficiencies (Figure 6-5). These deficiencies may be related to exterior deficiencies or to one another and may result in the further rapid deterioration of building materials, placing the health of occupants at risk.

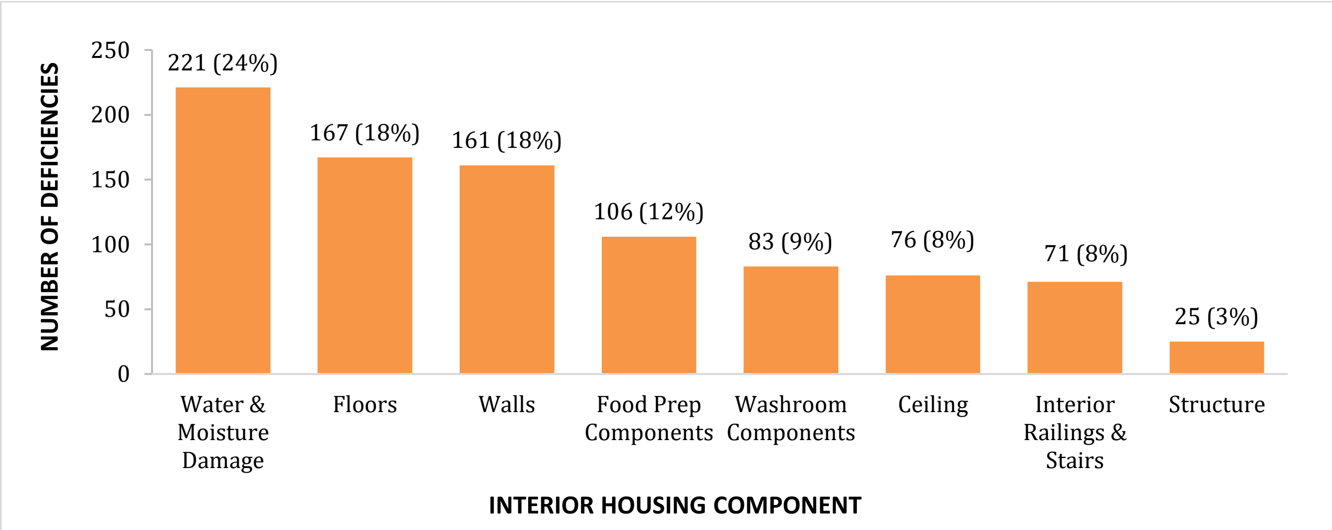

Figure 6-4: Number of interior deficiencies observed during housing inspections, First Nations communities in Alberta, 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

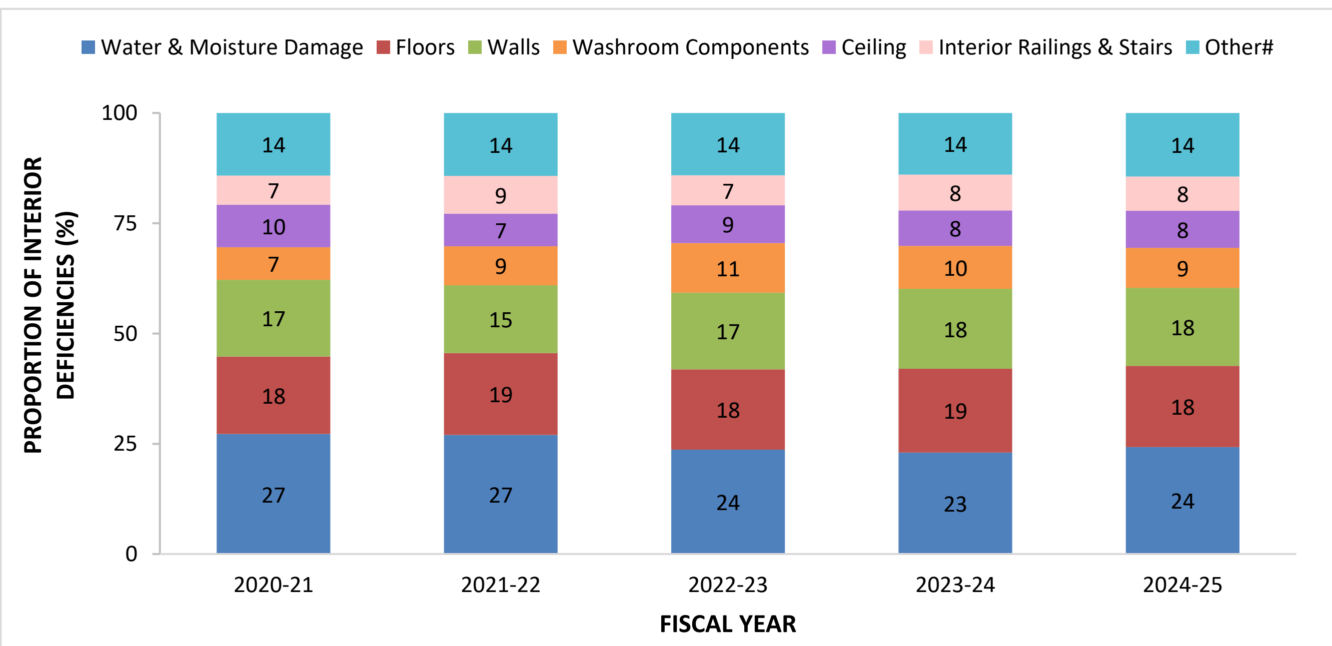

Figure 6-5: Proportion of interior deficiencies observed during housing inspections, First Nations communities in Alberta, 2020-21 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.
Other includes Food Prep Components, and Structure.

Food Facility Inspections

Deficiencies within food facilities, along with improper practices in the transportation, storage, processing, and handling of food, present a substantial risk of foodborne illness. Foodborne pathogens such as norovirus, salmonella, campylobacter and others have a significant impact on the burden of illness and hospitalizations in Canada every year. Approximately 1 in 8 Canadians will experience foodborne illness every year [72]. Food establishments remain a significant area of risk that require ongoing assessment, surveillance and intervention. To reduce potential risks and protect public health, including the prevention of foodborne illness, EPHS conducts mandatory inspections of food facilities on an ongoing basis. For the 2024-25 year, there were 525 food facilities requiring inspections in First Nation communities in Alberta.

Food facilities include permanent food facilities and seasonal food facilities. Permanent food facilities are open year-round and may include a food service (e.g., restaurant, institutional kitchen, cafeteria, kitchen, canteen), manufacturing facility (e.g., food processing), or a food storage facility (e.g., food bank). Seasonal food facilities are usually temporary food establishments or kiosks set up during special events (e.g., pow-wows, Treaty days, Sun Dances, and other community gatherings). In 2024-25, there were 189 inspections completed at 22 special events.

Food facility inspections are comprehensive inspections that are completed routinely based on the relative risk rating of the food facility. In general, the greater the handling or processing of foods in a facility, the greater relative risk and routine inspection frequency. Request or complaint-based inspections are also completed when necessary.

Food facility inspections include assessments of cleaning, disinfection, and sanitation practices for food and non-food contact surfaces, the condition of food and the extent to which it is safeguarded against contamination. Additional areas of inspection include food storage and display conditions, food holding and cooking temperatures, food handler hygiene and handwashing practices, and facility policies and procedures, such as the implementation of exclusion policies for ill employees. All food facility inspections in Alberta are conducted by EPHOs utilizing the Alberta Food Regulation and the Food Retail and Foodservices Code.

EPHS also provides food sanitation and hygiene training and certification courses to food handlers working in high-risk facilities such as daycares, Head Starts, schools, Elders lodges etc. The food handler training and certification provided by EPHS is recognized throughout Alberta and the rest of Canada. In 2024-25, a total of 33 food safety courses were attended by 361 participants, compared to 26 courses attended by 301 participants in 2023–24.

Figure 6-6 shows the number of food facilities increased from 544 in 2020-21 to 602 in 2024-25.

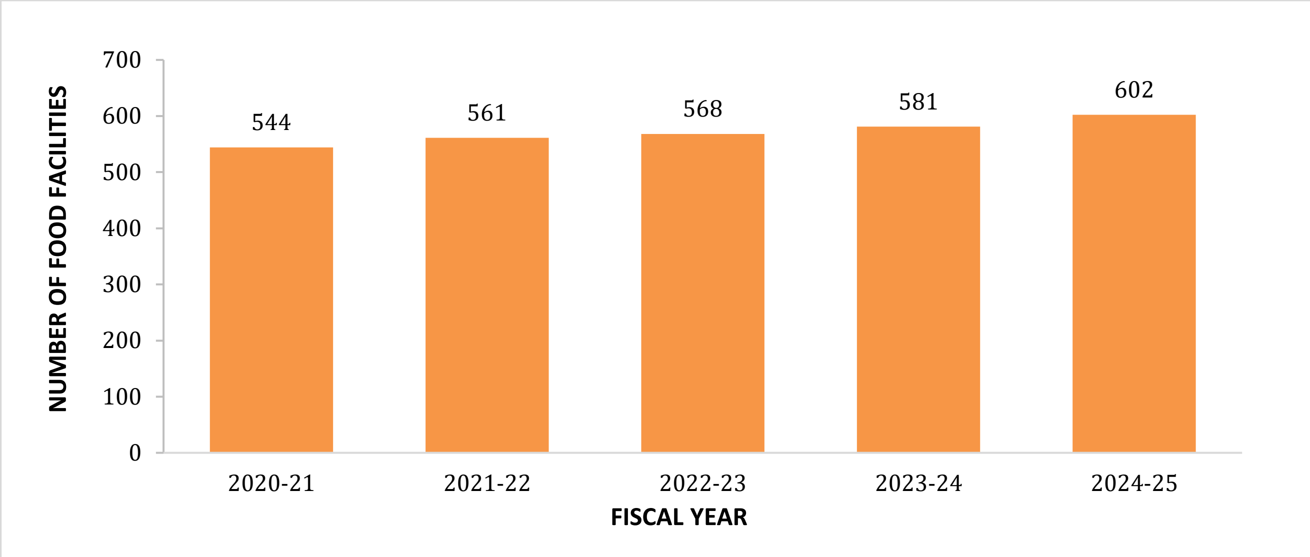

Figure 6-6: Number of food facilities, First Nations communities in Alberta, 2020-21 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

Overall, there were 2,162 deficiencies observed during 812 food facility inspections in 2024-25. Deficiencies identified can be classified as critical or non-critical. Critical deficiencies "pose an immediate risk to food safety and must be corrected within a determined period of time" while non-critical deficiencies "do not pose an immediate risk to food safety but must be corrected before becoming a risk to food safety" [73].

Table 6-2 shows the number and percentage of deficiencies by observation category in 2024-25. Among all the deficiencies, the top two critical deficiencies were related to hand sinks (9.1%) and temperature control (7.4%); and the top two non-critical deficiencies were related to operations and procedure (20.0%) and general construction and maintenance (12.7%).

In 2024-25, the top three hand sink infractions were hand sink supplies, hand sink number/accessibility, and hand sink operation. The top two surface and equipment sanitation infractions were approved sanitizers, and clean in place surfaces and equipment (data not shown). Hand sink infection was also the top critical deficiencies observed in 2023-24.

In 2024-25, the top three operations and procedures infractions were cleaning/sanitization plan, suitable records/documentation to ensure safe food handling practices, and pest control plan. The top three general construction and maintenance infractions were ventilation, floors, and counters/work surfaces (data not shown). This same pattern of deficiencies was also observed in 2023-24.

Table 6-2: Deficiencies observed in food inspections, First Nations communities in Alberta, 2024-25

OBSERVATION CATEGORY		NUMBER OF DEFICIENCIES OBSERVED	PERCENTAGE
Critical	Hand sinks	196	9.1%
	Surface and Equipment Sanitation	161	7.4%
	Temperature Control	157	7.3%
	Dishwashing	123	5.7%
	Food Protection	88	4.1%
	Food Condition	53	2.5%
	Water Source	15	0.7%
	Pest Control	8	0.4%
Non-Critical	Operations and Procedure	433	20.0%
	General Construction and Maintenance	274	12.7%
	Housekeeping	149	6.9%
	Food Protection	112	5.2%
	Equipment and Utensils	94	4.3%
	Dishwashing	75	3.5%
	Pest Control	72	3.3%
	Chemicals	55	2.5%
	Waste Management	27	1.2%
	Food Establishment Design	24	1.1%
	Food Safety Training	18	0.8%
	Mould	10	0.5%
	Food Source	8	0.4%
	Personal Health and Hygiene	6	0.3%
	Compliance	4	0.2%
Total		**2,162**	**100.0%**

Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.
*Multiple deficiencies observed per inspection are recorded multiple times

Table 6-3 shows the percentage of inspections where critical deficiencies were observed in 2024-25. Hand sink violations were observed in 33.7% of inspections, and surface and equipment sanitation violations were observed in 29.8% of inspections.

Table 6-3: Critical infractions observed during food inspections, First Nations communities in Alberta, 2024-25

CRITICAL DEFICIENCIES OBSERVED	PERCENTAGE OF INSPECTIONS
Hand sinks	33.7%
Surface and Equipment Sanitation	29.8%
Temperature Control	26.8%
Dishwashing	25.1%
Food Protection	15.6%
Food Condition	4.9%
Water Source	2.5%
Pest Control	1.4%

Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

6.2. Private Sewage Disposal System (PSDS) Inspections

Safe sewage disposal is important in ensuring the health and safety of individuals, communities and the environment. EPHOs ensure that all new and replacement systems are designed and installed in accordance with the applicable standards to ensure ongoing health and safety as well as proper function of these systems. PSDS inspections are completed for new and replacement sewage systems at the request of First Nations communities. This process involves design review and several inspections, from pre- site to final installation inspection, for each location [74].

Figure 6-7 shows trends over time for the number of PSDS inspections that were completed in Alberta. In 2024-25, 60 PSDS inspections were completed for 49 facilities in First Nations communities. Properly designed and installed sewage disposal systems are essential for ensuring the safe disposal of wastewater and minimizing any potential health risks.

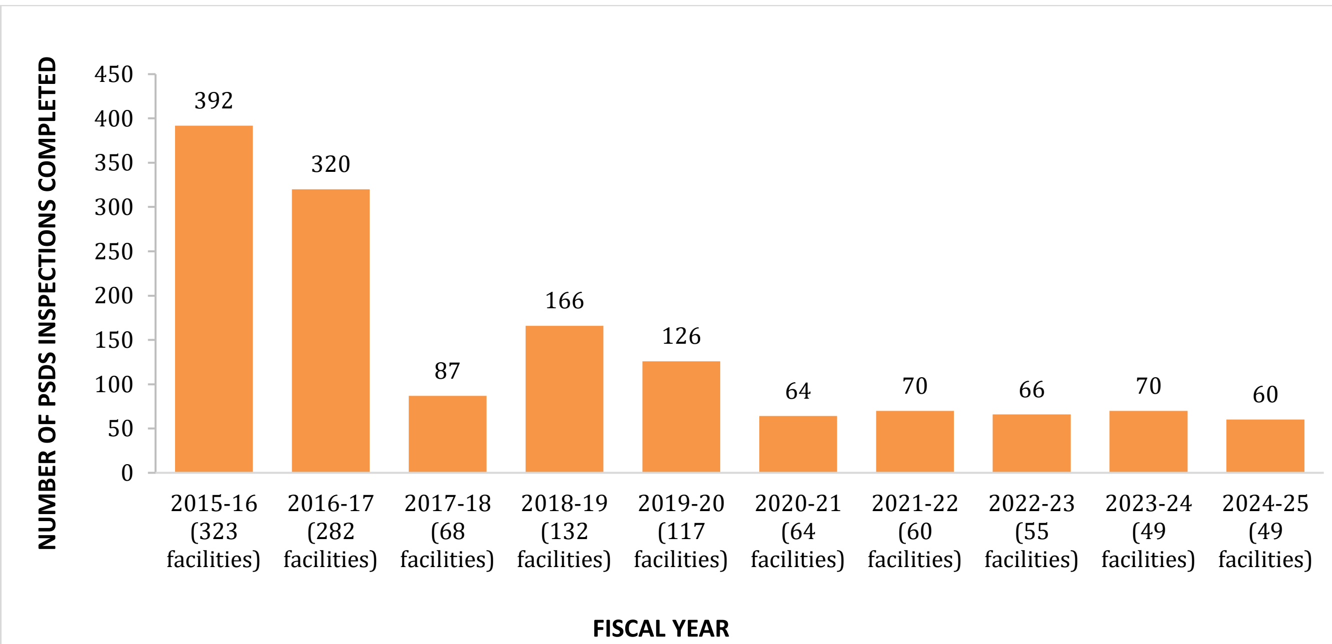

Figure 6-7: Number of private sewage disposal system inspections completed, First Nations communities in Alberta, 2015-16 to 2024-25
Source: ISC, ISC-Alberta Region, Hedgehog Inspection Database.

7. Significant Public Health Events

2023 was dominated by impacts related to devastating and unprecedented wildfires in Alberta. Wildfires started very early in the spring of 2023 and continued into 2024. There were a total 1,088 wildfires in Alberta, burning over 2.2 million hectares in 2023. The total area burned in 2023 was 10 times the annual average [75] . Air Quality was severely impacted throughout the province for the duration of spring and summer months, with many areas experiencing air quality health index (AQHI) levels beyond the scale maximum of 10. The wildfires had a tremendous impact on First Nations communities throughout Alberta, particularly in the northern part of the province. The wildfires resulted in multiple First Nations communities being evacuated for extended periods of time. Evacuated First Nations communities included Fox Lake, Chateh, Fort Chipewyan, Sturgeon Lake, Fort McMurray First Nation and Chipewyan Prairie First Nation. The wildfires resulted in a loss of well over 200 structures in First Nations, including homes, public buildings and direct impacts to critical infrastructure such as water and wastewater systems, various distribution and transmission lines. There were also severe and lasting disruptions to various emergency services including health centre operations.

Due to the number of First Nation and non-First Nation communities evacuated across Alberta, evacuees had to be sent to multiple different locations including High Level, Grande Prairie, Edmonton, Calgary and various other locations. As a result of prolonged evacuations and structural losses in First Nations communities, work camp style shelters and temporary accommodation were set up to house evacuees. Provisions were made for to ensure that First Nations evacuee had access to appropriate medical and supports services, including Nursing Services, Non-Insured Health Benefits, Mental Health supports and Health Protection Services. Many First Nations residents continue to be displaced in temporary accommodations as the recovery and rebuilding efforts continue to this day. Prior to re-entry into the communities, all critical infrastructure needed to be restored and assessed to ensure public health and safety. This entailed numerous inspections and assessments, enhanced drinking water testing and ongoing recovery and rebuilding activities. EPHS continues to play an important role in the ongoing recovery and rebuilding effort in several of the communities.

As a result of ongoing and severe impacts to air quality over the past several years, ISC EPHS has been working with key partners including the First Nations, Environment and Climate Change Canada (ECCC) and Alberta Environmental and Parks to install air quality monitors in more remote First Nations to enhance the overall air quality monitoring network, as well as support community level health-based decision making. In the past few years, over 10 new air quality monitors have been setup directly in Alberta First Nations communities. The data generated from these devices' feeds into the provincial air quality network which calculates and generates the AQHI number [76, 77]. The data from these and other devices is readily available to the public to support more localized air monitoring and health-based decision making.

Figure 7-1 highlights the areas of wildfires in 2023 (pink) with reference to proximity of First Nations (purple).

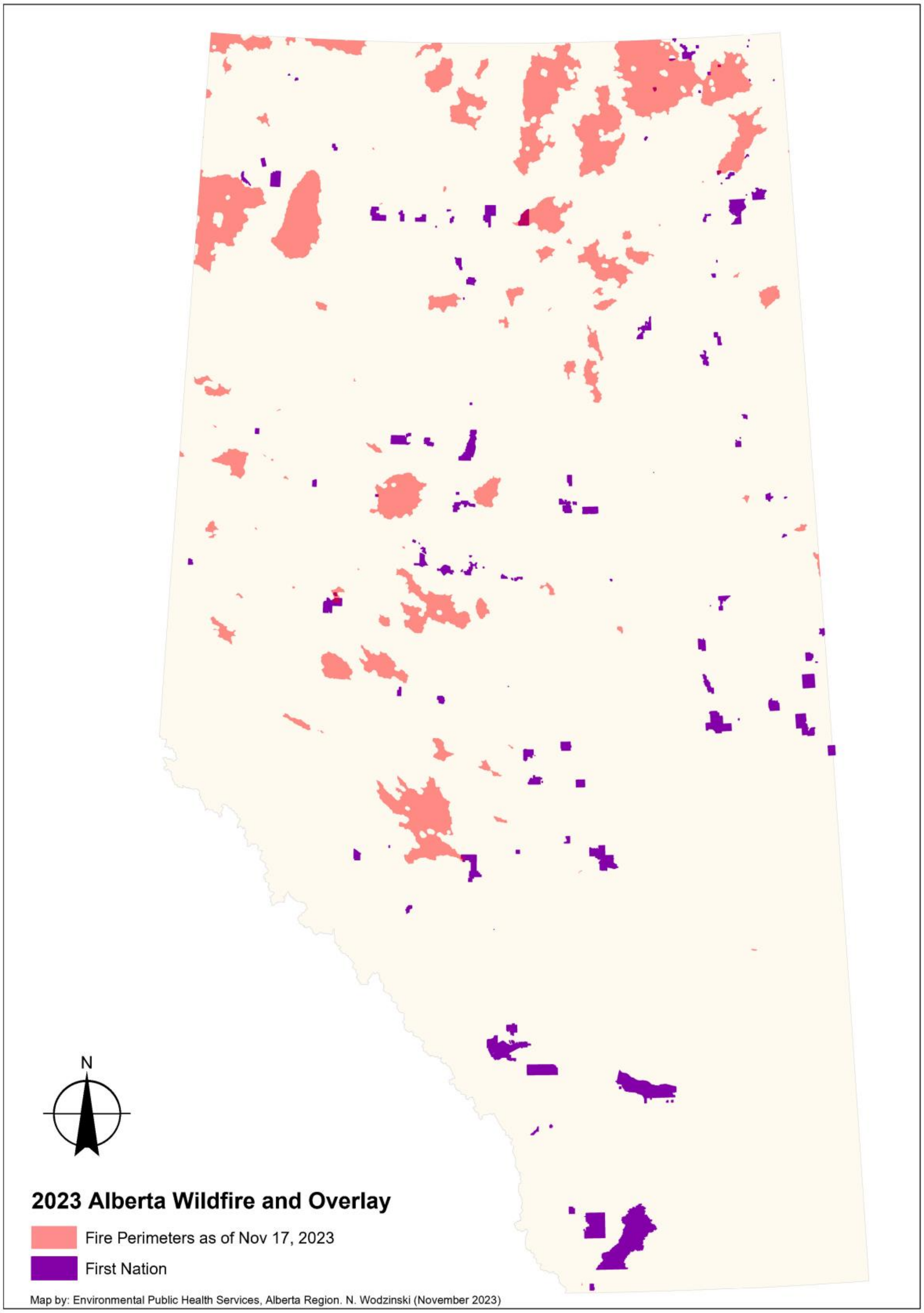

Figure 7-1: Alberta Wildfires in 2023
Source: ISC ISC-Alberta Region, ELPHIS.

List of Tables and Figures

Tables

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Acronyms and Abbreviations

AH....................................... *Alberta Health*

AHCIP................................ *Alberta Health Care Insurance Plan*

AIDS.................................. *Acquired Immunodeficiency Syndrome*

BBI..................................... *Blood-Borne Infections*

BWA.................................. *Boil Water Advisory*

CDC.................................... *Communicable Disease Control*

CFIA .... *Canadian Food Inspection Agency*

CHIP.................................. *Community Health and Immunization Program*

CNPHI................................ *Canadian Network for Public Health Intelligence*

COVID-19......................... *Coronavirus Disease 2019*

CR...................................... *Communities Reporting*

DNC................................... *Do Not Consume Advisory*

DNU................................... *Do Not Use Advisory*

dTap.................................. Diptheria, Tetanus and Pertussis vaccine

DTaP-IPV .... Diptheria, Tetanus, Pertussis and Polio vaccine

DTaP-IPV-Hib .... *Diptheria, Tetanus, Pertussis, Polio and Haemophilus influenzae type b vaccine*

DTaP-IPV-Hib-HB.......... *Diptheria, Tetanus, Pertusis, Haemophilus influenzae type b and Hepatitis B vaccine*

DWA.................................. *Drinking Water Advisory*

E.coli .... *Escherichia coli*

EPHO .... *Environmental Public Health Officer*

EPHS................................. *Environmental Public Health Services*

FMP .... *Fastest Means Possible*

FNIHB................................ *First Nations and Inuit Health Branch*

HAA................................... *Haloacetic acid*

HBV .... Hepatitis B Virus vaccine

Hib..................................... *Haemophilus influenzae type b vaccine*

HIV .... *Human Immunodeficiency Virus*

HPV .... Human Papillomavirus vaccine

IDU .... *Injection Drug Use*

iGAS................................... *Invasive group A Streptococcal Disease*

LTBI .... *Latent Tuberculosis Infection*

MAC.................................... *Maximum acceptable concentration*

MenC.................................. *Meningococcal Conjugate- Type C vaccine*

MenC-ACYW.................... Meningococcal Conjugate- Type A/C/Y/W135 vaccine

MMR .... *Measles, Mumps and Rubella vaccine*

MOH................................... *Medical Officer of Health*

MSM................................... *Men who have sex with men*

MTB.................................... *Mycobacterium tuberculosis*

NDR.................................... *Notifiable Disease Report*

PCV13................................ *Pneumococcal Conjugate 13-Valent vaccine*

PHEIC .... *Public Health Emergency of International Concern*

PPV23................................ Pneumococcal 23-Valent Polysaccharide Vaccine

PSDS................................... Private Sewage Disposal System

ROT .... *Rotavirus vaccine*

RPEP .... *Rabies Post-Exposure Prophylaxis*

STBBI................................. *Sexually Transmitted and Blood-Borne Infections*

STI .... *Sexually Transmitted Infection*

TB .... *Tuberculosis*

THM .... *Trihalomethane*

Var .... *Varicella vaccine*

VPI .... *Vaccine Preventable Infection*

WHO .... *World Health Organization*

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Appendix A: Regional Delivery Sector – Alberta Region Recommended Routine Immunization Schedule - 2024

Age Category in Report	**Age**	**Vaccine**
One-Year-Old	2 months	• Diphtheria, Tetanus, Pertussis, Polio, Hib, Hepatitis B • Pneumococcal conjugate (PNEU-C) • Rotavirus
	4 months	• Diphtheria, Tetanus, Pertussis, Polio, Hib, Hepatitis B • Meningococcal conjugate (MenconC) • Pneumococcal conjugate (PNEU-C) • Rotavirus
	6 months	• Diphtheria, Tetanus, Pertussis, Polio, Hib, Hepatitis B • Pneumococcal conjugate (Pneu-C)
Two-Year-Old	12 months	• Measles, Mumps, Rubella, Chicken pox • Meningococcal conjugate (MenconC) • Pneumococcal conjugate (Pneu-C)
	18 months	• Diphtheria, Tetanus, Pertussis, Polio, Hib • Measles, Mumps, Rubella, Chicken pox
Seven-Year-Old	4–6 years	• Diphtheria, Tetanus, Pertussis, Polio • Measles, Mumps, Rubella, Chicken pox (if did not receive second dose at 18 months)
Grade 6 (thirteen-year-olds)		• Hepatitis B (2 doses)* • Human Papillomavirus (2 doses)*
Grade 9 (seventeen-year-olds)		• Diphtheria, Tetanus, Pertussis • Meningococcal Conjugate Vaccine (Groups A, C, Y and W-135)
2 to 64 years with High Risk Conditions or 65 years and older		PPV23- one dose**
6 months and older		• Influenza annually • COVID-19⁺
18 years and older		Diphtheria and tetanus every 10 years; One dose should be dTap
Pregnant		Diphtheria, tetanus, pertussis with every pregnancy

* **HBV & HPV -** Dose and/or schedule are different for immunocompetent/healthy and immunocompromised/hyporesponsive students. See AHS Biological Pages [78, 79].
****Pneu-C20** – replaced PPV23 and Pneu-C13 in Alberta as of July 2024.
⁺**COVID-19** – schedule depends on age, health, and time from the last dose

Appendix B: Environmental Public Health and Housing in First Nations Communities in Canada, 2023-24