



Yukon Health Status Report Update *2022*



Contents

Foreword.....	4
Acknowledgements.....	5
Purpose	6
Vaccination Coverage	6
Childhood Immunizations	7
Influenza and COVID-19 Vaccines.....	11
Communicable Diseases	13
Enteric, Food and Waterborne Diseases.....	13
Sexually Transmitted and Blood-Borne Infections.....	14
Respiratory Illnesses.....	17
Select Invasive Bacterial Diseases	19
References.....	20
Appendix A: Methodology.....	21
Appendix B: Childhood Immunization Schedule in Yukon.....	22
Appendix C: Vaccine Abbreviations and Vaccines	23

Foreword



I am pleased to present this update to the 2021 Health Status Report, with my thanks to the team that worked on the data and the analysis. The update focuses on immunizations and communicable disease data and offers information collected in these topic areas for the health of Yukoners.

The update to the communicable diseases section is notable for the rising trend in syphilis cases. This surge is similar to what is being observed across Canada, and in

some other countries. It is important to raise awareness of syphilis especially because it is an infection that many people can have without knowing it, and because it can be easily tested and treated. Not surprisingly, yet important to note, is that COVID-19 was the most commonly detected respiratory infection in the Yukon. Though the nature and impact of the pandemic has changed over time, COVID-19 is an important respiratory pathogen that is now closer to one that is in common circulation, such as influenza and RSV. Routine respiratory surveillance reports are now published throughout the year, with increasing frequency during the typical season of respiratory illnesses.

We know that during the earlier phases of the COVID-19 pandemic, routine activities like immunizations had to be postponed or rescheduled. It is encouraging to see signs that early childhood immunizations, which help to keep people healthy throughout their lives, are being mostly maintained. Ongoing efforts to ensure optimal coverage for vaccine-preventable disease will be important for the health and wellbeing of Yukoners.

Sudit Ranade, MD MPH MBA FCFP FRCPC
Chief Medical Officer of Health, Yukon



Acknowledgements

This report is the work of a collaborative effort between the Government of Yukon Department of Health and Social Services, and the Office of the Chief Medical Officer of Health. I would like to acknowledge and thank several people for their help and contributions.

- Ayodeji Awobamise, Online Communications and Product Analyst
- Jane Boutette, Assistant Director, Community Nursing
- April Goulin, Immunization Practice Consultant, Yukon Immunization Program
- Laura Hillier, Director of Population and Public Health Evidence and Evaluation
- Andrea Irwin, Manager, Yukon Communicable Disease Control
- Jan McFadzen, Nurse in Charge, Yukon Communicable Disease Control
- Jeanine O'Connell, Territorial Epidemiologist
- Claire Robson, Manager, Communications
- Samantha Salter, A/Supervisor, Territorial Epidemiologist Team

This data would not be available without the hard work and dedication of our frontline health care providers, and we are grateful for their contributions to Yukoners and the health system.

We respectfully acknowledge that the land on which we developed this report is in the Traditional Territories of the Kwanlin Dün First Nation and the Ta'an Kwäch'än Council. This report covers information from all of Yukon which includes 14 distinct First Nations and we acknowledge their diverse histories and cultures.

Purpose

The purpose of this report is to update on reportable communicable disease statistics and immunization coverage for publicly funded immunizations. For immunizations, the report will focus on Yukon children between the ages of zero and seven. In addition, immunization coverage for influenza and COVID-19 will be highlighted.

An aspirational goal of the Yukon Immunization Program, adopted from Canada's National Immunization Strategy, is to achieve 95% vaccination coverage for all publicly funded vaccines for children at age two. At this coverage rate, Yukon's population would be protected from measles, Canada's most transmissible vaccine-preventable disease (VPD) (Public Health Agency of Canada 2023a), as well as all other less transmissible VPDs of interest. At age seven, the Yukon Immunization Program goal, again adopted from Canada's National Immunization Strategy, is to achieve 95% vaccination coverage for routine childhood immunizations.

For communicable diseases, the report will focus on updates to the rates of several reportable communicable diseases over the past five years (2018-2022). Yukon maintains a list of designated reportable communicable diseases (Government of Yukon 2022). The goal of notifying a public health body of a disease is to facilitate control by identifying trends in new cases (incidence), understanding epidemiological patterns and risk factors to assist in the development of intervention strategies, and to assist with the timely identification and control of outbreaks.

Vaccination Coverage

Vaccines are an important public health tool for preventing some infectious diseases. Childhood vaccinations are considered one of the greatest public health achievements and have reduced the individual and population level harms from infections such as smallpox, polio and measles. These and other newer vaccines remain important ways of keeping people healthy throughout their lives, and coverage estimates are important for determining the average level of protection against vaccine-preventable or vaccine-mitigatable disease in the population.

While service delivery models shifted to incorporate COVID-19 precautions and safety measures during the pandemic, Health and Social Services continued to prioritize access to publicly funded childhood immunizations throughout the pandemic. Appointments for infant and childhood vaccines continued to be available at all health centres. Community Nursing also routinely runs reminder recall reports to review immunization status and reaches out to families who may have children who are overdue for routine vaccines.

The immunization data reflects estimated coverage at a specific point in time and does not necessarily capture in-migration and out-migration of the Yukon population. Please see Appendix A (Methodology) for further discussion on the limitations of this data.

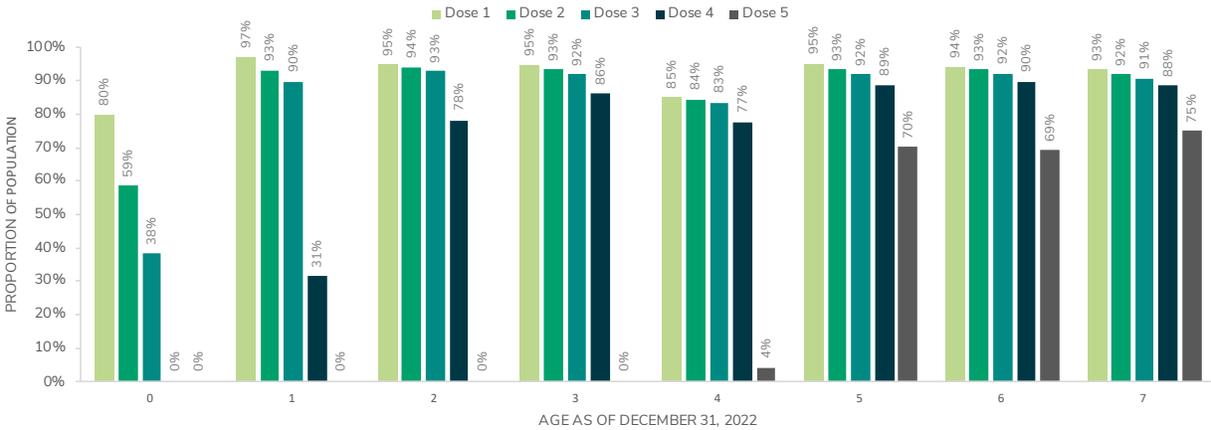
Childhood Immunizations

Diphtheria, Tetanus, and Pertussis Vaccine (DTaP/Tdap)

The Yukon Immunization Schedule (Appendix B) indicates a fourth dose for DTaP to be administered on or after 18 months of age. A good gauge of having completed this milestone is that by two years of age in the Yukon, a child should have four doses of DTaP vaccine. About 78% of Yukoners who were two as of December 31, 2022 had received four doses of DTaP.

Yukoners at age seven should have five doses of a diphtheria, tetanus and pertussis containing vaccine, with the last dose having occurred after the child’s fourth birthday. Those Yukoners who were seven as of December 31, 2022 had the highest (75%) proportion of completing five doses of DTaP or Tdap.

Figure 1: Proportion of Yukoners with DTap or Tdap Vaccine by Age and Dose



Hepatitis B (HB) Vaccine

A Yukoner who is six months old is eligible to receive all three doses of their childhood HB vaccine. Of the ages eligible, those Yukoners who were two as of December 31, 2022 had the highest (91%) proportion of HB vaccine completion.

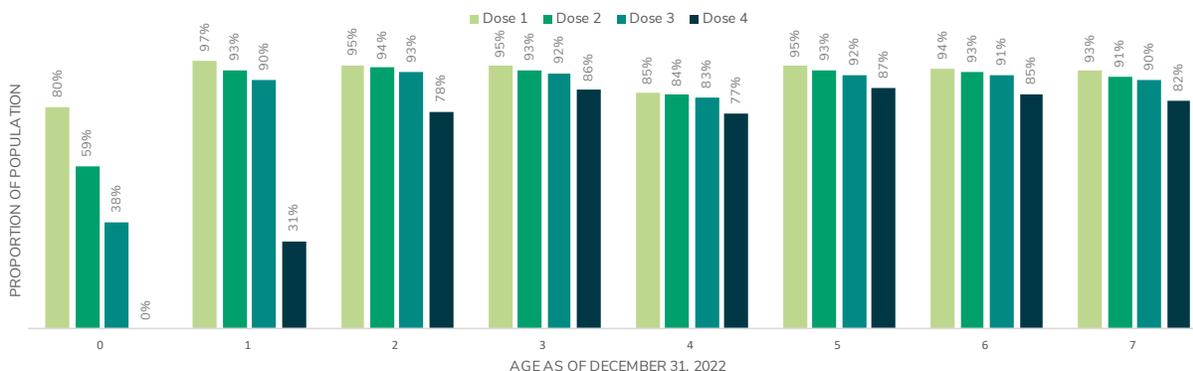
Figure 2: Proportion of Yukoners with HB Vaccine by Age and Dose



Haemophilus Influenzae Type B (Hib) Vaccine

Hib vaccine is administered in the combination vaccines: DTaP-HB-IPV-Hib or DTaP-IPV-Hib, with four doses received in total on or after 18 months of age. Those Yukoners who were five as of December 31, 2022 had the highest (87%) proportion of completing four doses of Hib vaccine.

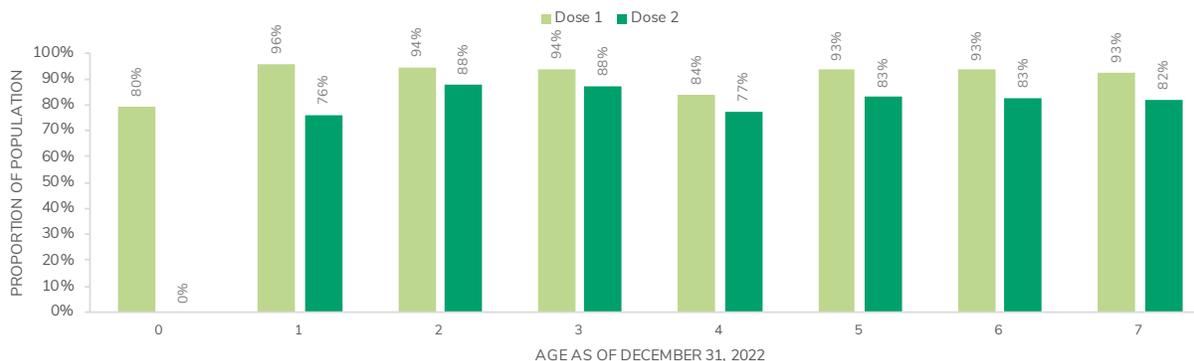
Figure 3: Proportion of Yukoners with Hib Vaccine by Age and Dose



Meningococcal conjugate type C/Meningococcal quadrivalent conjugate (Men-C-C/Men-ACWY) Vaccines

In the Yukon, a child following the Yukon Immunization Schedule will have received one dose of the Men-C-C/Men-ACWY vaccine before their first birthday, and one dose on or after their first birthday. High-risk children are eligible for an additional dose around four months of age and will have received the Men-ACWY vaccine. Of the ages reviewed, Yukon children ages two and three had the highest (88%) proportion of Men-C-C/Men-ACWY vaccine completion.

Figure 4: Proportion of Yukoners with Men-C-C/Men-C-ACWY Vaccine by Age and Dose

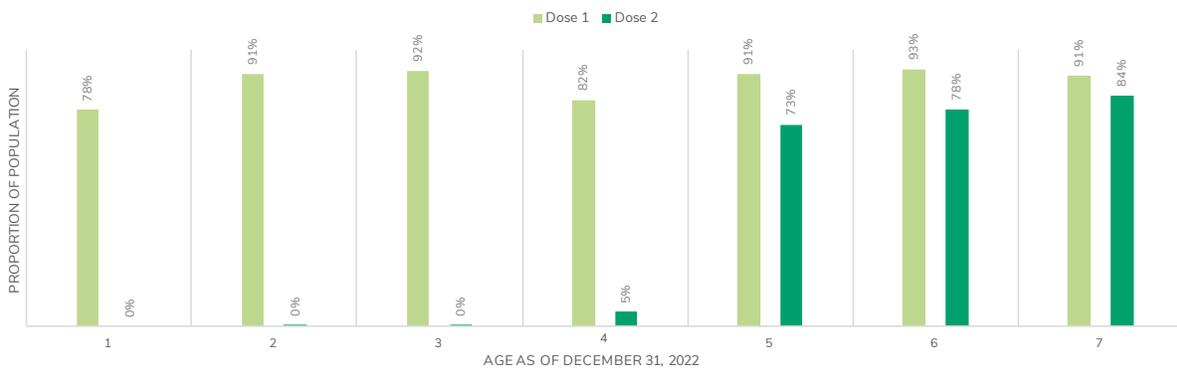


Measles, Mumps, and Rubella (MMR) Vaccine

MMR, a combined vaccine, was administered to 91% of Yukon’s two-year-olds in 2022. The MMR vaccine has one of the highest vaccine coverages of any vaccine in Yukon’s two-year-old population and is 4% below the Yukon Immunization Program’s goal of 95% coverage.

The Yukon Immunization Program aims for 95% coverage of the MMR vaccine among seven-year-olds as well. In 2022, Yukon fell short of its goal by 11%, achieving 84% coverage.

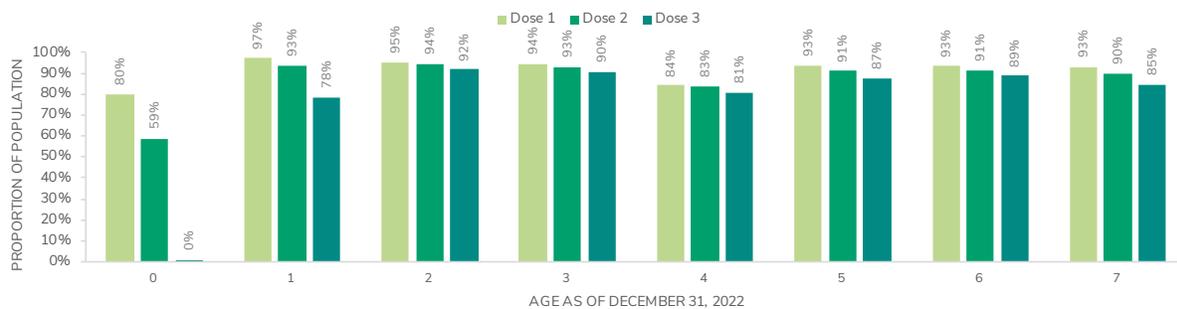
Figure 5: Proportion of Yukoners with MMR Vaccine by Age and Dose



Pneumococcal Conjugate (Pneumo-C) Vaccine

Following the Yukon immunization schedule, a child is eligible for their third and last dose of the Pneumo-C vaccine on or after 12 months of age, provided they are not at high risk for this disease. Of those Yukoners reviewed in this report, those who were two as of December 31, 2022 had the highest (92%) proportion of completing three doses of Pneumo-C.

Figure 6: Proportion of Yukoners with Pneumo-C Vaccine by Age and Dose

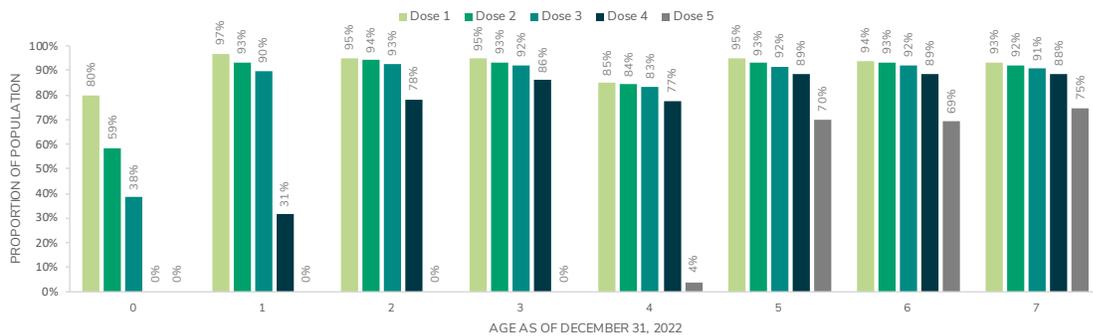


Inactivated Polio Virus (IPV) Vaccine

Yukoners aged 18 months or older are eligible for a fourth dose for IPV. A good gauge of having completed this milestone is that by two years of age in the Yukon, a child should have four doses of IPV vaccine. About 78% of Yukoners who were two as of December 31, 2022 had received four doses of IPV.

Another dose is scheduled between a child’s fourth and sixth birthday, or upon their entry to school. Those Yukoners who were seven as of December 31, 2022 had the highest (75%) proportion of completing five doses of IPV.

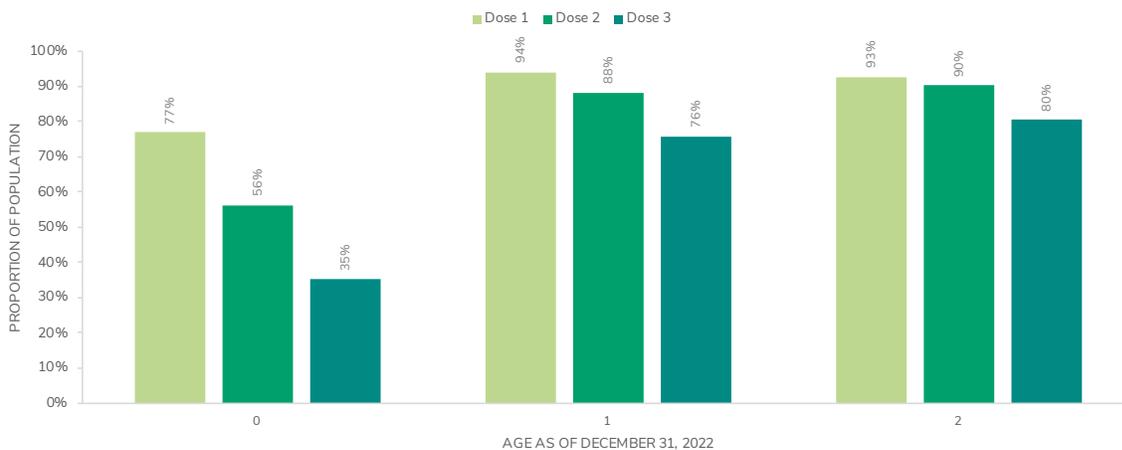
Figure 7: Proportion of Yukoners with Polio Vaccine by Age and Dose



Rotavirus (Rota) Vaccine

Rotaviruses are a group of viruses that cause gastrointestinal infections that can be severe and can require additional medical care, especially in young children. This vaccine is not indicated for people after infancy. Infants in the Yukon are eligible for the Rota vaccine up to 20 weeks of age. According to the Yukon Immunization Schedule, by the age of one, Yukoners should have completed their rotavirus series of 3 doses.

Figure 8: Proportion of Yukoners with Rota Vaccine by Age and Dose

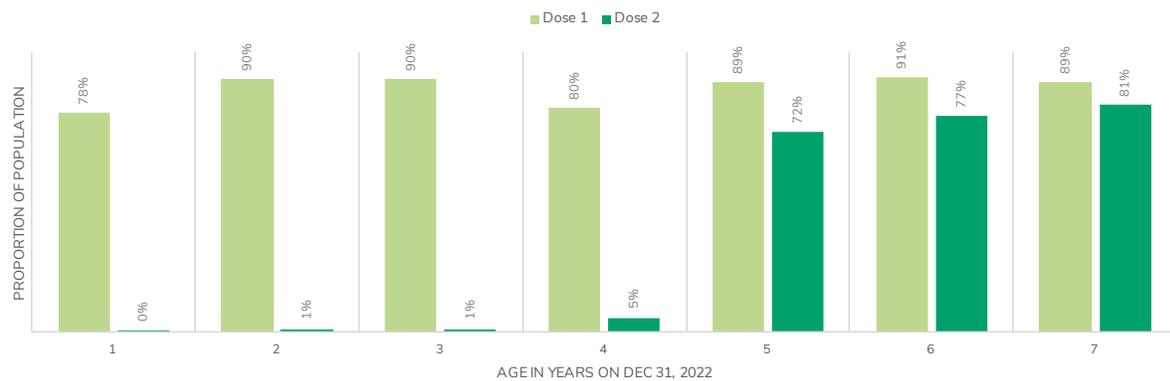


Varicella (Chicken Pox) Vaccine

A child receives one dose of the Varicella vaccine on or after their first birthday. Those Yukoners who were six on December 31, 2022 had the highest proportion (91%) of receiving one dose of the Varicella vaccine.

The second dose of Varicella is due around entry to school, or between ages four and six. Those Yukoners aged seven on December 31, 2022 had the highest proportion of receiving two doses of Varicella vaccine.

Figure 9: Proportion of Yukoners with Varicella Vaccine by Age and Dose

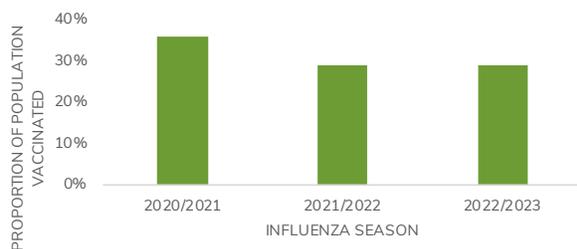


Influenza and COVID-19 Vaccines

Influenza Vaccine

Influenza immunization is offered every year in the fall season to eligible Yukoners. It is recommended, especially for those at highest risk of complications from influenza, to reduce the severity of influenza illness in individuals and the impact of the influenza season on the population as a whole. The proportion of Yukoners who received a dose of influenza vaccine dropped from 36% in the 2020-2021 respiratory season to 29% in the past two seasons.

Figure 10: Influenza Vaccine Uptake (%), by Year

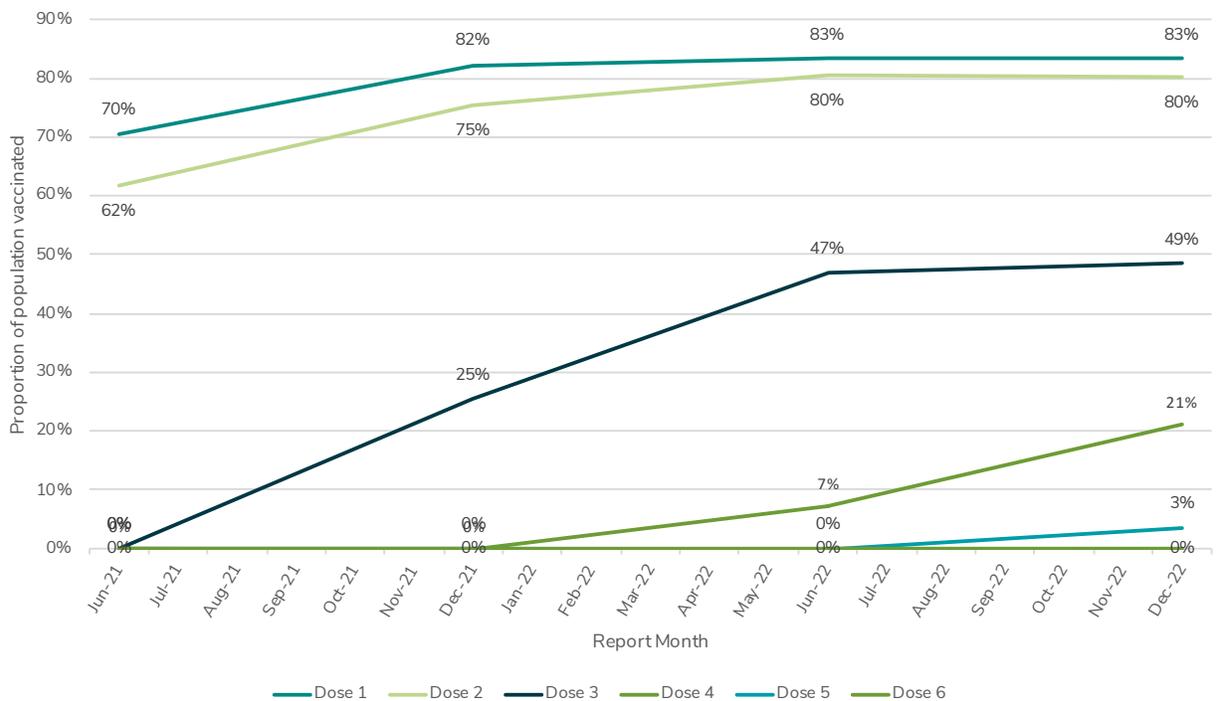


COVID-19 Vaccine

Early in the COVID-19 pandemic, there was uncertainty around whether the COVID-19 vaccines would function in a manner similar to routine childhood immunizations, which offer long-term protection against a disease, or whether they would be closer to other vaccines, such as influenza vaccines which reduce the severity of disease in those exposed. While COVID-19 vaccines continue to be developed, the duration of protection against severe disease continues to be studied. Meanwhile, the number of variants that have emerged over time and the inclusion of these types in updated COVID-19 vaccines suggests at this time that COVID-19 vaccines can be thought of as similar to influenza vaccines in terms of their purpose and goals for their use.

As of December 31, 2022, 80% of Yukoners have received their primary series vaccine, dose 1 and 2, against COVID-19. Doses 4 and 5 continue to gradually rise over time. This graph reflects that in the early days of the pandemic there was high uptake of the original series of COVID-19 vaccines. Subsequent boosters have had lower uptake, though there seems to be greater uptake in higher age groups that are at greater risk for disease, and people who were immunized with the primary series may still have robust protection against severe disease.

Figure 11: Cumulative Percent of Yukoners Who Have Completed Specified Doses of COVID-19 Vaccine



Communicable Diseases

Enteric, Food and Waterborne Diseases

Enteric, food and waterborne diseases are intestinal illnesses caused by micro-organisms (viruses, bacteria and parasites) that are primarily contracted from contaminated food or water, from animals or their environments, or from contact with an infected person. Good hand hygiene, proper food preparation practices, and avoiding consumption of higher risk foods and untreated water can reduce the likelihood of contracting these diseases. It is estimated that only a small proportion of these illnesses are reported to public health, as many of these illnesses can be managed conservatively and do not result in a confirmatory laboratory test.

Among Yukoners, Giardia continues to be the most reported enteric, food and waterborne disease, with an incidence rate of 24.80 per 100,000 from 2018 to 2022. This is followed by Campylobacter (13.60 per 100,000) and Salmonella (11.72 per 100,000). In contrast, from 2017 to 2021, Canada had an average incidence rate of 8.73 per 100,000 for Giardia, and a higher incidence rate than Yukon for Campylobacter at 24.71 per 100,000 (Public Health Agency of Canada 2023b).

Figure 12: Incidence Rates For Enteric, Food And Waterborne Diseases, 2018-2022

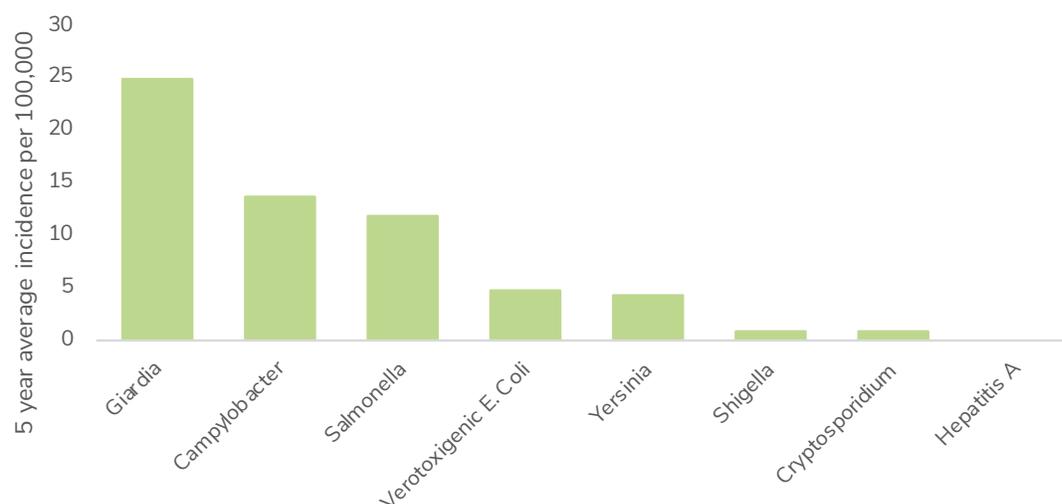


Table 1: Yukon Five-Year Average Incidence Rates per 100,000, 2017-2021 and 2018-2022

Disease	Five-Year Average Incidence Rate per 100,000: 2017-2021	Five-Year Average Incidence Rate per 100,000: 2018-2022
Giardia	28.94	24.80
Campylobacter	15.05	13.60
Salmonella	11.81	11.72
Verotoxigenic E. Coli	5.90	4.69
Yersinia	8.35	4.22
Shigella	2.00	0.94
Cryptosporidium	2.02	0.94
Hepatitis A	0	0

Sexually Transmitted and Blood-Borne Infections

Sexually transmitted and blood-borne infections (STBBIs) are those infections that are transmitted primarily from person to person through close intimate contact, or through blood-to-blood contact. While many STBBIs are curable or manageable with treatment, they remain a significant public health concern in Canada.

In the Yukon, Chlamydia continues to be the most commonly reported STBBI, at a rate of 601.08 per 100,000 from 2018 to 2022. Chlamydia and Gonorrhea both had decreases in incidence compared to the previous five-year rate, and while the exact cause for this is unknown, the reduced demand for and availability of STBBI prevention, testing and treatment services in Canada during the pandemic may have had an impact (Public Health Agency of Canada 2021). Canada's rate of Chlamydia over 2017 to 2021 was approximately half of Yukon's (325.79 per 100,000), however Gonorrhea was higher for Canada (86.56 per 100,000) than for Yukon for the same period. Canada's rate of Hepatitis C from 2017 to 2021 was also lower than Yukon's (27.15 per 100,000) (Public Health Agency of Canada 2023b). The rate of Syphilis in Yukon saw a dramatic increase when compared to the previous five-year incidence rate, due to a marked increase in Syphilis cases in Yukon in 2022 (highlighted in the next section).

Figure 13¹: Incidence Rates For Sexually Transmitted and Blood Borne Infections, 2018-2022

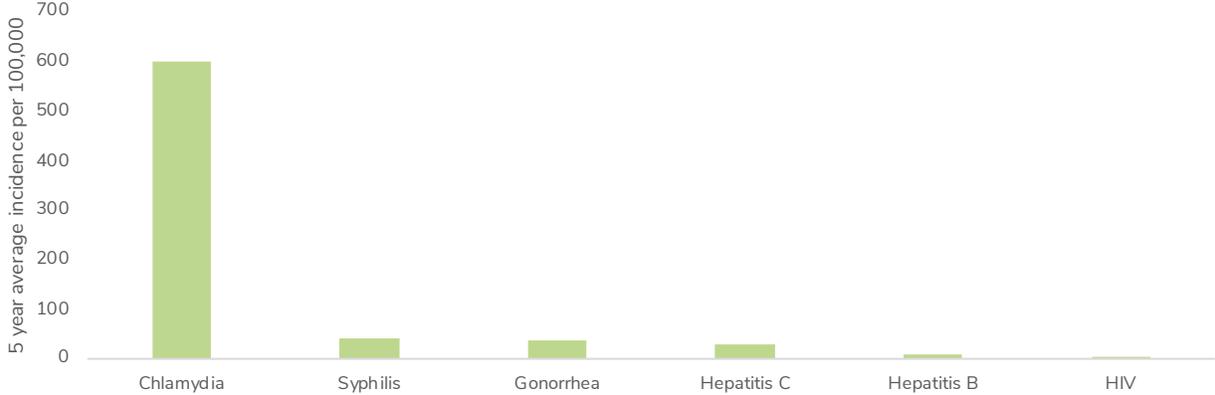


Table 2²: Yukon Five-Year Average Incidence Rates per 100,000, 2017-2021 and 2018-2022

Disease	Five-Year Average Incidence Rate per 100,000: 2017-2021	Five-Year Average Incidence Rate per 100,000: 2018-2022
Chlamydia	668.21	601.08
Syphilis	11.51	42.20
Gonorrhea	69.12	37.04
Hepatitis C	35.01	30.94
Hepatitis B	10.55	10.78
HIV	1.99	1.41

1 Rates include genital and extra-genital cases of Chlamydia and Gonorrhea, all stages (infectious, non-infectious and unspecified) of Syphilis, and chronic, active and unspecified Hepatitis B and C.

2 Rates include genital and extra-genital cases of Chlamydia and Gonorrhea, all stages (infectious, non-infectious and unspecified) of Syphilis, and chronic, active and unspecified Hepatitis B and C.

Spotlight on Syphilis

Syphilis is a bacterial infection which is primarily transmitted via sexual contact. Congenital Syphilis is a type of Syphilis that is passed from a pregnant person to a fetus during pregnancy.

If left untreated, Syphilis infection can have significant negative health consequences for a person with the infection. Assigning a stage (primary, secondary, early and late latent, or tertiary) is important both for treatment and for understanding the epidemiology of the disease. In some cases, it is not possible to assign a stage, and these cases are referred to as “unspecified stage”. All people who are diagnosed with syphilis are contacted by public health for follow-up and treatment. Early detection and treatment are key to prevent further spread and complications.

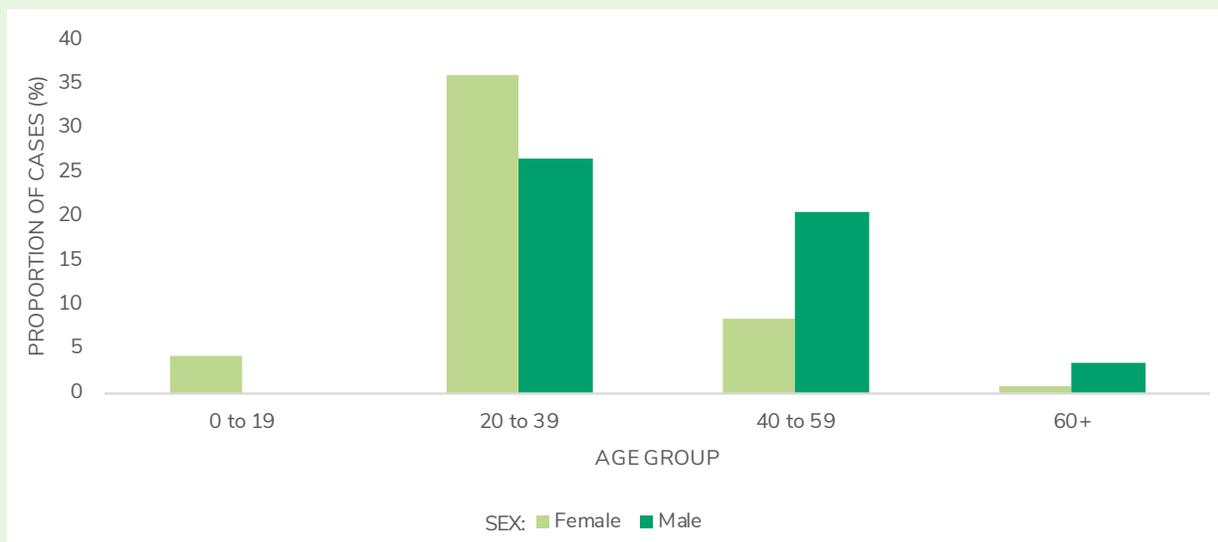
Following Chlamydia and Gonorrhoea, Syphilis is the third most commonly reported notifiable sexually transmitted infection (STI) in Canada (Public Health Agency of Canada 2020). Since the early 2000s, rates of Syphilis have been steadily rising in Canada. Recent years have seen notable increases, with the Canadian rate of infectious Syphilis increasing by 166% between 2017 and 2021 (Public Health Agency of Canada 2022). During that time period, infectious Syphilis rate increases were highest in Northwest Territories (1834%), Saskatchewan (1346%), and Alberta (472%). Rate increases were higher among females (729%) than males (96%), and the age group with the highest rate increase was those less than 20 years old.

Similar to the rest of Canada, Yukon saw a notable increase in Syphilis rates. The annual case rate for infectious Syphilis in Yukon in 2022 (120.55 per 100,000) was almost 25 times higher than the rate in 2019 (4.89 per 100,000). In Yukon, since the beginning of 2022, Syphilis rates have been highest among 20 to 39-year-olds and slightly higher among females compared to males.

Table 3: Proportion of Yukon Syphilis Cases by Stage, Jan. 1, 2022 - Aug. 31, 2023

Syphilis Stage	Proportion (%) of Cases, Jan. 1, 2022 – Aug. 31, 2023
Primary	41.9
Secondary	12.0
Early Latent	12.8
Late Latent	1.7
Tertiary	0.0
Unspecified	29.9
Early Congenital	0.9
Pending	0.9

Figure 14: Proportion Of Syphilis Cases by Age Group and Sex, Jan. 1, 2022 - Aug. 31, 2023



Respiratory Illnesses

Like enteric, foodborne and waterborne diseases, the commonly circulating viruses of influenza, COVID-19 and respiratory syncytial virus (RSV) are under-reported to public health due to most cases being managed conservatively and not requiring a laboratory test. Since the COVID-19 pandemic, COVID-19 has become the most reported of these viruses. This high rate also reflects the intense testing and contact tracing efforts in the first two years of the pandemic, which resulted in a high number of cases being reported to public health. Conversely, reported rates of influenza and RSV were very low during the first two years of the pandemic. Regular updates on respiratory virus activity for Yukon are posted online every two weeks during the respiratory season (late August to early June), and monthly during the summer (Government of Yukon nd).

Measles, mumps and pertussis are less common and are prevented by ensuring children are up to date on their immunizations. The rates of measles (0.09 per 100,000) and mumps (1.81 per 100,000) in Canada were very low from 2017 to 2021 (Public Health Agency of Canada 2023b), and Yukon had no reported cases of either illness during this time period. Yukon experienced a pertussis outbreak in 2017, however has had no reported cases since then, resulting in an incidence rate of 0.0 from 2018 to 2022.

Tuberculosis (TB) is a bacterial disease that can be either active or latent; individuals are not considered infectious when their TB is latent. Approximately 5% of infected individuals will develop active disease within 2 years of infection (Public Health Agency of Canada 2014). Yukon has historically had a lower incidence rate of TB than Canada overall (Public Health Agency of Canada 2023c), although rates in the Yukon can be quite variable due to the small number of cases.

Figure 15³: Incidence Rates for Respiratory Illnesses, 2018-2022

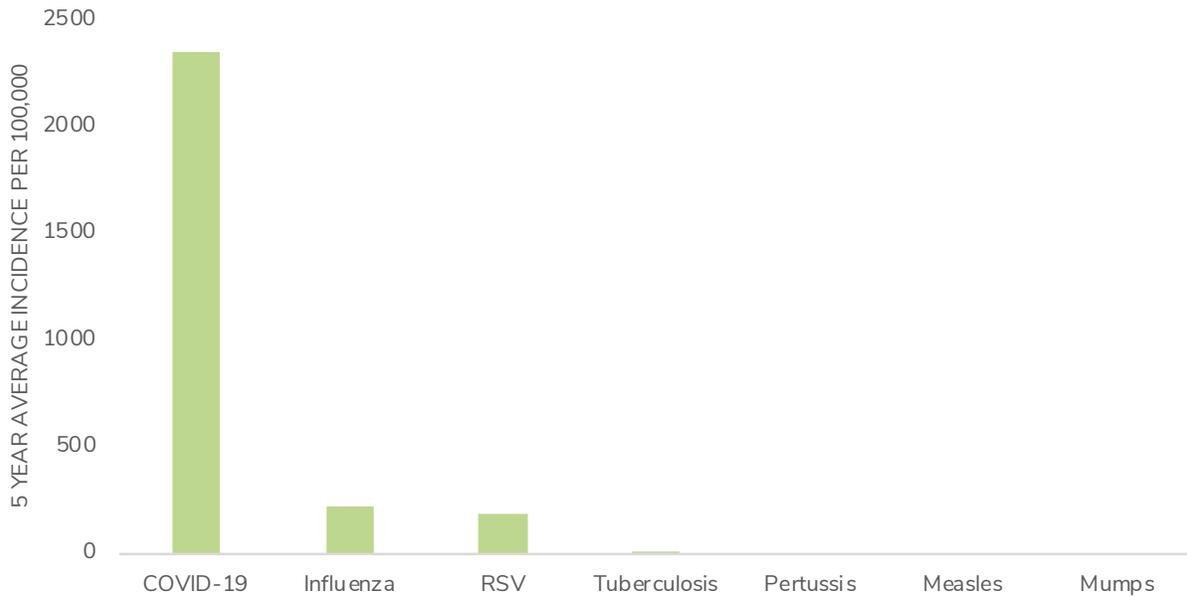


Table 4⁴: Yukon Five-Year Average Incidence Rates per 100,000, 2017-2021 and 2018-2022

Disease	Five-Year Average Incidence Rate per 100,000: 2017-2021	Five-Year Average Incidence Rate per 100,000: 2018-2022
COVID-19	932.9	2355.56
Influenza	201.93	224.12
RSV	149.65	187.08
Tuberculosis	7.01	3.28
Pertussis	42.69	0.00
Measles	0.00	0.00
Mumps	0.00	0.00

.....
 3 Rates are calculated using counts based on calendar year, not influenza season
 4 Rates are calculated using counts based on calendar year, not influenza season

Select Invasive Bacterial Diseases

Invasive bacterial diseases are those where bacteria colonize tissues in the body that are normally sterile, such as the blood stream, soft tissue, and meninges (Wisconsin Department of Health Services 2023). These infections can cause severe, and sometimes life-threatening illness, and are of significant public health concern. Historically, the age-adjusted incidence rates of some invasive bacterial diseases, including invasive group A streptococcus (iGAS) and invasive pneumococcal disease (IPD), have been higher in the northern regions of Canada than the rest of Canada (Huang et al. 2021). Among Yukoners, the five-year (unadjusted) incidence rate remained similar between 2017 to 2021 and 2018 to 2022 for iGAS, IPD, and invasive meningococcal disease (IMD), with iGAS being the most reported of the three. Over the period of 2017 to 2021, Canada had a lower incidence rate than Yukon for iGAS (7.21 per 100,000), IPD (8.38 per 100,000), and IMD (0.28 per 100,000) (Public Health Agency of Canada 2023b).

Figure 16: Incidence Rates for Select Invasive Bacterial Diseases, 2018-2022

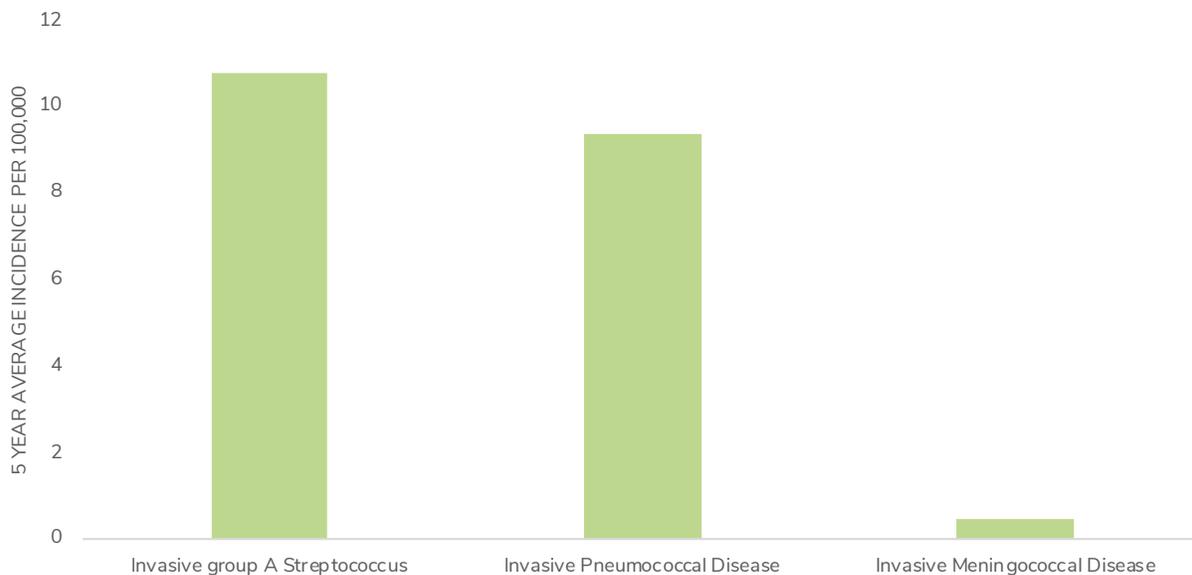


Table 5: Yukon Five-Year Average Incidence Rates per 100,000, 2017-2021 and 2018-2022

Disease	Five-Year Average Incidence Rate per 100,000: 2017-2021	Five-Year Average Incidence Rate per 100,000: 2018-2022
Invasive Group A Streptococcus	11.17	10.78
Invasive Pneumococcal Disease	10.07	9.38
Invasive Meningococcal Disease	0.48	0.47

References

- Association of Public Health Epidemiologists in Ontario. 2003. Methods for calculating moving averages [Internet]. 2003. Ontario: Association of Public Health Epidemiologists in Ontario; [cited 2023 Sep 08]. Available from: <https://www.apheo.ca/methods-for-calculating-moving-averages>
- Government of Yukon, 2022. Yukon reportable diseases [PDF]. 2022. Whitehorse (YT): Government of Yukon; [cited 2023 Sep 08]. Available from: <https://yukon.ca/sites/yukon.ca/files/hss/hss-yukon-reportable-communicable-diseases.pdf>
- Government of Yukon. nd. Read the respiratory surveillance report [Internet]. Whitehorse (YT): Government of Yukon; [cited 2023 Sep 08]. Available from: <https://yukon.ca/en/read-respiratory-surveillance-report>
- Huang, G., et al. 2021. Invasive bacterial diseases in northern Canada, 1999 to 2018. Canada Communicable Disease Report. [PDF]. [cited 2023 Sep 08]; 47(11):491-499. Available from: <https://doi.org/10.14745/ccdr.v47i11a09>
- Public Health Agency of Canada, 2014. Tuberculosis prevention and control in Canada: A federal framework for action [PDF]. 2014. Canada: Public Health Agency of Canada; [cited 2023 Sep 08]. Available from: <https://www.phac-aspc.gc.ca/tbpc-latb/pubs/tpc-pct/assets/pdf/tpc-pcta-eng.pdf>
- Public Health Agency of Canada, 2021. National report: Findings from the survey on the impact of COVID-19 on the delivery of STBBI prevention, testing and treatment, including harm reduction services, in Canada [PDF]. 2021. Ottawa (ON): Public Health Agency of Canada; [cited 2023 Sep 08]. Available from: <https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/diseases-conditions/survey-impact-covid-19-delivery-stbbi-prevention-testing-treatment/survey.pdf>
- Public Health Agency of Canada, 2023a. Vaccination coverage goals and vaccine preventable disease reduction targets by 2025 [Internet]. 2023a. Canada: Public Health Agency of Canada; [cited 2023 Sep 08]. Available from: <https://www.canada.ca/en/public-health/services/immunization-vaccine-priorities/national-immunization-strategy/vaccination-coverage-goals-vaccine-preventable-diseases-reduction-targets-2025.html#2.0>
- Public Health Agency of Canada, 2023b. Notifiable diseases online [Internet]. 2023b. Canada: Public Health Agency of Canada; [cited 2023 Sep 08]. Available from: <https://diseases.canada.ca/notifiable/>
- Public Health Agency of Canada, 2023c. Tuberculosis in Canada, 2021 [PDF]. 2023c. Canada: Public Health Agency of Canada; [cited 2023 Sep 08]. Available from: <https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/diseases-conditions/tuberculosis-canada-2021-infographic/tuberculosis-canada-2021-infographic.pdf>
- Public Health Agency of Canada. 2022. Infographic: Infectious syphilis and congenital syphilis in Canada, 2021. Canada Communicable Disease Report. [Internet]. [cited 2023 Sep 08]; 48(11-12). Available from: <https://www.canada.ca/en/public-health/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2022-48/issue-11-12-november-december-2022/infectious-congenital-syphilis-canada-2021.html>
- Public Health Agency of Canada. 2020. Syphilis in Canada: Technical report on epidemiological trends, determinants and interventions [PDF]. 2020. Ottawa (ON): Public Health Agency of Canada; [cited 2023 Sep 08]. Available from: <https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/diseases-conditions/syphilis-epidemiological-report/syphilis-eng.pdf>
- Wisconsin Department of Health Services, 2023. Invasive bacteria [Internet]. 2023. Madison (WI): Wisconsin Department of Health Services; [cited 2023 Sep 08]. Available from: <https://www.dhs.wisconsin.gov/invasive-bacteria/index.htm>



Appendix A: Methodology

Immunization and communicable disease data for this report was retrieved from Yukon’s immunization and reportable disease registry, Panorama.

Publicly funded childhood immunizations offered in Yukon are outlined in the Yukon Immunization Manual (Appendix B).

Population estimates for this report were collected from the Yukon Bureau of Statistics. Mid-year (June) 2022 population estimates were used to calculate immunization coverage for each age group. Immunization proportions were calculated by dividing the number of Yukon children in an age group that were vaccinated with an antigen by December 31 in the specified year by the mid-year (June) population estimate for that age. For communicable disease rates, annual end-of-year populations were used to calculate 5-year central moving averages as recommended by the Association of Public Health Epidemiologists in Ontario (APHEO) (Association of Public Health Epidemiologists in Ontario 2003), according to the following formula:

$$(C_{t-2} + C_{t-1} + C_t + C_{t+1} + C_{t+2} / P_{t-2} + P_{t-1} + P_t + P_{t+1} + P_{t+2}) * 100,000$$

Where C represents annual case counts (based on calendar year) and P represents population estimates (at the end of the calendar year). Averaging estimates over several years can assist with reducing the variability that occurs with small case counts, while still providing a comparison over time.

Immunization data were all collected from Panorama on December 31, 2022. A limitation of this data is that the immunization coverage estimates are for a specific point in time, and do not necessarily reflect in-migration and out-migration of the population. If a new Yukon migrant has yet to present for service with their immunization records, their information will not be captured in Panorama. This is of particular importance for school-aged children, as documented proof of immunization is not required to enter schools in Yukon, and so records for these ages may be incomplete if immunizations were completed out of territory. Similarly, some people immunized in Yukon may no longer live in Yukon or may be deceased, but may be captured in the Panorama data. All data were compiled and analysed using Excel and the statistical software program R.

Appendix B: Childhood Immunization Schedule in Yukon

The following recommendations will guide the development of the schedule for healthy children and adolescents, and should be used in combination with the relevant Biological Product pages (see [Section 8-Biological Products](#)). Children with specific health conditions and/or risk factors should be immunized according to principles outlined in [Section 5-Immunization of Special Populations](#).

Age	Vaccine
2 months	<ul style="list-style-type: none"> • DTaP-HB-IPV-Hib (or DTaP-IPV-Hib and HB) • PCV13 • Men-C-C* • Rota
4 months	<ul style="list-style-type: none"> • DTaP-HB-IPV-Hib (or DTaP-IPV-Hib and HB) • PCV13 • Men-C-C(high risk infants only)* • Rota
6 months	<ul style="list-style-type: none"> • DTaP-HB-IPV-Hib (or DTaP-IPV-Hib and HB) • PCV13 (high risk infants only) • Men-C-C (depending on product for 2-3 dose series) • Rota (RotaTeq® is a 3 dose series) • Flu
On or after the 1 st birthday	<ul style="list-style-type: none"> • MMR • Var • Men-C-C • PCV13
18 months	<ul style="list-style-type: none"> • DTaP-IPV-Hib
School Entry (4-6 years of age)	<ul style="list-style-type: none"> • Tdap-IPV (or DTaP-IPV) • Var • MMR (if 2nd dose not received previously)
Grade 6	<ul style="list-style-type: none"> • HPV (2 doses 6 months apart)
Grade 9	<ul style="list-style-type: none"> • Men C-ACYW-135 • Tdap
COVID-19	<ul style="list-style-type: none"> • Refer to Schedule F: COVID-19 Immunization Schedule

The primary series of 3 doses of DTaP-containing vaccine should be completed with the same product.

*For high risk infants, Men-C-ACYW-135 (Menveo) should be given in place of Men-C-C and administered at 2, 4 and 12 months of age.

RotaTeq® vaccine, first dose to be given by 14 weeks + 6 days of age. Last dose of 3 dose series by 8 months of age; minimum intervals of 4 weeks. First dose of ROTARIX® vaccine to be given no later than 20 weeks less 1 day of age. Second dose to be administered by 8 months less 1 day of age.

Menjugate® is a 3 dose series for children under 12 months of age, NeisVac C® is a two dose series.

Appendix C: Vaccine Abbreviations and Vaccines

The table below provides a list of the abbreviations used in this report and in the Yukon Immunization Manual see [Section 8-Biological Products](#).

Abbreviation	Vaccine
DTaP-HB-IPV-Hib	Diphtheria and tetanus toxoids, acellular pertussis, hepatitis B, inactivated polio and <i>Haemophilus influenzae</i> type b vaccine
DTaP-IPV-Hib	Diphtheria and tetanus toxoids, acellular pertussis, inactivated polio and <i>Haemophilus influenzae</i> type b vaccine
DTaP-IPV	Diphtheria and tetanus toxoids, acellular pertussis, and inactivated polio vaccine
HA	Hepatitis A vaccine
HB	Hepatitis B vaccine--available on its own or in combination format as DTaP-HB-IPV-Hib as INFANRIX hexa®.
Hib	<i>Haemophilus influenzae</i> type b vaccine--available on its own or in combination as DTaP-HB-IPV-Hib or DTaP-IPV-Hib vaccines
HPV4	Human papillomavirus vaccine(quadrivalent, HPV types 6, 11, 16, and 18)
HPV9	Human papillomavirus vaccine (nonavalent, HPV types 6, 11, 16, 18, 31, 33, 45, 52, and 58)
Flu	Influenza vaccine
IPV	Inactivated polio vaccine. Available on its own or in combination format as DTaP-HB-IPV-Hib, DTaP-IPV-Hib, DTaP-IPV, Td/IPV or Tdap-IPV vaccines
Men-C-C	Meningococcal serogroup C conjugate vaccine
Men-C-ACYW-135	Meningococcal quadrivalent conjugate vaccines (serogroups A, C, Y, W-135)
MMR	Measles, mumps and rubella vaccine
MMRV	Measles, mumps, rubella and varicella vaccine
PCV7	Pneumococcal conjugate vaccine, 7-valent vaccine
PCV13	Pneumococcal conjugate vaccine,13-valent vaccine
PPV23	Pneumococcal polysaccharide vaccine, 23-valent
Rota	Rotavirus vaccine, monovalent (ROTARIX®) or pentavalent (RotaTeq®)
Td	Tetanus and diphtheria toxoids vaccine
Tdap	Tetanus and diphtheria toxoids and acellular pertussis vaccine
Tdap-IPV	Tetanus and diphtheria toxoids, acellular pertussis and inactivated polio vaccine
Td/IPV	Tetanus and diphtheria toxoids, and inactivated polio vaccine
Var	Varicella vaccine
Zos	Zoster Varicella

