Public Health Potpourri

Royal Inland Hospital Continuing Medical Education

October 8, 2026

Land Acknowledgement



Interior Health would like to recognize and acknowledge the traditional, ancestral, and unceded territories of the Dãkelh Dené, Ktunaxa, Nlaka'pamux, Secwépemc, St'át'imc, syilx, and Tŝilhqot'in Nations where we live, learn, collaborate and work together.

Faculty/Presenter Disclosure

Faculty: *Andy Delli Pizzi, Jennifer Jeyes, Leanne Calvin*

Relationships with financial sponsors:

- ***Grants/Research Support:*** *None*
- ***Speakers Bureau/Honoraria:*** *None*
- ***Consulting Fees:*** *None*
- ***Patents****: None*
- ***Other:***

Employees of Interior Health Population and Public Health (Andy and Jennifer) and Clinical Operations (Leanne)

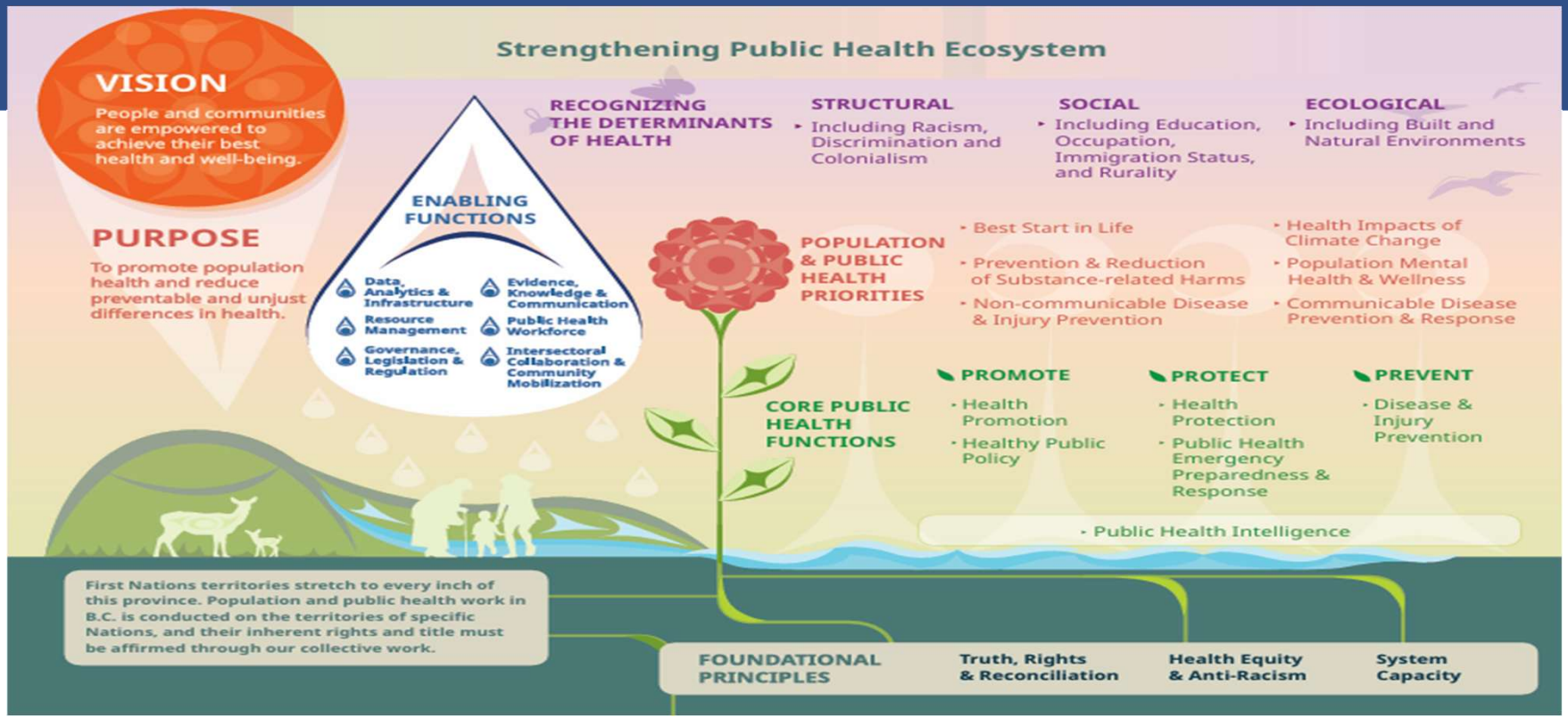
Presenters have not received financial support outside of usual policies around compensation from Interior Health Authority. Other than being salaried employees of IH, presenters have not identified further conflict of interest

Objectives

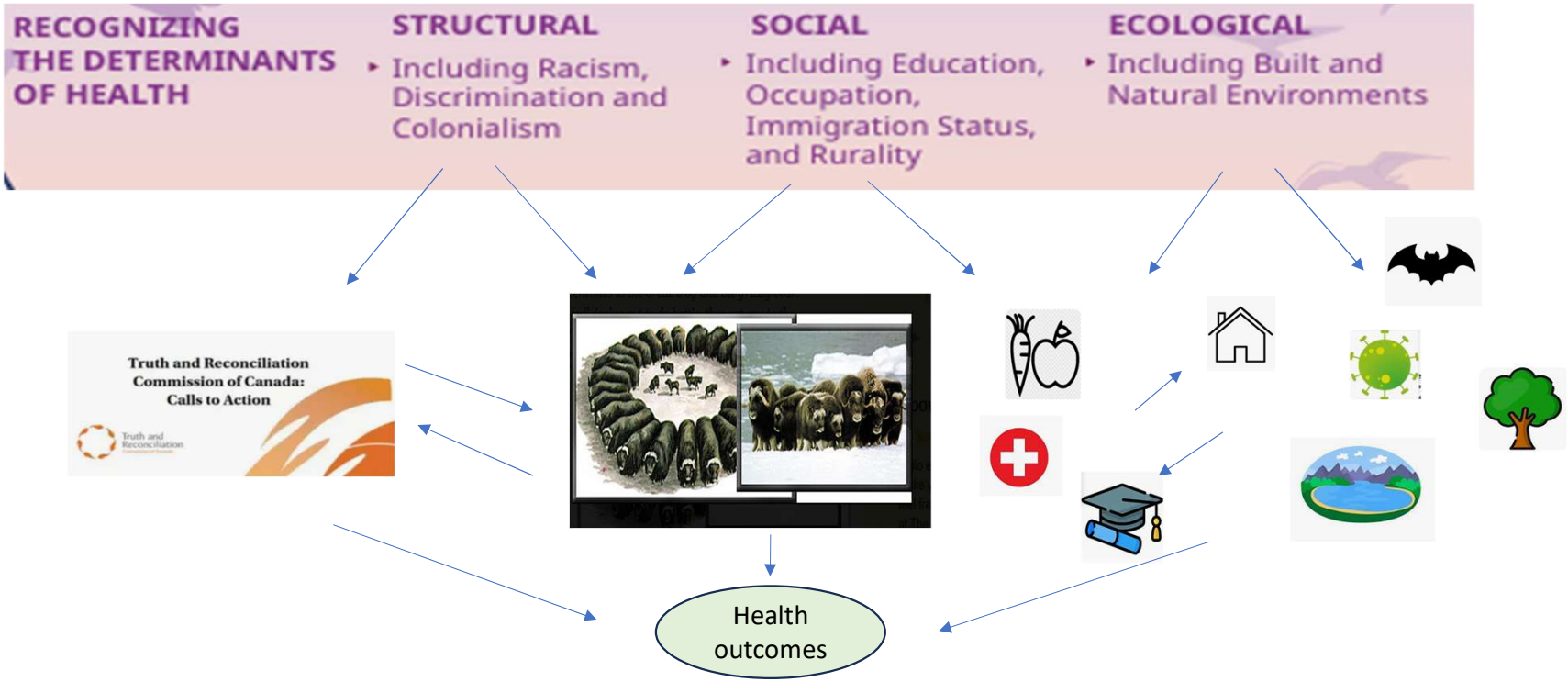
Explore	• Apply provincial population and public frameworks to analyze communicable disease impacts in populations
Identify	• Describe key features of the epidemiology, natural history, communicability, and preventive actions for communicable diseases of public health importance including tuberculosis, syphilis, HPV, RSV, pertussis, and rabies
Apply	• Describe key aspects of programs and interventions that support communicable disease control at the community and population levels in Interior Health and provincially
Learn	• Organize pathways for collaboration between clinical and public health teams in Kamloops/Thompson Cariboo Shuswap HSDA
Gain	

Communicable disease impacts in populations

B.C.'s Population and Public Health framework



Building blocks of health



Health outcomes

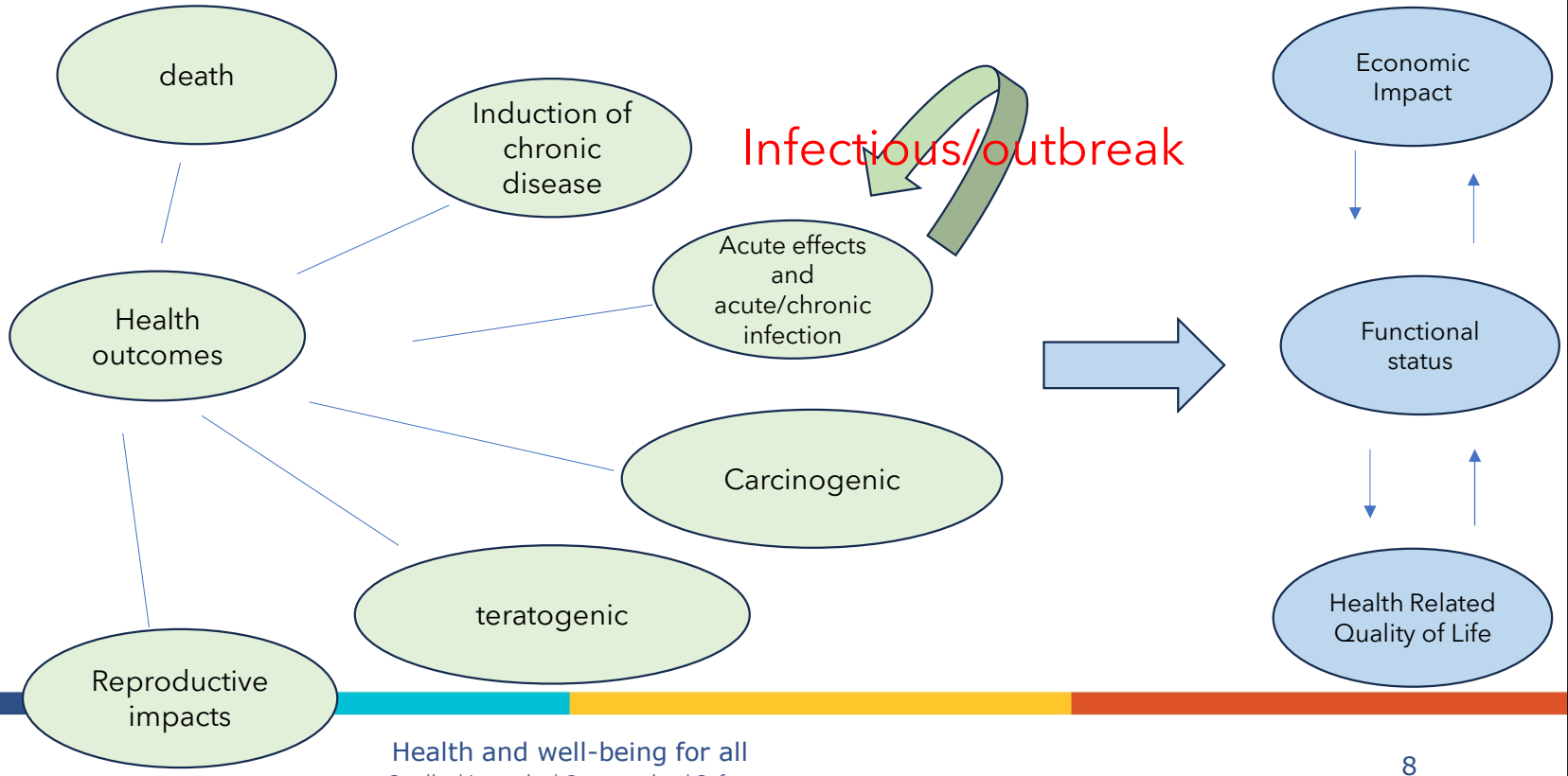
Differential exposure to risk or protective factors

Increased likelihood of negative health outcome

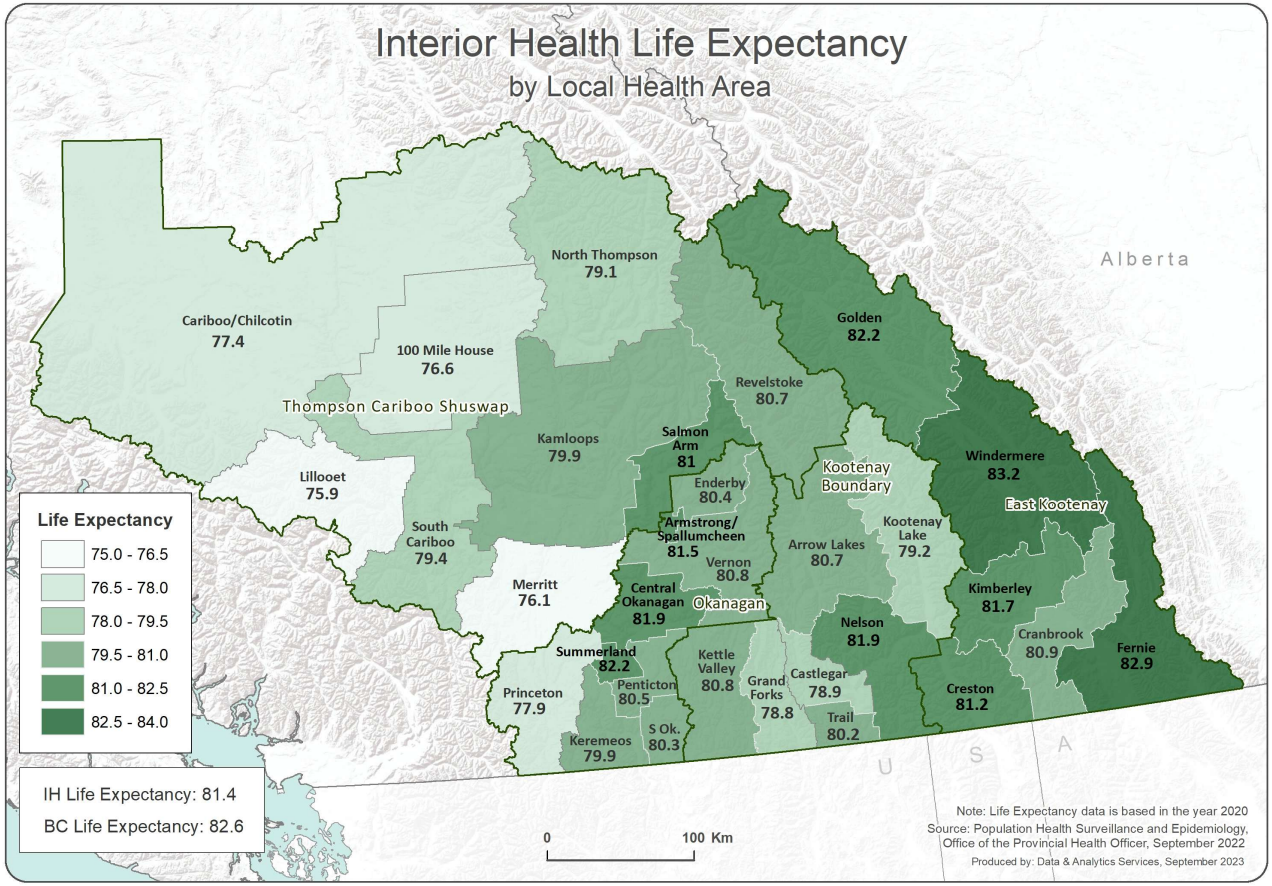
Increased likelihood of severe health outcome

Differential capacity to respond and recover from impacts

Compounded effects of increased exposure, increased risk after exposure, severe outcomes, and more difficulty responding and recovering from health outcomes produce **health inequity**.



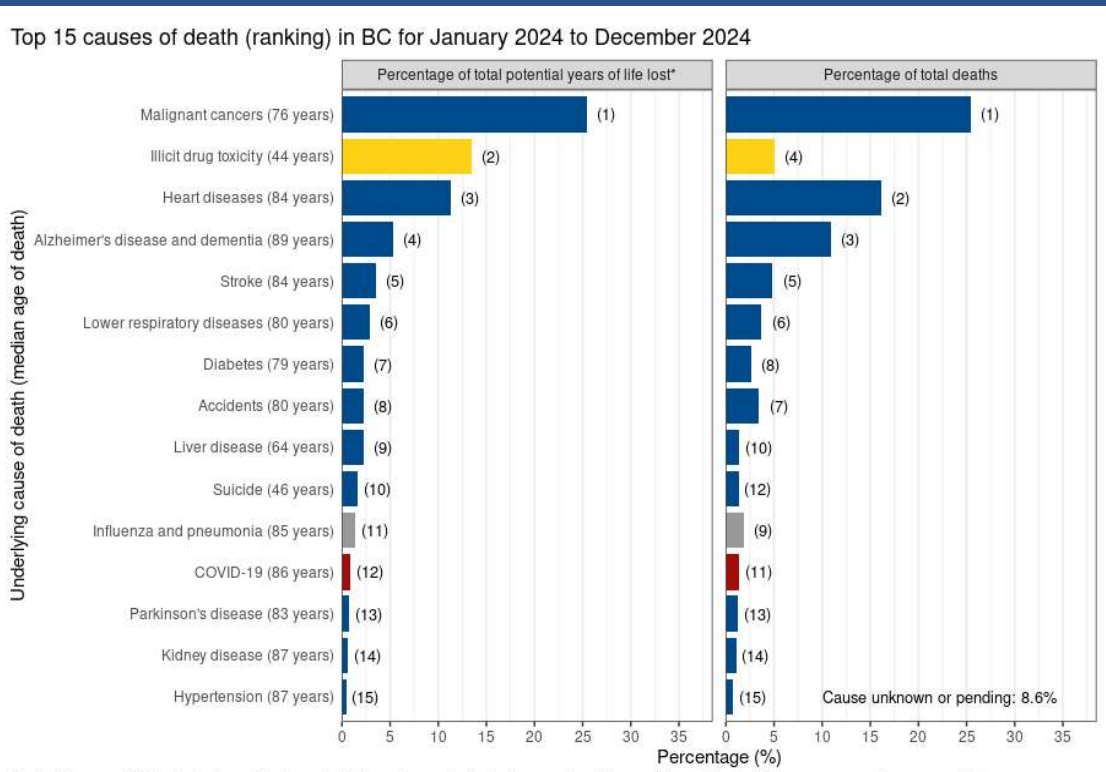
Inequitable determinants create inequitable outcomes



In **2021**, First Nations in British Columbia died, on average, **7.1 years** earlier than in **2015**

First Nations life expectancy in BC drops due to toxic drug poisonings and COVID-19 - First Nations Health Authority (FNHA)

Mortality in BC--non communicable diseases dominate



*Potential years of life lost due to accidents and suicide are incomplete due to reporting delay and the ranking by this measure may change as data become complete.
Data sources: 1) BC Vital Statistics; 2) Data on deaths due to illicit drug toxicity, accidents and suicides provided to BCCDC by BC Coroners Service; 3) Statistics Canada Table 13-10-0837-01 Life expectancy and other elements of the life table, single-year estimates, Canada, all provinces except Prince Edward Island.

RESEARCH

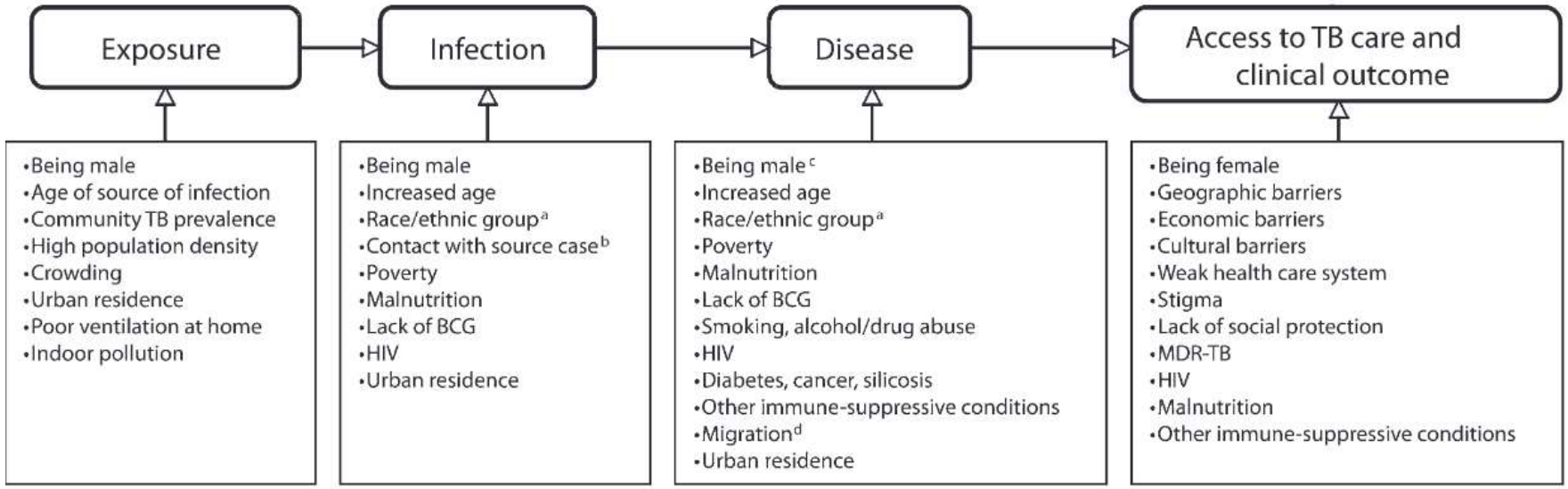
Does influenza vaccination contribute to the prevention of cardiovascular events? An umbrella review

Fazia Tadount[1,2*], Nadine Sicard[1], Winnie Siu[1,3], Pamela Doyon-Plourde[1], Angela Sinilaité[1]

Conclusion: High-quality evidence from the existing literature supports influenza vaccination as an effective preventive measure for reducing CV disease burden. Highlighting this benefit to patients could increase vaccine uptake and improve both influenza and CV outcomes, especially where coverage remains suboptimal.

Tuberculosis

Lack of protective determinants impacts TB rates in populations

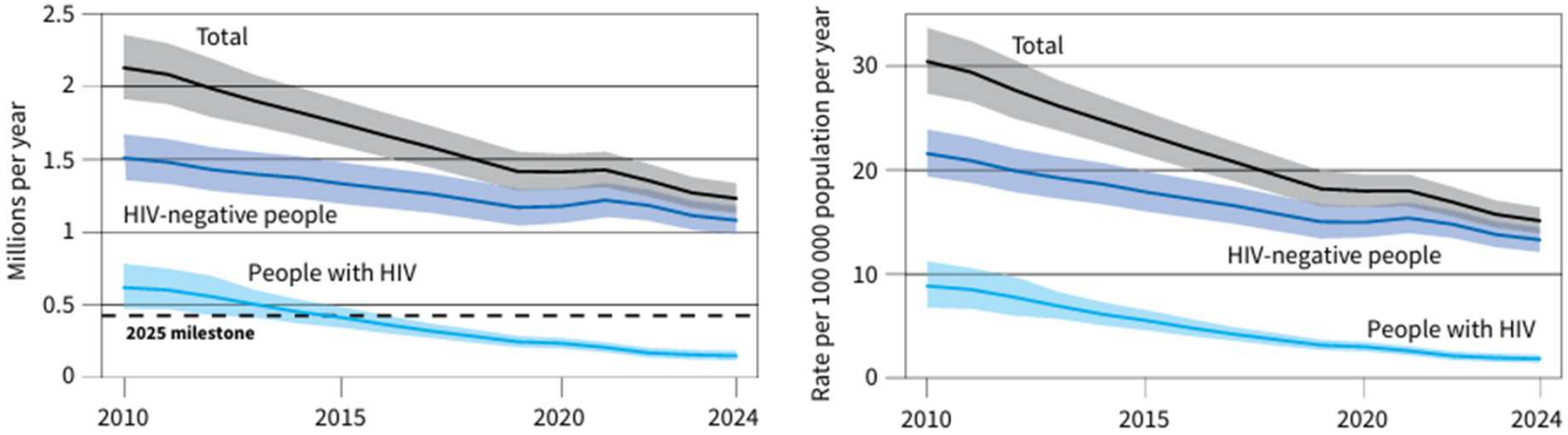


Epidemiology of TB

Global TB Mortality, 2010-2024

Global trends in the estimated number of deaths caused by TB (left) and the TB mortality rate (right),[a] 2010–2024

The horizontal dashed line shows the 2025 milestone of the End TB Strategy, which is a 75% reduction in the total number of TB deaths between 2015 and 2025. Shaded areas represent 95% uncertainty intervals.



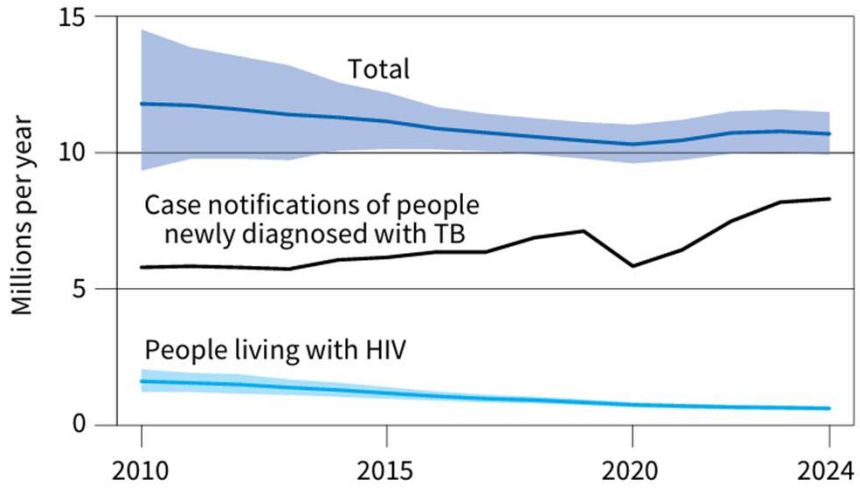
[a] Deaths from TB among people with HIV are officially classified as deaths caused by HIV/AIDS in the International Classification of Diseases, with TB as a contributory cause.

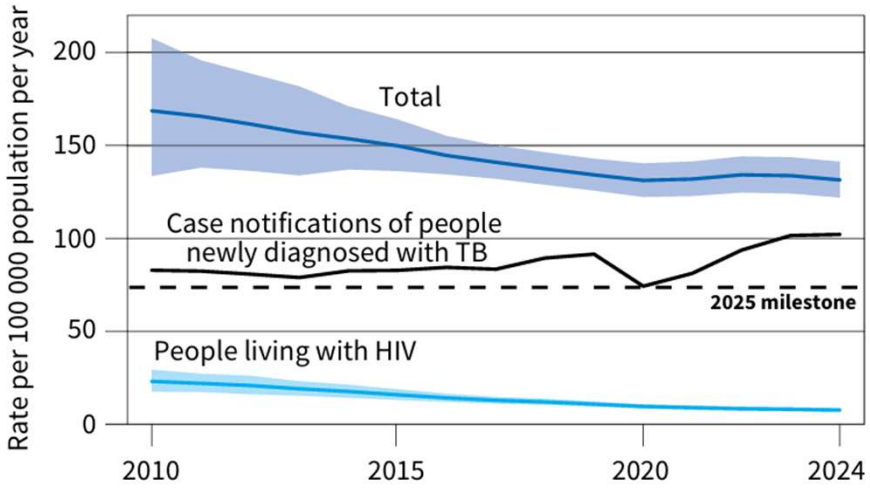
Global tuberculosis report 2025. Geneva: World Health Organization; 2025

Global TB Incidence 2010-2024

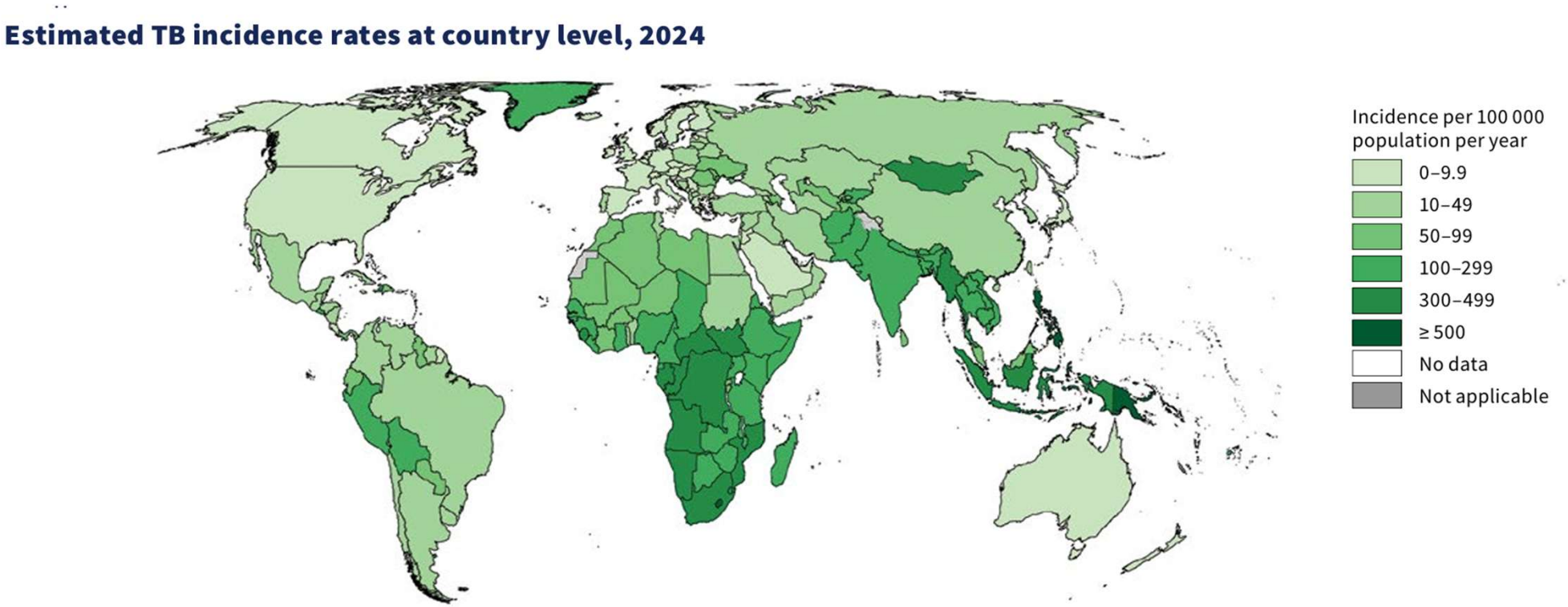
Global trends in the estimated number of incident TB cases (left) and the incidence rate (right), 2010–2024

The horizontal dashed line shows the 2025 milestone of the End TB Strategy, which is a 50% reduction in the TB incidence rate between 2015 and 2025. Shaded areas represent 95% uncertainty intervals.



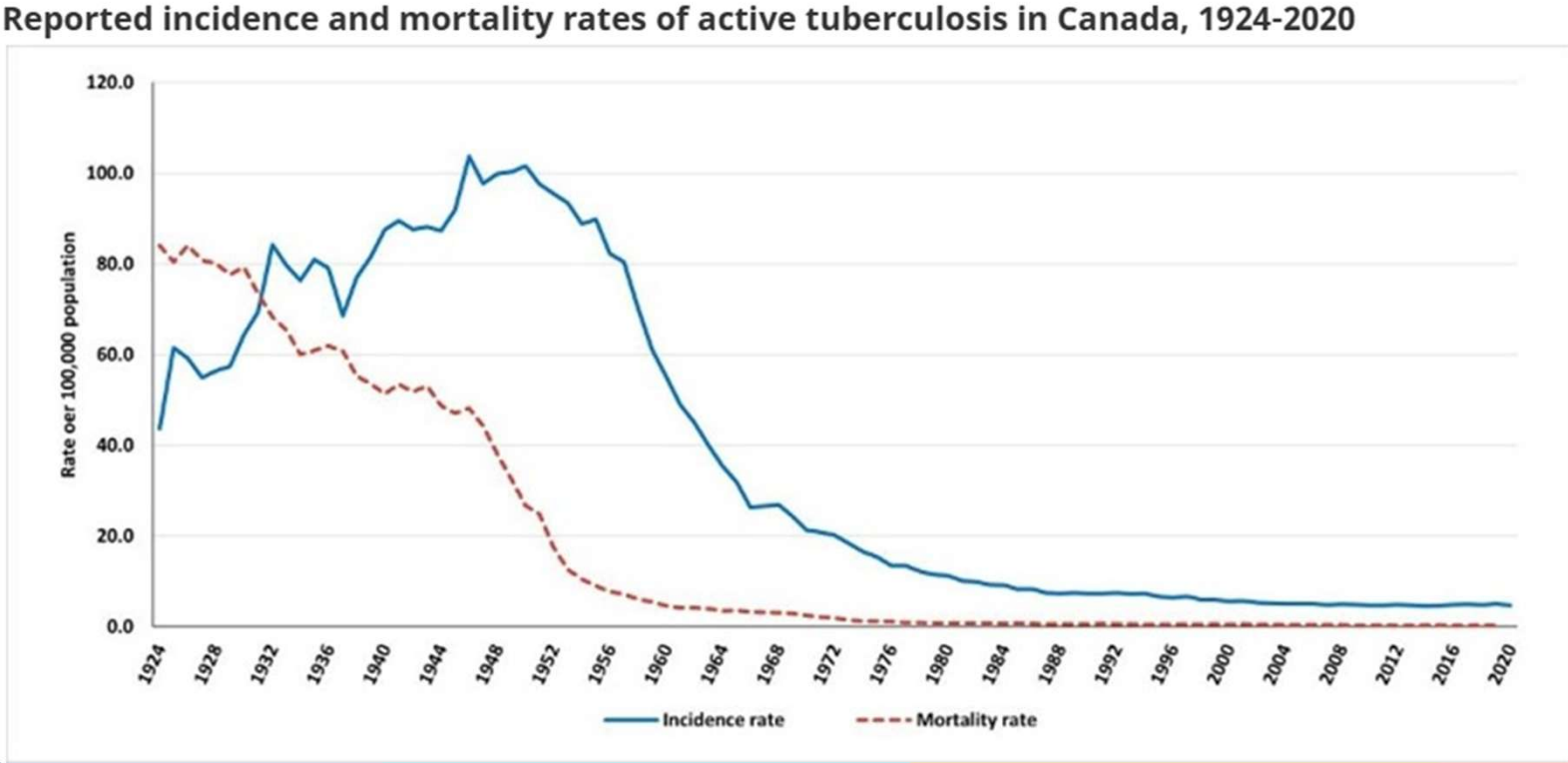


Estimated Global TB incidence rates, 2024



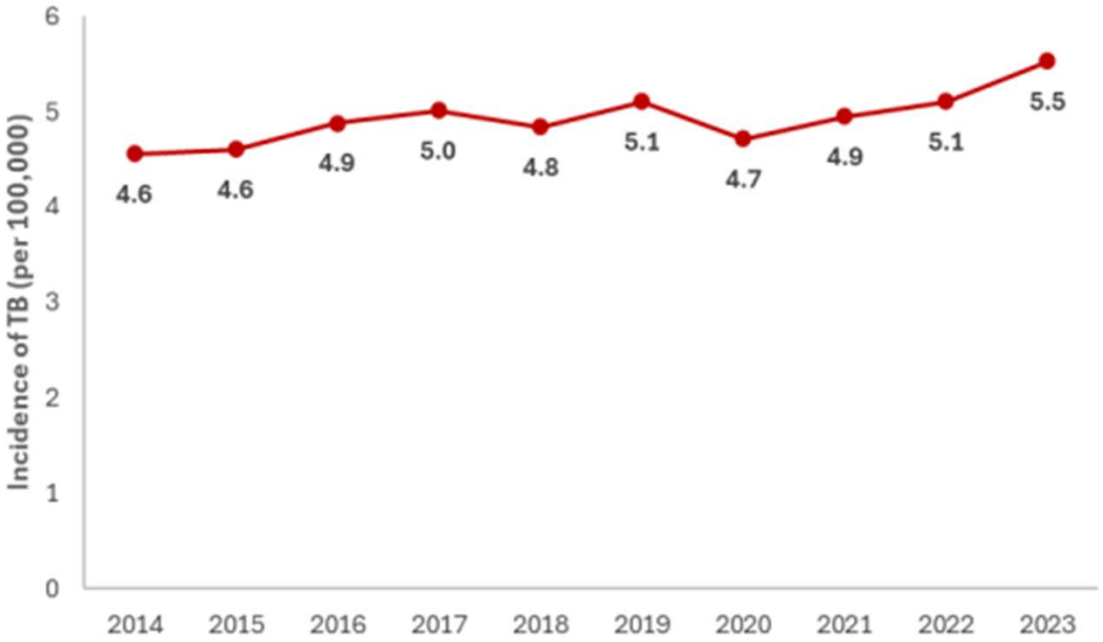
Global tuberculosis report 2025. Geneva: World Health Organization; 2025

Reported incidence and mortality rates, tuberculosis in Canada, 1924-2020

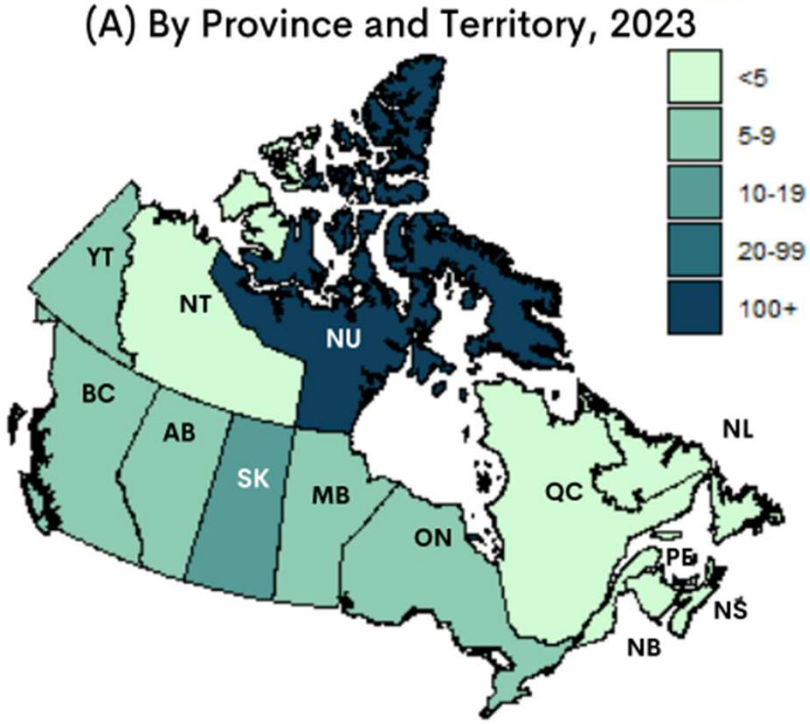


Canadian TB Standards, 8th edition, 2022

Incidence of TB, Canada 2014-2023 (per 100,000 per year)



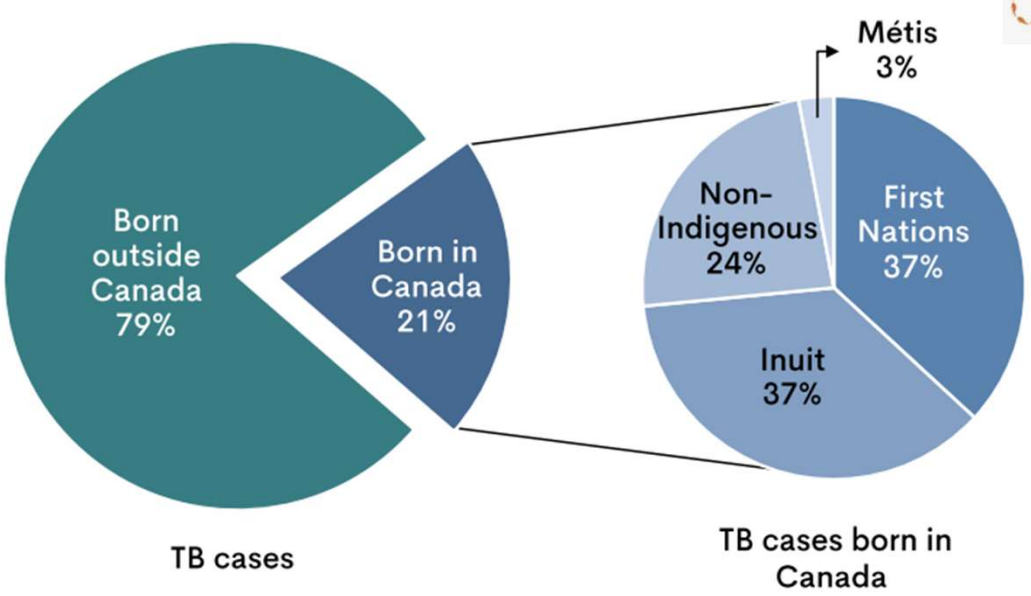




TB infections, by population group, Canada 2023

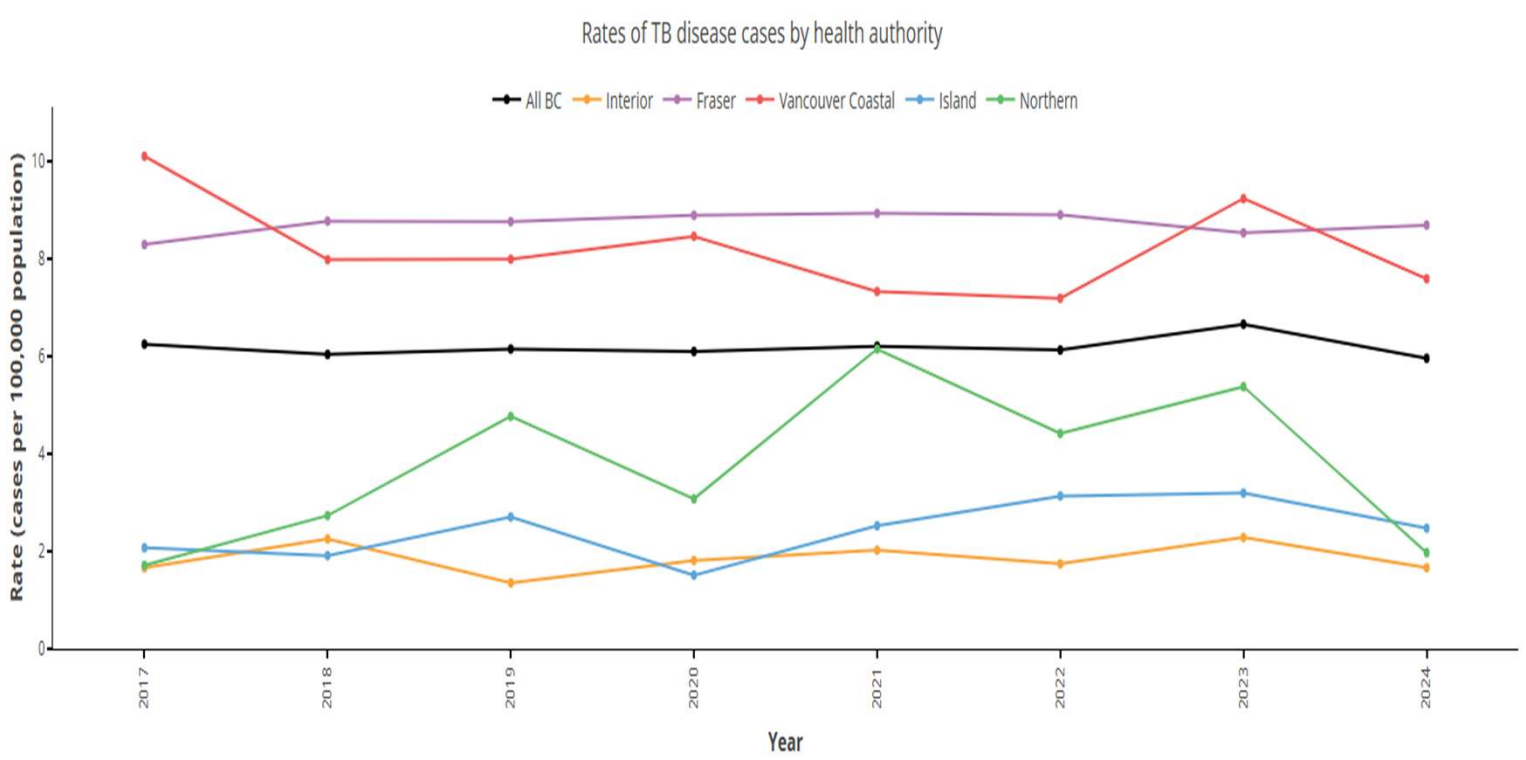


Population	Incidence (per 100,000)
Inuit	204.2
First Nations	18.5
Persons born outside of Canada	15.5
Métis	2.7
Non-Indigenous Canadian born	0.4



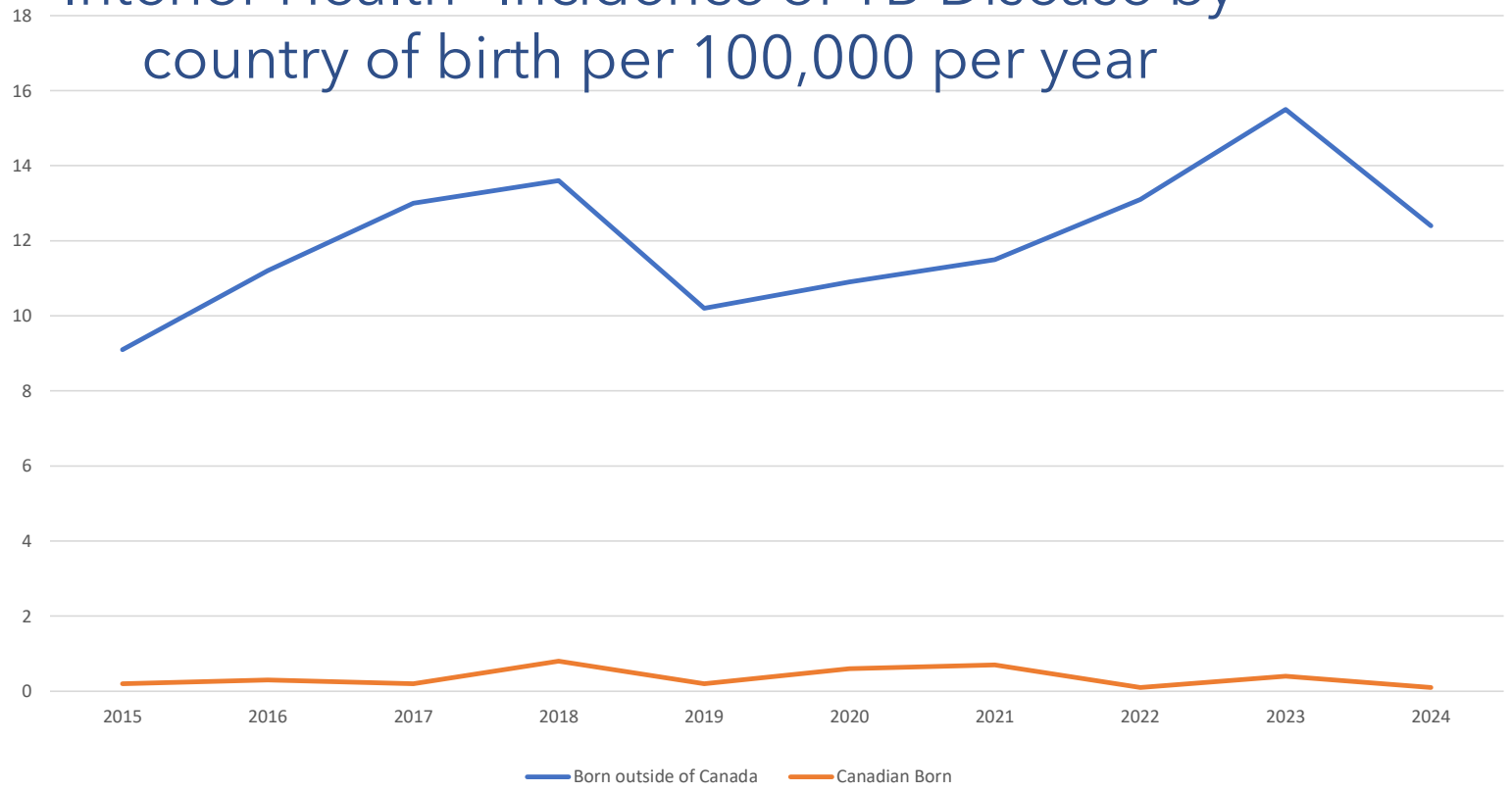
TB largely impacts Inuit, First Nations, and persons born outside of Canada

TB disease rates BC and by health authority, 2017 to 2024



This data includes all people diagnosed or treated for TB in BC, including Indigenous Peoples and non-Indigenous Canadians. All Indigenous Peoples who live in BC have rights to self-determination, health and wellness and respectful use of their data aligning with Indigenous data governance principles

Interior Health--Incidence of TB Disease by country of birth per 100,000 per year



This data includes all people diagnosed or treated for TB in IH, including Indigenous Peoples and non-Indigenous Canadians. All Indigenous Peoples who live in BC have rights to self-determination, health and wellness and respectful use of their data aligning with Indigenous data governance principles

FNHA–TB incidence amongst First Nations People in BC

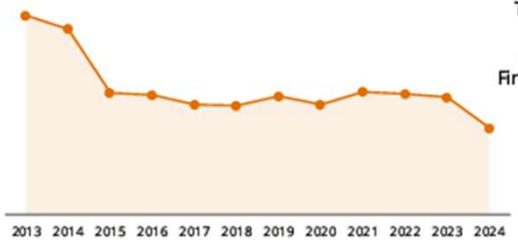
Knowledge Update on Tuberculosis in First Nations Peoples in BC - 2024

First Nations Health Authority
Health through wellness

First Nations Peoples have rich histories of wellness. Colonialism has had damaging impacts on health, including harms caused by tuberculosis (TB). TB is a preventable and curable disease caused by a bacteria that usually affects the lungs. It spreads from person to person through the air.

This summary describes TB prevention and care among people who self-identified as First Nations in BC. *Data Source: Panorama (data up to Dec. 31, 2024)*

From 2013 to 2024, TB incidence rate (3-year moving average) has decreased by approximately 58%

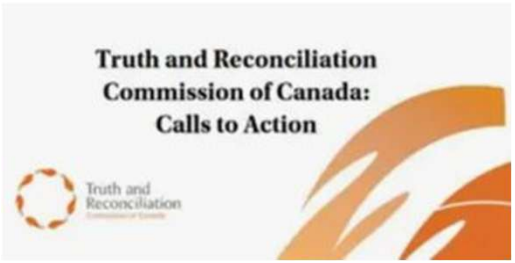


TB incidence rate (3-year moving average) among First Nations Peoples in BC (2024):

7.9 PER 100,000

The WHO*'s End TB Strategy target is to decrease TB incidence rate by 2035 to:

1.0 PER 100,000





Think TB

Tuberculosis (TB) is still present in British Columbia

Consider TB in patients with:



Cough lasting 2-3 weeks or more and/or coughing up blood

Unexplained weight loss

Night sweats or persistent fever

Fatigue

People who have a high chance of developing disease:



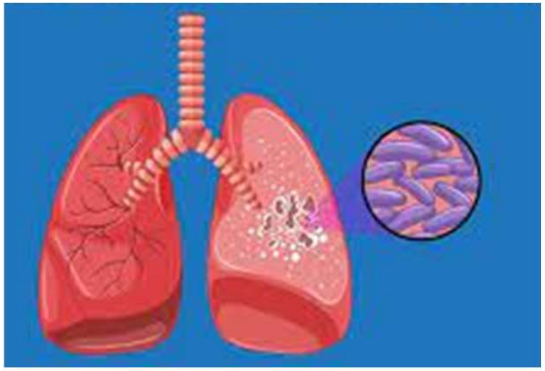
Have lived/traveled in a country with high rates of TB

Are immuno-compromised

Have previous TB exposure

TB can be subtle—early testing improves outcomes and reduces spread.

TB testing



AFB Smear
- Smear positivity =increased infectiousness
- less sensitive than culture to diagnose pulmonary TB

Mycobacterial Culture
- Gold standard
- drug susceptibility testing and whole genome sequencing



TB PCR
- Estimate drug resistance to first line drugs
- Sensitivity approaches culture
- Routinely performed on smear positive specimens
- Can confirm diagnosis faster in culture positive, smear negative infections



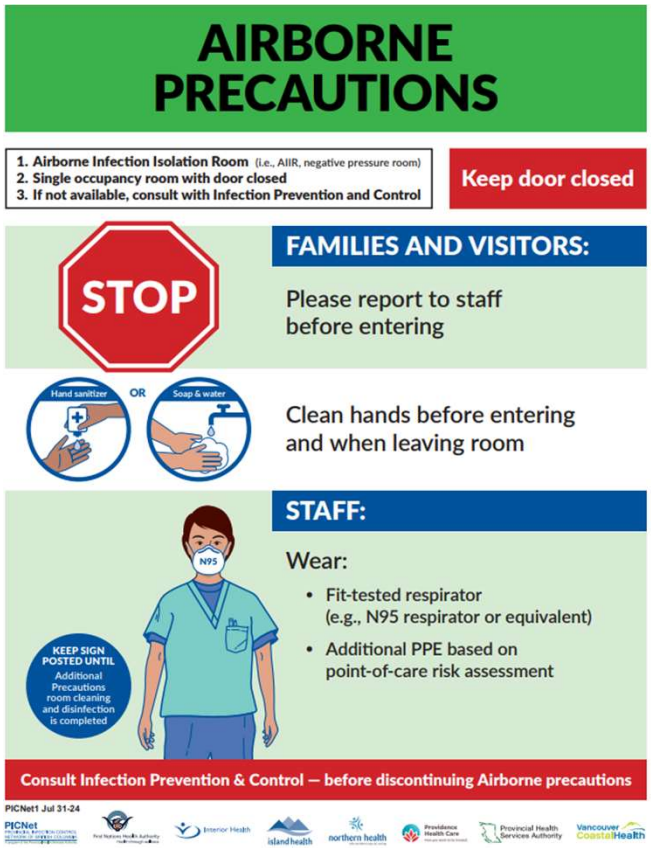
Whole genome sequencing
- Routinely performed when culture positive
- Predicts drug resistance
- Genomic epidemiology

Discontinuing airborne precautions

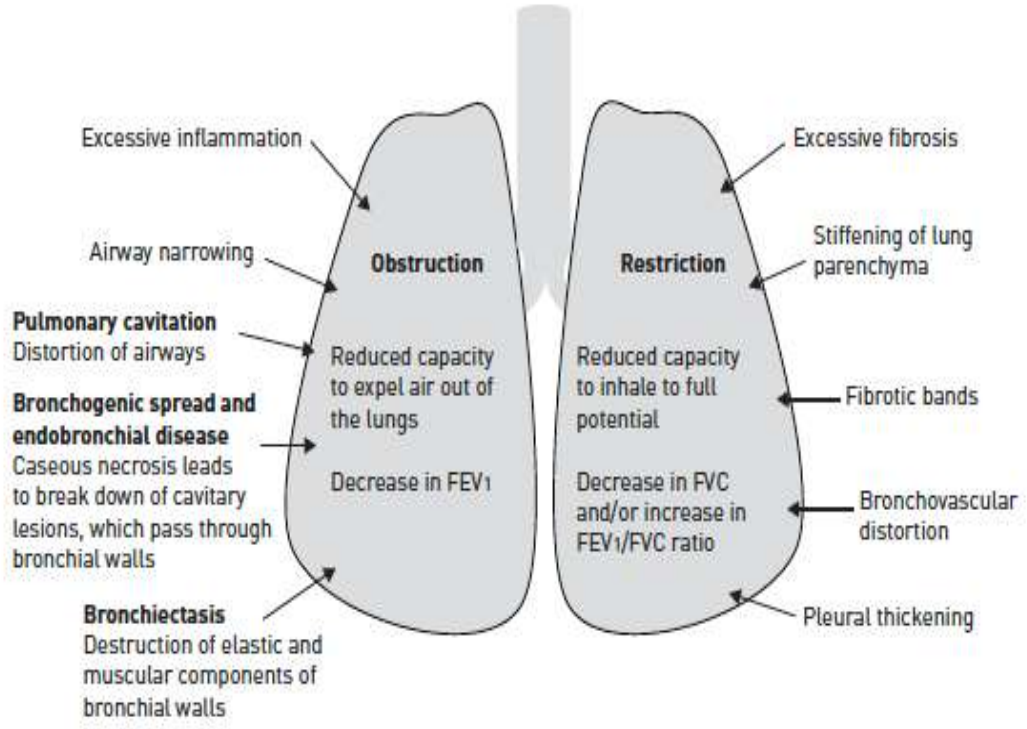
(Courtesy Dr. Bibby)

- IPAC/Medical Microbiology involved every case
- Several factors taken into account
  - Clinical, radiographic presentation, clinical suspicion
- 2 negative TB PCRs/3 negative AFBs

  AND
- Alternative diagnosis

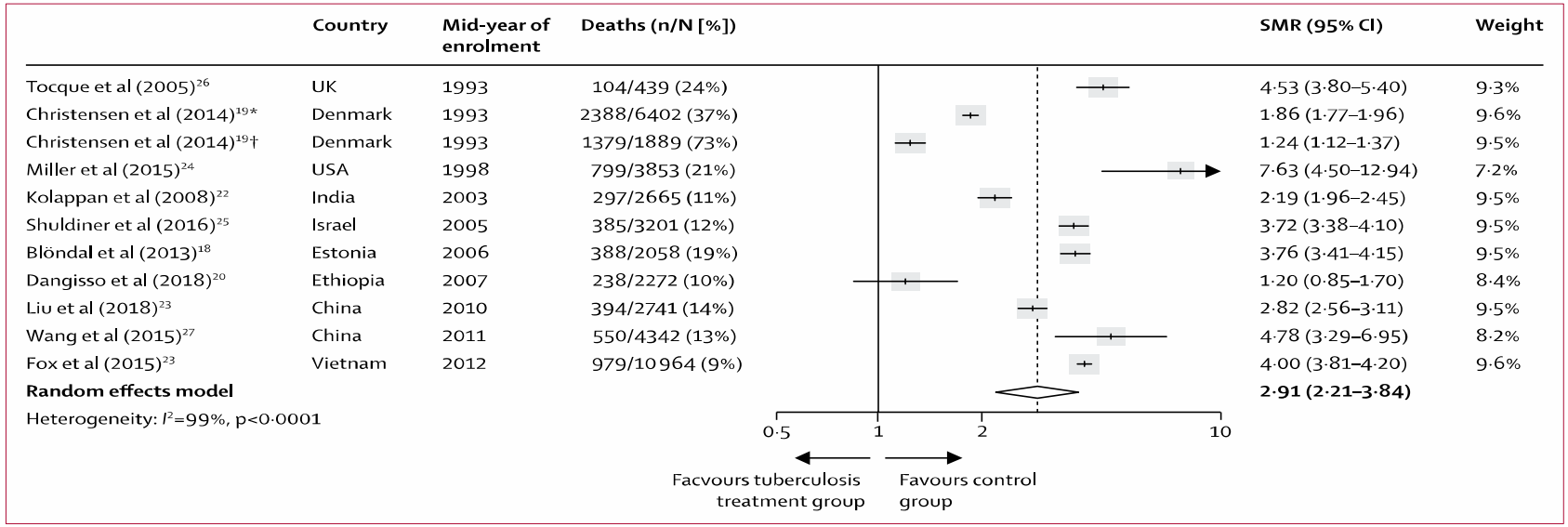


TB survivors have triple rate of bronchiectasis /COPD



Shruthi Ravimohan et al. Eur Resp Rev 2018 *Courtesy Dr. J Johnston BCCDC*

TB survivors have triple the mortality rate compared with matched groups

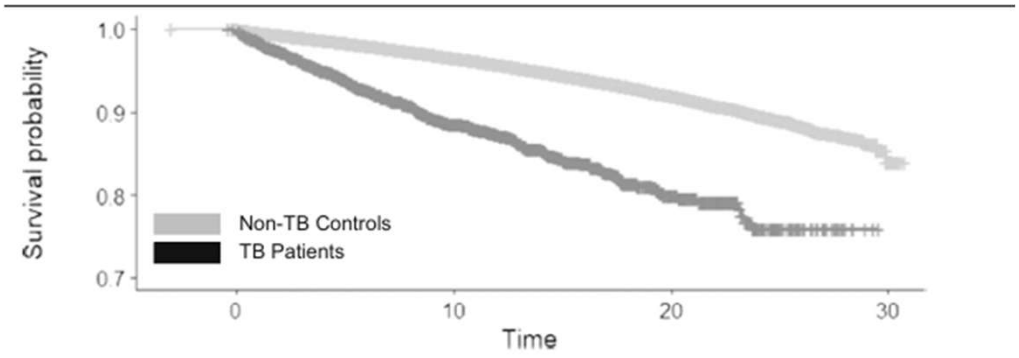


	Country	Mid-year of enrolment	Deaths (n/N [%])	SMR (95% CI)	Weight
Tocque et al (2005)[26]	UK	1993	104/439 (24%)	4·53 (3·80–5·40)	9·3%
Christensen et al (2014)[19]*	Denmark	1993	2388/6402 (37%)	1·86 (1·77–1·96)	9·6%
Christensen et al (2014)[19]†	Denmark	1993	1379/1889 (73%)	1·24 (1·12–1·37)	9·5%
Miller et al (2015)[24]	USA	1998	799/3853 (21%)	7·63 (4·50–12·94)	7·2%
Kolappan et al (2008)[22]	India	2003	297/2665 (11%)	2·19 (1·96–2·45)	9·5%
Shuldiner et al (2016)[25]	Israel	2005	385/3201 (12%)	3·72 (3·38–4·10)	9·5%
Blöndal et al (2013)[18]	Estonia	2006	388/2058 (19%)	3·76 (3·41–4·15)	9·5%
Dangisso et al (2018)[20]	Ethiopia	2007	238/2272 (10%)	1·20 (0·85–1·70)	8·4%
Liu et al (2018)[23]	China	2010	394/2741 (14%)	2·82 (2·56–3·11)	9·5%
Wang et al (2015)[27]	China	2011	550/4342 (13%)	4·78 (3·29–6·95)	8·2%
Fox et al (2015)[23]	Vietnam	2012	979/10 964 (9%)	4·00 (3·81–4·20)	9·6%
Random effects model				**2·91 (2·21–3·84)**	
Heterogeneity: I^2=99%, p<0·0001					

Figure 2: **SMR for all-cause mortality after tubeculosis treatment**
SMR=standardised mortality ratio. *Estimate for pulmonary tuberculosis. †Estimate for extrapulmonary tuberculosis.

Romanowski *et al.* Lancet ID 2019; *Courtesy Dr. J Johnston BCCDC*

We have time to make a difference: mortality higher for years



Number at-risk

Non-TB Controls	1,028,434	244,118	36,570	104
TB Patients	2,432	1,079	238	0
Follow-up year	0	10	20	30

- Survival between immigrants to BC diagnosed with TB, to those without TB
- TB severely impacts long term health—systems should address TB survivor health

Basham et al. Can J Pub Health 2021; Courtesy Dr. J Johnston BCCDC

Public Health Management of TB

What is infectious TB?



- TB disease involving respiratory system in an adolescent or adult is infectious
- Determinants of infectiousness
  - Smear positivity
  - Cavitary or upper lung-zone disease on CXR
  - Laryngeal disease
  - Amount and severity of cough
  - Duration of communicable period
  - Proximity of contact to source case
  - Crowding and poor room ventilation
  - Effective treatment
  - Immune status of person exposed

Immediately Notifiable Communicable Diseases

For Health Professionals, Hospital Administrators, Laboratory Directors, Veterinarians or Person in charge of an institution or a workplace

The following Communicable Diseases, either by patient clinical presentation or lab-result, require **immediate verbal notification** to the Medical Health Officer for urgent follow-up:

Monday to Friday, 08:30 to 16:30	**After Hours , Weekends and Holidays**
Communicable Disease Unit: 1-866-778-7736	MHO On-Call: 1-866-457-5648

- Communicable Disease Clusters: Unexpectedly high numbers of a suspected communicable disease **or** suspect food-borne outbreaks
- Suspect bacterial meningitis or meningococcal disease
- Severe respiratory illness from suspected infectious etiology and symptom onset is within 10 days of return from overseas travel
- High risk contacts of lab- confirmed or probable pertussis cases, including baby < 1 year old and pregnant women in their 3rd trimester
- Invasive Group A strep
- Invasive Haemophilus Influenza Type B
- Diphtheria
- Measles
- Mumps
- Suspect or known infectious respiratory Tuberculosis
- Hepatitis A
- Suspect polio
- Botulism
- Suspect viral hemorrhagic fever e.g. Ebola
- Smallpox or Anthrax
- New or emerging infections e.g. SARS, MERS-CoV
- Contamination threat involving food, water or air
- Possible human rabies exposure:
  - Dogs or cats – any bite outside North America, or any bites in BC by a dog or cat behaving abnormally suspicious of rabies
  - Any animal bite outside BC, or, in BC if unprovoked and abnormal animal behavior
  - Any bat exposure with physical contact

Reporting TB to the Medical Health Officer (MHO)

Health care workers must report all suspected or confirmed TB cases.

Reporting enables timely care, limits spread, and starts contact investigation.

Public Health supports diagnosis and specimen collection.

Role of Public Health in TB Case Management

Medical Health Officer/CD Unit

MHO leads public health decision making

MHO determines infectious period, home isolation requirements, contact tracing, and collaborates with clinical teams

CDU oversees public health case management and contact investigation.

Public Health Nurse

- support for people with TB in community
- Responsibilities include conducting contact, managing treatment plans, organizing specimen collection in community, and collaborating to support the client (e.g., Home Health, TB Services, Infectious diseases)

Goals of Contact Investigation

- Identify and initiate treatment for secondary cases of active TB disease
- Identify and treat the infectious source if index patient is less than 5 years old
- Identify contacts with LTBI in order to offer preventive treatment

Role of Provincial TB Services

- Provincial leadership in TB prevention and control.
- Operates specialized TB clinics in the lower mainland.
- **Provides clinical consultation across BC.**
- Leads surveillance and strategic planning.
- Supports diagnosis of TB disease and latent TB infection.
- Prescribes TB medications for both active and latent cases in Interior Health.
- Works closely with Public Health to ensure continuity of care.

Who do you call?

Any suspect or confirmed TB Disease:

- Report

In acute care:

- **Notify IPAC/Medical Microbiologist on call**

Questions:

- **Diagnosis or treatment:** TB Services Physician on call as needed, other usual pathways such as Infectious Disease or Respirology On-Call
- **Testing:** Medical Microbiologist on Call, TB Services physician, usual pathways in Interior Health
- **Discharge for home isolation**: CD unit/public health nursing

BCCDC Contacts

Name	Phone Number	Fax Number
TB Clinic – New Westminster	604-707-2698	604-707-2690
TB Clinic – Vancouver	604-707-2692	604-707-2690
TB Nurse Consultants Weekdays, Business Hours only Email: TBNurseConsultants@bccdc.ca	604-707-5678 **Call if Urgent**	604-707-2690
BC Public Health Laboratory (PHL) Mycobacteriology/TB laboratory	604-707-2630	604-707-2672
PHL Program Head Medical Microbiologist	604-707-5675	
Vaccine and Pharmacy Services	604-707-2580	604-707-2583

www.bccdc.ca/resource-gallery/Documents/Communicable-Disease-Manual/Chapter%204%20-%20TB/Appendix%20G.pdf



Experiences on TB services in Kamloops from PHNs or health care workers?

Opportunities for improvement?

Reproductive Health– maternal/congenital syphilis

Point of Care Syphilis Desk Reference

VERTICAL TRANSMISSION

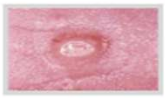
- Risk highest in untreated primary or secondary syphilis, lower in latent syphilis, may occur in late latent syphilis.
- May occur with breast feeding or during vaginal delivery if syphilitic lesion present

EXPOSURE

3 weeks (mean); 3-90 days (range)

PRIMARY SYPHILIS
Transmissible through sexual contact, sharing needles

- Single or multiple chancres at site of infection
- Chancre may be asymptomatic and difficult to visualize
- +/- regional lymphadenopathy
- Chancre may persist up to six weeks



- oral
- anal
- genital

7 weeks (mean); 2 weeks - 6 months (range)

SECONDARY SYPHILIS
Transmissible through sexual contact, sharing needles

- Muco-cutaneous rash develops in >95% of individuals. Often non-pruritic, sometimes involving palms and soles.
- Possibly fever, malaise, pharyngitis, alopecia, lymphadenopathy
- Chancre may still be present



3-4 months (mean)

EARLY LATENT SYPHILIS--within one year of infection
Transmissible through sexual contact, sharing needles

- Asymptomatic, no signs on physical exam

LATE LATENT SYPHILIS—greater than one year since infection
Not transmissible through sexual contact, sharing needles

- Asymptomatic, no signs on physical exam

TERTIARY SYPHILIS
Not transmissible through sexual contact

- Cardiovascular (aortitis, aortic valvular disease, syphilitic aneurysm)
- "gummatous" syphilis (presence of necrotizing gummas to viscera, bone, skin)

CONGENITAL SYPHILIS

- Fetal death
- Stillbirth
- Low birthweight, neonatal sepsis, anemia, jaundice, splenomegaly, renal complications, pneumonia
- May be asymptomatic at birth
- Other symptoms in first 3 months of life include rash, rhinitis

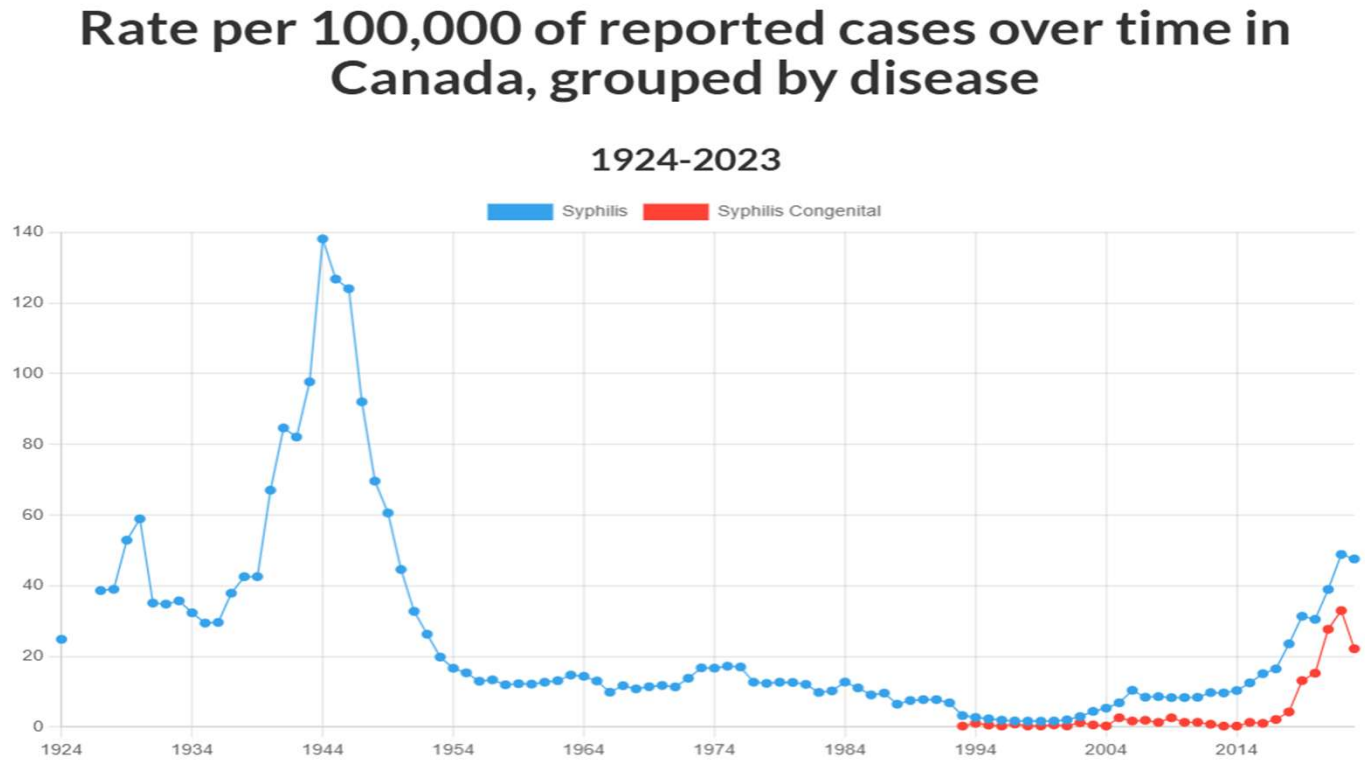
NEUROSYPHILIS

- neuro-ophthalmologic symptoms and signs
- vascular/stroke syndromes
- acute or chronic meningitis
- tabes dorsalis /spinal cord signs
- dementia

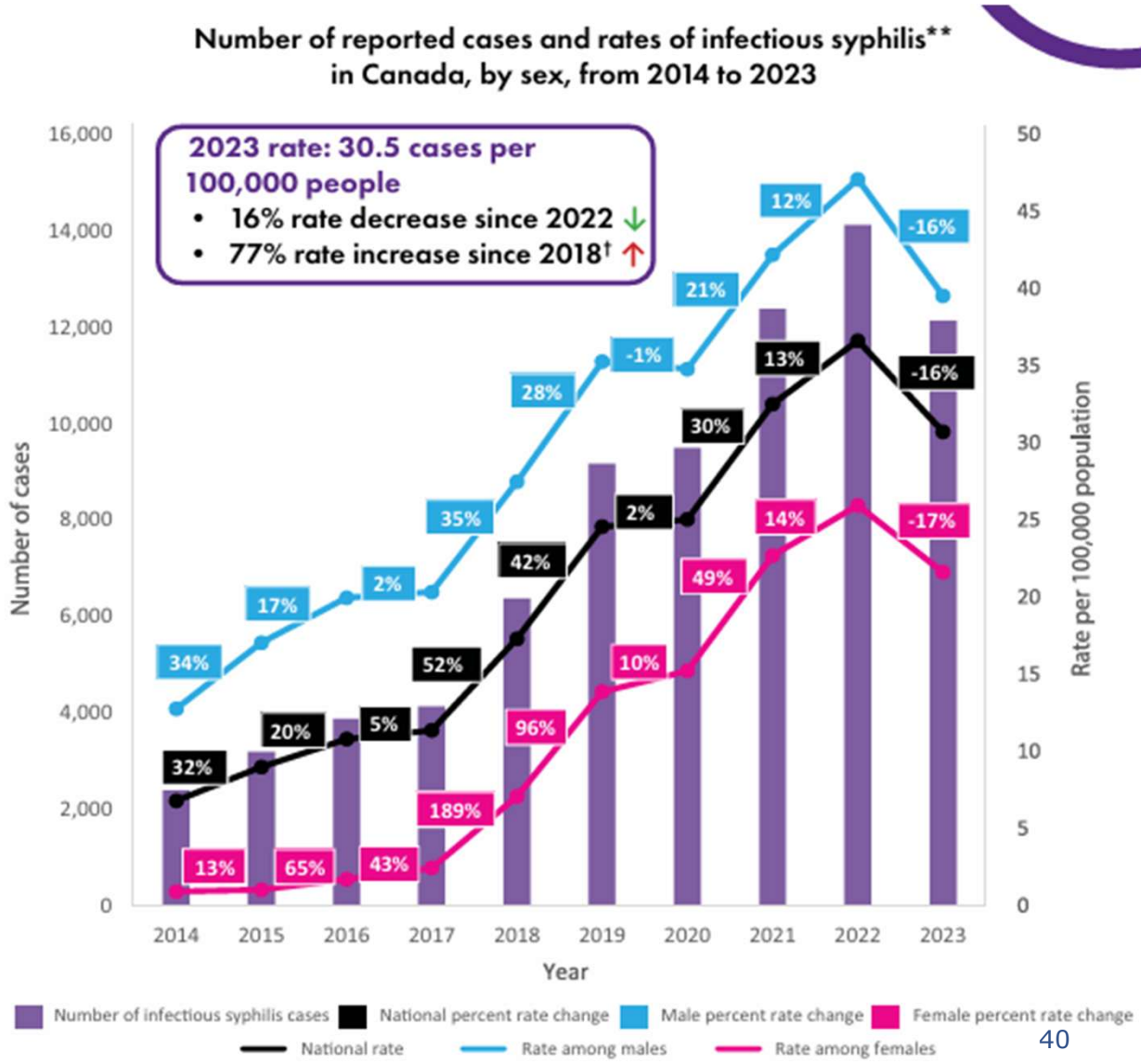
References:
1. Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections—Management and Treatment of specific infections-Syphilis. Available at: http://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/sexually-transmitted-infections/canadian-guidelines-sexually-transmitted-infections-27.html
2. Chapter 239 Syphilis (Treponema pallidum) in Bennett JE, Dolin R, Blaser MJ Mandell GL, Douglass RG. Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases. 2015.
3. Garnett GP et al. The Natural History of Syphilis. Implications for the Transmission Dynamics and Control of Infection. Sexually Transmitted Diseases. 1997. 24 (4) 185-200

2 of 2
October 2019

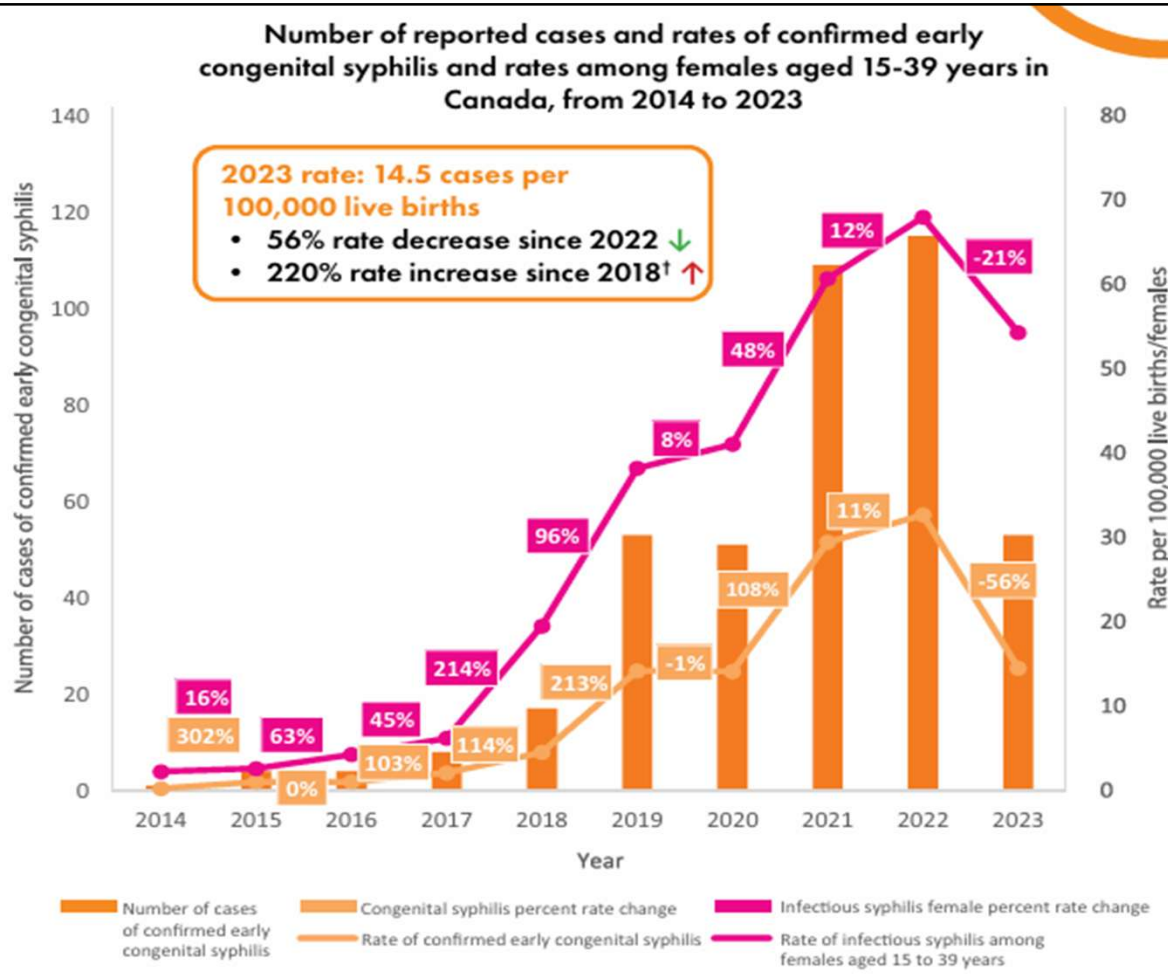
Incidence of syphilis in Canada, historical



Infectious syphilis in Canada, by gender, 2014 to 2023

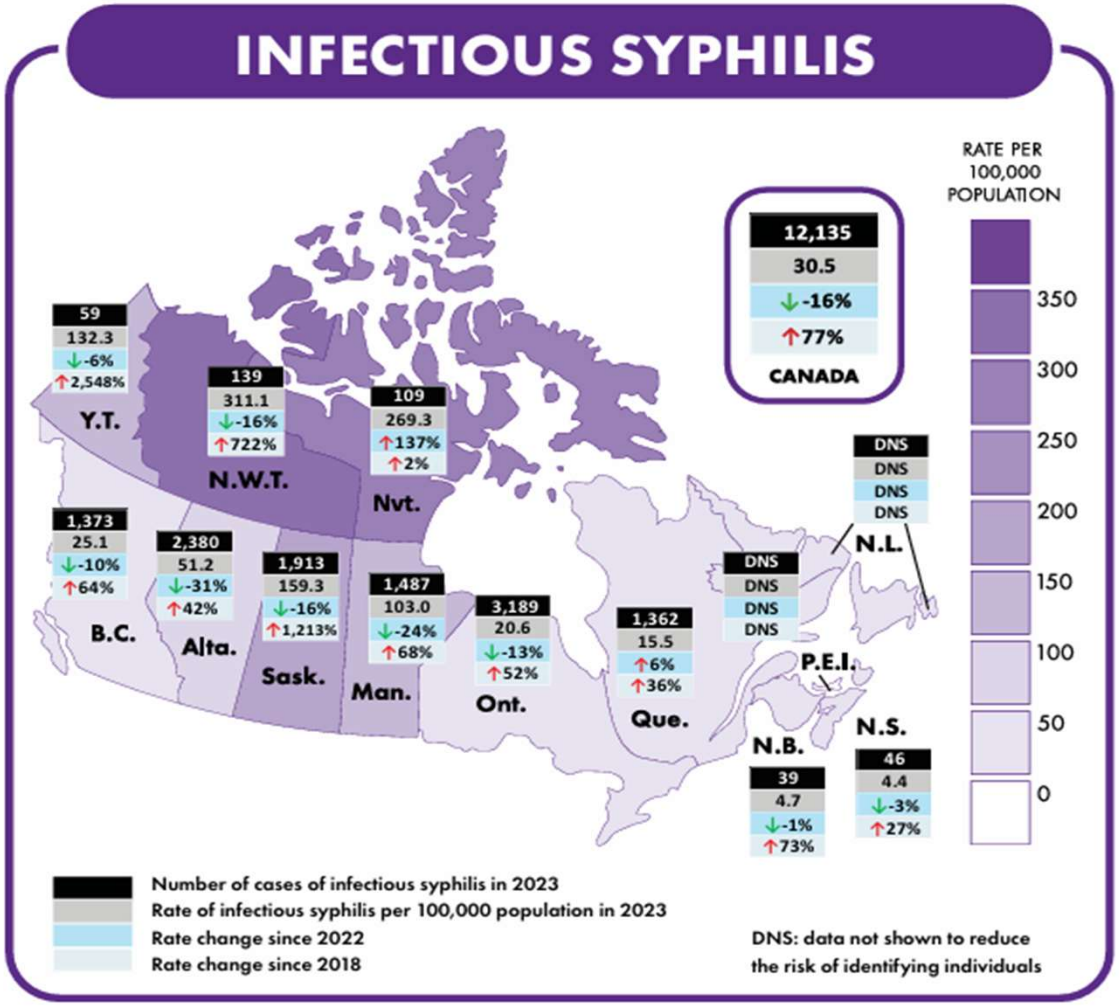


Congenital syphilis in Canada, 2014 to 2023



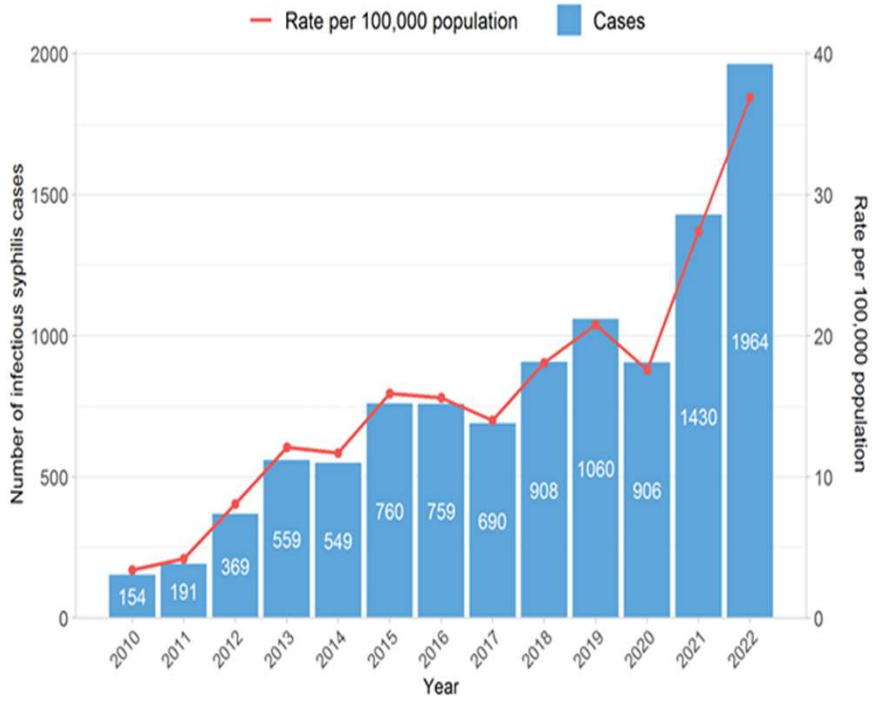
Regional impacts in Canada, 2023

Territories, Alberta, Saskatchewan and Manitoba disproportionately impacted



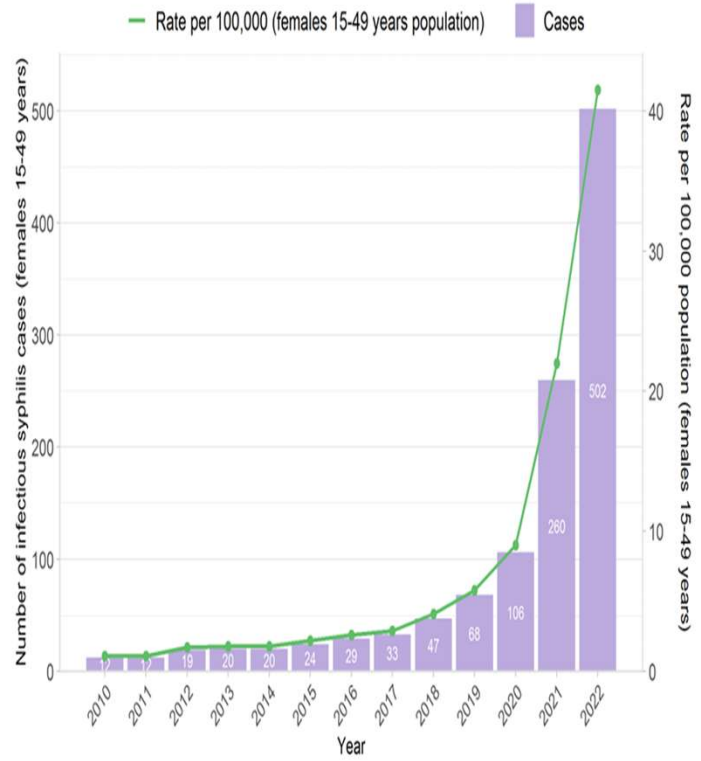
Syphilis in BC and in females 15-49, 2010- 2022

Figure 1. Infectious syphilis case reports and rate in B.C., 2010-2022



Note: 2018 to 2022 case counts are preliminary data and subject to change.

Figure 2. Infectious syphilis case reports and rate in B.C. among females 15-49 years, 2010-2022



Syphilis in BC ~2025 update

In 2019, BC declared a syphilis outbreak.

2025 **1513 new cases**
26.4 rate per 100K population

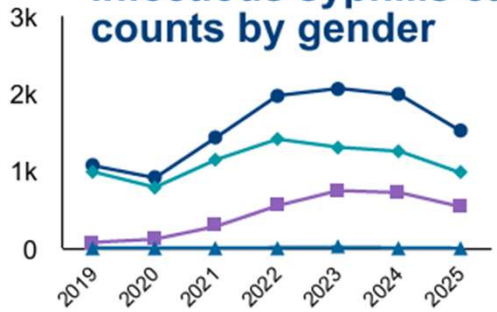
2024 **1983 new cases**
38.4 rate per 100K population

Rate by health authority
% change vs 2024

- **Northern: 52.4** ↓35.5%
- **Coastal: 38.7** ↓29.3%
- **Island: 25.3** ↓18.6%
- **Interior: 18.8** ↓25.1%
- **Fraser: 18.4** ↓14.0%



Infectious syphilis case counts by gender



2025 case counts
- Total: 1513
- Men: 974
- Women: 536
- Trans and gender diverse people: 2

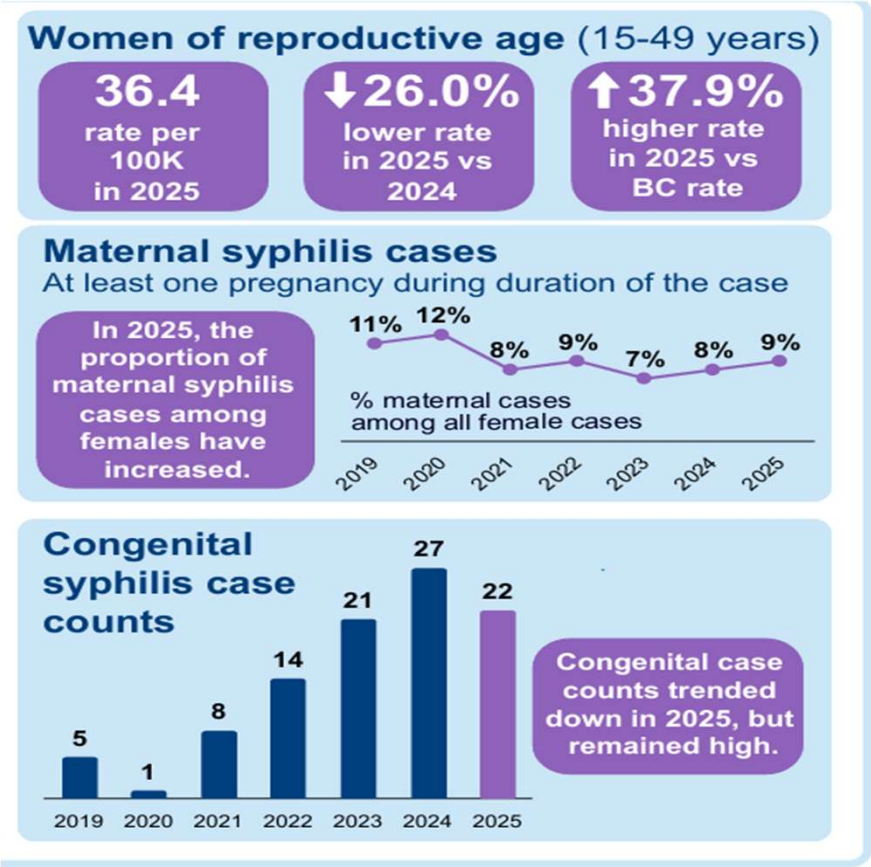
Gender & gender of partner

Among cases with known gender of partner information

- Gay, bisexual and other men who have sex with men (gbMSM)
- Men who have sex with women (MSW)
- Women who have sex with men (WSM)
- Other



Maternal and congenital syphilis in BC



Syphilis in BC 2026 Q1 report

In 2026-Q1, 304 infectious syphilis cases were recorded in BC. Syphilis rate remains at a historical high but has decreased by ↓31% vs 2025-Q1.

Key Populations	Congenital Syphilis
Rate[1] of infectious syphilis for women 15-49 was 6/100k, a near 50% drop vs 2025-Q1 (11/100k)	Congenital cases remain a concern. There were 22 cases in 2025. Case review for 2026-Q1 is ongoing[2]
Testing Episode Volumes	**Regional Trends**
80,581 testing episodes[3] were reported in 2026-Q1, which is a ↑7% change compared to 2025-Q1	Northern Health had the highest infectious syphilis rate[1] with 12/100K. Island Health observed the only rate increase (1%) compared to 2025-Q1

Risk factors for maternal and congenital syphilis- multi-country systematic review

SYSTEMATIC REVIEW

Maternal and perinatal risk factors associated with congenital syphilis

Lorena Batista Pascoal[1] | Ericka Viana Machado Carellos[1] | Briana Henriques Machado Tarabai[1] | Cristina Cerqueira Vieira[1] | Larissa Gonçalves Rezende[1] | Bárbara Silveira Faria Salgado[2] | Roberta Maia de Castro Romanelli[1]

- 14 studies reviewed (12,230 pregnant people with syphilis and 2285 children diagnosed with syphilis)
- **Access to prenatal care and adequate maternal treatment of syphilis are most important factors**
- Younger age, less schooling, unemployment, lower family income, housing instability associated with higher risk of congenital syphilis

Risk factors for maternal/congenital syphilis in Canada

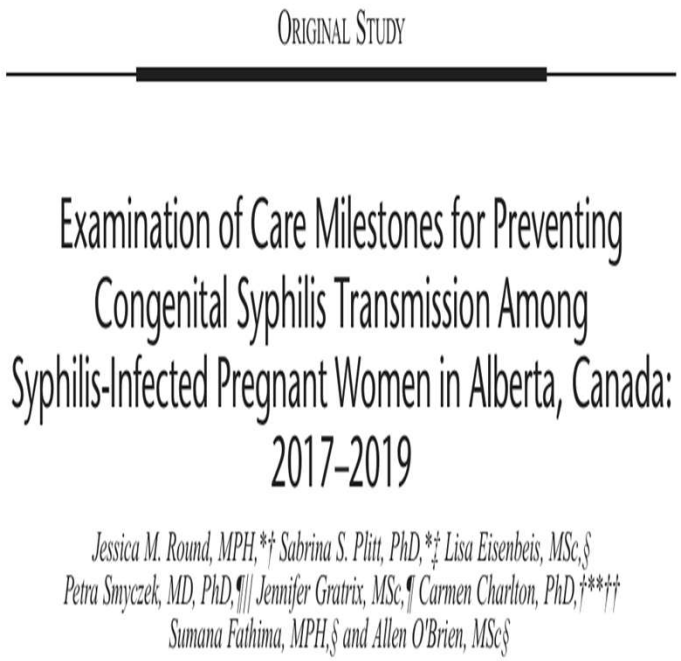
Prenatal characteristics and factors contributing to congenital syphilis: A descriptive analysis of cases reported to the Canadian Paediatric Surveillance Program June 2021 through May 2023

Genevieve Gravel[1] · Joanna Merckx[1] · Amandine Bemmo[1] · Kelly Baekyung Choi[1] · Jaskiran Sandhu[1] · Joan Robinson[2] · Ari Bitnun[3] · Jason Brophy[4] · Karen Leis[5] · Laura Sauvé[6] · Sam Wong[7] · Melanie King[8] · Jared Bullard[9] · Carsten Krueger[10]

Received: 12 March 2025 / Accepted: 7 January 2026 / Published online: 19 March 2026
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- 245 infants born with congenital syphilis (CS) reviewed
- Substance use in pregnancy reported in 65% of infants with CS
- Only half of mothers/birthing parents had at least one prenatal visit
- 25% did not have syphilis testing in pregnancy
- In 20% of people who tested positive, syphilis treatment was not initiated

Alberta experience 2017-2019



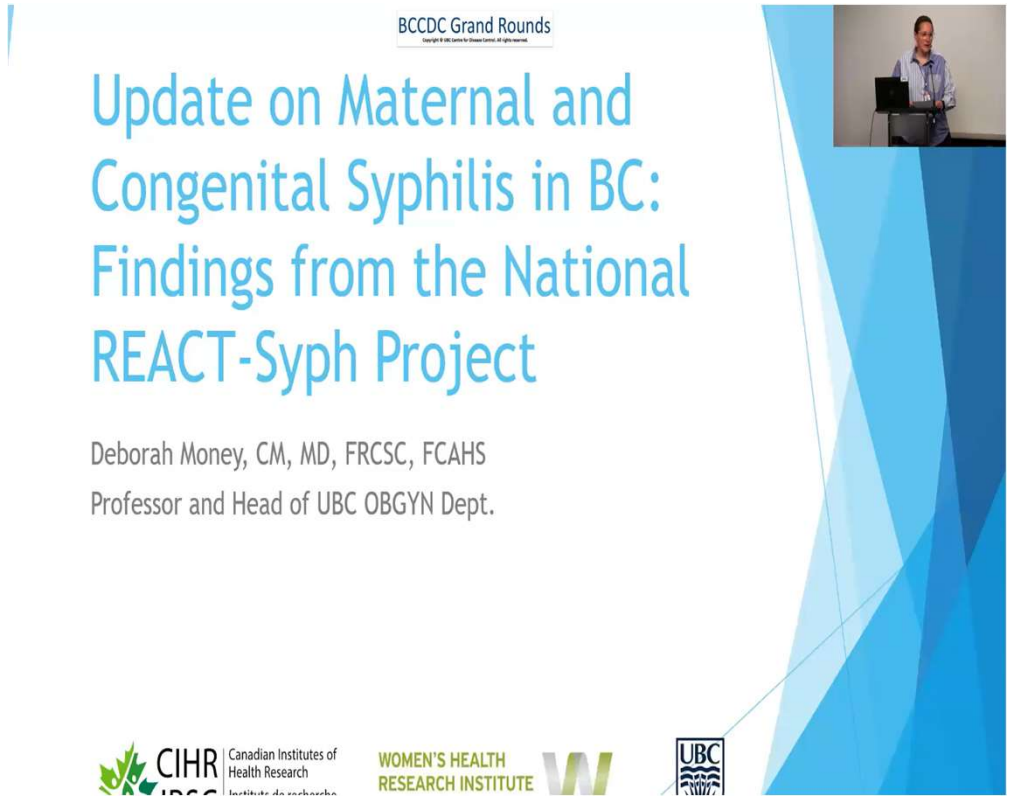
ORIGINAL STUDY

Examination of Care Milestones for Preventing Congenital Syphilis Transmission Among Syphilis-Infected Pregnant Women in Alberta, Canada: 2017–2019

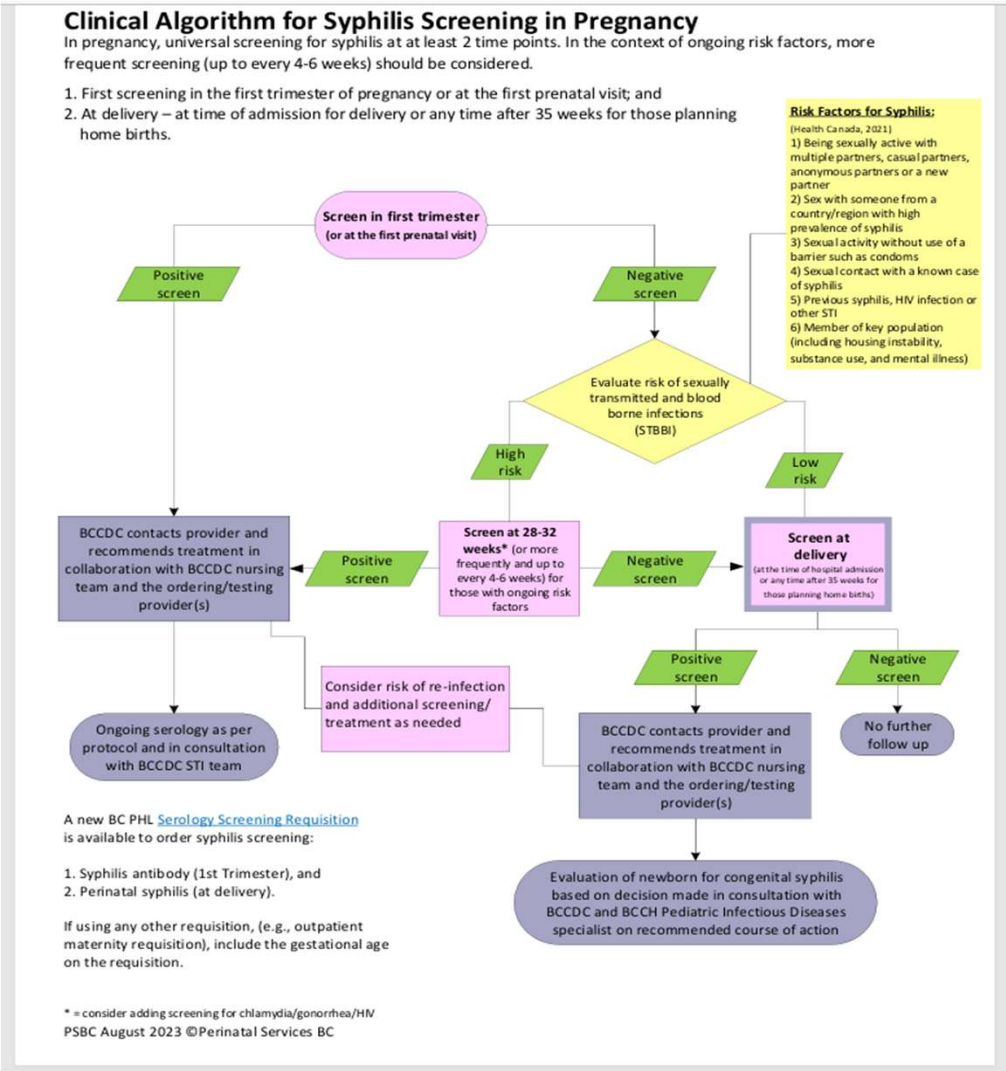
Jessica M. Round, MPH,*† Sabrina S. Plitt, PhD,*‡ Lisa Eisenbeis, MSc,§ Petra Smyczek, MD, PhD,¶‖ Jennifer Gratrix, MSc,¶ Carmen Charlton, PhD,†**†† Sumana Fathima, MPH,§ and Allen O'Brien, MSc§

- Of 182 people with syphilis in pregnancy
  - 63 infants were born with congenital syphilis
  - 39% of pregnant people had syphilis screening in the first trimester, 83% screened during pregnancy
  - 25% of pregnant people with syphilis had more than 48 days between test and treatment

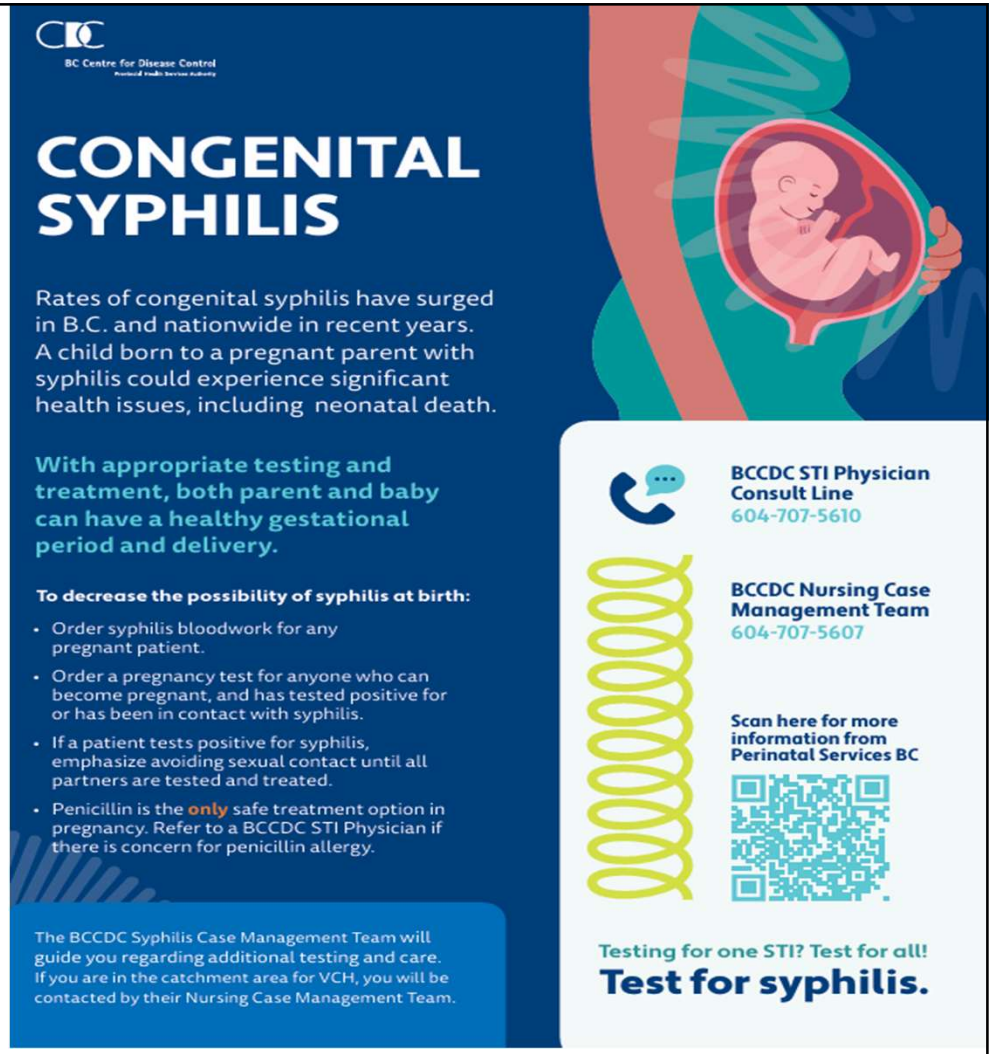
BC experience BCCDC Grand Rounds May 26, 2026



Perinatal Services BC – syphilis screening in pregnancy



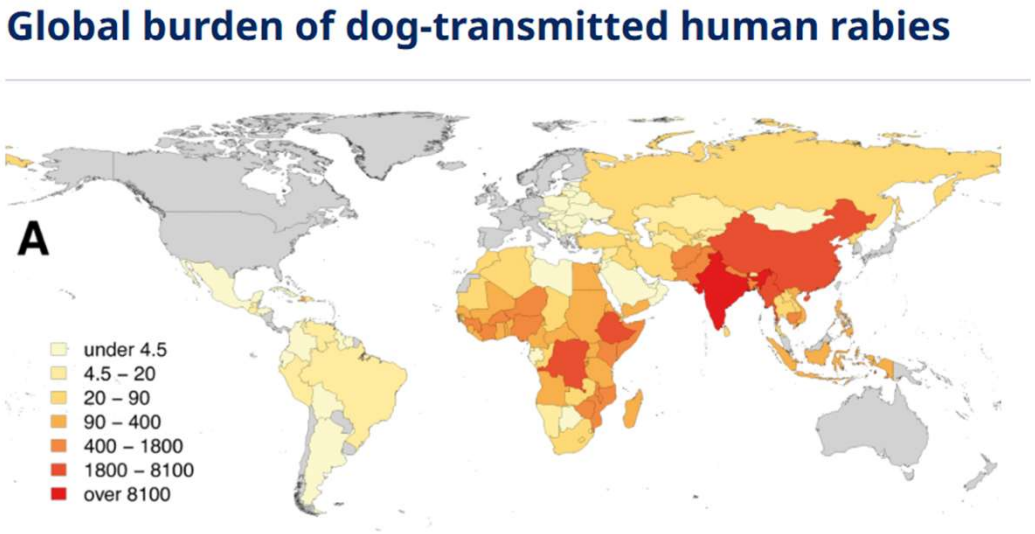
Experiences and discussion



Rabies

Rabies in Humans

- Global burden is severe
- Estimated 28 people diagnosed with rabies in Canada since 1924, including child in Ontario (2024) and two known infections acquired in BC (2003, 2019)



Estimated 59,000 human deaths globally per year, under reporting is likely. 99% of global human rabies is caused by dogs, mostly impacting poor, rural populations

https://www.who.int/teams/control-of-neglected-tropical-diseases/rabies/epidemiology-and-burden

Rabies Reservoir BC

- Bats are sole reservoir of rabies in BC
- Approximately 5 to 10% of selected bats test positive for rabies
- Estimate that about 1 in 1000 bats have rabies infection
- Sporadic spillover of bat-variant rabies virus to other animals in BC occurs, including skunk in Kootenay Lake region (2026)



Photo of a skunk. By Kate Brown / Vista Radio Staff

HEALTH 1 min. read

Rabid Kootenay Lake skunk confirmed to have bat variant of rabies

By Storrm Lennie | October 1, 2026

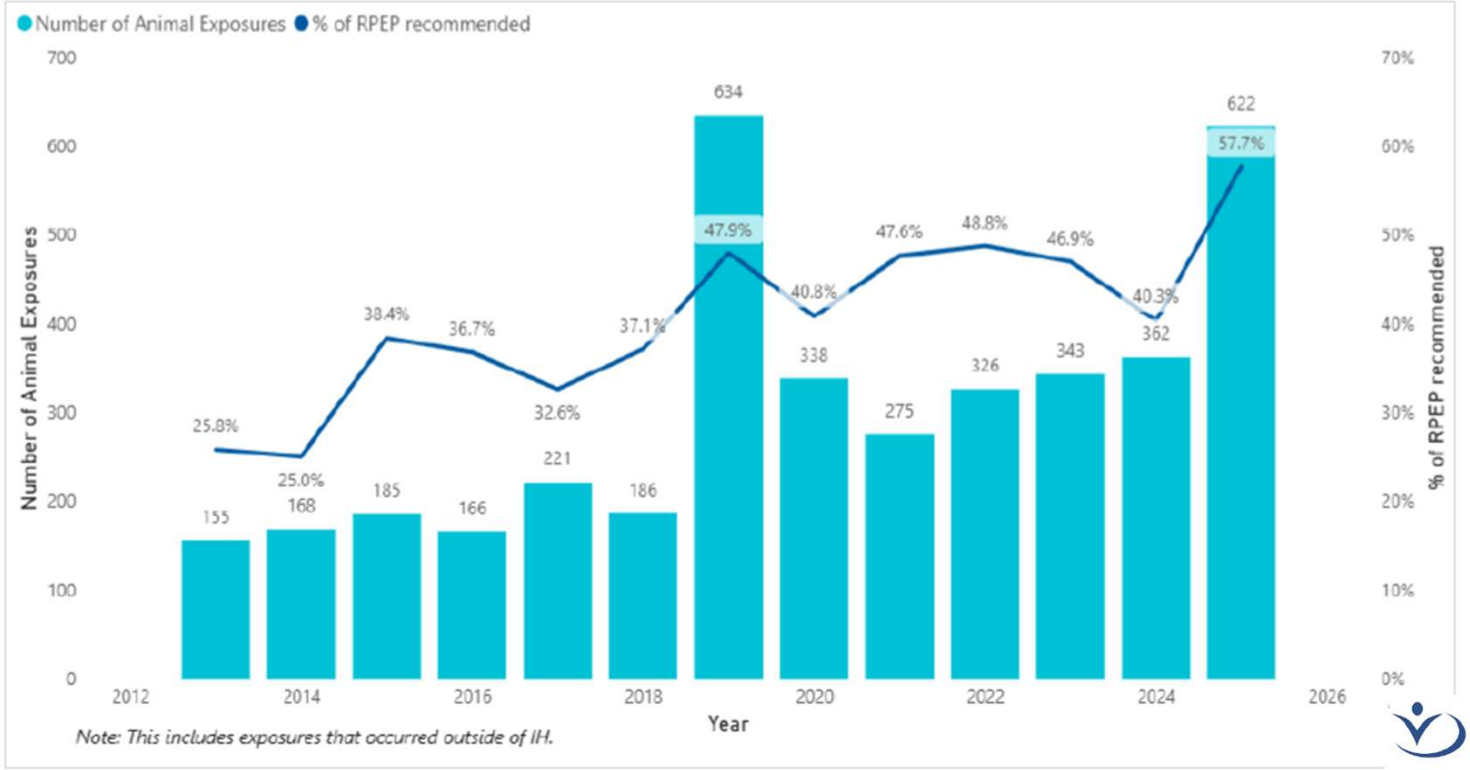
https://www.mynelsonnow.com/80635/news/health/rabid-kootenay-lake-skunk-confirmed-to-have-bat-variant-of-rabies/

- 2021 – a skunk in Nelson
- 2007 – a cat in Maple Ridge
- 2004 – 4 skunks in Stanley Park
- 1992 – 3 cats in Delta[35]
- Late 1980s – a beaver
- 1984 – a horse in the Sorrento area
- 1969 – a cat on Vancouver Island

https://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%201%20-%20CDC/Rabies_Guidelines

Increasing Animal Contact Reports

FIGURE 1: Percent of RPEP recommendations among reported animal exposures to IH (2013-2025)

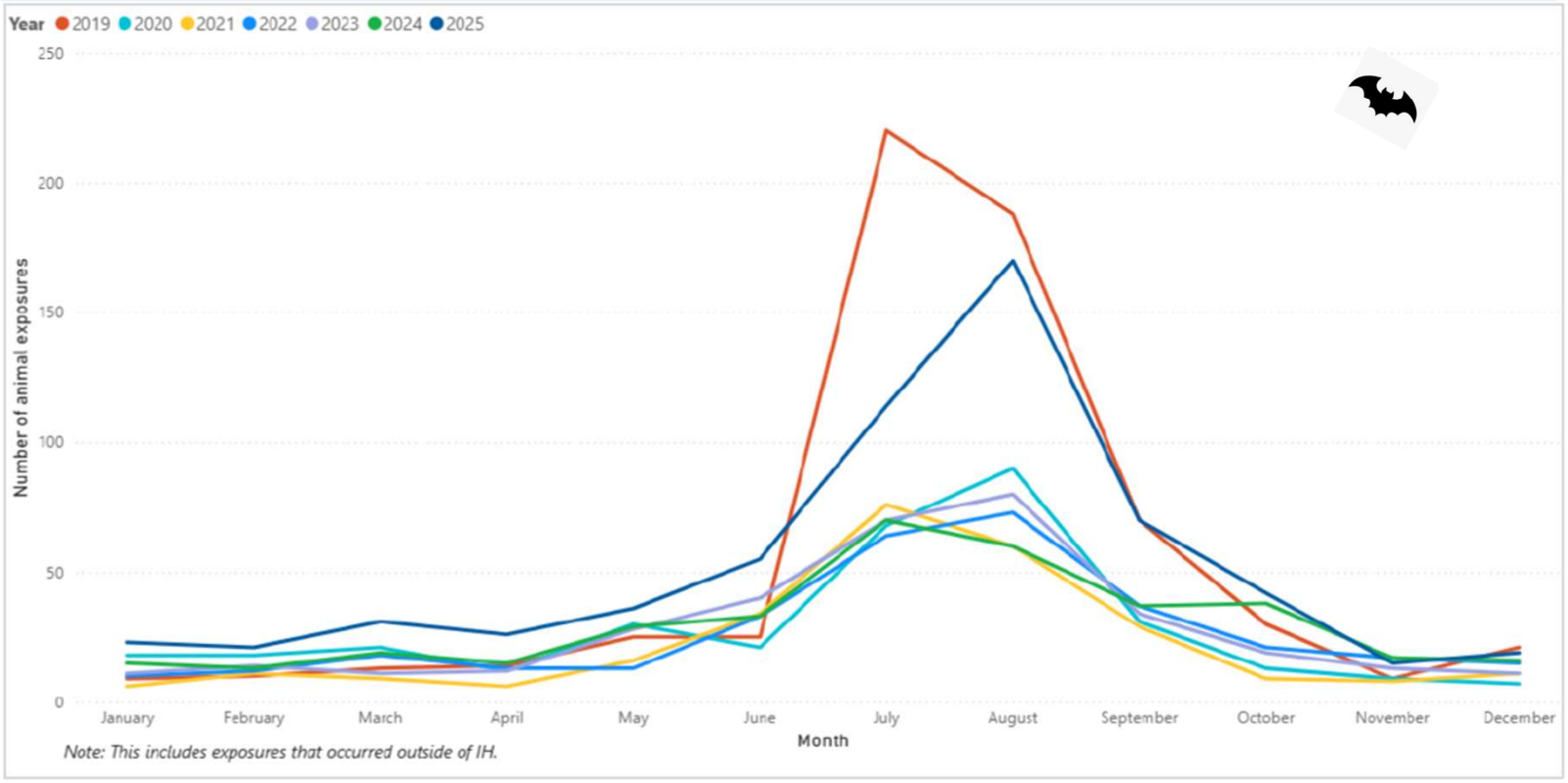


Interior Health
Epidemiology & Surveillance Unit

Seasonality of Animal Contacts

Interior Health
Epidemiology & Surveillance Unit

FIGURE 2: Number of reported animal exposures to IH by month and year (2019-2025)



The Players

- Environmental Health Officer
- Communicable Disease Unit
- Immunization Program
- Public Health Nurse
- Emergency Department Team
- 811 HealthLink BC
- Provincial Public Health Veterinarian/Chief Veterinary Officer
- Community Veterinarian
- Urgent Primary Care Centre
- Medical Health Officer
- National Advisory Council On Immunization and BCCDC
- World Health Organization and programs in other countries
- Water Land Resource Stewardship
- Epidemiology and Surveillance Unit



Rabies Programmatic Activities: Opportunities to improve

Insights, experiences, opportunities for improvement?

What you need to know about bats and rabies

June 30, 2026



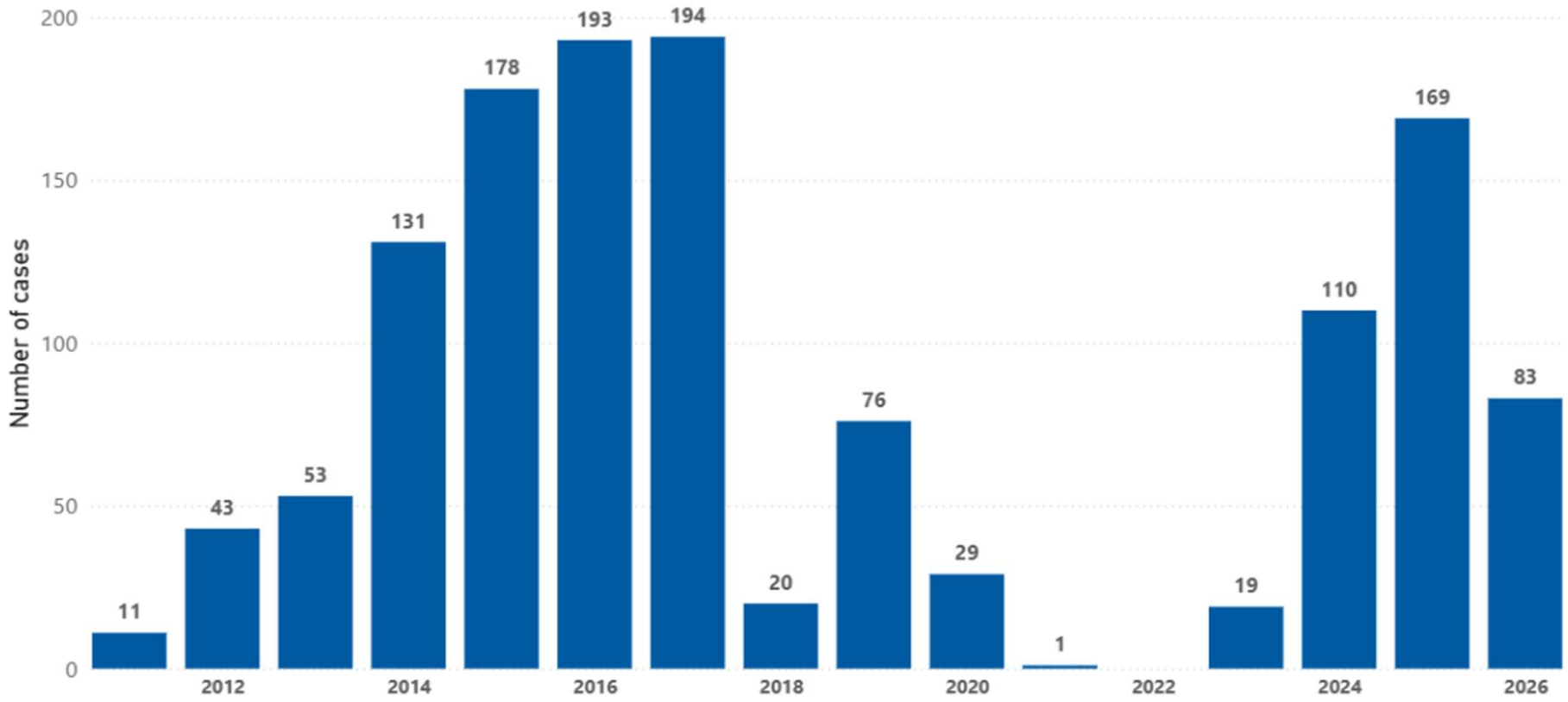
A volunteer bat biologist holds up bats during an interpretive walk in Peachland. B.C. is home to 16 bat species, many of which are threatened or endangered.

https://www.interiorhealth.ca/stories/what-you-need-know-about-bats-and-rabies

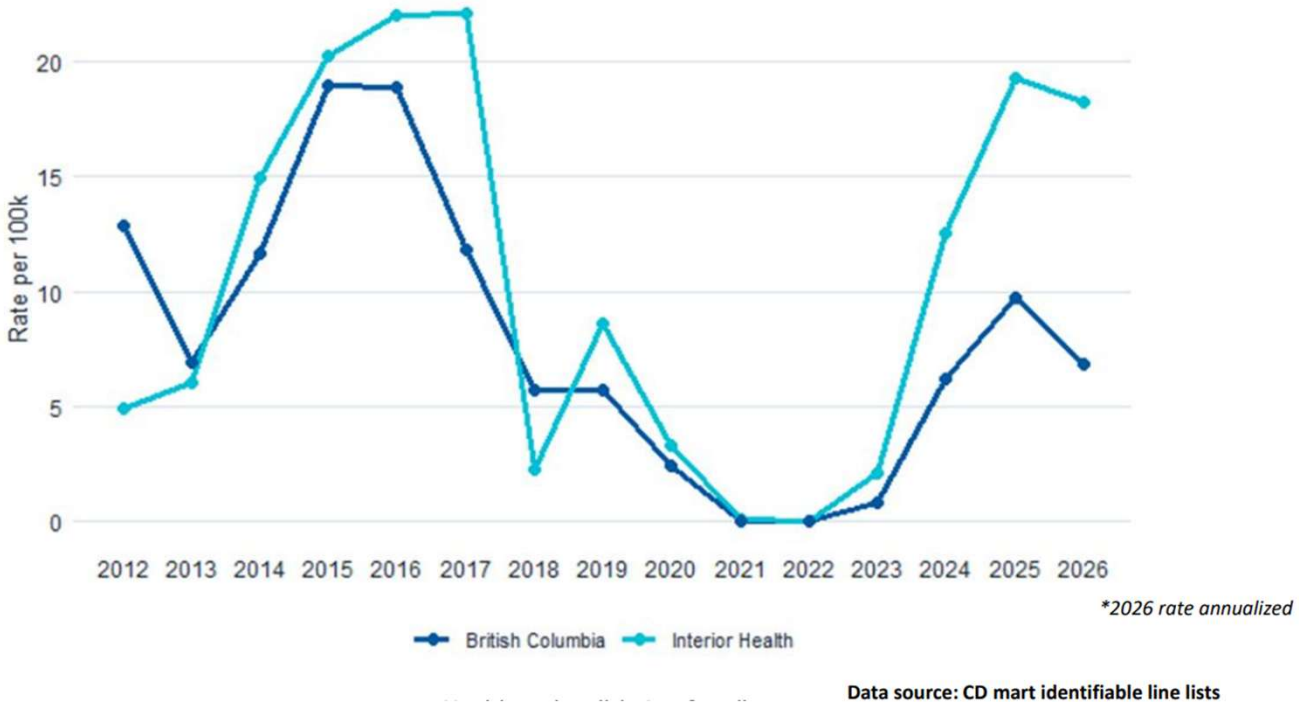
Pertussis

Pertussis Epidemiology

Pertussis Case Counts

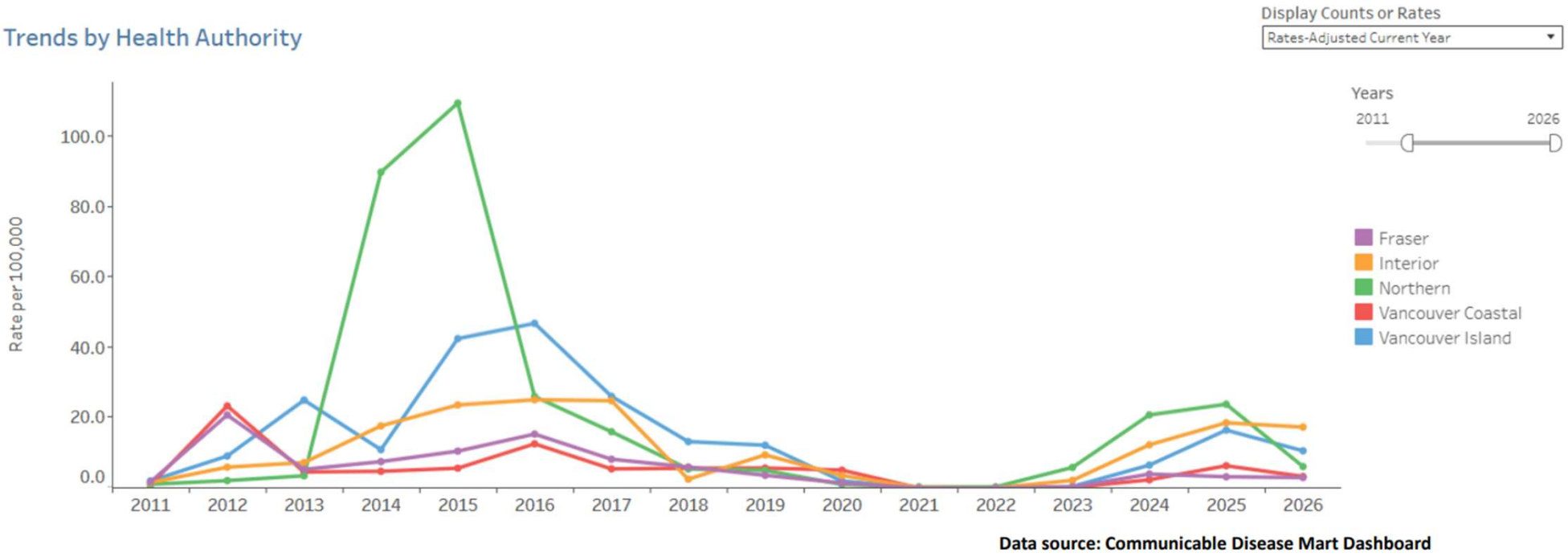


BC vs IH Pertussis rates



Data source: CD mart identifiable line lists

Pertussis Trends by Health Authority



Data source: Communicable Disease Mart Dashboard

Rates of Pertussis by age group, IH, Jan-June 2026

Age group	Percent	Rate per 100k (95% CI)
<1	6%	84.6 (27.5-197.5)
1-4	13%	42.7 (21.3-76.4)
5-9	16%	33.3 (17.7-56.9)
10-14	20%	39.8 (23.2-63.7)
15-19	8%	15.7 (6.3-32.4)
20-24	7%	13.5 (4.9-29.3)
25-44	19%	7.1 (4.1-11.5)
45-64	7%	2.7 (1.0-5.9)
65+	2%	0.9 (0.1-3.2)

Slide 65

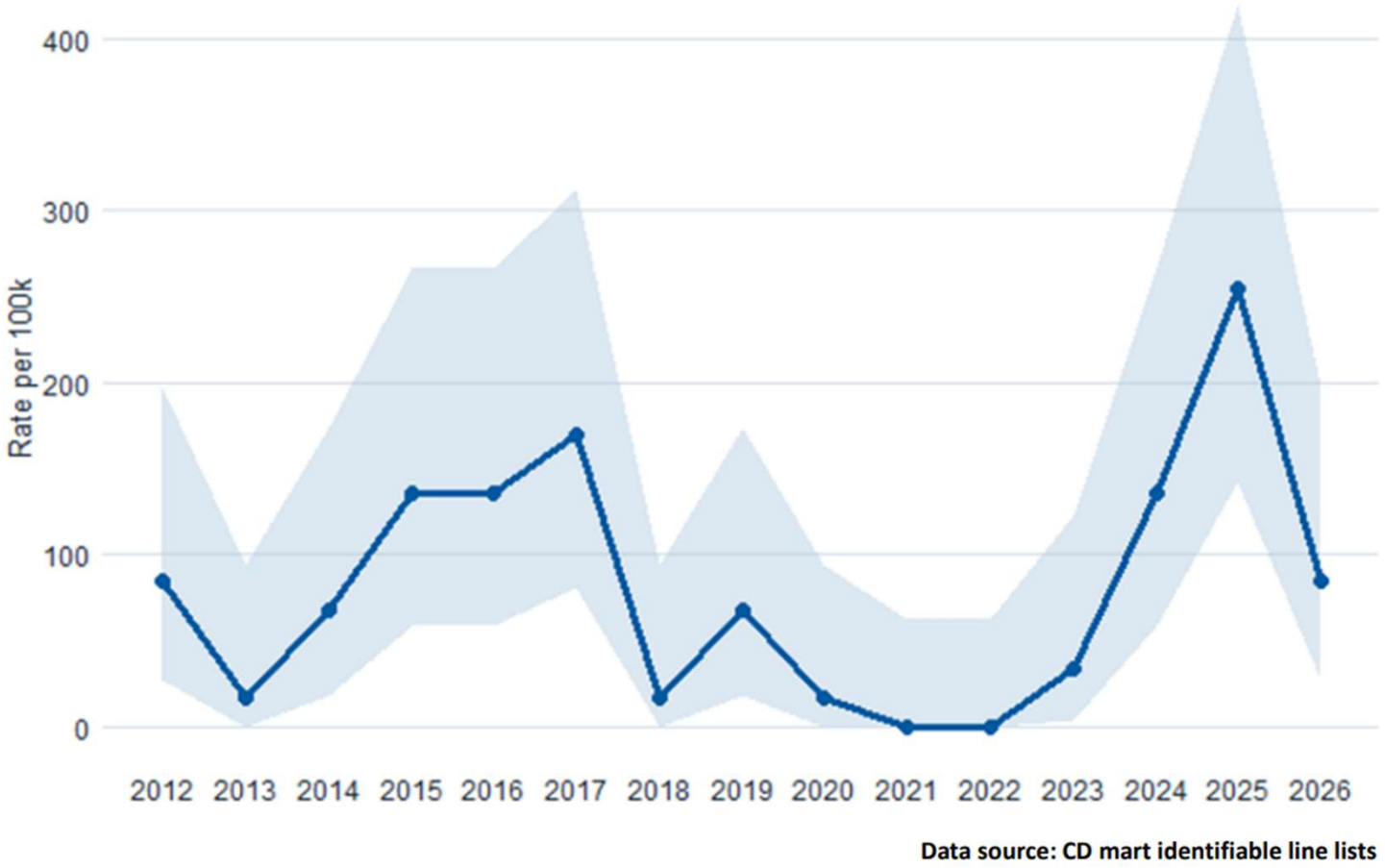
D[1 confirming that this slide is for IH in 2026. We might consider labelling this Age specific incidence of pertussis in IH 2026

(i was wondering if slide was communicating severe outcomes)
Delli Pizzi, Andy [IH], 2026-10-07T05:38:10.776

JJ1 0 Yes, it is from a presentation done in July of 2026 with a Q2 update
Jeyes, Jennifer [IH], 2026-10-07T19:03:40.700

D[1 1 Should we state 'Rates of pertussis by age group in IH in year___"
Delli Pizzi, Andy [IH], 2026-10-07T19:20:28.781

Infant Pertussis Incidence 2012-2026



Data source: CD mart identifiable line lists

Pertussis - Symptoms & When to Test

Common Symptoms

- Starts like a **common cold** (runny nose, mild fever, cough)
- Progresses to **severe coughing fits**
- Characteristic **"whoop"** after coughing (may be absent in adults)
- **Vomiting** or exhaustion after coughing episodes
- Infants may have **apnea, cyanosis, or severe respiratory illness**

When to Consider Testing

- Persistent cough lasting **≥ 2 weeks**
- Paroxysmal cough, whoop, or post-tussive vomiting
- Suspected pertussis in infants or pregnant individuals
- Symptomatic close contacts during an outbreak
- Unexplained prolonged cough when pertussis is circulating in the community

Pertussis Immunization in BC

Routine childhood immunization begins at **2 months of age** and is highly effective at preventing severe illness and death in infants.

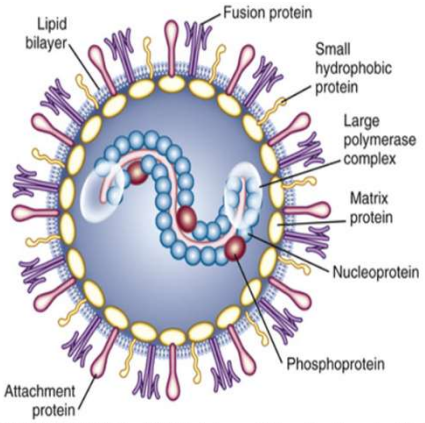
Free booster dose available for **Grade 9 students** and adults who were not immunized in childhood.

Pregnancy immunization is recommended during **every pregnancy**, ideally at **27–32 weeks**, to help protect newborns.

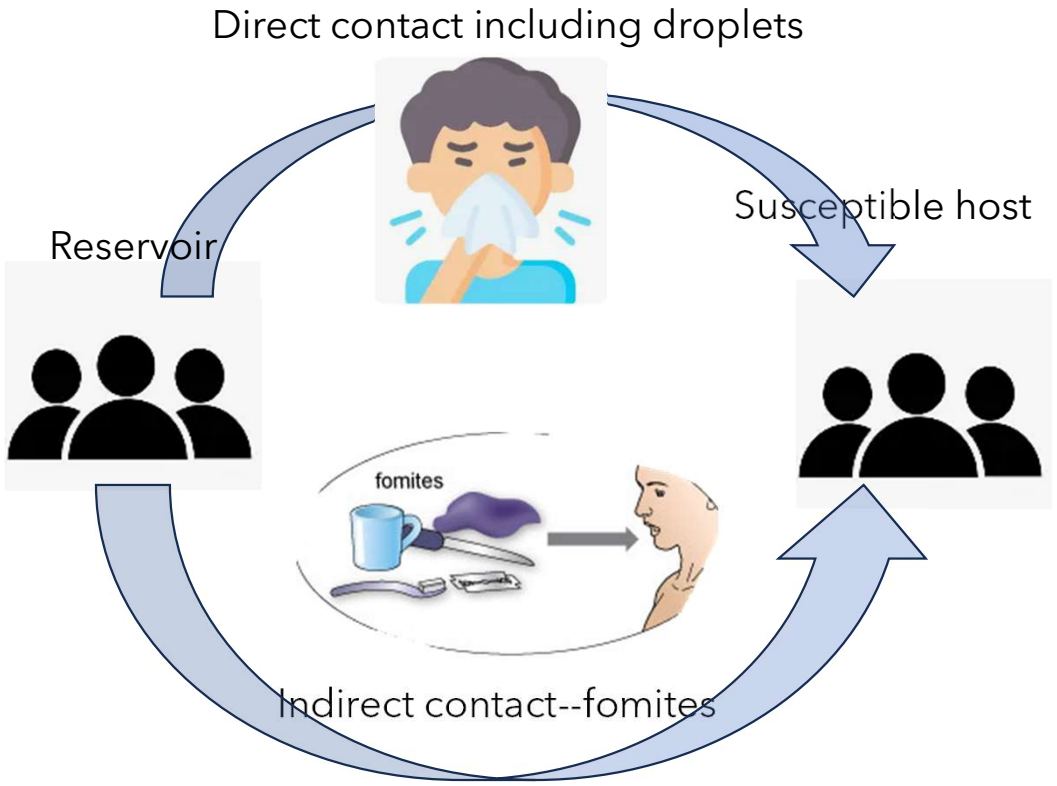
Adult booster doses are recommended; available through pharmacies and travel clinics, but are generally not publicly funded.

RSV

RSV

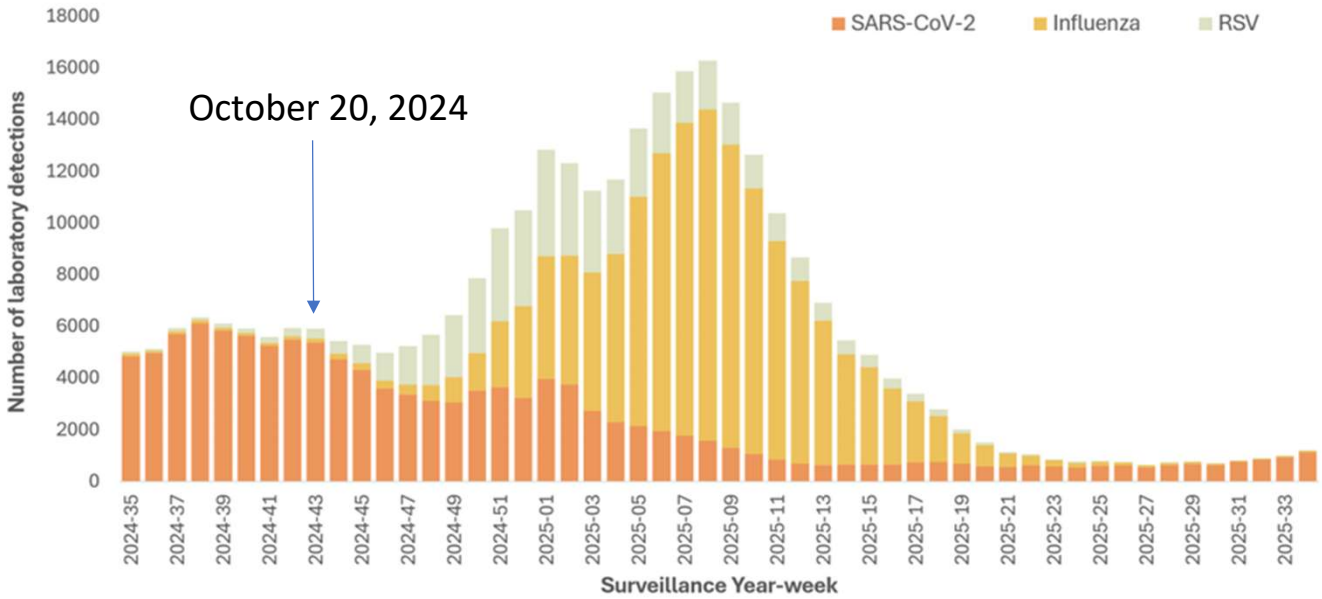


Structure of respiratory syncytial virus. (Modified from Hall CB. Respiratory syncytial virus and parainfluenza virus. *N Engl J Med*. 2001;344:1917–1928.)



Seasonality of RSV and influenza in Canada 2024-25

Figure 1. Number of detections by virus and surveillance week, Canada, season 2024-2025.



https://publications.gc.ca/collections/collection_2026/aspc-phac/HP37-56-2025-eng.pdf

RSV burden of disease in children

Estimates of hospitalization rates in children vary but in various studies in high income countries, estimates hover around:

- 5 to 28 admissions per 1000 per year in infants less than 6 months
- 3 to 13 admissions per 1000 per year in infants 6 to 11 months
- 2.5 to 5 admissions per 1000 per year in children 1 to 5 years of age
- RSV accounts for about 20% of medially attended respiratory tract infections in infants
- Infants from Nunavut: 38 admissions per 1000 per year

Higher risk in infants with comorbidities

About 5% to 10 % of infants hospitalized with RSV require ICU admission

Limited data on mortality rates in healthy infants in Canada

RSV burden of disease in pregnancy and adults

RSV associated hospitalization in Canada

- per year 80 and older
- about 2 per 100,000 per year aged 18-49
- 44 per 100,000 per year aged 70 to 79
- 135 per 100,000

About 10% of older adults hospitalized with RSV infection require ICU admission, and about 5 to 10 percent of older adults hospitalized with RSV die

Limited data on RSV disease in pregnant people

- risk appears to be similar in pregnant vs non pregnant people
- No known impacts to fetus or with neonatal outcomes with infection in pregnancy

Excess risk of cardiovascular events in the year following RSV infection

Risk of Guillain Barré Syndrome, especially in those aged 75 and older

Number and rate per 100,000 population of hospitalizations, by age group and virus, Canada; 2024-25 respiratory period

	COVID-19		Influenza		RSV	
Age group (years)	Count (%)	rate per 100,000 population	Count (%)	rate per 100,000 population	Count (%)	rate per 100,000 population
0 to 4	722 (3.3)	82.6	1345 (7.3)	155.2	3300 (45.9)	430.4
5 to 19	248 (1.1)	8.3	977 (5.3)	32.1	280 (3.9)	10.4
20 to 44	1144 (5.2)	19.2	1496 (8.1)	24.2	208(2.9)	3.8
45 to 64	2514 (11.5)	55.9	3144 (17.1)	69.4	563(7.8)	14
65+	17233 (78.8)	506.5	11422 (62.1)	324.4	2844(39.5)	90.7

Effectiveness of nirsevimab and RSVpreF in pregnancy to protect infant

A recent meta-analysis of 32 studies:

- nirsevimab prevents 83% of RSV-related hospitalizations (95% CI 77 to 88%) and 81% of ICU admissions (95% CI 71 to 88%) in infants in their first RSV season

Studies of maternal RSVpreF immunization administered at least 14 days prior to delivery show that vaccine prevents about 60% to 80% of infant hospitalizations and 64% to 87% of ICU admissions

Limited evidence around reduction in infant mortality from nirsevimab or RSVpreF

Passive immunization from vaccine in pregnancy or long-acting Mab may persist for 6 months

Safety of nirsevimab and RSVpreF

Risk of severe systemic and local adverse effects from nirsevimab similar to those observed with placebo

Real world safety data around nirsevimab, accumulating, currently limited, no safety signals identified

RSVpreF

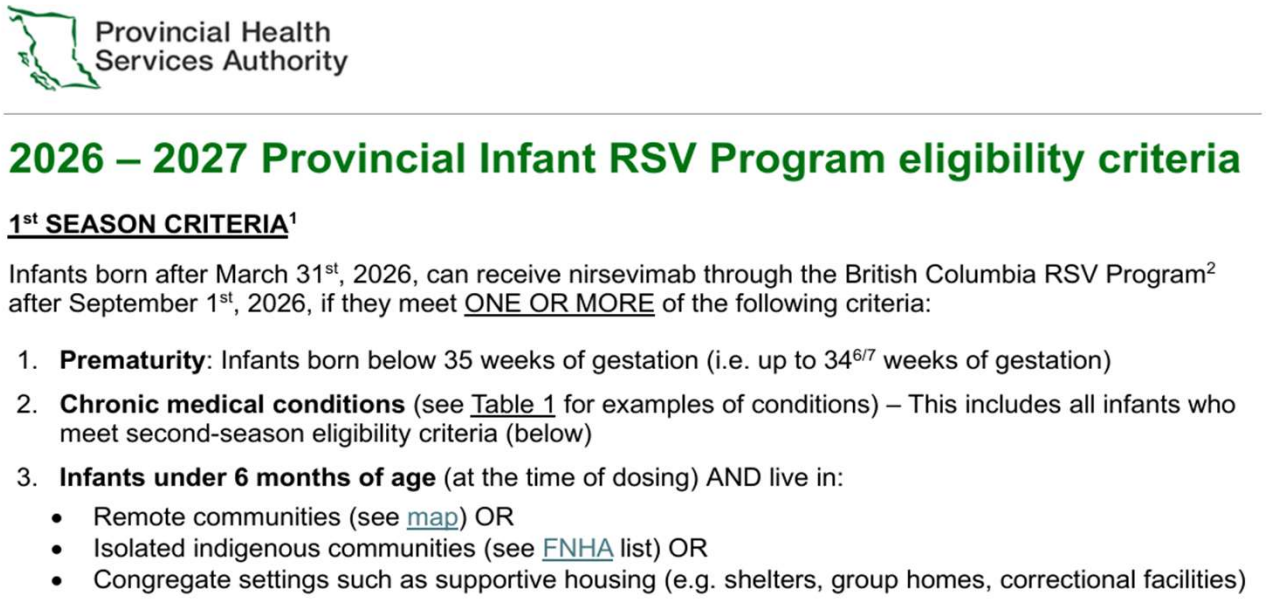
- Higher risk of severe local reactions compared to placebo
- No demonstrated increase of severe systemic adverse events
- Interim analysis of ongoing large prospective cohort does not identify differences in preterm birth, hypertensive disorders of pregnancy, premature rupture of members.

NACI recommendations

Provinces and territories should implement universal seasonal RSV immunization programs for infants

Universal program should include either infant monoclonal Ab for infants in their first season, or an approach that includes RSVpreF vaccination during pregnancy with monoclonal Abs for infants at increased risk of RSV or born without vaccination in pregnancy

BC recommendations



Provincial Health Services Authority

2026 – 2027 Provincial Infant RSV Program eligibility criteria

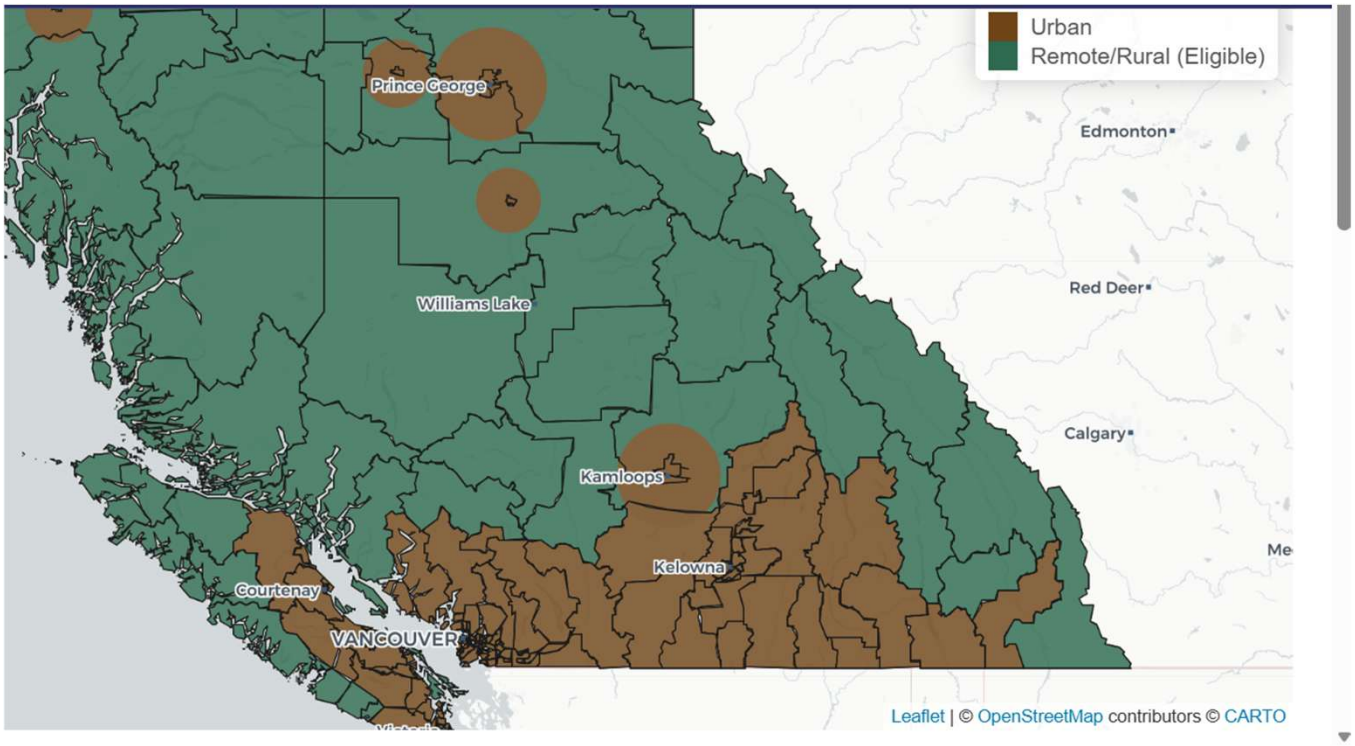
1st SEASON CRITERIA[1]

Infants born after March 31st, 2026, can receive nirsevimab through the British Columbia RSV Program[2] after September 1st, 2026, if they meet ONE OR MORE of the following criteria:

1. **Prematurity**: Infants born below 35 weeks of gestation (i.e. up to $34^{6/7}$ weeks of gestation)
2. **Chronic medical conditions** (see Table 1 for examples of conditions) – This includes all infants who meet second-season eligibility criteria (below)
3. **Infants under 6 months of age** (at the time of dosing) AND live in:
   - Remote communities (see map) OR
   - Isolated indigenous communities (see FNHA list) OR
   - Congregate settings such as supportive housing (e.g. shelters, group homes, correctional facilities)

Infants whose birthing parent received RSV vaccine at least 14 days before delivery are considered protected and do not need nirsevimab. High risk children, however, may receive nirsevimab in their first RSV season even if birthing parent received RSV vaccine

Map of RSV Eligible communities



BC recommendations (cont'd)

2nd SEASON CRITERIA (infants with the following conditions should also receive nirsevimab in their 1st season)

HIGH-RISK children up to 2 years of age with one or more of the following chronic health conditions, including children in their 2nd season (or 3rd), provided they are under 24 months at the time of dosing[3]:

- Chronic lung disease, including bronchopulmonary dysplasia AND requiring ongoing assisted ventilation, oxygen therapy (e.g. Home O2, CPAP, BIPAP)
- Hemodynamically significant congenital cardiac disease or cardiomyopathy
- Severe or profound combined immunodeficiencies (e.g. SCID, CD40 ligand deficiency, DOCK8, etc.; **Please note** that adjudication by a Pediatric Immunologist is required in those cases)
- Severely impaired ability to clear respiratory secretions due to a congenital airway anomaly or neuromuscular disease
- Cystic fibrosis with respiratory involvement and/or growth delay
- Down syndrome (and other trisomy syndromes)
- Preterm infants born below 32 weeks of gestation after March 31, 2025

Messages from BC RSV Infant program

During the 2025-26 RSV season, more than 2,100 infants in BC received nirsevimab through the publicly funded program

More than 10,500 people who gave birth during the 2025-26 RSV season received the maternal vaccine

About 0.6% of infants in BC were hospitalized for RSV during 2025-26 season

RSV-related hospitalizations in children under one year in BC during the 2025-2026 RSV season decreased to the lowest levels in 13 years



Dr. Pascal Lavoie

https://pediatrics.med.ubc.ca/dr-pascal-lavoie/

RSV-LRTI Hospitalizations (Sept 1, 2025-April 30, 2026) in BC and IHA, infants born after April 1, 2025

	BC	Interior HA
Hospitalizations, n		
2025-2026	239	30
Historical Average (2013-2025)	348	53
Upper	411	71
Lower	284	35
Total Days in Hospital, Days		
2025-2026	799	105
Historical Average (2013-2025)	1424	229
Upper	1710	306
Lower	1138	152

*omitted 2020-2021

Program support for infant RSV activities

Hospital or community based physicians/teams can reach out to IH Immunization program if questions about eligibility or clinical questions. IH IMMS can reach out BC RSV Program as needed

immunizationprogram@interiorhealth.ca



BC Infant Respiratory Syncytial Virus Immunoprophylaxis Program
Questions and Answers for Immunization Providers
Updated August 2026

This resource was developed in collaboration with the BC Infant RSV Immunoprophylaxis Program.

Effectiveness and safety of RSV vaccines to protect adults

- Protect against medically attended RSV respiratory tract infections for at least three years
- No data on mortality reduction
- Limited data on reducing ICU admission
- Real world effectiveness estimating around vaccines prevent about 70 % to 80% of ED visits and hospitalizations in adults 60 and over
- Signal of Guillain Barré Syndrome following subunit RSV vaccines in adults 65 and older (e.g. about 10 excess GBS per million doses in those 65 and older)
- No excess signal GBS identified in pregnancy

BC RSV vaccine recommendations

Respiratory Syncytial Virus (RSV) Vaccine
ABRYSVO® (RSVpreF) **Supplier: Pfizer Canada ULC**

RECOMMENDED BY THE NATIONAL ADVISORY COMMITTEE ON IMMUNIZATION BUT NOT PROVIDED FREE IN BC:

- Adults 75 years of age and older
- Adults 65 to 74 years of age who are at increased risk of severe RSV disease
- Adults 18 years of age and older who:
  - are residents of nursing homes and other chronic care facilities
  - have had a lung transplant
  - have had a hematopoietic stem cell transplant (in the previous 2 years or who remain on immunosuppression)
  - are on home oxygen or require chronic oxygen therapy regardless of living at home or elsewhere
  - are receiving dialysis
- Pregnant people between 28-36 weeks gestation [A, B]

https://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Part4/RSV_Abrysvo.pdf

FNHA coverage for RSVpreF



Coverage Details

For the 2026-27 RSV Season, First Nations Health Benefits will cover the Abrysvo™ vaccine for eligible individuals who are between **28 and 36 weeks pregnant**. This increases the eligibility window from last year.

Pharmacies can submit an online claim through Pacific Blue Cross. Please contact FNHA Health Benefits at 1-855-550-5454 with any coverage questions.

Publicly funded RSV vaccines for older adults in BC

Where to get immunized

Individuals eligible for the RSV vaccine for older adults can contact the call centre at **1-833-838-2323** to find out where you can get immunized.

You can also check with pharmacies or your health authority for locations that are providing the vaccine:

BC Centre for Disease Control
Provincial Health Services Authority

Respiratory Syncytial Virus (RSV) mRNA Vaccine
mRESVIA® **Supplier: Moderna**

INDICATIONS:[A]

- Individuals 75 years of age and older
- Indigenous (First Nations, Métis, and Inuit) individuals 60 years of age and older [B]

RECOMMENDED BY NATIONAL ADVISORY COMMITTEE ON IMMUNIZATION BUT NOT PROVIDED FREE IN BC:

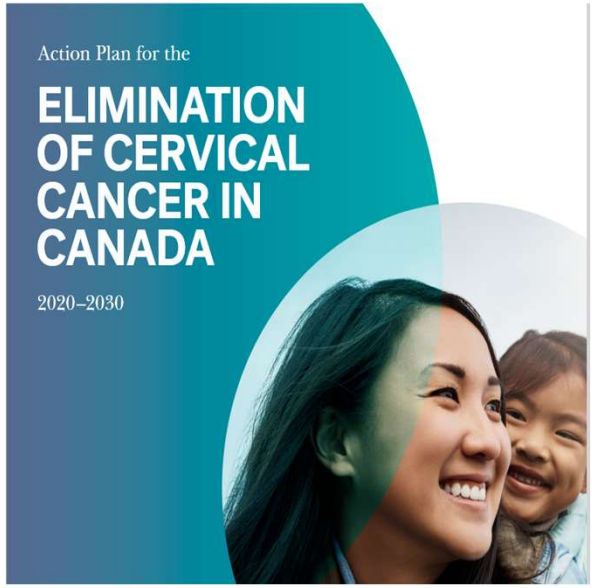
- Adults 65 to 74 years of age who are at increased risk of severe RSV disease
- Adults 18 years of age and older who:
  - are residents of nursing homes and other chronic care facilities
  - have had a lung transplant
  - have had a hematopoietic stem cell transplant (in the previous two years or who remain on immunosuppression)
  - are on home oxygen or require chronic oxygen therapy regardless of living at home or elsewhere
  - are receiving dialysis

This product is not approved for use in individuals under 18 years of age or in pregnancy.

HPV -cerivcal cancer elimination

Elimination of Cervical Cancer





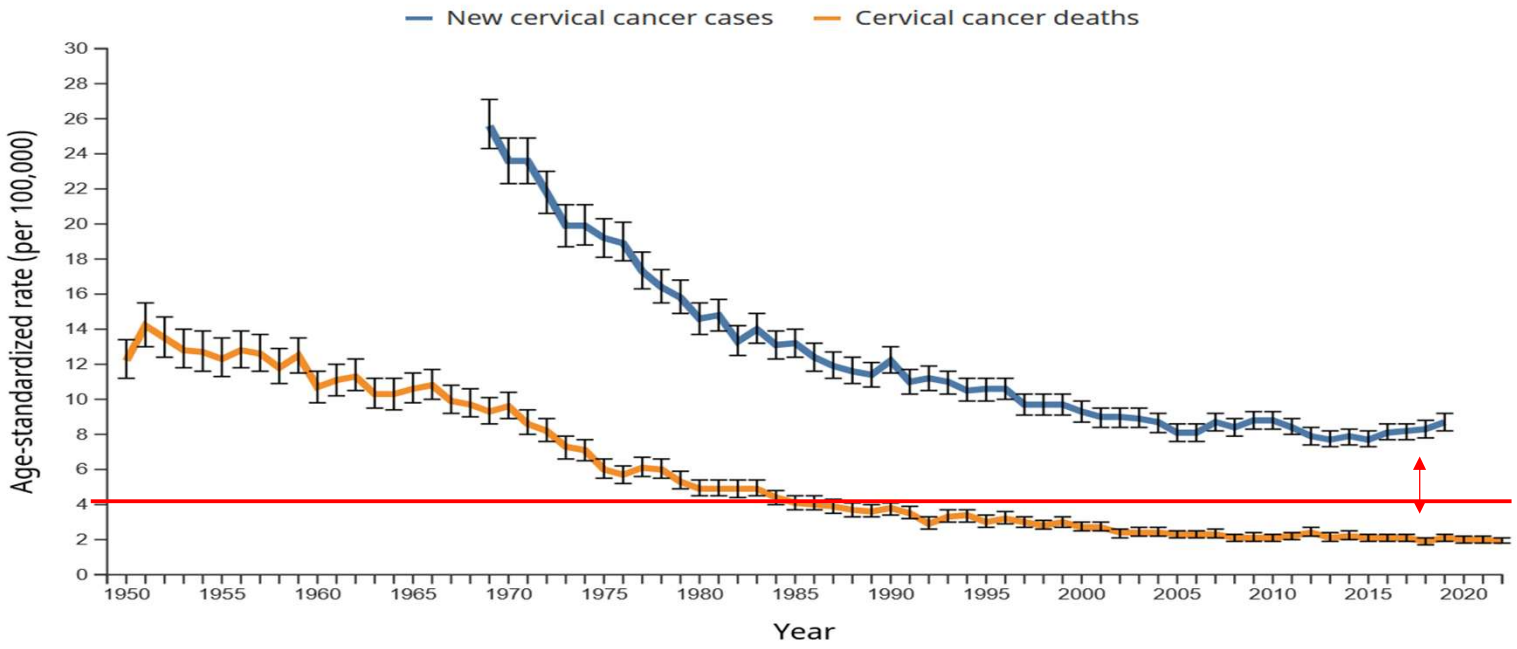
Canadian Partnership Against Cancer

- Eliminate cervical cancer as a public health problem, with incidence below 4 per 100,000 per year, by 2040
  - 90% of girls fully vaccinated with HPV vaccine by age 17
  - 90% of eligible women screened with HPV test, and up to date, by 2030
  - 90% of women with abnormal screening result have a clear follow up plan within 3 months, 90% participation along treatment cascade

- https://iris.who.int/bitstream/handle/10665/336583/9789240014107-eng.pdf?sequence=1
- Brisson Met al. Impact of HPV vaccination and cervical screening on cervical cancer elimination: a comparative modelling analysis in 78 low-income and lower-middle-income countries. Lancet. 2020;395(10224):575-590
- https://s22457.pcdn.co/wp-content/uploads/2020/11/Elimination-cervical-cancer-action-plan-EN.pdf

Cervical Cancer in Canada

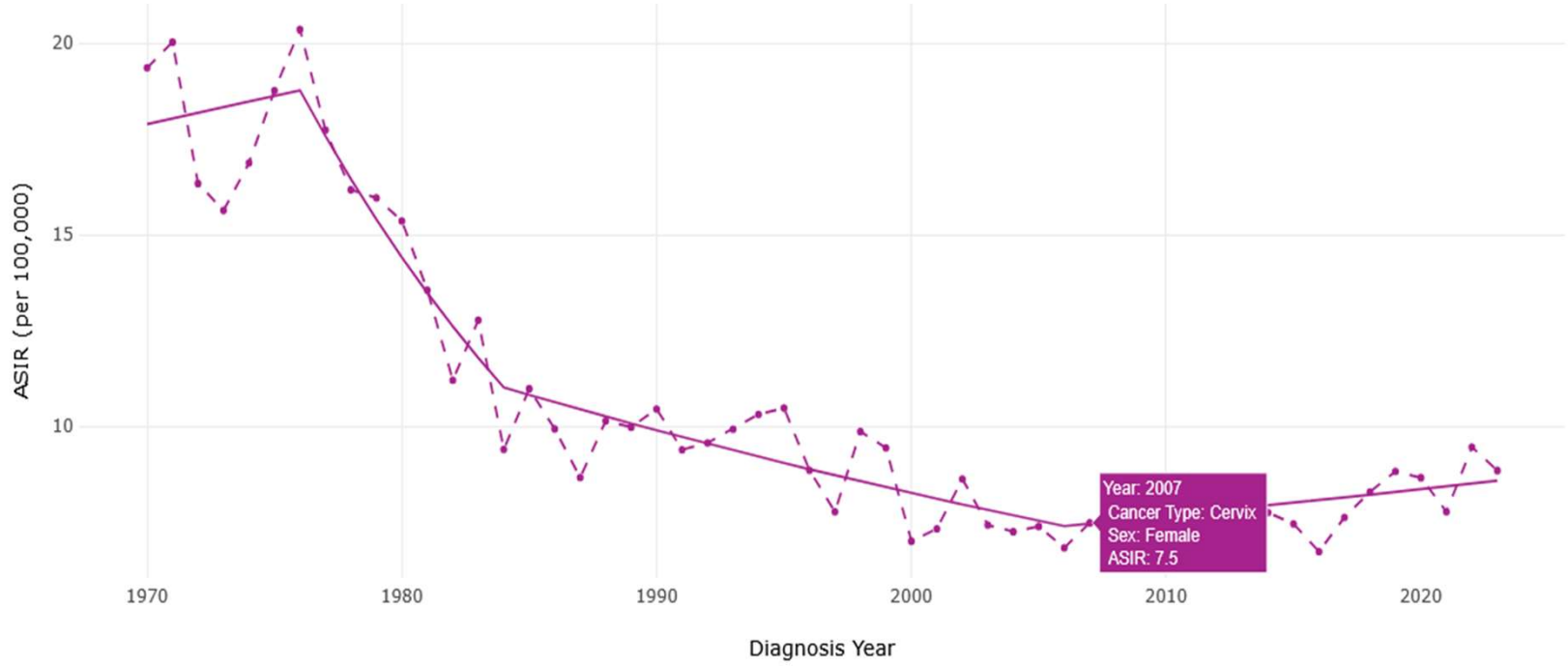
Figure 2: Age-standardized rates of new cervical cancer cases and cervical cancer deaths over time for females in Canada



WHO and CPAC elimination target: incidence of 4 per 100,000 per year

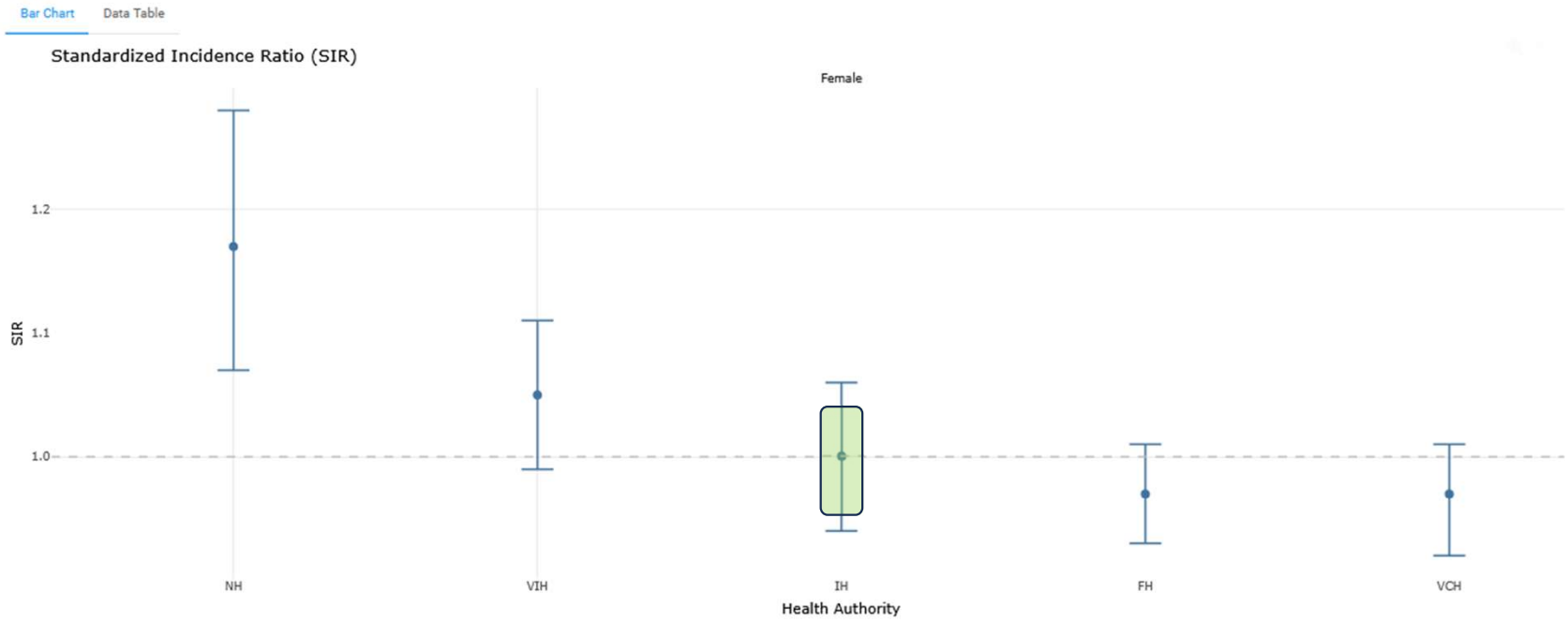
https://health-infobase.canada.ca/cancer/progress-against-cancers/reports.html?type=

Age-standardized cervical cancer incidence BC, 1970 to 2023



https://bccandataanalytics.shinyapps.io/IncidenceAgeAdjRates/

Standardized Incidence Ratio (SIR) cervical cancer 1985-2023 by Health Authority in BC

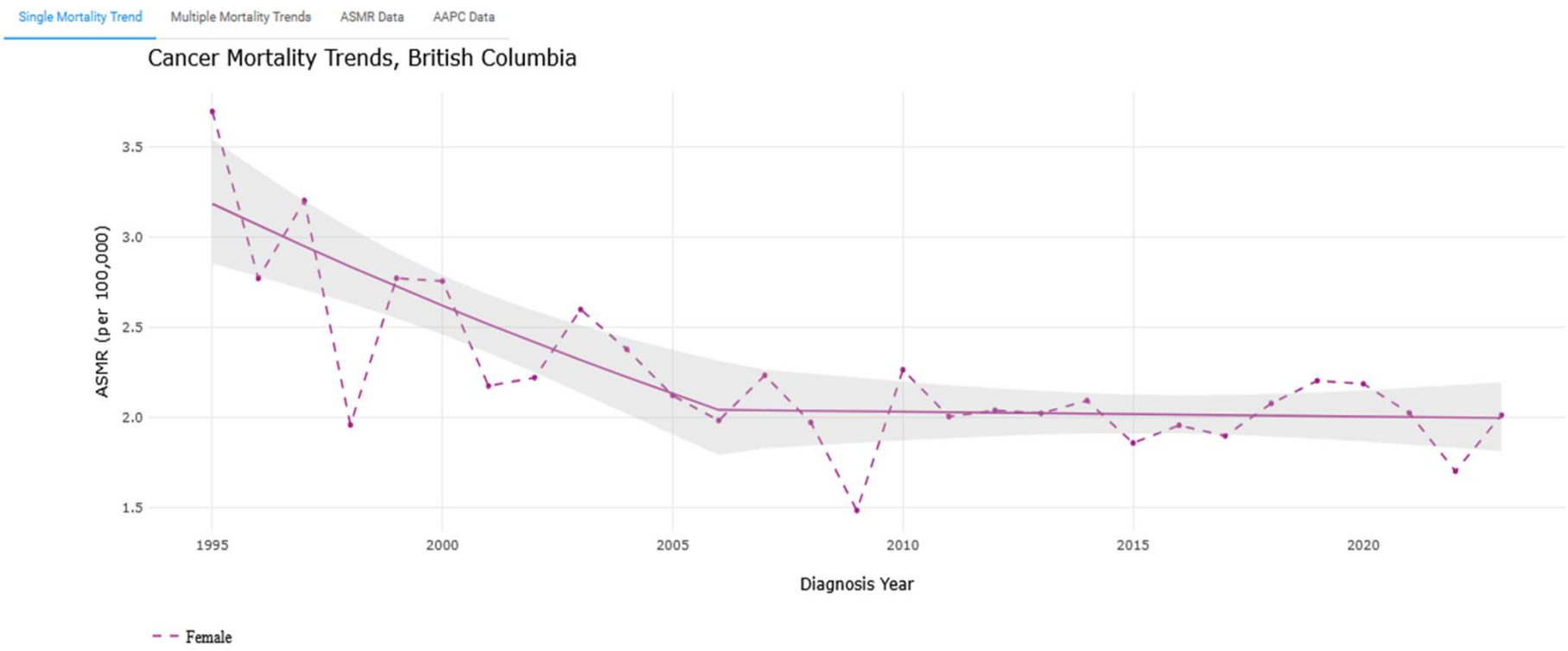


The SIR is calculated based on the combination of all cancer types and years selected. For example, if you selected all cancer types in the dropdown menu, this would reflect the SIR for all cancers. Please select 'Comparison by' Cancer Type to compare SIR by cancer types.

The observed case shown above is calculated across the selected year(s).

https://bccandataanalytics.shinyapps.io/StandardizedIncidenceRatio/

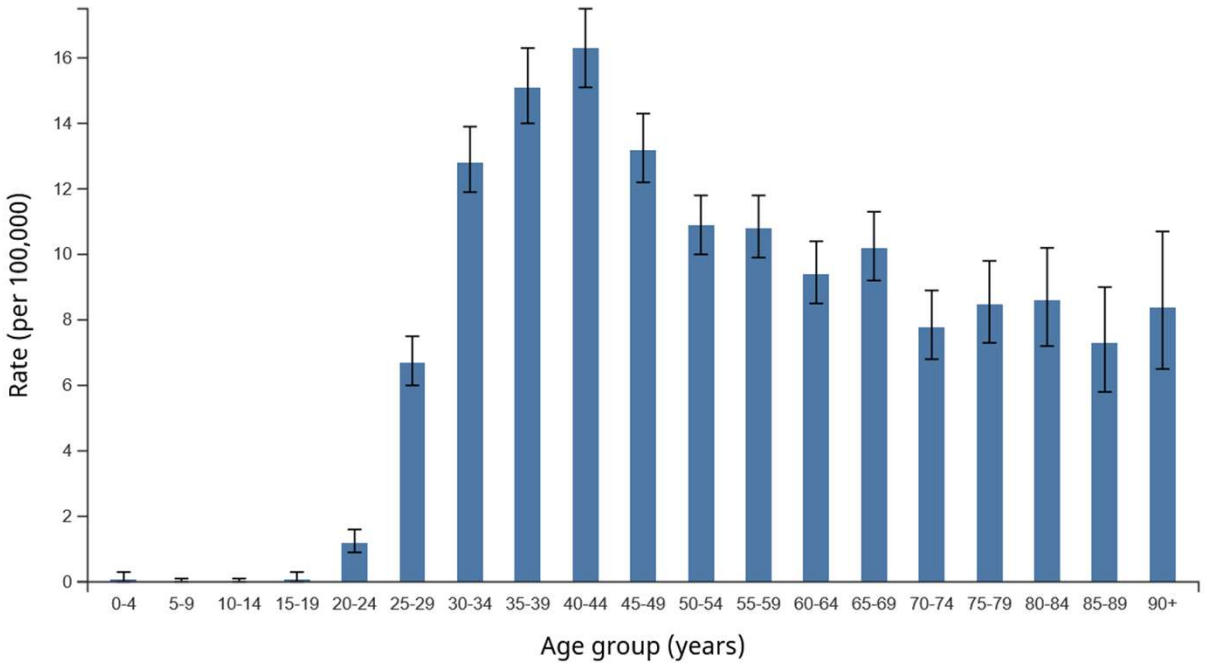
Age-standardized mortality rate, cervical cancer BC 1995-2023



https://bccandataanalytics.shinyapps.io/MortalityAgeStdRates/

Highest incidence in women age 40 to 45, Canada

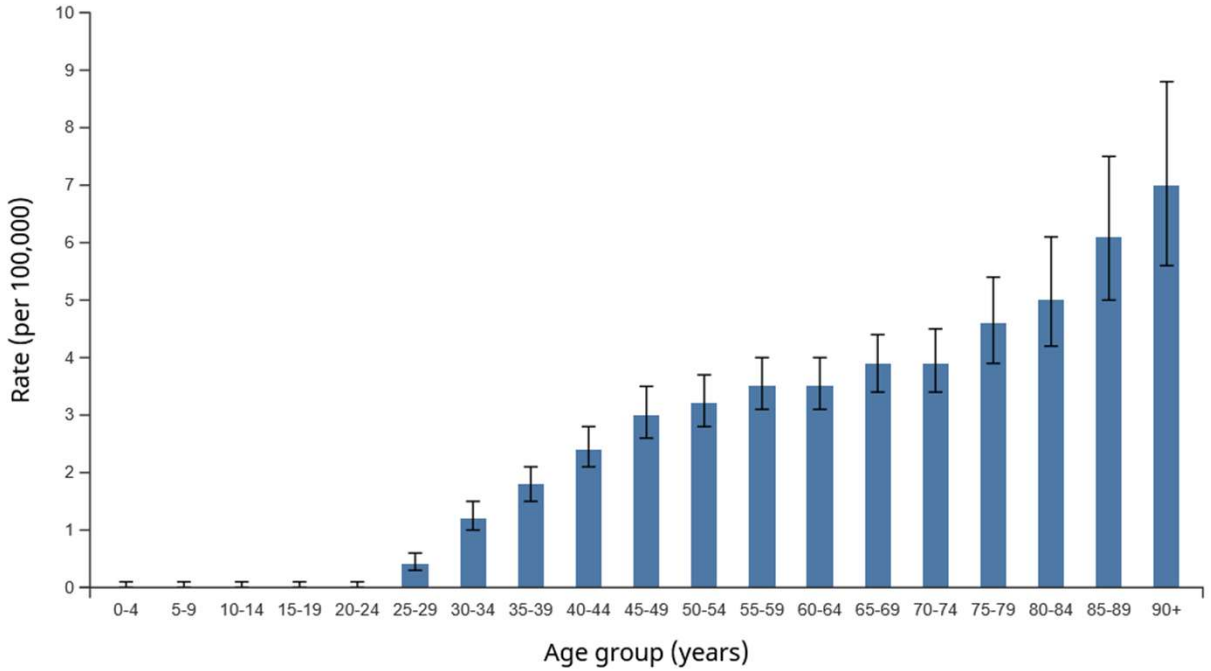
Figure 1: Age-specific rates of new cervical cancer cases for females in Canada, 2014-2018



https://health-infobase.canada.ca/cancer/progress-against-cancers/reports.html?type=

Age-specific cervical cancer mortality rate, Canada 2018-2022

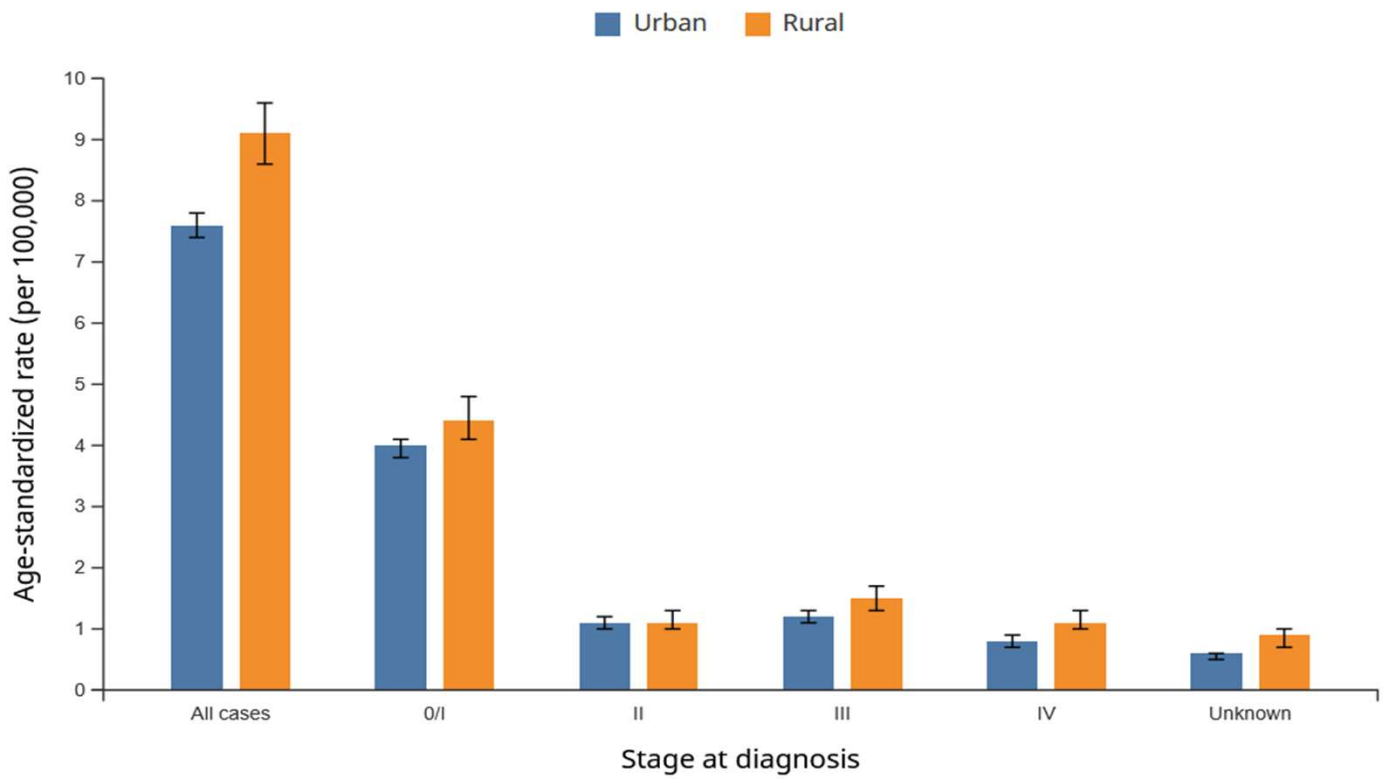
Figure 9: Age-specific rates of cervical cancer deaths for females in Canada, 2018 to 2022



https://health-infobase.canada.ca/cancer/progress-against-cancers/reports.html?type=

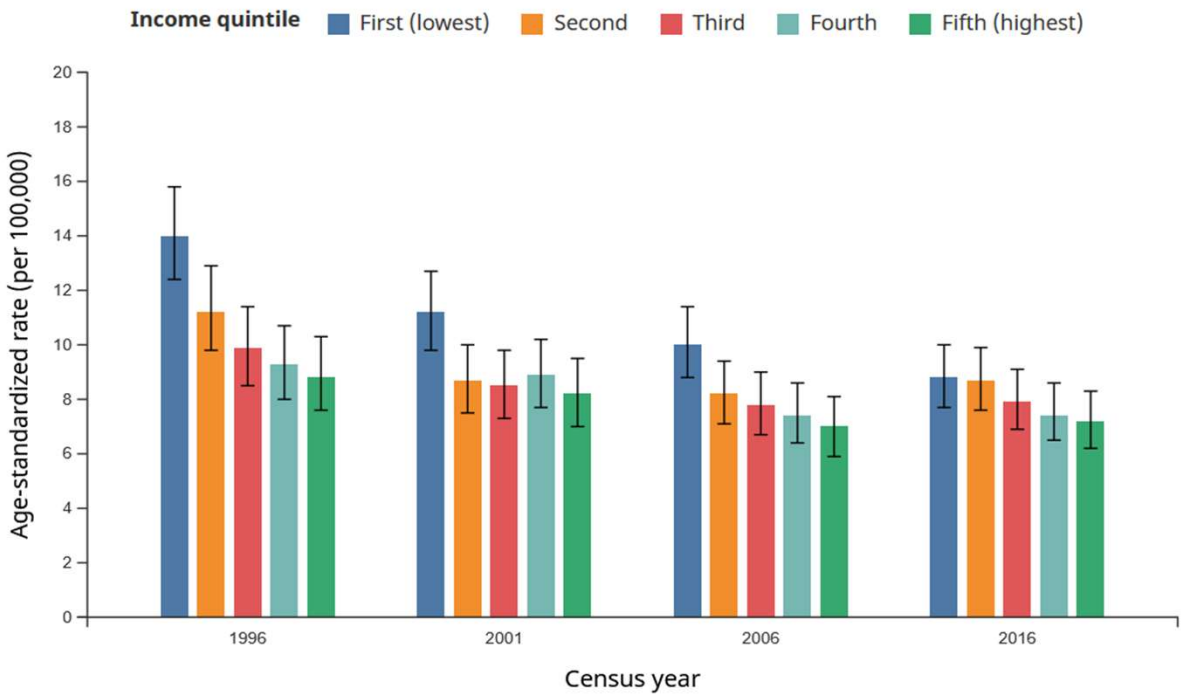
Rate of cervical cancer and stage, rural vs urban, Canada 2011 to 2017

Figure 7: Age-standardized rates of new cervical cancer cases for females in Canada by urban/rural residence and stage at diagnosis, 2011 to 2017

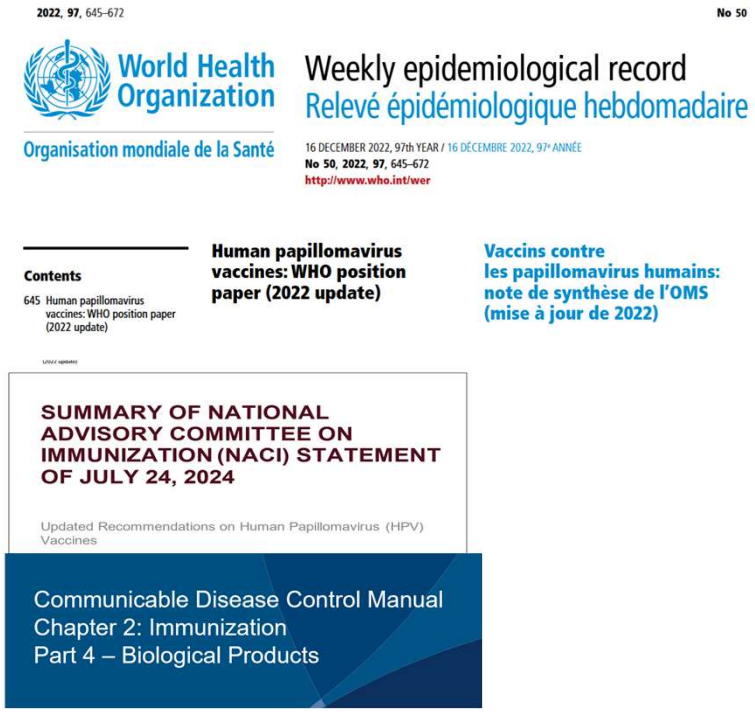


Lower income neighbourhoods have higher rates of cervical cancer in Canada

Figure 8: Age-standardized rates of new cervical cancer cases for females in Canada by area-based neighbourhood household income quintile and census year, 1996 to 2016



HPV vaccine recommendations: WHO, NACI, BC Immunization Program



2022, 97, 645–672 No 50

World Health Organization
Organisation mondiale de la Santé

Weekly epidemiological record
Relevé épidémiologique hebdomadaire

16 DECEMBER 2022, 97th YEAR / 16 DÉCEMBRE 2022, 97e ANNÉE
No 50, 2022, 97, 645–672
http://www.who.int/wer

Contents

645 Human papillomavirus vaccines: WHO position paper (2022 update)

Human papillomavirus vaccines: WHO position paper (2022 update)

Vaccins contre les papillomavirus humains: note de synthèse de l'OMS (mise à jour de 2022)

SUMMARY OF NATIONAL ADVISORY COMMITTEE ON IMMUNIZATION (NACI) STATEMENT OF JULY 24, 2024

Updated Recommendations on Human Papillomavirus (HPV) Vaccines

Communicable Disease Control Manual
Chapter 2: Immunization
Part 4 – Biological Products

INDICATIONS: [A]

- Individuals 9-26 years of age (inclusive). School-aged children are routinely offered this dose in Grade 6, with catch-up in later grades.[B, C]
- Individuals 27-45 years of age (inclusive) who self-identify as belonging to the gay, bisexual and other men who have sex with men (GBMSM) community [D] (including those who are not yet sexually active and/or questioning their sexual orientation).[E]
- Individuals 9-45 years of age (inclusive) living with HIV.[E]
- Individuals who receive post-colposcopy treatment for cervical dysplasia on or after July 31, 2025.

GARDASIL®9 is approved for individuals 9 to 45 years of age, however NACI indicates that HPV vaccine may be considered for individuals older than 45 years of age based on risk.

DOSES AND SCHEDULE:[F]

Immunocompetent individuals 9-20 years of age (inclusive): 1 dose given as 0.5 mL **IM**.

Immunocompetent individuals 21-45 years of age (inclusive): 2 doses given as 0.5 mL **IM** at 0 and 6 months.[G]

Immunocompromised individuals 9-45 years of age (inclusive): 3 doses given as 0.5 mL **IM** at 0, 2, and 6 months.

Individuals 9-45 years of age (inclusive) living with HIV: 3 doses given as 0.5 mL IM at 0, 2, and 6 months.[H]

Post-colposcopy treatment: 3 doses given as 0.5 mL **IM** at 0, 2, and 6 months.[I]

Estimates of effectiveness of vaccines to prevent cervical cancer

REVIEW

OPEN ACCESS Check for updates

The population impact of human papillomavirus vaccination on cancer and pre-cancer outcomes: An umbrella review of meta-analyses

Fakher Rahim[a,b] and Ümit Atasever[c]

[a]Faculty of Medicine, Department of Medical Biology, Kocaeli University, Kocaeli, Türkiye; [b]Department of Internal Medicine, Osh State University, Osh City, Kyrgyzstan; [c]Department of Nursing, Faculty of Health Sciences, Kocaeli University, Kocaeli, Türkiye

HUMAN VACCINES & IMMUNOTHERAPEUTICS
2026, VOL. 22, NO. 1, 2699584
https://doi.org/10.1080/21645515.2026.2699584

Table 4. Cervical cancer risk reduction from ecological and cohort meta-analyses.

Study Design	Population	Pooled Hazard Ratio (95% CI)	Risk Reduction
Swedish cohort study	Vaccinated before age 17	0.12 (0.08–0.18)	88%
Pooled ecological (4 countries)	Vaccinated cohorts	0.43 (0.32–0.58)	57%
Case-control (multiple)	Ever vaccinated	0.37 (0.28–0.49)	63%

CI = Confidence Interval.

HPV immunization coverage, Grade 9 BC by Health Authority

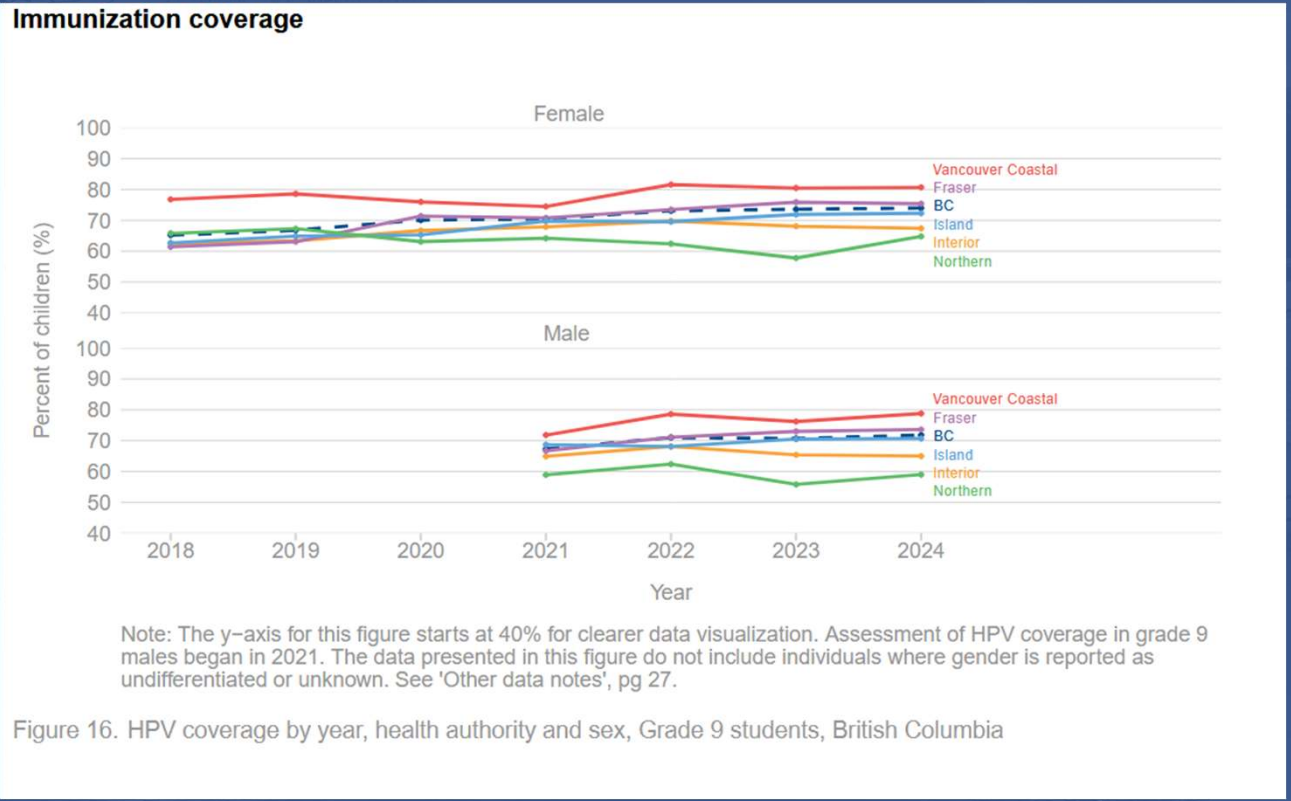
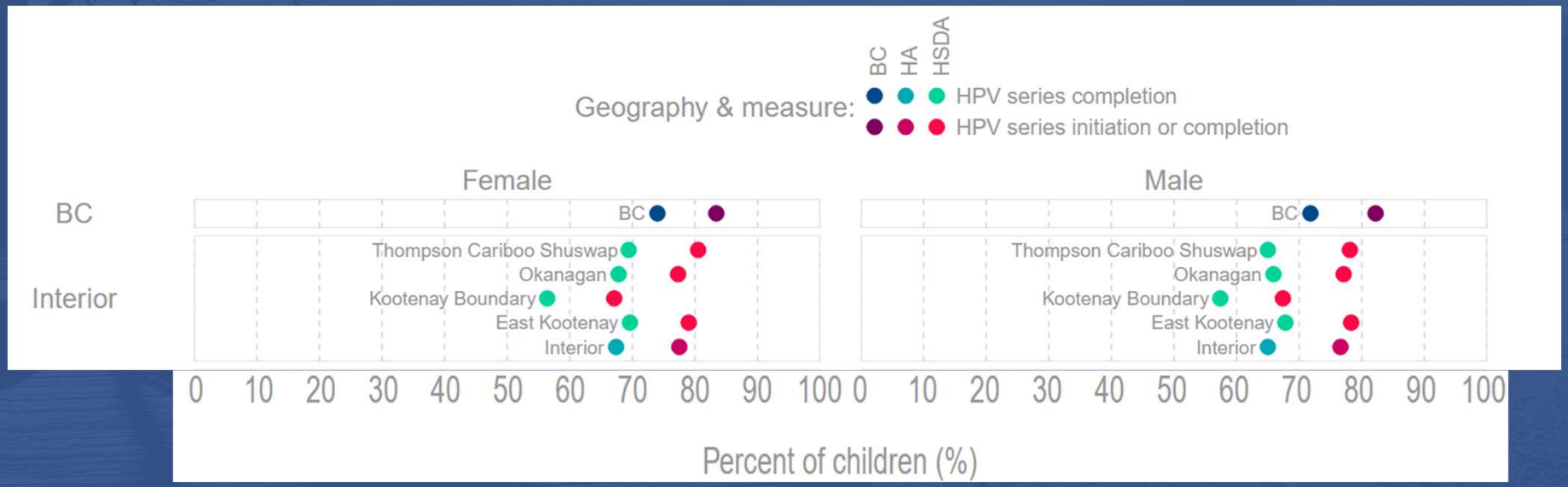


Figure 16. HPV coverage by year, health authority and sex, Grade 9 students, British Columbia

https://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Immunization/Coverage/grade_9_imms_coverage_2024.pdf

Immunization coverage by HSDA, Interior Health in 2024



https://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Immunization/Coverage/grade_9_imms_coverage_2024.pdf

Implementation of self-collected HPV samples to screen for cervical cancer



Issue: BCMJ, **vol. 66 , No. 10 , December 2024** , Pages 375-380 Clinical Articles Review Articles

By: **Laura Gentile, RD, MHA, Laurie W. Smith, MPH, BN RN(C), Brenda Smith, BSc, MLT, Gina Ogilvie, MD, MSc, FCFP, DrPH, Lily Proctor, MD, MPH, FRCSC**

Cervix screening rates are known or suspected to be lower for the following populations:

- Low income
- Immigrant
- Indigenous (First Nations, Metis, and Inuit)
- Transgender, gender diverse, non-binary
- Those who are not attached to a primary care provider
- Rural and remote communities
- Those less familiar with BC Health Care system
- Those who do not speak the language in which service information is available
- Those with a history of trauma and/or violence