

Epidemiological trends of infectious syphilis among women in Canada, 1991-2023

March 3, 2025

STBBI Surveillance Division

Centre for Communicable Diseases and Infection Control,
Infectious Diseases and Vaccination Programs Branch, PHAC



Public Health
Agency of Canada

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Canada 

Learning objectives

1. To understand the federal role in national syphilis surveillance
2. To describe historic and current trends in infectious syphilis rates in Canada
3. To describe historic and current trends in congenital syphilis rates in Canada
4. To recognize and compare the diversity of syphilis epidemiology in different provinces and territories (PTs)
5. To outline the social and structural determinants of syphilis (and other STBBIs)

Public health surveillance: A shared responsibility

Our PT partners:

- Responsible for preparing their health systems and health care providers to monitor, report on, and manage syphilis cases within their jurisdictions

Federated model:

- Respects provincial and territorial legislative authority
- Plays a supporting role
- Data shared voluntarily by PTs with PHAC for secondary use
- GoC departments that monitor syphilis trends for their specific populations (i.e., IRCC, ISC, CSC, DND)

Federal focus:

- Monitoring and trend analysis (e.g., national reports, infographics)
- Identifying opportunities for federal action (e.g., PT capacity support)
- Informing federal programs and priorities (e.g., grants and contributions, policy frameworks)
- International reporting commitments (e.g., WHO)

Data notes and limitations

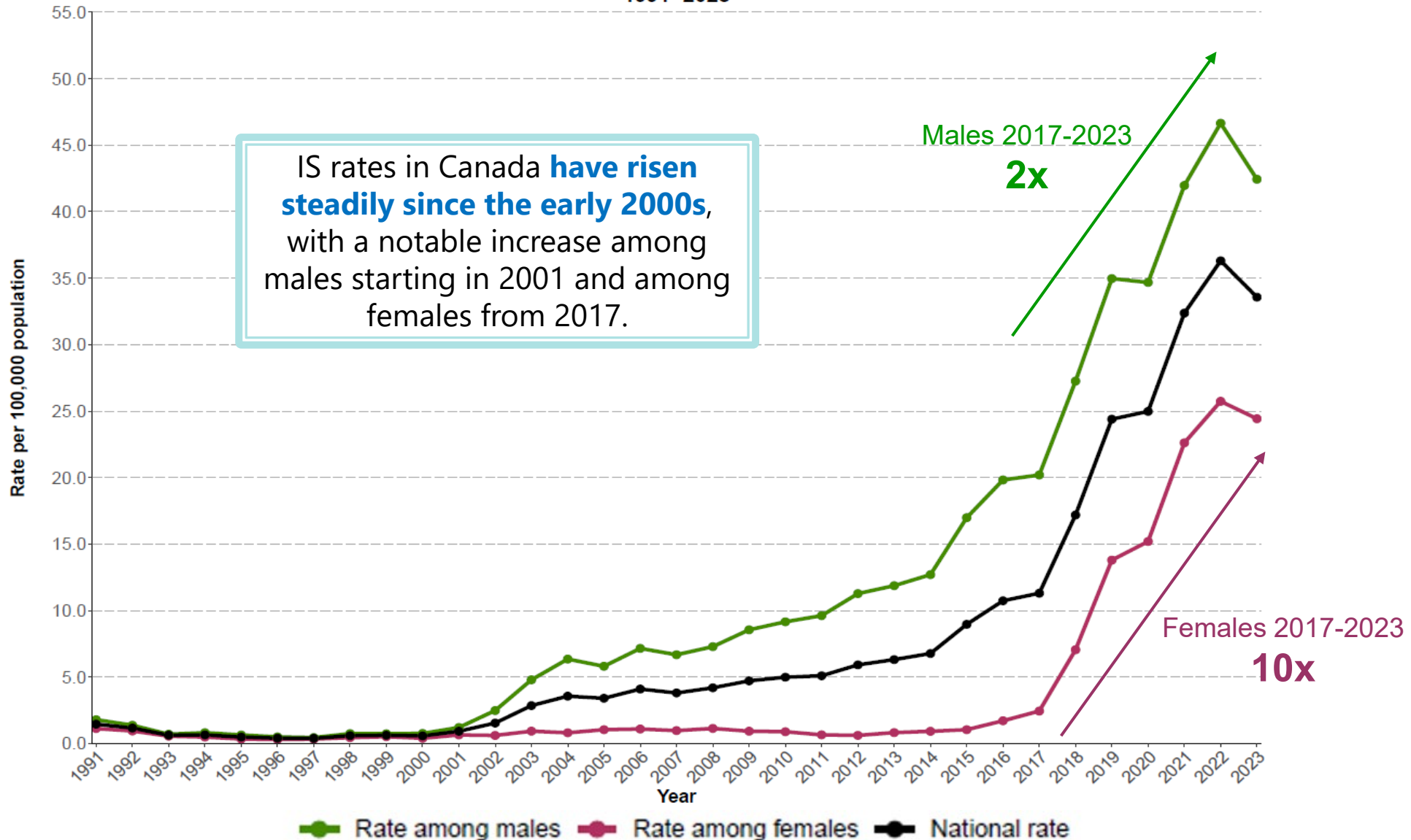
National surveillance data is typically incomplete with respect to explanatory variables (key populations, risk factors, social determinants of health).

- Limited to information specified in PT public health reporting systems.
- Data on ethnicity/race/Indigenous identity is not available nationally.
- Some variables collected are dependent on self-reporting, have a large proportion of missing data, and are not collected or reported consistently by all PTs (e.g., substance use, sexual behaviour, pregnancy status).
- Passive surveillance is complemented with literature reviews, enhanced surveillance initiatives (e.g., Tracks biobehavioural survey), and other types of studies or research (e.g., Canadian Paediatric Surveillance Program, case reviews) to contextualize the data and better understand the drivers.

National Overview

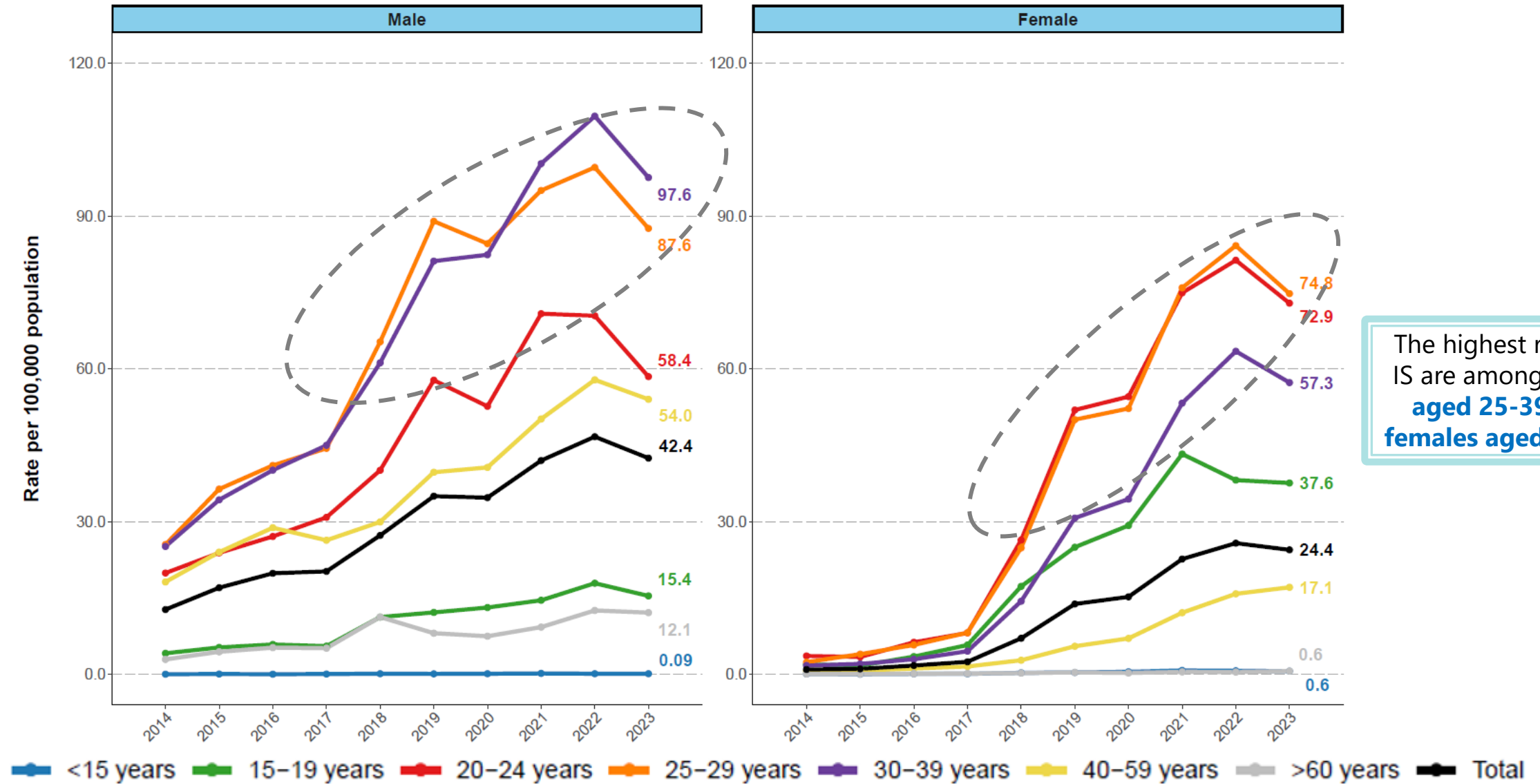
Infectious syphilis (IS), by sex: trends over time, 1991-2023

National number of cases and rates, with yearly percent rate changes, of infectious syphilis, 1991-2023



Infectious syphilis trends by age group and sex, 2014-2023

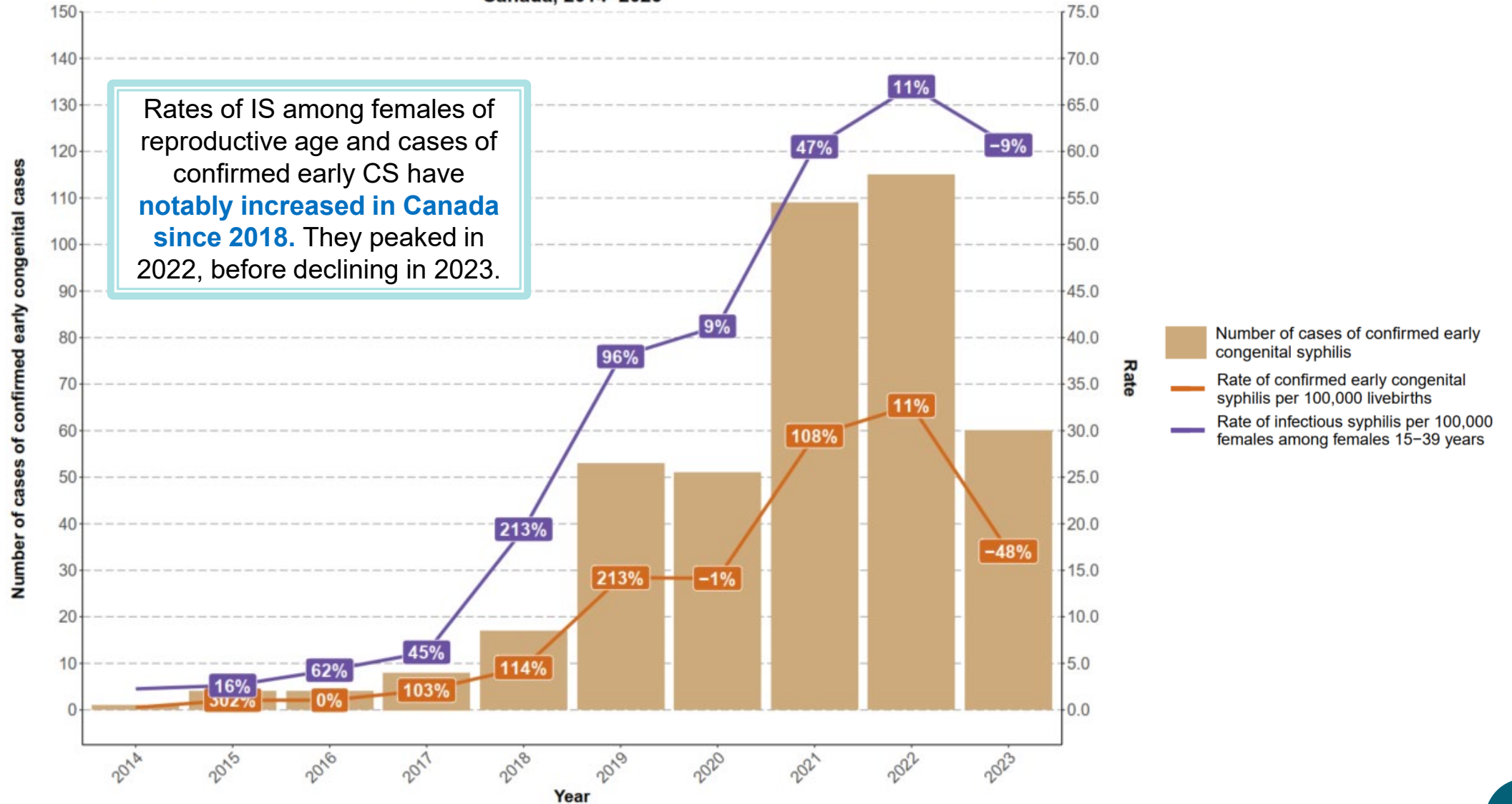
Rates of infectious syphilis per 100,000 population in Canada by age group and sex, 2014-2023



The highest rates of IS are among **males aged 25-39** and **females aged 20-29**.

Congenital syphilis: trends over time, 2014-2023

Reported number of cases and rates per 100,000 live births of confirmed early congenital syphilis, compared to rates per 100,000 population of infectious syphilis among females 15–39 years old in Canada, 2014–2023

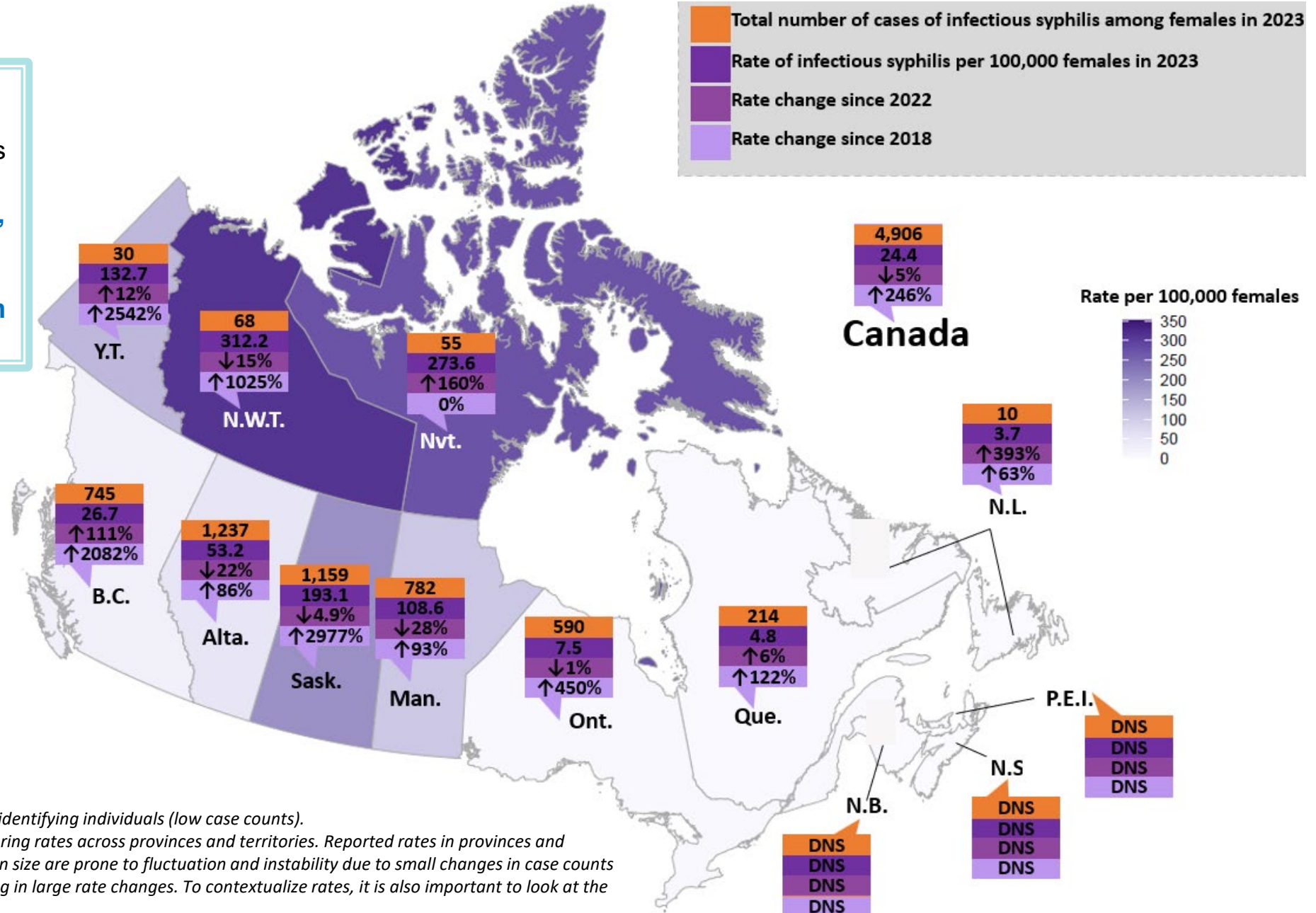
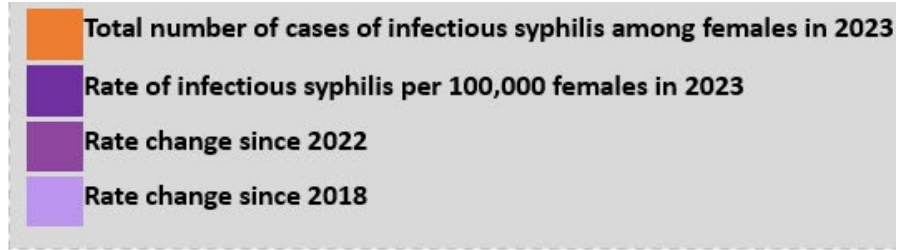


Note: percentages (%) on the figure represent the change in rate from the previous year. The female rate line excludes those who did not identify as female.

Regional Trends

Regional distributions of infectious syphilis among females: 2023

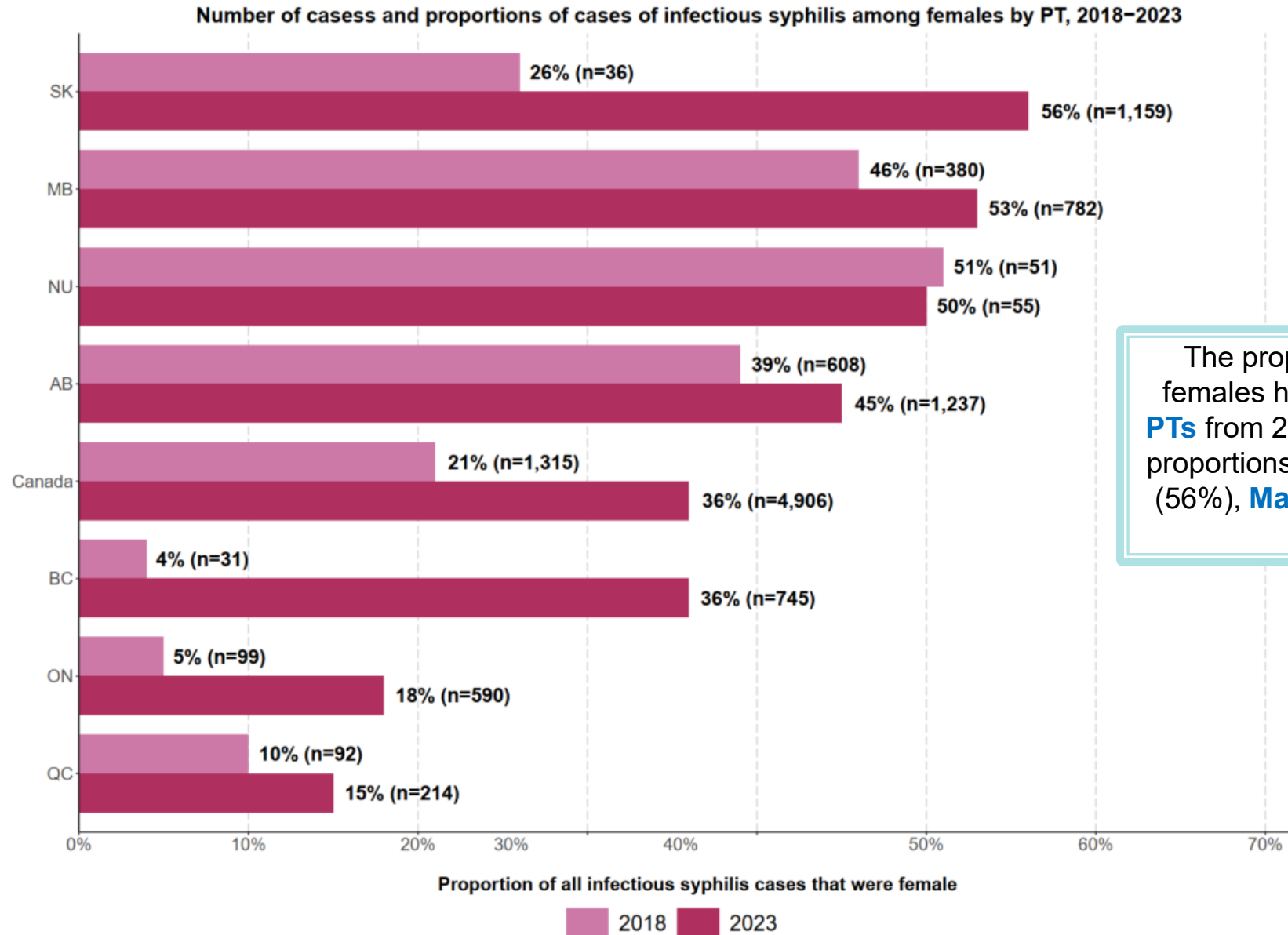
In 2023, the **highest rates** of infectious syphilis among females were reported in **Northwest Territories, Nunavut and Saskatchewan**. Since 2018, **rates have risen in almost all PTs.**



DNS: Data not shown to reduce the risk of identifying individuals (low case counts).

Note: Caution should be used when comparing rates across provinces and territories. Reported rates in provinces and territories with a relatively small population size are prone to fluctuation and instability due to small changes in case counts for small population denominators resulting in large rate changes. To contextualize rates, it is also important to look at the case counts per province and territory.

Regional distributions of female cases, 2018 vs. 2023

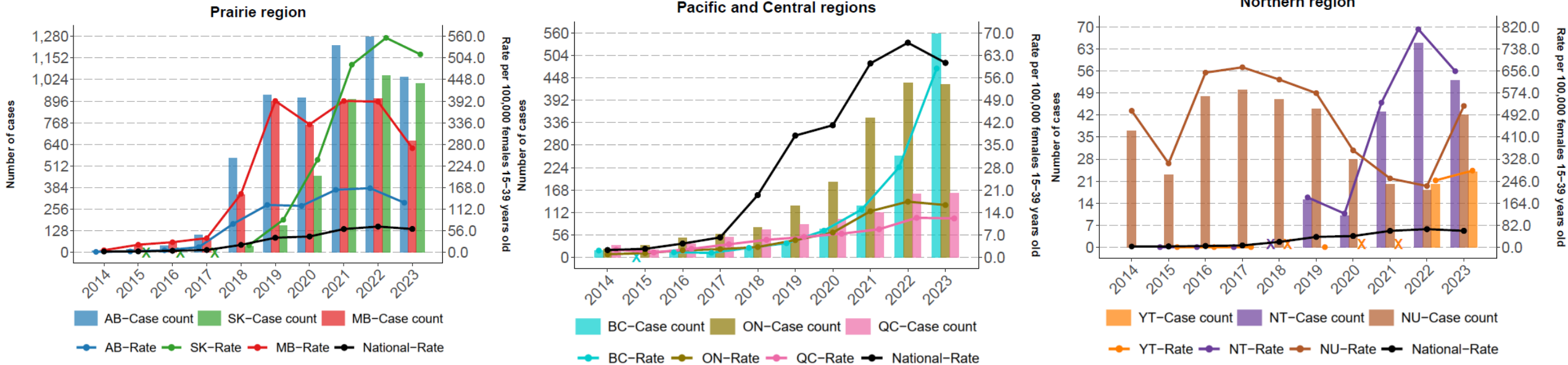


The proportion of IS cases among females has **increased across most PTs** from 2018 to 2023, with the highest proportions observed in **Saskatchewan** (56%), **Manitoba** (53%), and **Nunavut** (50%) in 2023.

Note: PTs with fewer than 10 reported cases of infectious syphilis among females in 2018 or 2023 (NL, NB, PEI, NS, YT, NT) have been excluded from this figure.

Regional trends: females of reproductive age, 2014-2023

Number of cases and rates of infectious syphilis among females 15 to 39 years, by region, 2014-2023

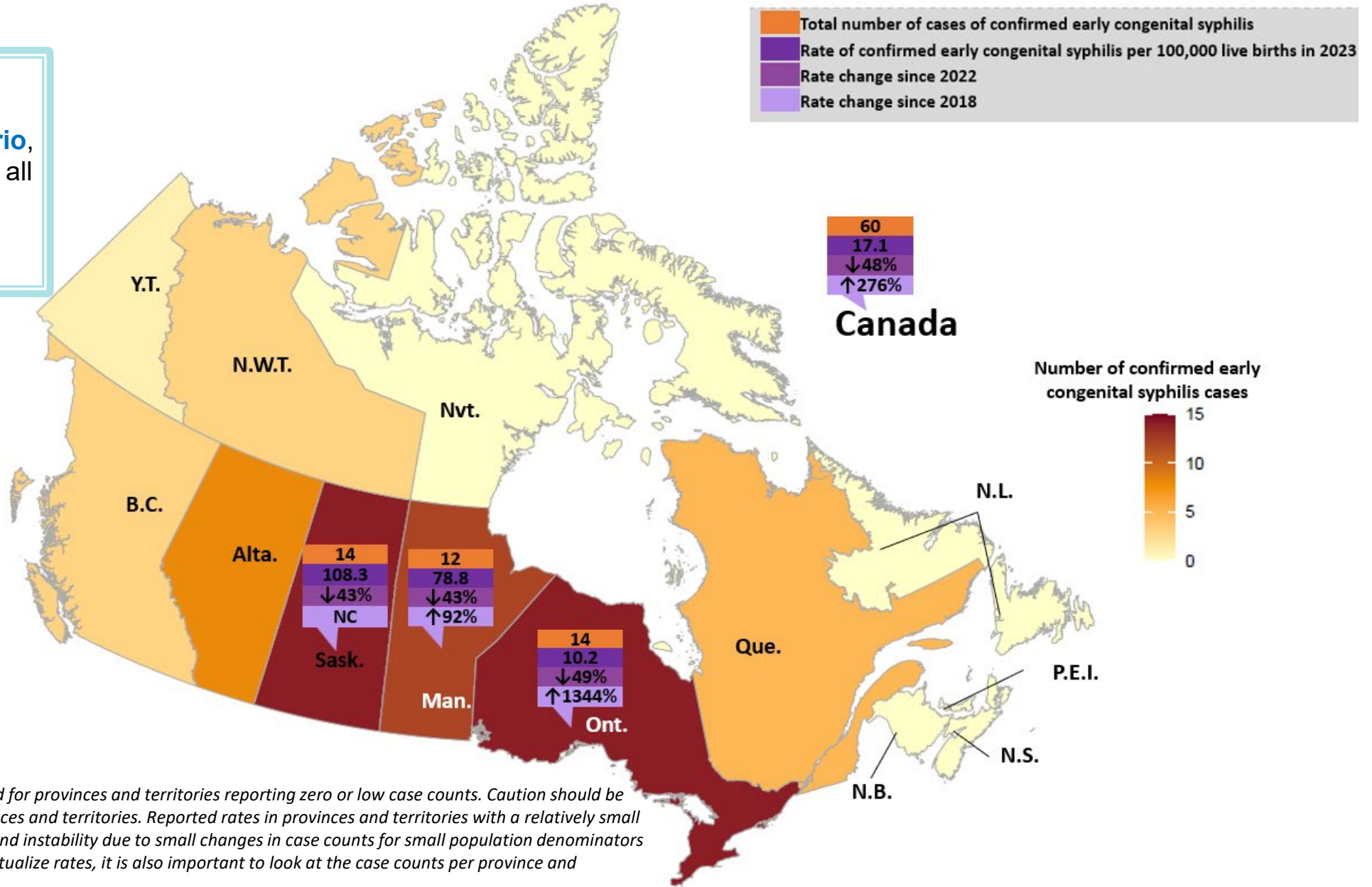


Rates of IS among females of reproductive age in **the Prairie and Northern regions** have consistently been **higher than the national average**.

Note: PTs with less than 10 reported cases of infectious syphilis among females from 2014 to 2023 (NB, NS, PE, NL) were removed from the figures. Among the PTs shown, instances of less than 10, but greater than 0 cases in a given reporting year are represented by an "X." AB did not submit Q3-Q4 data for 2023; its full-year 2023 data are projected

Regional distributions of congenital syphilis: 2023

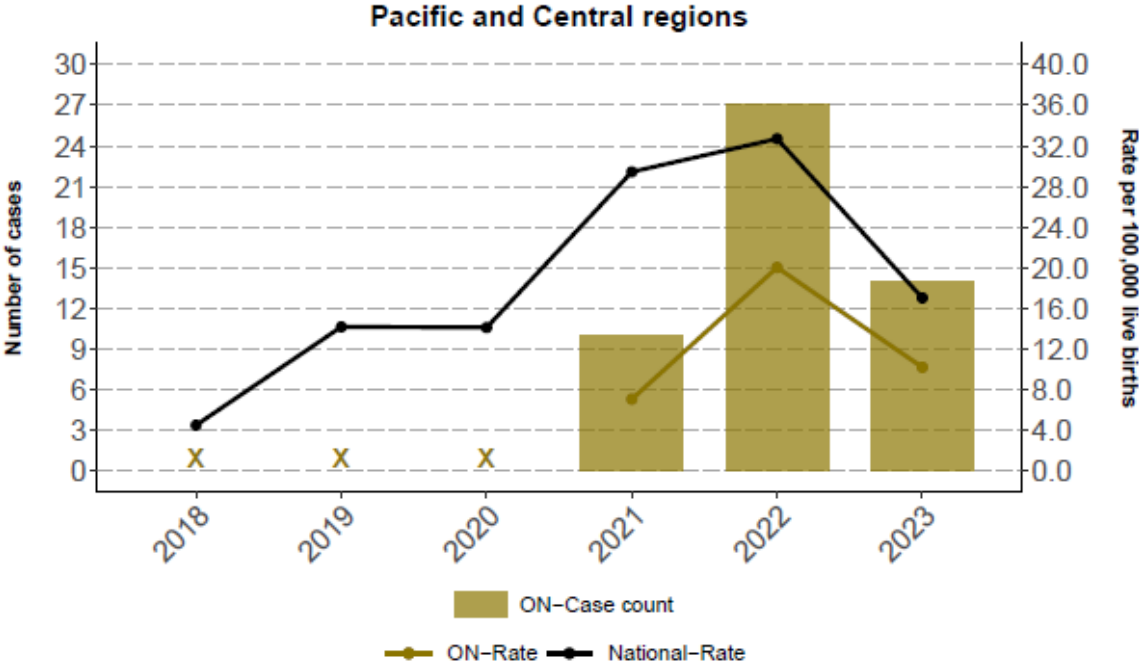
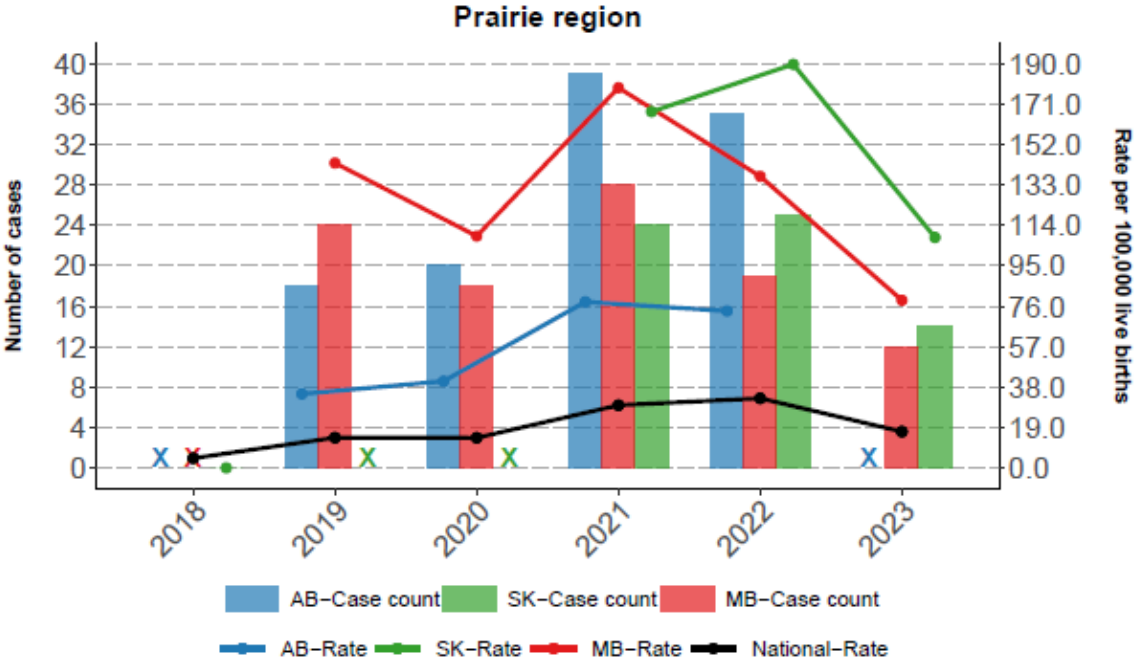
In 2023, **Saskatchewan, Manitoba, and Ontario**, accounted for **67%** of all confirmed early congenital syphilis cases.



Note: Individual legends are not displayed for provinces and territories reporting zero or low case counts. Caution should be used when comparing rates across provinces and territories. Reported rates in provinces and territories with a relatively small population size are prone to fluctuation and instability due to small changes in case counts for small population denominators resulting in large rate changes. To contextualize rates, it is also important to look at the case counts per province and territory.

Regional trends of congenital syphilis, 2018-2023

Number of cases and rates per 100,000 live births of confirmed early congenital syphilis by PT and region, 2018-2023



Despite rising IS rates among females aged 15-39 in **British Columbia, Northwest Territories, and Nunavut**, confirmed early CS cases have remained low or absent in these regions.

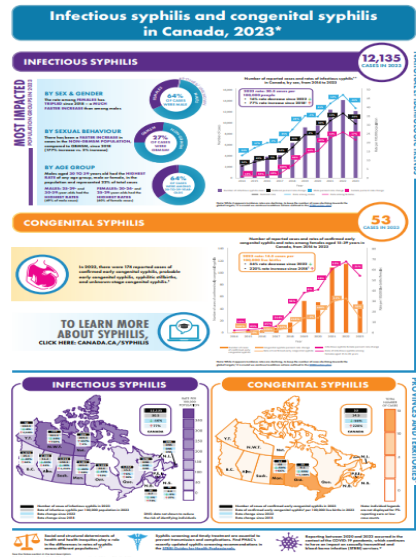
Note: PTs with less than 10 reported cases of confirmed early congenital syphilis from 2018 to 2023 (BC, QC, NB, NS, PE, NL, YT, NT, NU) were removed from the figures. Among the PTs shown, instances of less than 10 but greater than 0 cases in a given reporting year are represented by an "X." AB did not submit Q3-Q4 data for 2023; its full-year 2023 data are projected

Social and structural determinants of syphilis and other risk factors

- Limited research in Canadian literature on the potential factors influencing rates of infectious syphilis among women and/or congenital syphilis.^{1,2}
- Factors driving female infectious syphilis and congenital syphilis rates include but are not limited to¹⁻¹⁸:
 - ❖ Substance use
 - ❖ Housing instability and poverty
 - ❖ Barriers to accessing healthcare/ prenatal screening (e.g. colonization, discrimination)
 - ❖ Inadequate treatment of prenatal syphilis
 - ❖ Gender roles, ideologies, and norms
 - ❖ Partner's behaviors
- Varies by region as some risk factors may be more prominent in some PTs than others.¹

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ORIGINAL RESEARCH article
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Sec. Infectious Diseases: Epidemiology and Prevention
Volume 12 | 2024 | <https://doi.org/10.3389/fpubh.2024.1202071>

Rising congenital syphilis rates in Canada, 1993–2022

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Introduction: The number of cases of confirmed early congenital syphilis has risen steeply in Canada in recent years, particularly since 2018, to the highest number ever recorded since national reporting began in 1993. We analyzed national data on confirmed early congenital syphilis from 1993 to 2022 to describe epidemiologic trends in Canada during this period.

Methods: Data from 1993 to 2017 were obtained from routine surveillance conducted through the Canadian Notifiable Disease Surveillance System, and data from 2018 to 2022 were obtained from enhanced surveillance conducted through a federal-provincial-territorial working group. Case counts and rates were computed nationally and by province and territory. Infectious syphilis data from the same time period for females of reproductive age were also analyzed.

Results: The national rate of confirmed early congenital syphilis was 127-fold higher in 2022 than in 1993, increasing from 0.3 to 32.7 cases per 100,000 live births. Case counts began increasing rapidly in 2018, with the highest case count observed to date ($n=115$) occurring in 2022. The highest rates in the country in recent years have been observed in Saskatchewan, Manitoba, Alberta, and Ontario. Infectious syphilis rates among females of reproductive age have also been rapidly increasing in these provinces. Between 2018 and 2022, the national rate of confirmed early congenital syphilis increased approximately seven-fold and the national rate of infectious syphilis increased approximately two-fold, including an approximately three- and-a-half-fold increase among females of reproductive age.

Discussion: These numbers represent huge shifts in the epidemiological landscape of syphilis in Canada. The increase in vertical transmission appears to be driven by not only the increasing rate of infectious syphilis among females of reproductive age but also by multiple structural and social determinants of health impacting pregnant individuals.

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Front. Public Health, 21 January 2025
Sec. Infectious Diseases: Epidemiology and Prevention
Volume 12 | 2024 | <https://doi.org/10.3389/fpubh.2024.1202098>

The rise of congenital syphilis in Canada: threats and opportunities

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Introduction: In Canada, rates of congenital syphilis have been increasing rapidly in recent years, following a surge in infectious syphilis. These trends call for a closer look at missed opportunities for testing, diagnosis, treatment, and follow-up of pregnant individuals. The epidemiological situation is especially serious given that effective treatment is available for syphilis during pregnancy and that congenital syphilis is a preventable outcome that engenders adverse birth outcomes such as miscarriage, stillbirth, and neonatal death as well as potentially lifelong ocular, neurological, hepatosplenic, and musculoskeletal sequelae. The objective of this study is to examine the factors associated with congenital syphilis trends and to highlight promising initiatives and programs across the country committed to addressing these trends.

Methods: A literature review with a focus on Canadian studies was conducted to identify factors that may be driving the continued increase in early congenital syphilis rates over the past decade. An environmental scan of initiatives and programs providing syphilis care and support was also conducted.

Results: Key factors identified in association with congenital syphilis outcomes included a lack of timely and repeated prenatal syphilis screening, inadequate prenatal treatment and follow-up of syphilis infection, barriers to accessing prenatal care caused by multiple intersecting social determinants of health as well as by certain structural determinants of health, and substance use. A number of initiatives to improve syphilis care within the health care system and several community-based programs filling in some of the gaps in syphilis care and support are making important advances in addressing the epidemiological situation with syphilis.

Discussion: Much work is underway at various levels of government and local community to address the situation. Key recommendations for maximizing impact in curbing infectious and congenital syphilis rates include the following: planning an integrated strategy for addressing sexually transmitted and blood-borne infections as a whole; adopting a more holistic approach to improving health and wellbeing; developing targeted interventions for addressing structural and social barriers to health equity; and taking a collaborative approach to response by involving multilevel stakeholders, such as key populations, community groups, health care providers, and public health authorities.

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Appendix

PHAC's response

- **Guiding policies:** [Pan-Canadian STBBI Framework](#) and [Government of Canada STBBI Action Plan](#)
- **Formation of committees addressing syphilis:** Syphilis Outbreak Investigation Coordinating Committee (SOICC) and Syphilis Response Steering Committee (SRSC)
- **Prevention initiatives:**
 - PHAC and **Canadian Institutes of Health Research (CIHR)** jointly provided **\$2.75M** to address syphilis with an emphasis on **knowledge mobilization**.
 - PHAC **invested \$1.5 million** in time-limited funding to support about **12 community-based interventions** in the most affected areas to address infectious and congenital syphilis in Canada.
- **Testing initiatives:**
 - Emerging strategies and tools for responding to syphilis, "[Five things to know about treponemal point-of-care test \(POCT\) for syphilis](#)" was published in the CMAJ. (May 2024).
 - A summary of PHAC's update [syphilis screening recommendations for non-pregnant adolescents and adults](#) was published in Canadian Communicable Disease Report (CCDR) (July/August 2024).
- **Initiation of care and treatment - produce and promote information, tools, and resources to address syphilis:**
 - Collaborated with CIHR on one Syphilis Knowledge Mobilization event in December 2024 and will host a second event linked to the CIHR Operating Grant: Addressing Infectious and Congenital Syphilis in Canada.
 - PHAC's Healthy Canadians podcast featured an episode on syphilis, promoting prevention, testing, treatment, and normalizing sexual health conversations.
 - Launched an advertising campaign on syphilis and sexual health targeting youth and health professionals on February 10, 2025. The campaign will run until March 24, 2025.
 - The latest [infographic on infectious and congenital syphilis 2023](#) data was published in CCDR (February 2024).

Methods

- Data on infectious and congenital syphilis from 1991 to 2017 were extracted from the Canadian Notifiable Disease Surveillance System (CNDSS). Data from 2018 to 2023 were extracted from provincial and territorial (PT) data submissions to the Syphilis Outbreak Investigation Coordinating Committee (SOICC), a federal/provincial/territorial (FPT) group that runs an enhanced surveillance program for syphilis, in August 2024.
 - CNDSS started collecting data on sex at diagnosis since 1991.
 - Due to periodic updates of the historical surveillance data, counts and rates for a particular disease and year may change over time.
 - In cases where there are discrepancies between data reported by the Public Health Agency of Canada (PHAC) and those reported by individual provinces and territories, provincial/territorial data should be considered to be more accurate as they are the most current.
- Data for total population and live births were obtained from Statistics Canada. These population and live birth denominators were used to calculate national, provincial and territorial rates of infectious syphilis, rates of infectious syphilis by age, sex, and province and territory, and rates of congenital syphilis.
- Total case counts and rates presented nationally are based on cases that are male, female, transgender, and of unknown and other sex.

Data caveats

- Laboratory-confirmed cases collected: there is hidden burden of probable, undiagnosed, or unstaged cases (diagnosis and staging can be complex).
- Federated systems engender challenges in data collection (heterogeneity, interoperability, etc.).
- Data infrastructure challenges:
 - Non-standardized reporting across the 13 PTs (e.g., case report forms, case definitions, and data elements)
 - IT systems issues (e.g., difficult adding new variables, lack of interoperability)
- Changes in methods over time – possible inconsistency.
- Trends shown for 2020-2022 are impacted by the COVID-19 pandemic and should be interpreted with caution.

References for social and structural determinants of syphilis and other risk factors

1. Public Health Agency of Canada. Syphilis in Canada: Technical report on epidemiological trends, determinants and interventions. Ottawa (ON): PHAC; 2020. <https://www.canada.ca/en/services/health/publications/diseases-conditions/syphilis-epidemiological-report.html>
2. Tetteh A, Moore V. The rise of congenital syphilis in Canada: Threats and opportunities. *Frontiers in Public Health* 12: 1522698. (2025). <https://doi.org/10.3389/fpubh.2024.1522698>
3. Tetteh A, Abdi N, Moore V, Gravel G. Rising congenital syphilis rates in Canada, 1993-2022. *Frontiers in Public Health* 12: 1522671. (2025). <https://doi.org/10.3389/fpubh.2024.1522671>
4. Gupta GR. Gender, sexuality, and HIV/AIDS: the what, the why, and the how. *Can HIV AIDS Policy Law Rev.* 2000;5(4):86-93.
5. Gahagan J, Ricci C. HIV/AIDS Prevention for Women in Canada: A Meta-Ethnographic Synthesis. 2011. <https://www.catie.ca/sites/default/files/HIV%20AIDS%20prevention%20for%20women%20in%20canada.pdf>.
6. Gahagan J. Gender Matters in HIV Prevention. *Prevention in Focus.* 2012. <https://www.catie.ca/prevention-in-focus/gender-matters-in-hiv-prevention>.
7. Dworkin SL, Exner T, Melendez R, Hoffman S, Ehrhardt AA. Revisiting "Success": Posttrial analysis of a gender-specific HIV/STD prevention intervention. *AIDS Behav.* 2006;10(1):41-51.
8. Singh AE, Romanowski B. The return of syphilis in Canada: a failed plan to eliminate this infection. *J Assoc Med Microbiol Infect Dis Can.* (2019) 4:215–7. doi: 10.3138/jammi.2019-08-22
9. Vijh R, Chan E, Ryan V, Macneil M, Puddicombe D, Pederson A et al. Evaluation of Universal Syphilis Screening at Delivery in British Columbia, Canada. *STI & HIV 2023 World Congress; 24-27 July 2023.* British Columbia Centre for Disease Control (2022).
10. Blouin K, Lambert G, Sullivan GP. Portrait des infections transmissibles sexuellement et par le sang (ITSS) au Québec année 2020 et données préliminaires de 2021. (2023).
11. Round JM, Plitt SS, Eisenbeis L, Smyczek P, Gratrix J, Charlton C, et al. Examination of care milestones for preventing congenital syphilis transmission among syphilis-infected pregnant women in Alberta, Canada: 2017–2019. *Sexual Trans Dis.* (2022) 49:477–83. doi: 10.1097/OLQ.0000000000001640.
12. Gratrix J, Karwacki J, Eagle L, Rathjen L, Singh A, Chu A, et al. Outcomes of infectious syphilis in pregnant patients and maternal factors associated with congenital syphilis diagnosis, Alberta, 2017–2020. *Can Commun Dis Rep.* (2022) 48:61–7. doi: 10.14745/ccdr.v48i23a02.
13. Canadian Paediatric Society. Canadian Paediatric Surveillance Program 2022 Results. (2023).
14. Debessai Y, Costanian C, Roy M, El-Sayed M, Tamim H. Inadequate prenatal care use among Canadian mothers: findings from the Maternity Experiences Survey. *J Perinatol.* (2016) 36:420–6. doi: 10.1038/jp.2015.218
15. Verghese VP, Henderson L, Singh A, Guenette T, Gratrix J, Robinson JL. Early childhood neurodevelopmental outcomes in infants exposed to infectious syphilis in utero. *Pediatr Infect Dis J.* (2018) 37:576–9. doi: 10.1097/INF.0000000000001842.
16. Robinson JL, Donovan A, Gratrix J, Smyczek P, Tse-Chang A. Case series of stillbirths due to syphilis in Edmonton, Alberta, Canada. *Sexual Trans Dis.* (2023) 50:591–4. doi: 10.1097/OLQ.0000000000001838.
17. Macumber S, Singh AE, Gratrix J, Robinson JL, Smyczek P, Rathjen L, et al. Retrospective cohort study of the incidence and outcomes of Jarisch-Herxheimer reactions after treatment of infectious syphilis in late pregnancy. *Sexual Trans Dis.* (2022) 49:e107–9. doi: 10.1097/OLQ.0000000000001610.
18. Public Health Ontario. Maternal and early congenital syphilis in Ontario: 2020-2022. Findings from retrospective case reviews. (2024). https://www.publichealthontario.ca/-/media/Documents/C/24/congenital-maternal-syphilis-2020-2022.pdf?rev=e8910e62cf164cd28c4e89c358dd51ac&sc_lang=en.