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

March 3, 2025

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Public Health Agency of Canada | Agence de la santé publique du Canada

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)

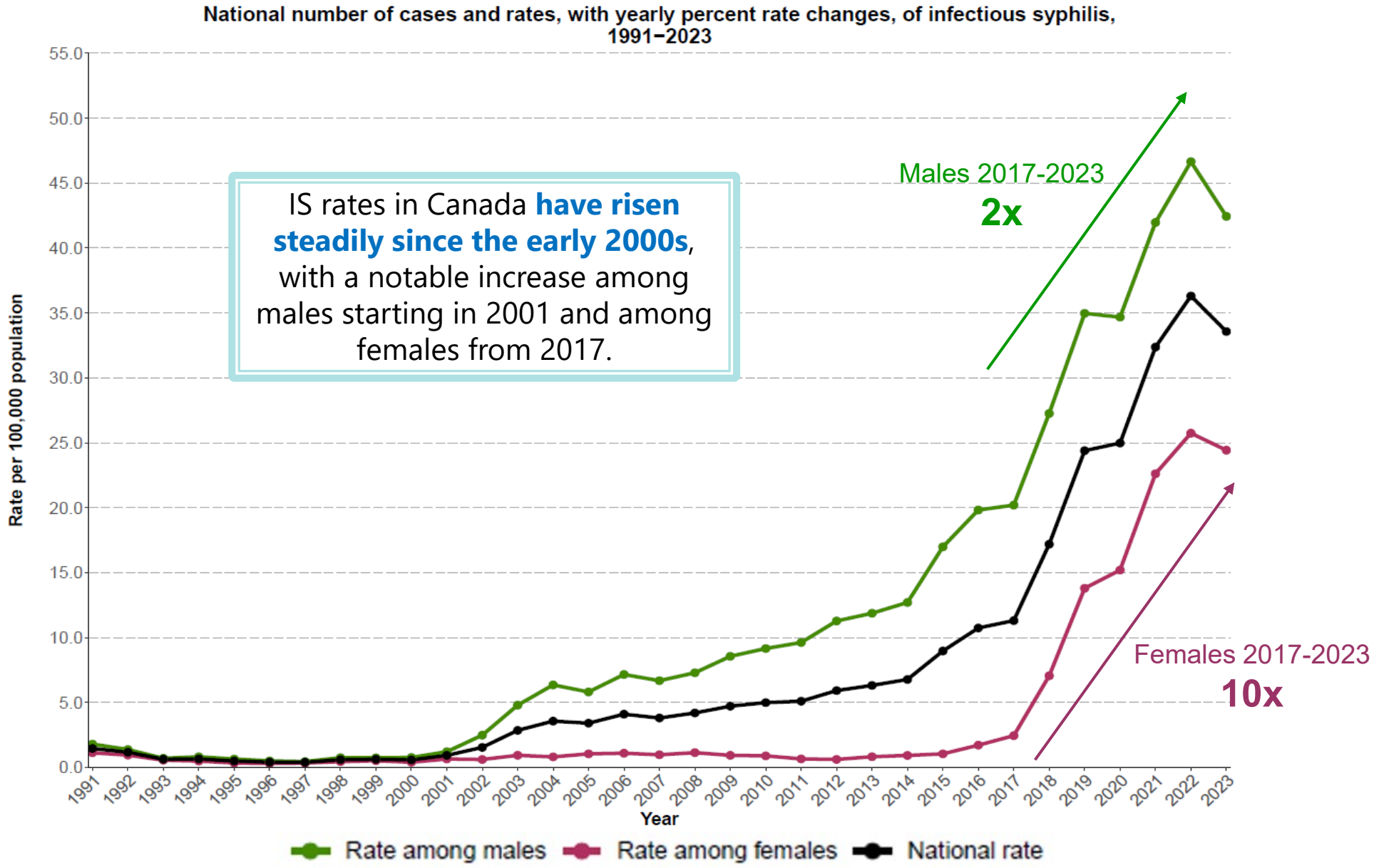
Data notes and limitations

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

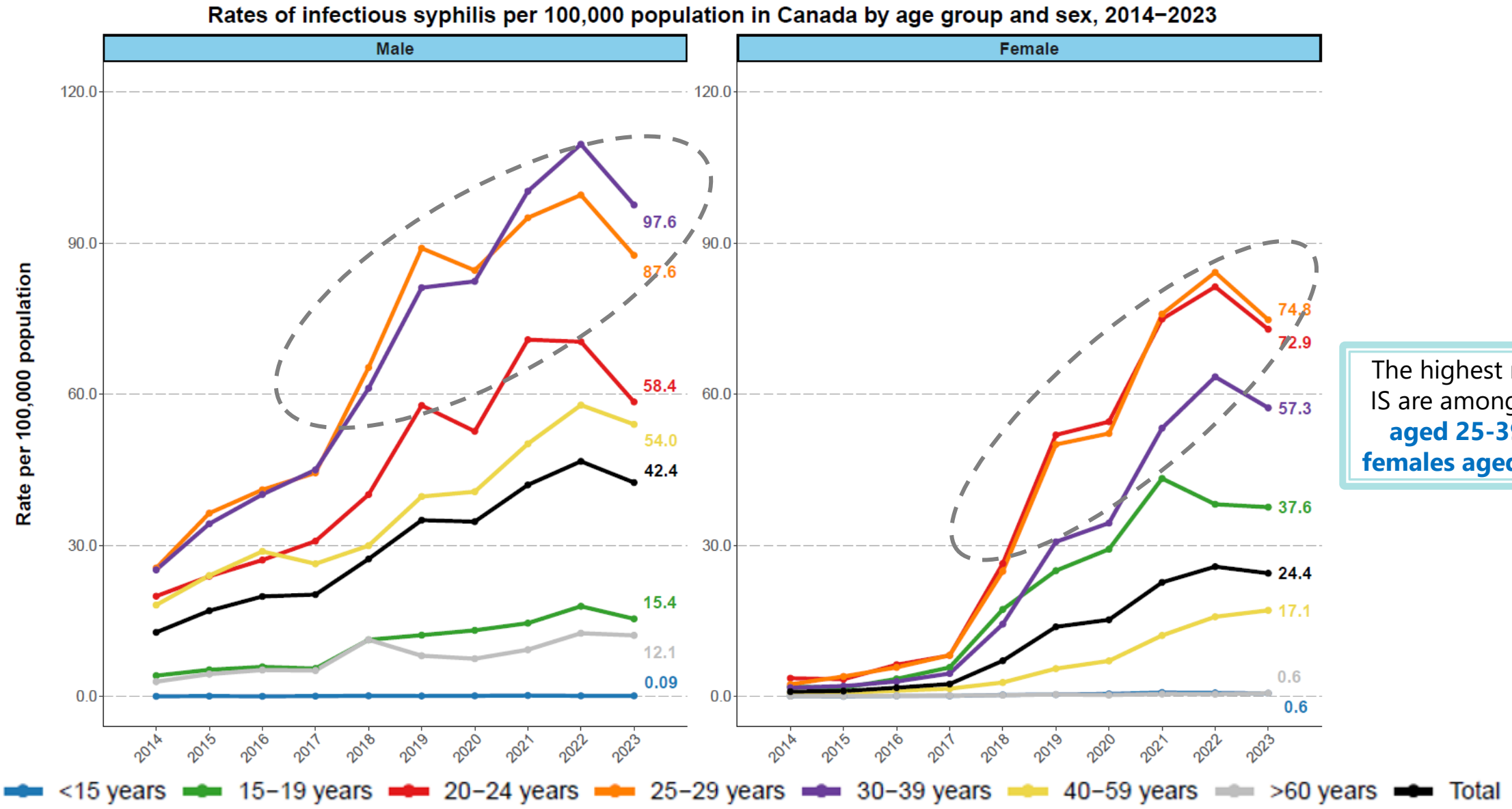
- Limited to information specified in PT public health reporting systems.
- Data on ethnicity/race/Indigenous identity is not available nationally.
- Some variables collected are dependent on self-reporting, have a large proportion of missing data, and are not collected or reported consistently by all 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

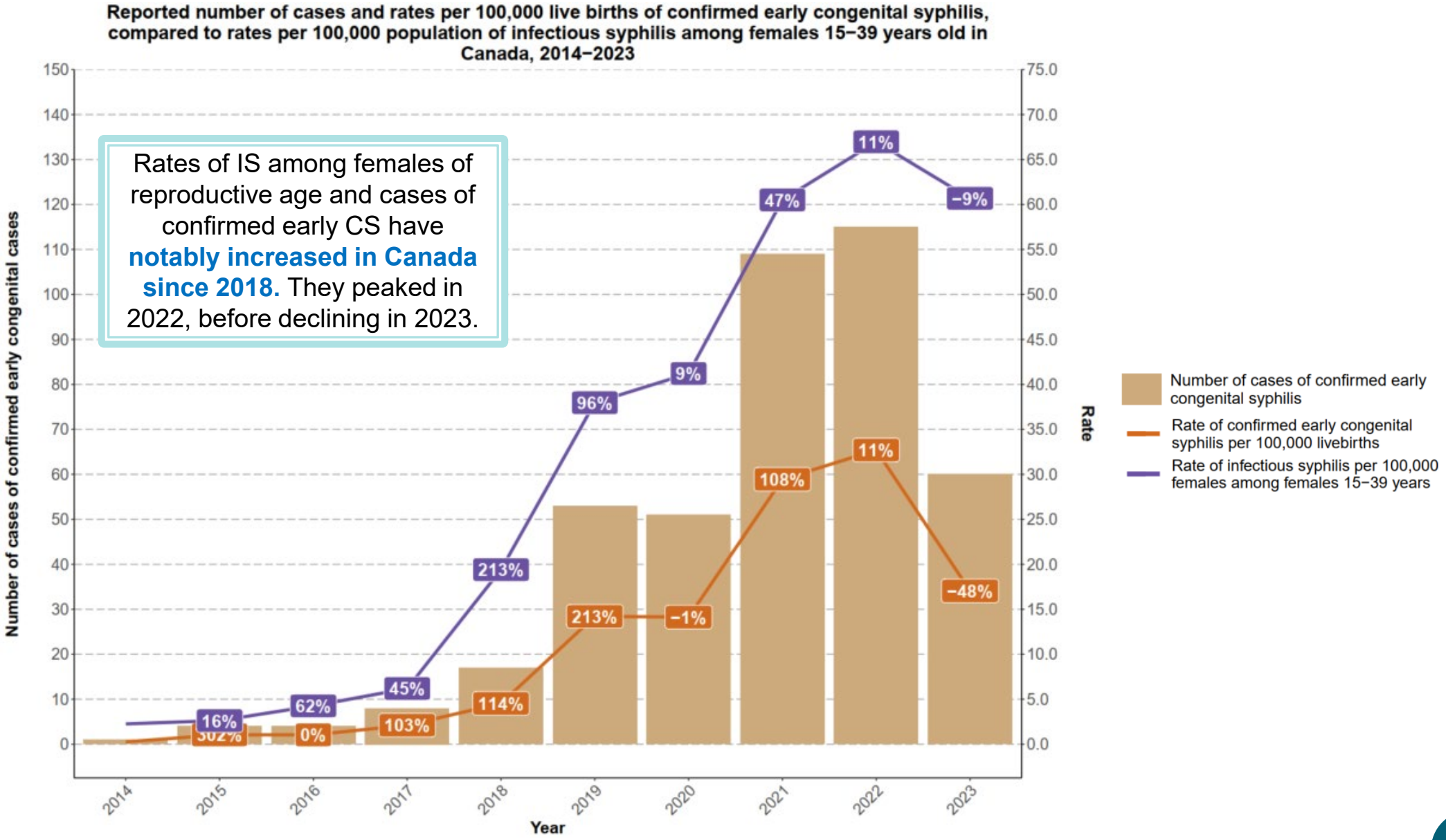


Infectious syphilis trends by age group and sex, 2014-2023



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

Congenital syphilis: trends over time, 2014-2023

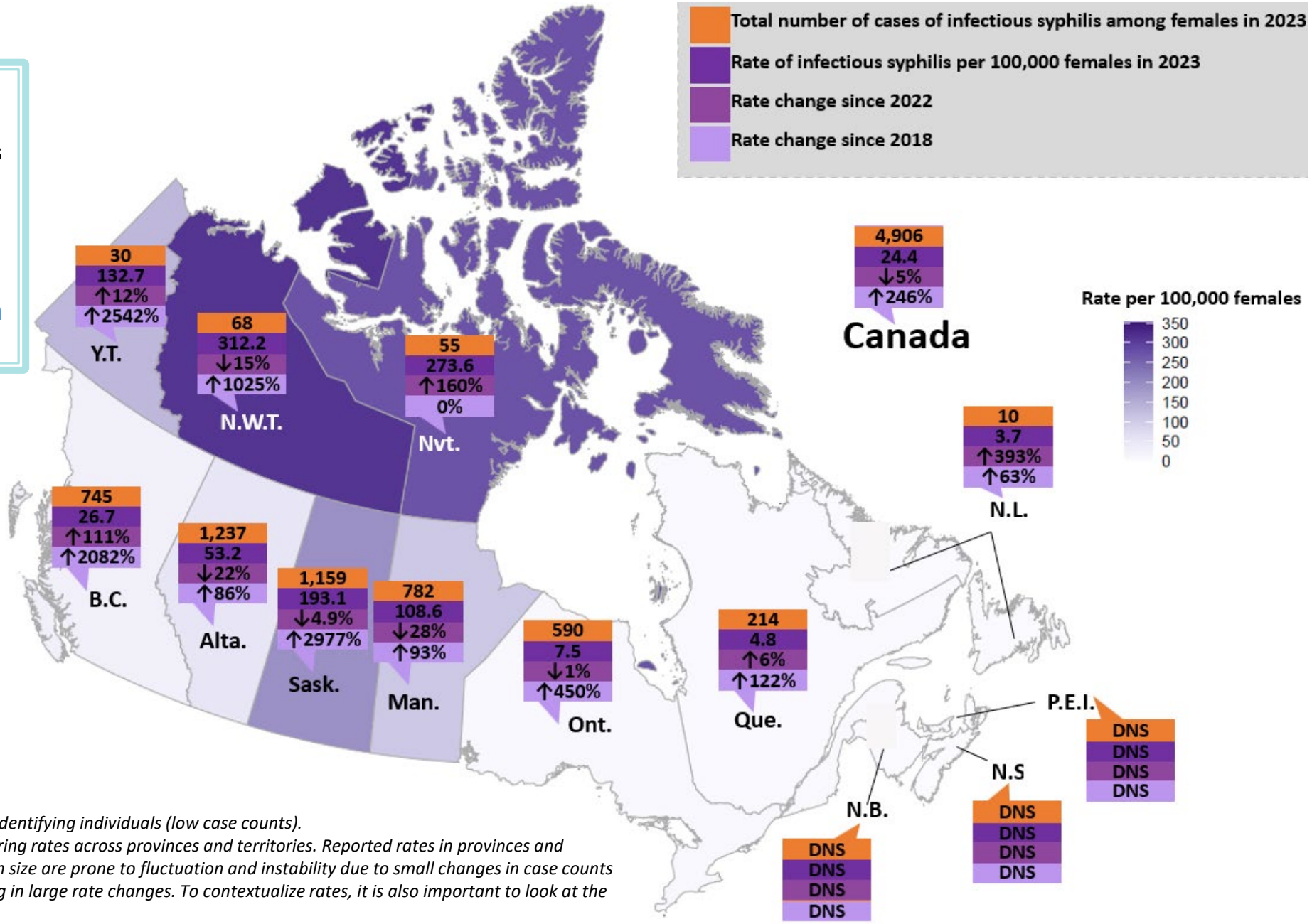


Note: percentages (%) on the figure represent the change in rate from the previous year. The female rate line excludes those who did not identify as female.

Regional Trends

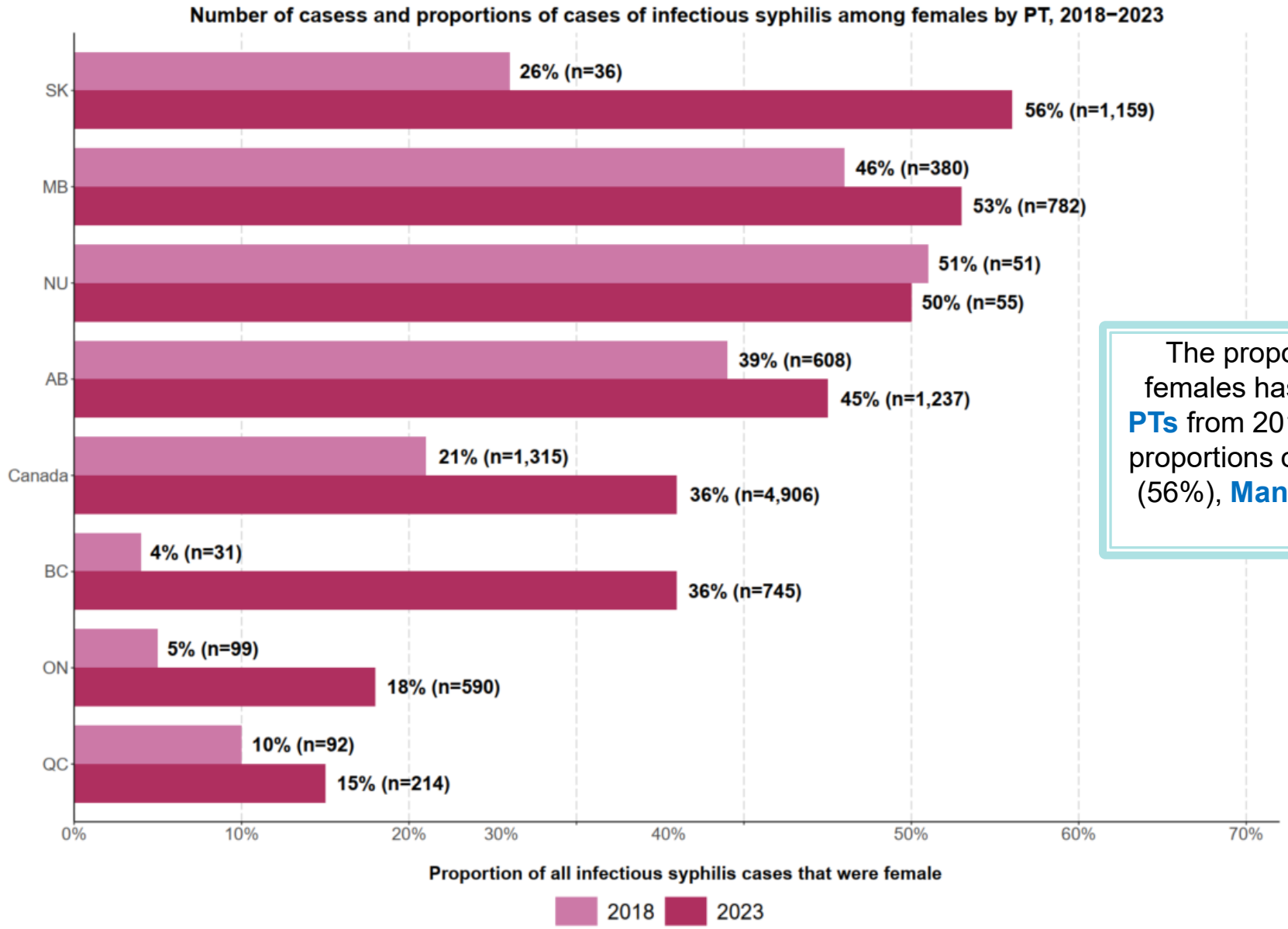
Regional distributions of infectious syphilis among females: 2023

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.

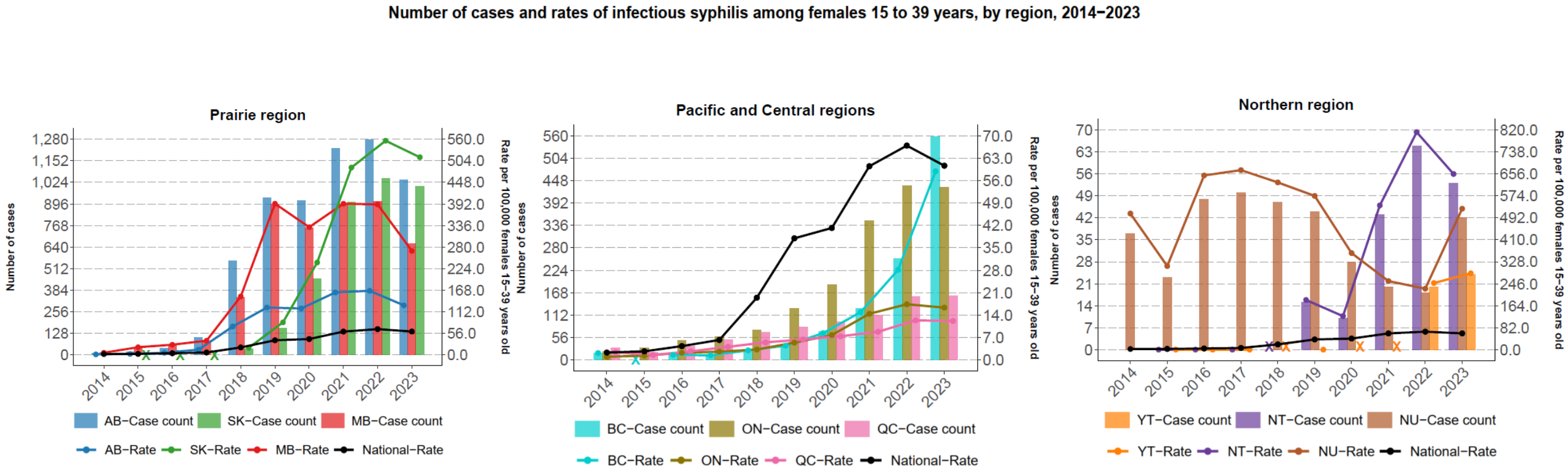
Regional distributions of female cases, 2018 vs. 2023



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

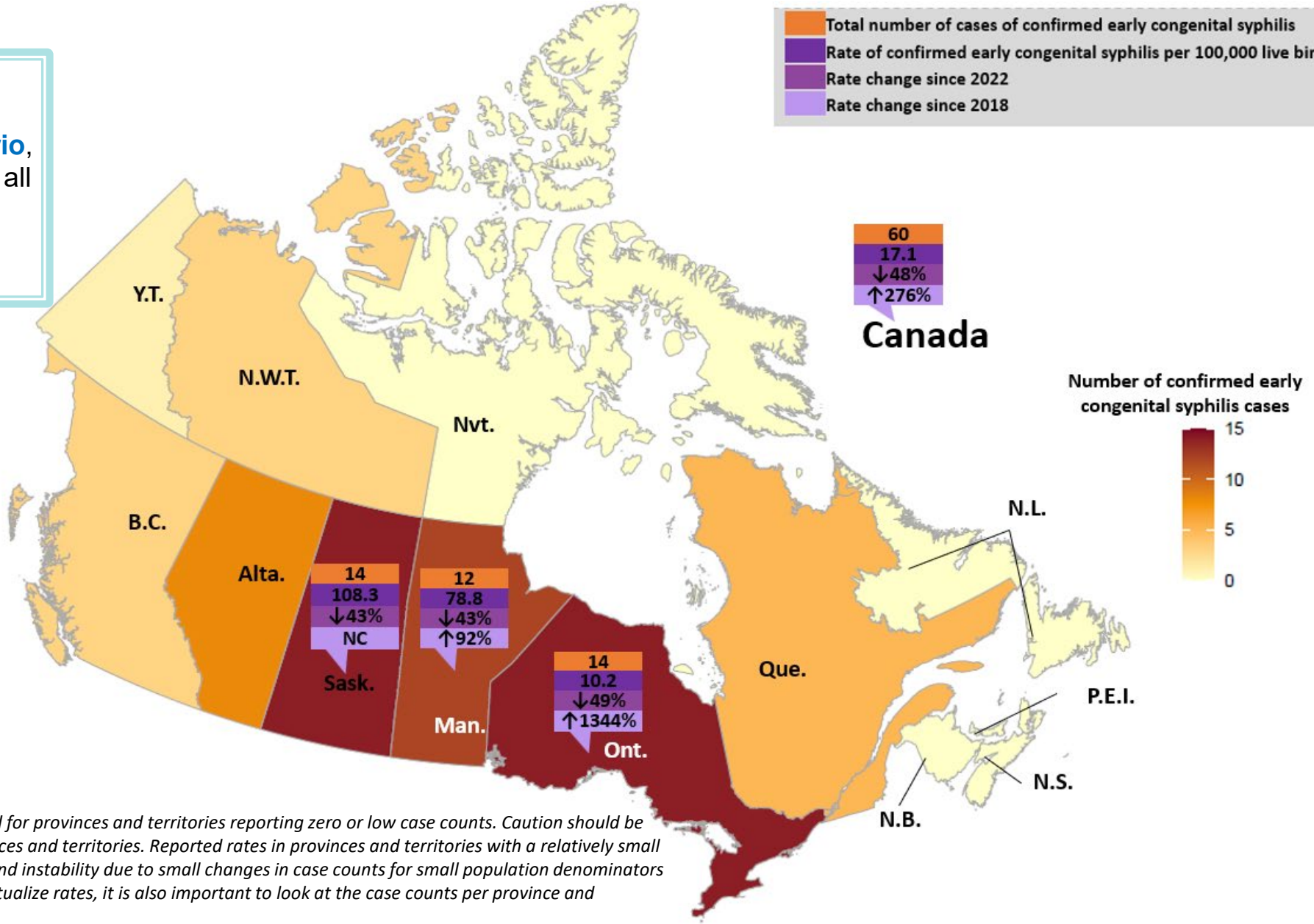


Rates of IS among females of reproductive age in **the Prairie and Northern regions** have consistently been **higher than the national average.**

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

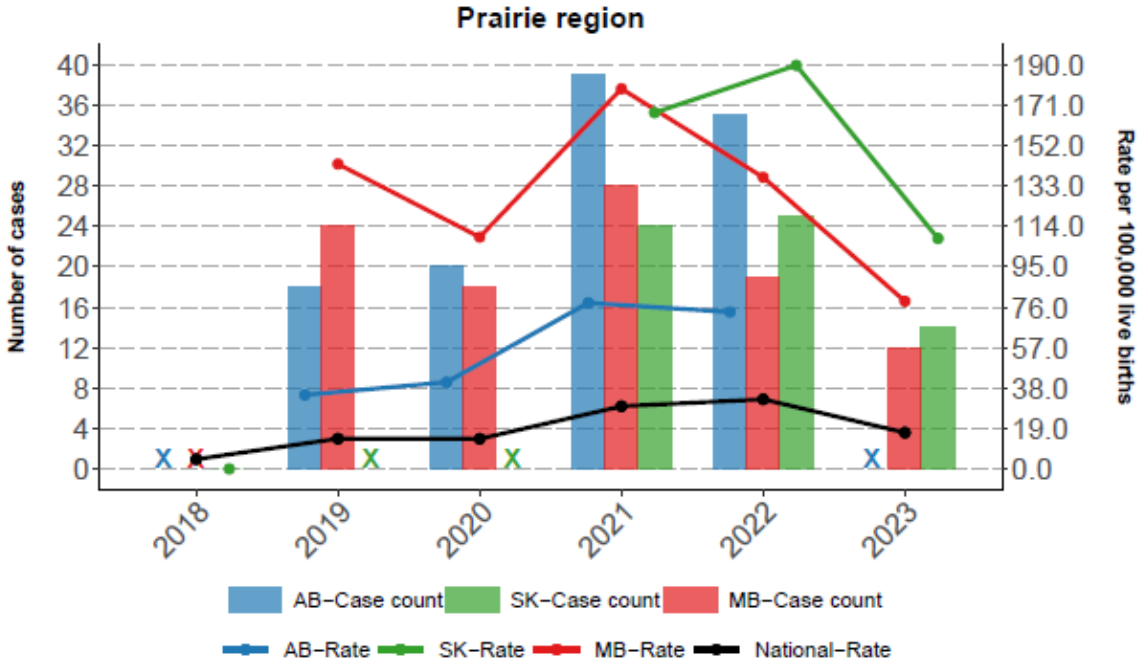
In 2023, **Saskatchewan, Manitoba, and Ontario**, accounted for **67%** of all confirmed early congenital syphilis cases.

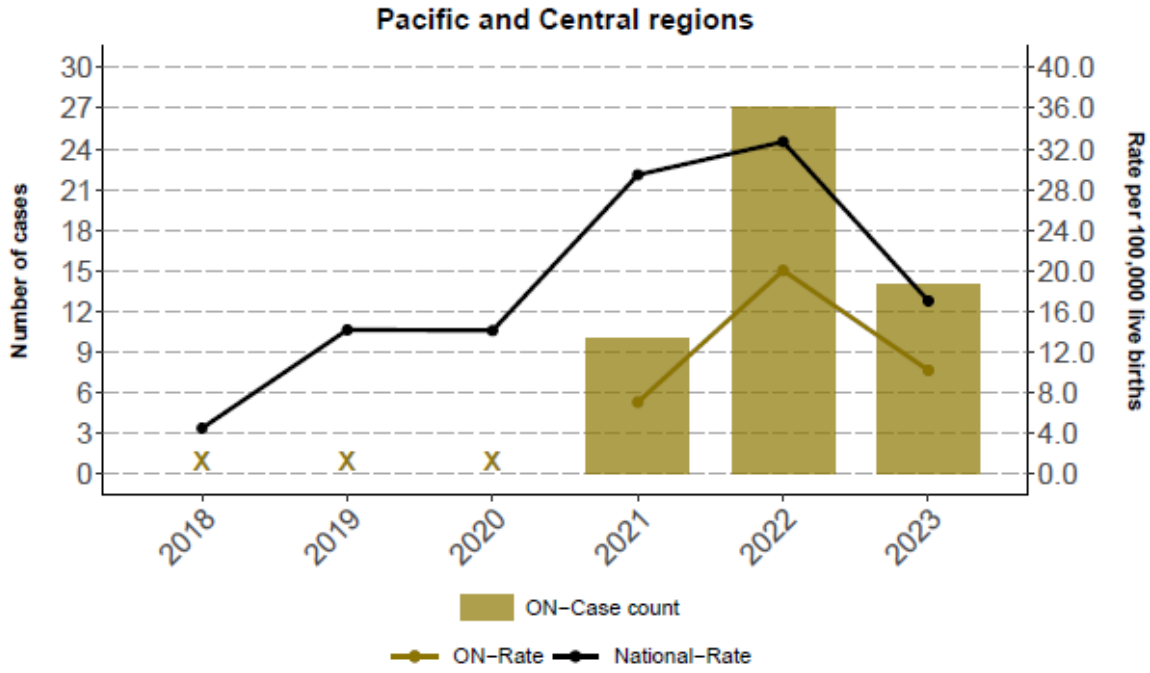


Note: Individual legends are not displayed for provinces and territories reporting zero or low case counts. Caution should be used when comparing rates across provinces and territories. Reported rates in provinces and territories with a relatively small population size are prone to fluctuation and instability 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.

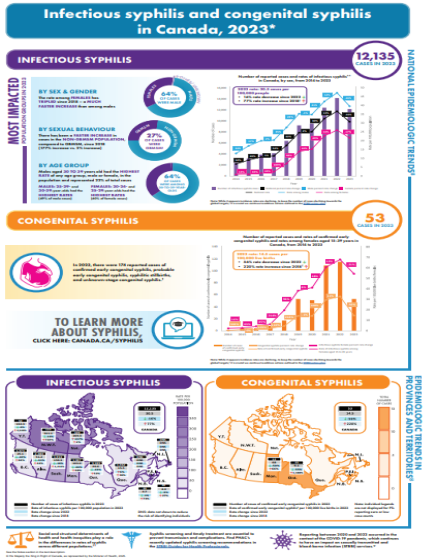
Note: PTs with less than 10 reported cases of confirmed early congenital syphilis from 2018 to 2023 (BC, QC, NB, NS, PE, NL, YT, NT, NU) were removed from the figures. Among the PTs shown, instances of less than 10 but greater than 0 cases in a given reporting year are represented by an "X." AB did not 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 to[1-18]:
  - ❖ 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]

Thank you

Our publications:



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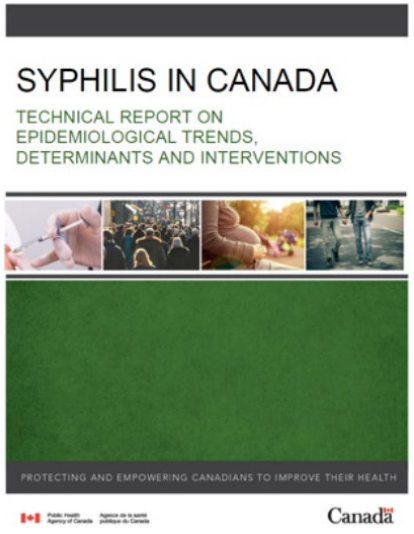

Click here

See: Sexually transmitted and blood-borne infections surveillance resources and publications - Canada.ca

✉ sti-hep-its@phac-aspc.gc.ca

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

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