Alberta Health Services
Sexually Transmitted Infections Services

Syphilis

Learning Module for Healthcare Providers

STI Services, Communicable Disease Control
Alberta Health Services
March 2025

BEGIN ▶

Copyright

Continue ►

Learning objectives

Epidemiology
Provide an overview of syphilis epidemiology in Alberta

Transmission
Describe syphilis transmission and manifestations

Testing
Describe syphilis testing methods in Alberta

Treatment
Describe syphilis treatment as per the Alberta STI Treatment Guidelines

Prevention
Summarize appropriate prevention counseling messages for clients with syphilis

Tip

The tabs at the top of the slides will take you to the related content.

Tip

You can scroll or use the back/next buttons to navigate the content.

Epidemiology

Infectious syphilis

Congenital syphilis

Non-infectious syphilis

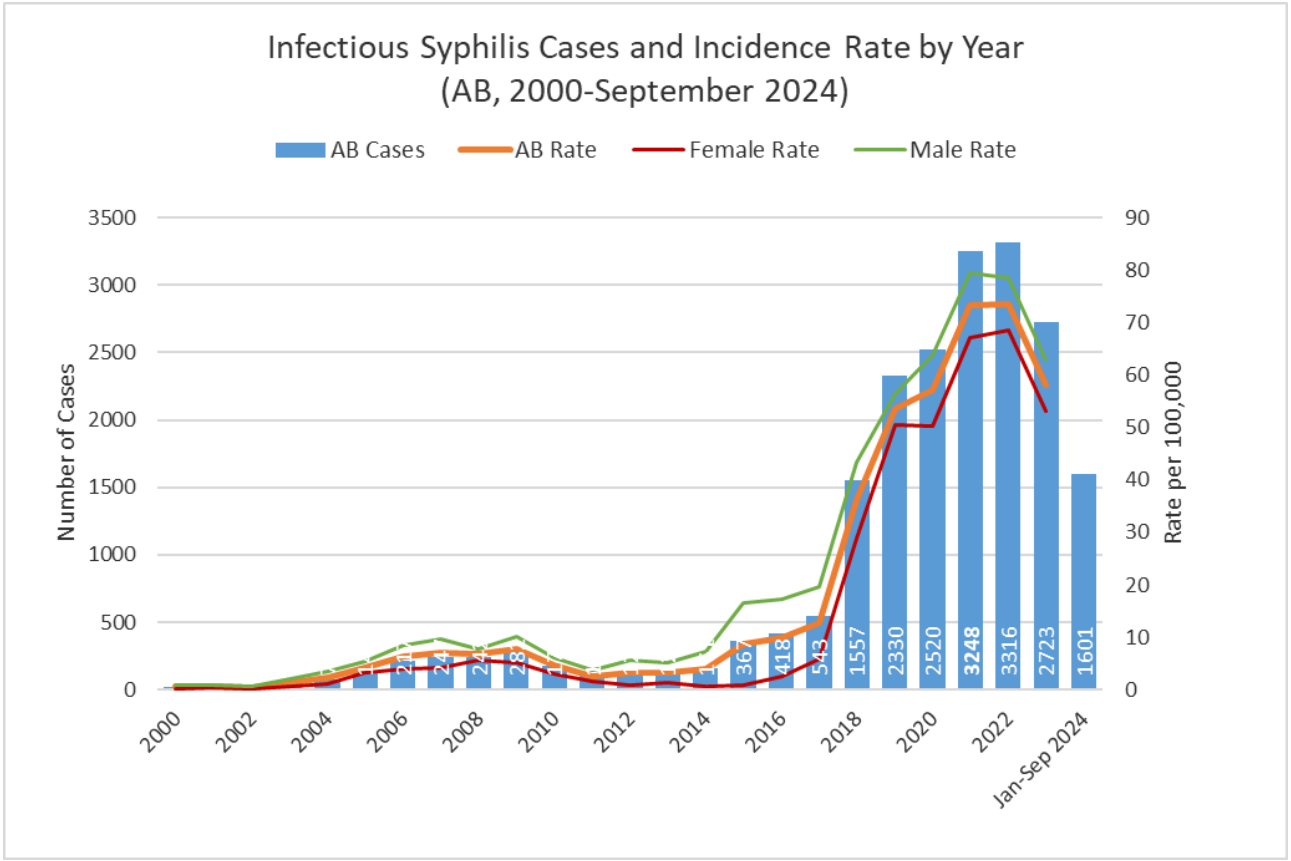
Infectious syphilis

A **provincial outbreak** of syphilis was declared in 2016 and 2019.

In 2023, there were over **2,700 cases** of syphilis reported in Alberta, with a decrease (~20%) in rates among both men and women compared to 2022.

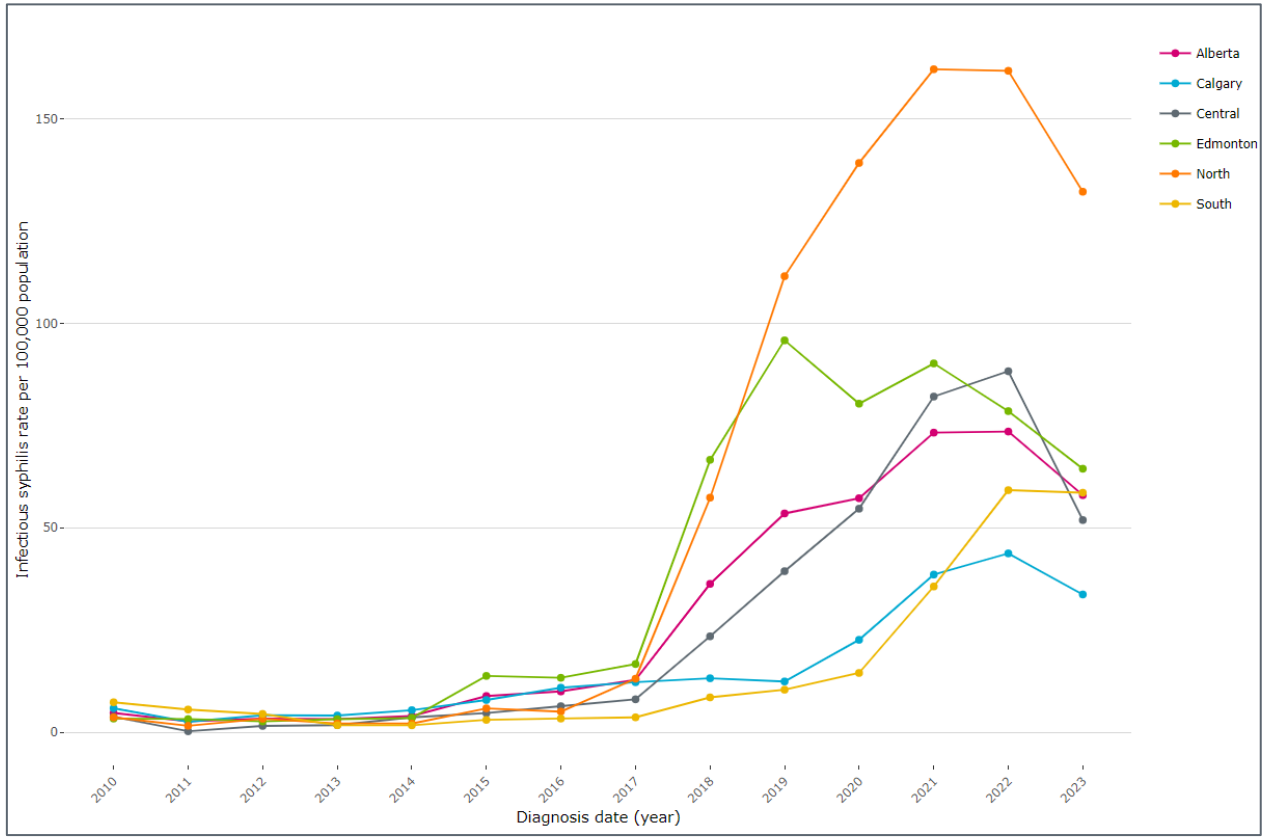
However, the 2023 rate remains **14 times higher than in 2014** (pre-outbreak).

25% of cases were co-infected with chlamydia and/or gonorrhea.



2024 data is preliminary.
Interactive Health Data Application, November 29, 2024. http://www.ahw.gov.ab.ca/IHDA_Retrieval/selectCategory.do

Infectious syphilis



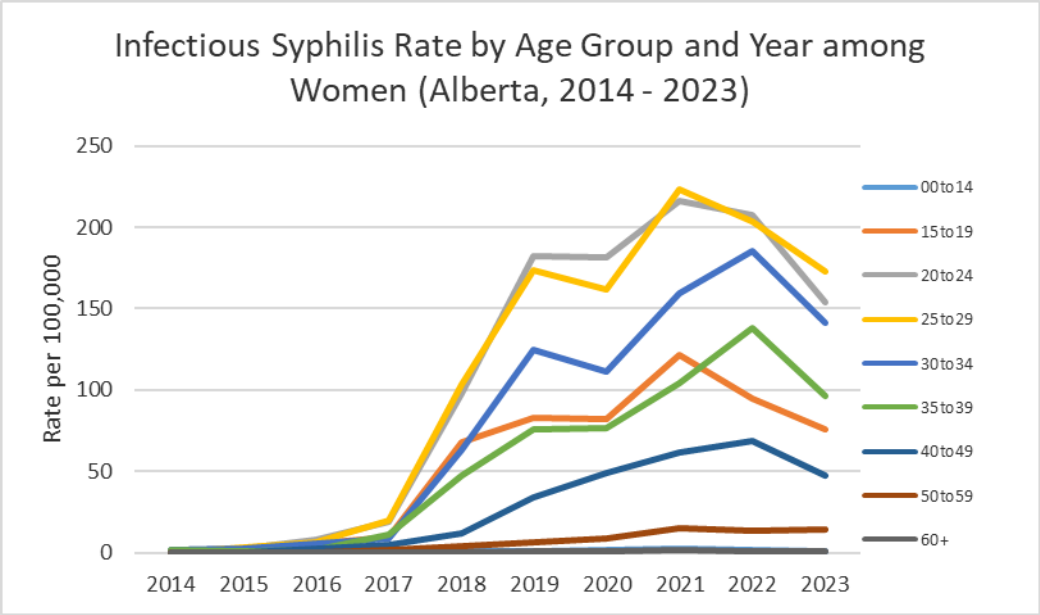
Zone	2022 rate per 100,000	2023 rate per 100,000	Number of 2023 cases	YOY rate change
South	59.2	58.6	188	-1%
Calgary	43.7	33.7	629	-23%
Central	88.3	51.9	252	-41%
Edmonton	78.5	64.4	991	-18%
North	161.6	132.2	637	-18%
Alberta	**73.5**	**58.0**	**2,723**	**-21%**

Rate of infectious syphilis decreased between 2022 and 2023 for all zones but **remains at outbreak levels.**

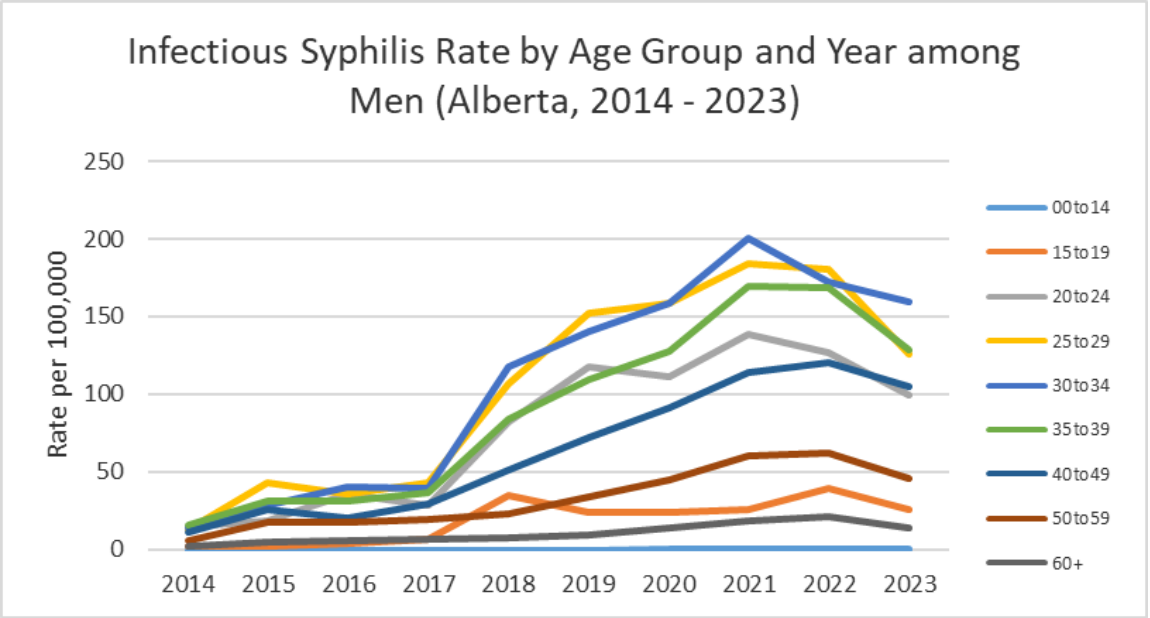
Interactive Health Data Application, Sep 27, 2024. http://www.ahw.gov.ab.ca/IHDA_Retrieval/selectCategory.do

Infectious syphilis

Most cases among women are in **child-bearing years** (15-49 years).

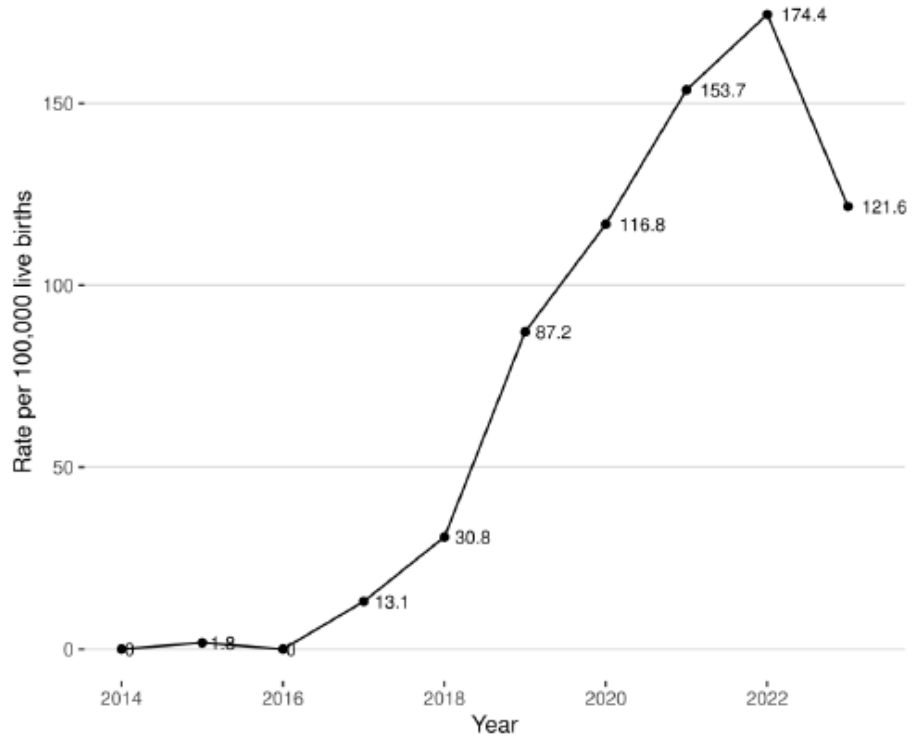


Most cases among men are among those aged **20-49 years of age.**



Interactive Health Data Application, Sep 27, 2024. http://www.ahw.gov.ab.ca/IHDA_Retrieval/selectCategory.do

Congenital syphilis

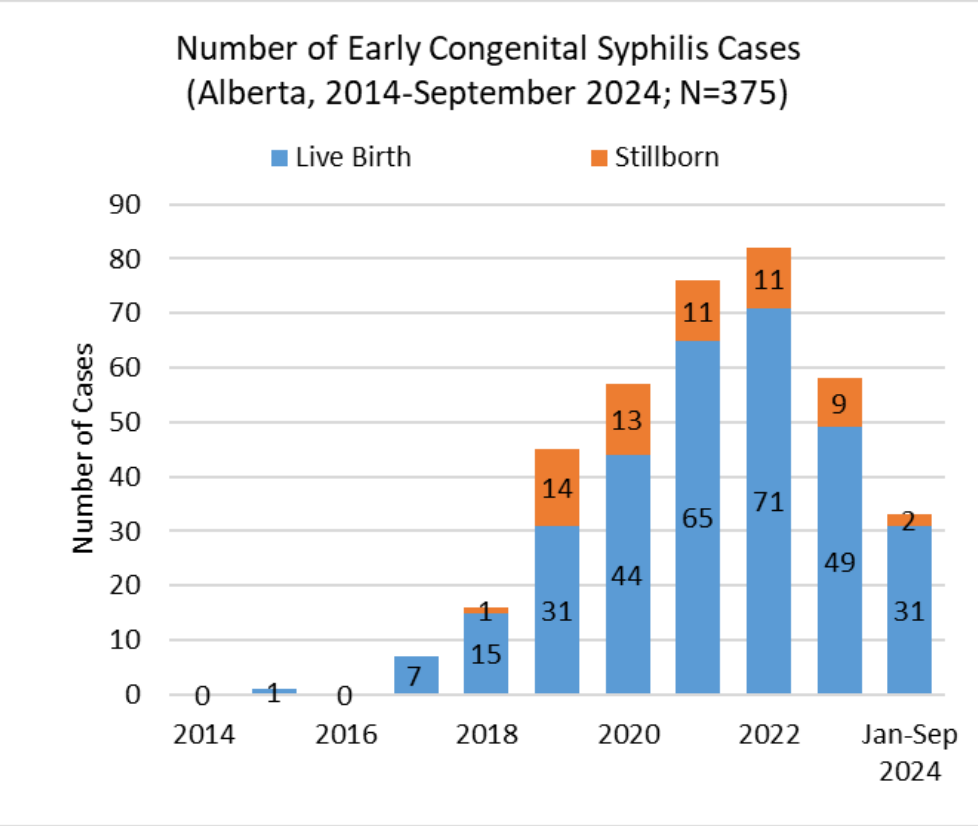


Annex Figure 2. Rate of congenital syphilis in Alberta, 2014 to 2023.

In 2023, the rate of congenital syphilis was **122 per 100,000 live births**, exceeding the WHO targets to reduce mother-to-child transmission is ≤ 50 cases per 100,000 live births.

Government of Alberta. Alberta STI and HIV 2023.

Congenital syphilis

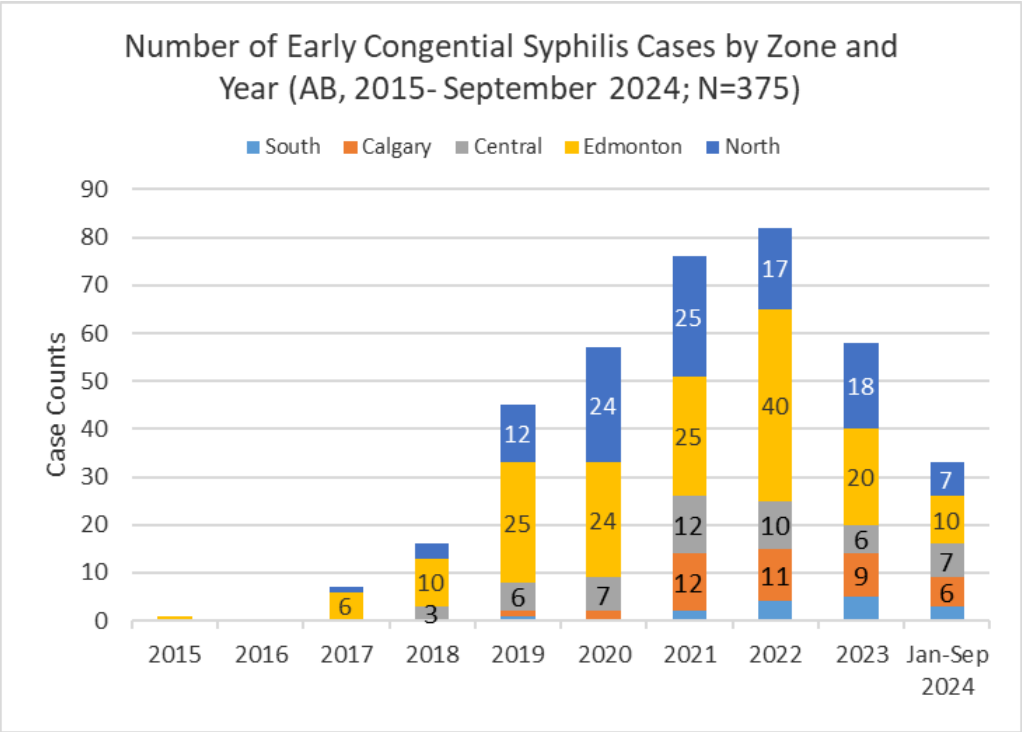


Nearly 375 infants have been diagnosed with congenital syphilis since the outbreak began in 2015.

20% of cases resulted in infant deaths. The expected number of cases is zero.

2024 data is preliminary. Interactive Health Data Application, November 29, 2024. http://www.ahw.gov.ab.ca/IHDA_Retrieval/selectCategory.do

Congenital syphilis by Zone



Most congenital cases have been reported in the northern half of the province throughout the outbreak.

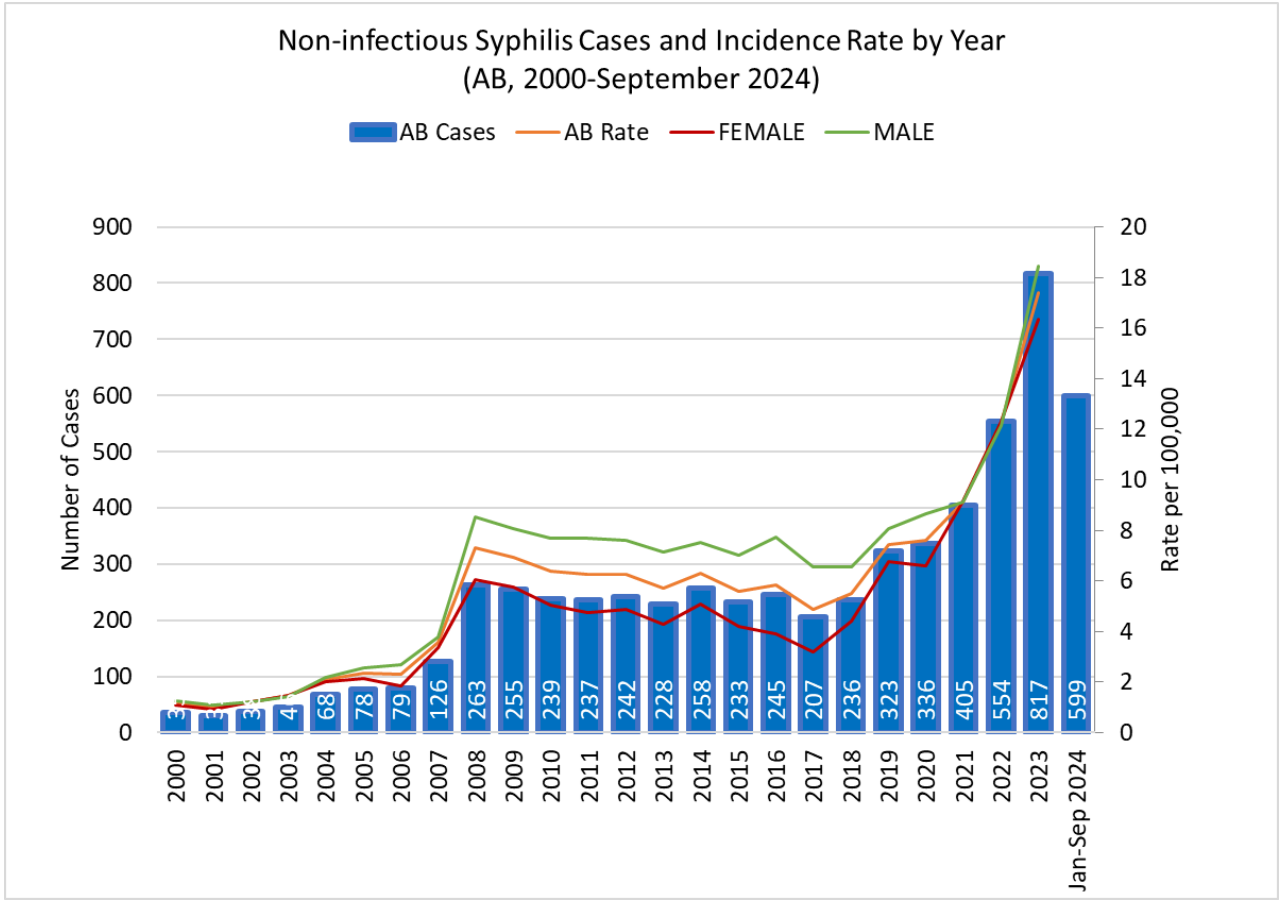
In 2023, the Edmonton and Central zones saw a reduction in case numbers as compared to 2022, while North, Calgary and South zones reported similar case counts.

2024 data is preliminary. Interactive Health Data Application, November 29, 2024. http://www.ahw.gov.ab.ca/IHDA_Retrieval/selectCategory.do

Non-infectious syphilis

The rate of non-infectious syphilis has been increasing since syphilis outbreak began. This can be attributed to late diagnosis of a locally acquired case of syphilis.

Some of the rise was also attributable to an increase in immigration cases from an average of 15% of cases in 2018 to 2022, to 30% of cases in 2023 (preliminary data).



2024 data is preliminary. Interactive Health Data Application, November 29, 2024. http://www.ahw.gov.ab.ca/IHDA_Retrieval/selectCategory.do

Syphilis transmission and manifestations

What is syphilis?

Transmission

Factors contributing to transmission

Stages of syphilis Infection

Early congenital syphilis

What is syphilis?

Syphilis is a sexually transmitted infection caused by the bacterium *Treponema pallidum*.

Syphilis can cause permanent, serious health problems if it remains untreated.

The infection can present with and without symptoms.

Both presentations require treatment with antibiotics.

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Transmission

Syphilis is primarily transmitted through sexual contact (anal, oral or vaginal) or from the birthing parent to the unborn child (in utero or at the time of delivery if the birthing parent has a syphilitic lesion).

- The bacteria enters the body through mucosal tissues of the rectum, throat and vagina. It can also be transmitted by skin-to-skin contact if the person has an active lesion and through the exchange of sexual fluids.
- Asymptomatic persons **can also spread the infection** to their sexual partners.
- **Rare:** blood borne, nonsexual personal contact.
- Infectious syphilis is associated with **increased transmission** of and susceptibility to HIV infection.

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Factors contributing to transmission

Exposure Factors

- Sexual contact with person(s) with infection, or symptoms of syphilis
- Multiple partners, anonymous partners, or a new partner
- Inconsistent condom use
- History of STI/HIV

Contributing Factors

- Social determinants of health
- Stigma
- Mobile dating apps
- Substance use and addiction
- History of incarceration
- Participation in transactional sex
- and many others...

Singh AE & Romanowski B. 2019. The return of syphilis in Canada: A failed plan to eliminate this infection. JAMMI.
https://doi.org/10.3138/jammi.2019-08-22

Stages of syphilis infection

Syphilis is a complex multi-staged infection, which includes infectious and non-infectious stages:

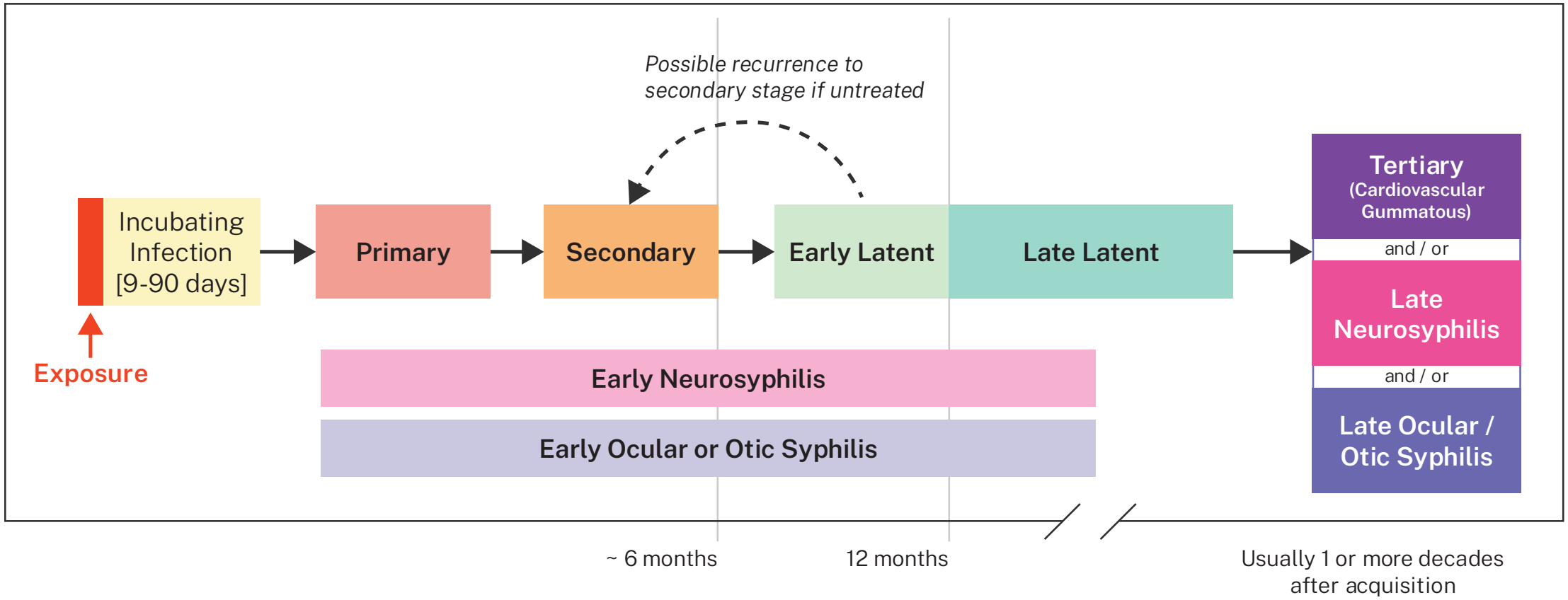
Infectious

- Primary
- Secondary
- Early latent
- Early neurosyphilis

Non-Infectious

- Late latent
- Late neurosyphilis
- Tertiary

Stages of syphilis infection



New York City Department of Health and Mental Hygiene Bureau of STI. (March, 2019) The Diagnosis, Management and Prevention of Syphilis: An update and review. https://www.ncsddc.org/wp-content/uploads/2019/04/Syphilis_Monograph_2019-NYC-PTC-NYC-DOHMH.pdf

Primary stage

One of the first signs is a painless sore **(chancre)** that develops around 3 weeks after exposure (3 to 90 days)

- The primary lesion develops where the bacterium first entered the body
- Classic presentation is a **painless single ulcer**; however, multiple lesions may also occur and may appear "atypical" and include pain, mimicking herpes simplex virus, or other skin infections
- Typically found in the anogenital area, but may occur at any site (e.g. pharynx, lips, fingers etc.)
- Bilateral lymphadenopathy can occur in the primary stage
- Without treatment the symptoms will usually resolve in 4-6 weeks; the individual **continues to be infectious**, and the infection progresses

Additionally

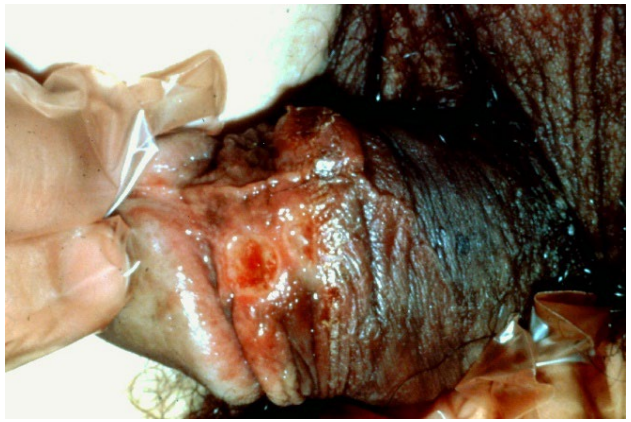
- Serologic tests for syphilis may be negative early in the infection (repeat in 3-4 weeks)
- Up to 30% of primary infections are asymptomatic
- Co-infection with herpes, HIV, other STI is common

Clinical presentation ▶

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010, https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Clinical presentation of primary syphilis

Photos provided with permission by Dr. B. Romanowski



Secondary stage

The secondary stage is a disseminated form of the infection producing a range of symptoms such as:

- **Rash:** classically on palms and/or soles (macular, papular, maculopapular, follicular, pustular)
- **Mucous patches:** shallow erosions of the mouth, throat and cervix
- **Condyloma lata:** wart-like growths or moist papules in anogenital region
- **Systemic symptoms** of headache, anorexia, malaise, weight loss, nausea/ vomiting, sore throat and fever, regional lymphadenopathy
- Temporary alopecia, or **patchy hair loss**

Additionally

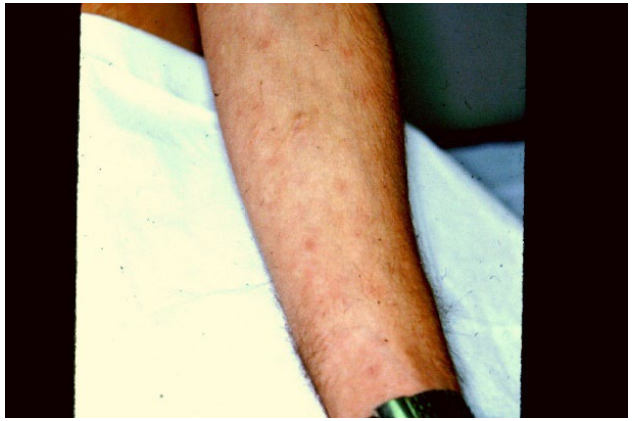
- Primary and secondary stages may overlap
- A relapse of secondary syphilis can occur in the first year of infection

Clinical presentation ▶

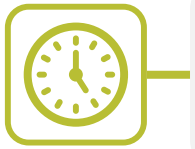
Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Clinical presentation of secondary syphilis

Photos provided with permission by Dr. B. Romanowski



Early and late latent stage



Period when patients are asymptomatic with positive serologic tests.

Early latent syphilis (duration of infection is <1 year): considered to be infectious due to the 25% risk of relapse to secondary syphilis.

Late latent syphilis (duration of infection is >1 year): considered to be noninfectious.

GJESTLAND T. The Oslo study of untreated syphilis; an epidemiologic investigation of the natural course of the syphilitic infection based upon a re-study of the Boeck-Bruusgaard material. Acta Derm Venereol Suppl (Stockh). 1955;35(Suppl 34):3-368; Annex I-LVI. PMID: 13301322.

Tertiary syphilis

Neurosyphilis

Incubation period:

- Less than 2 years to 20 years

Gummatous lesions

Tissue destruction of any organ

Incubation period:

- 1 to 46 years, with most at 15 years

Cardiovascular

Aortic aneurysm, aortic regurgitation, coronary artery ostial stenosis

Incubation period:

- 10 to 30 years

Gumma and cardiovascular syphilis are very rare; possibly because of the widespread availability and use of antibiotics.

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Neurosyphilis

Can occur at any point during the infectious or noninfectious stages of syphilis.

Neurosyphilis may be asymptomatic.

Symptoms may include headaches, vision changes, hearing changes, vertigo, personality changes, dementia, paresthesia, ataxia.

Diagnosed via lumbar puncture and clinical presentation of symptoms.

Co-infection with HIV increases risk for neurosyphilis.

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Early congenital syphilis

Infectious syphilis in pregnancy can lead to fetal infection resulting in preterm birth, congenital abnormalities, and stillbirth:

- ***T. pallidum* can cross the placenta and infect the fetus** in utero or through contact with a genital lesion during delivery
- Transplacental transmission can occur at any time during gestation but occurs with increasing frequency as gestation advances

Risk of transmission to an infant varies depending on the stage of the pregnant patient's syphilis infection; but the risk is highest with untreated infectious stages.

- **70-100%** risk if the patient has untreated primary or secondary syphilis during pregnancy
- **40%** risk if early latent syphilis
- **<10%** risk if late latent

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/sexually-transmitted-infections/canadian-guidelines-sexually-transmitted-infections-41.html

Early congenital syphilis

Manifestations in infant at birth:

- Stillborn/spontaneous abortion (40-50%)
- Rash
- Enlarged spleen and liver/jaundice
- Watery nasal discharge (snuffles)
- Generalized lymphadenopathy
- Radiographic abnormalities
- Asymptomatic cerebrospinal fluid changes
- And others

Approximately 60-90% of live-born neonates with congenital syphilis are asymptomatic at birth.

CDC Congenital syphilis--United States, 1998. MMWR Morb Mortal Wkly Rep. 1999;48(34):757
Ortiz-Lopez N, Diez M, Diaz O, Simon F, Diaz A:Epidemiological surveillance of congenital syphilis in Spain, 2000-2010, Pediatr Infect Dis J. 2012;31(9):988

Testing in Alberta

Who should be tested for syphilis?

Testing in pregnancy

How do I test?

Serological testing for syphilis in Alberta

Syphilis PCR

Indications for CSF examination

Who should be tested for syphilis?

Test all persons with STI related symptoms such as dysuria, vaginal or penile discharge, ano-genital or oral ulcers, unexplained rashes or skin eruptions, or lymphadenopathy.

Consider offering STI/HIV testing to all patients as routine care.

Screen the following asymptomatic persons:

All persons with new, anonymous, or multiple sex partners should be screened every 3-6 months.

All pregnant persons should be screened in the first trimester and again at the time of delivery, as well throughout pregnancy if at ongoing risk.

All persons with a confirmed or suspected STI.

All persons with a sexual partner with an STI.

All persons requesting STI testing.

Infectious Syphilis Management Tool. Retrieved from Syphilis Outbreak | Alberta Health Services

Testing in pregnancy

Universal screening for syphilis is required for pregnant patients **during the first trimester** or **at first prenatal visit** and again **at delivery.**

Those with ongoing risk may require screening throughout pregnancy (e.g., monthly).

Additionally

- Screen all patients who deliver a stillborn infant after 20 weeks gestation.
- Prior to discharging the newborn from hospital, confirm that the birthing parent has syphilis serology collected at the time of delivery and that the results will be followed up. The newborn infant may also require syphilis serology as requested by an STI specialist.
- Infants presenting with symptoms or signs compatible with early congenital syphilis should be tested for syphilis even if the birthing parent was seronegative at delivery.

How do I test?

If testing for one STI or HIV, test for all:

Serology for:

- Syphilis screen,
- HIV 1 and 2 serology,
- Hepatitis B surface antigen (if immunity or immunization status unknown),
- Hepatitis B surface antibody (if no previous documentation of immunity).

Chlamydia and gonorrhea Screen:

- First void urine or vagina/cervical swabs
- Anal and/or pharyngeal swabs (for persons having receptive anal intercourse and/or performing oral sex).

If a client has a chancre/rash/suspected syphilis:

- Swab chancre or moist rash for PCR *Treponema pallidum*
- Use sterile polyester tipped applicator for swab & universal transport medium

Alberta Health (2023) Interim STI Outbreak Screening Guidelines.
Images from Alberta Precision Laboratory Lab Bulletin: Viral Transport Medium Change 11 Dec 2023.

Serological testing for syphilis in Alberta

Syphilis Enzyme Immunoassay (EIA)

This is a treponemal test. This screening test measures IgM and IgG antibody specific for *Treponema pallidum* (treponemal).

- It is recommended to **repeat testing in 3-4 weeks,** as a reactive result may initially be negative in newly infectious cases.
  - e.g. repeat if negative but suspicion for syphilis is high.
- Treponemal tests usually remain reactive for life **regardless of treatment.**
- The test can pick up antibodies of other non-venereal subspecies of *T. pallidum* such as *T. pertenue* (Yaws) and *T. endemecium* (Pinta) which are endemic in some countries.
  - There is no way of differentiating between venereal and non-venereal; the result will be treated as a positive syphilis case.

https://www.albertahealthservices.ca/assets/wf/plab/wf-provlab-information-on-syphilis-testing-in-alberta.pdf

Serological testing for syphilis in Alberta

Rapid Plasma Reagin (RPR)

This is a non treponemal test.

- The RPR measures antibody titers which usually correlate with disease activity
- Indicator of response to therapy by observing a fall in titers over time.
- Indicator of treatment failure by observing rising titers post-treatment or inadequate drop in titers.

Treponema Pallidum Particle Agglutination test (TPPA)

This is the confirmatory treponemal serological test for syphilis in Alberta.

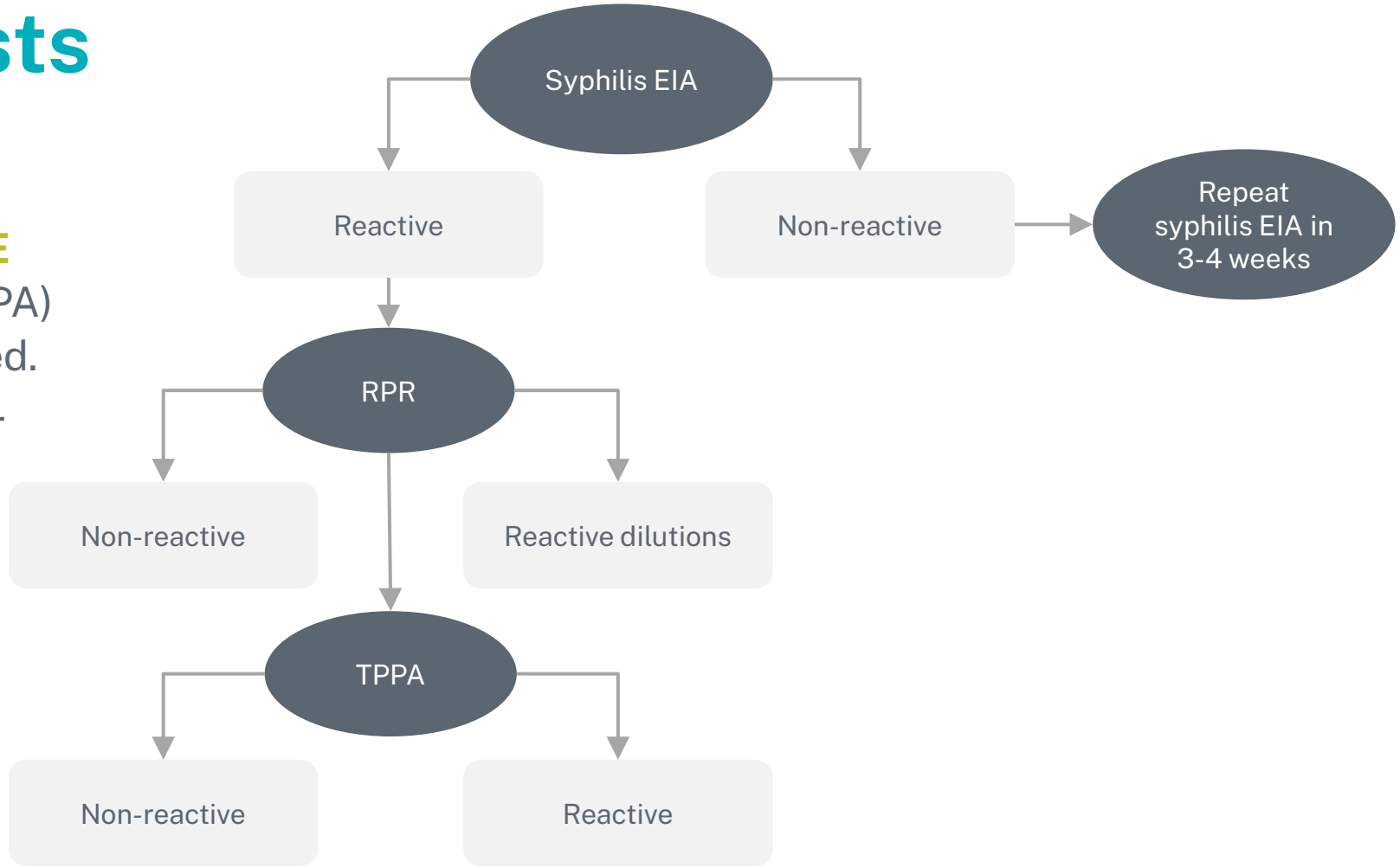
https://www.albertahealthservices.ca/assets/wf/plab/wf-provlab-information-on-syphilis-testing-in-alberta.pdf

Serological tests

Algorithm of syphilis testing:

If the syphilis EIA is **REACTIVE** confirmatory testing (RPR, TPPA) will automatically be completed.

If test is **NEGATIVE**, no further testing will be performed.



https://www.albertahealthservices.ca/assets/wf/plab/wf-provlab-information-on-syphilis-testing-in-alberta.pdf

Syphilis PCR

Syphilis Polymerase Chain Reaction (PCR) is a direct test involving molecular detection (DNA) of *Treponema pallidum*.

Syphilis PCR testing can be performed from:

- Ulcers, skin lesions, whole blood and CSF.
- Swabs are submitted in universal transport media (UTM).

Syphilis PCR testing is useful in:

- Differentiating between syphilis and herpes lesions,
- Detecting early infection, as PCR can be positive before EIA serology becomes reactive, and
- Staging of cases.

https://www.albertahealthservices.ca/assets/wf/plab/wf-provlab-information-on-syphilis-testing-in-alberta.pdf

Indications for CSF examination

Patients with syphilis who demonstrate any of the following criteria should be considered for CSF evaluation:

- Early congenital syphilis
- Neurologic or ophthalmic signs or symptoms
- Evidence of active tertiary syphilis
- Treatment failure
- Lumbar puncture may be considered in all HIV co-infected patients especially for those with low CD4 counts (<350), high RPR titers (>32 dilutions) and late-stage cases.

STI Centralized Services

Past history of treatment, case consultation, and access to penicillin G benzathine (BICILLIN® L-A) is available through STI Centralized Services.

Please call toll free at: **1-855-945-6700, option 4.**

Treatment and management of syphilis

- Considerations
- Treatment
- Treatment for syphilis in pregnancy
- Post-treatment counseling
- Treatment for non-infectious syphilis
- Treatment for neurosyphilis
- Public health reporting
- Contact tracing
- Follow-up

Considerations

Diagnosis and staging of syphilis is complex. Interpretation of results should be done in consultation with an STI specialist and STI Centralized Services or your local Partner Notification Nurse to avoid unnecessary treatment and re-treatment.

Several factors need to be considered to determine appropriate treatment and staging:

- Physical assessment
- Laboratory results
- Past and current medical and sexual history
- Sexual partner information

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Considerations

A medical history is critical for appropriately staging and managing cases of syphilis.

Assessment of history includes:

- Country of birth, year of arrival in Canada
- Previous diagnosis and treatment for syphilis
- Symptoms of genital sores or rash
- Previous history of other STI

Consult with STI Centralized Services or your local Partner Notification Nurse for additional information on collecting syphilis history.

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Current history

Assessment includes

- Symptoms of syphilis in the past 12 months?
- Current or recent treatment with antibiotics?
- Allergy to penicillin or any other drugs/antibiotics?
- Any symptoms suggestive of an STI?
- Current HIV status

Risk Assessment

- Sex worker?
- Patron of a sex worker?
- Drug use?
- Sexual partners (opposite vs. same-sex, etc.)?
- Others?

Treatment

Treatment decisions of all suspected or confirmed cases of syphilis should be done in consultation with STI Centralized Services.

The preferred recommendation for infectious syphilis is **long-acting penicillin G benzathine 2.4 million units (BICILLIN® L-A) as a single dose.**

- This medication is dispensed as two separate, preloaded 1.2 million units syringes, administered in each ventrogluteal muscle, for a total of 2.4 million units.
- Penicillin G benzathine (BICILLIN® L-A) must be refrigerated between (2-8°C).
- Consult the Alberta Treatment Guidelines for Sexually Transmitted Infections in Adolescents and Adults (latest edition) for further guidance and alternate treatment options.

Alberta Treatment Guidelines for Sexually Transmitted Infections in Adolescents and Adults (2018)
Alberta Treatment Guidelines for Sexually Transmitted Infections (STI) in Adolescents and Adults

Warning: short-acting treatment

- Short acting penicillin (penicillin G) IM for the treatment of infectious syphilis is sometimes prescribed and/or dispensed instead of the standard long-acting penicillin G benzathine (BICILLIN® L-A).
- **Short acting penicillin agents are not adequate for achieving cure.**
- Health care providers should be aware of the similar names of these two products to prevent and avoid inappropriate treatment.

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://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

Jarisch-Herxheimer reaction

The Jarisch-Herxheimer reaction is an **acute reaction post treatment** frequently accompanied by:

- Headaches
- Myalgia
- Fever
- Tachycardia
- Fatigue
- Rash

- It can occur within the first **4 to 6 hours after the initiation of any therapy** for syphilis and resolves within 24 hours.
- The Jarisch-Herxheimer reaction occurs most frequently among persons who have early syphilis, presumably because bacterial burdens are higher during these stages.

https://www.cdc.gov/std/treatment-guidelines/syphilis.htm

Treatment of syphilis in pregnancy

All pregnant patients with infectious syphilis should be managed in conjunction with STI Centralized Services.

Preferred treatment for infectious syphilis in pregnancy is **long-acting penicillin G benzathine 2.4 mu IM (BICILLIN® L-A) weekly for two doses, 1 week apart.**

- There is no acceptable substitute for penicillin G benzathine (BICILLIN® L-A) in pregnancy.
- Pregnant patients who are allergic to penicillin will require penicillin de-sensitization prior to treatment.
- Treatment for syphilis should occur as soon as possible and not be delayed pending completion of referral to a materno-fetal specialist or booking an ultrasound.

Alberta Treatment Guidelines for Sexually Transmitted Infections in Adolescents and Adults (2018) [Updated December 2023]
Alberta Treatment Guidelines for Sexually Transmitted Infections (STI) in Adolescents and Adults

Treatment of syphilis in pregnancy

- If the patient is >20 weeks gestation, **a detailed fetal ultrasound should be performed** to assess for signs of fetal syphilis, and the patient should be managed in collaboration with an experienced clinician (e.g. materno-fetal specialist, obstetrician etc...).
- Treatment of infectious syphilis in pregnancy may precipitate a Jarisch-Herxheimer (JH) reaction which is generally mild but may rarely cause fetal distress or premature labor. **Fetal monitoring for 24 hours after treatment** can identify fetal distress or premature labor. Monitoring following treatment is not generally required but may be considered in higher risk situations (e.g., sonographic signs of fetal syphilis such as anemia, hepatosplenomegaly, hydrops).
- Those treated as outpatients should be advised to **seek immediate medical attention** at an acute care center if they experience fever, decreased fetal movement or regular contractions.

Alberta Treatment Guidelines for Sexually Transmitted Infections in Adolescents and Adults (2018) [Updated December 2023]
Alberta Treatment Guidelines for Sexually Transmitted Infections (STI) in Adolescents and Adults

Post-treatment counseling

Patients who are treated with single dose penicillin G benzathine (BICILLIN® L-A) should be advised to abstain from sex for **7 days post-treatment.**

All patients with infectious lesions (i.e., chancre, condyloma lata, rash) should be advised to abstain from sex until symptoms have resolved or 7 days post treatment, **whichever is greater.**

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Treatment for non-infectious syphilis

Past history of treatment, case consultation, and access to penicillin G benzathine (BICILLIN® L-A) is available through STI Centralized Services.

Preferred treatment for non-infectious syphilis is **long-acting penicillin G benzathine 2.4 mu IM (BICILLIN® L-A) weekly for three doses, one week apart.**

Alberta Treatment Guidelines for Sexually Transmitted Infections in Adolescents and Adults (2018) [Updated December 2023]
Alberta Treatment Guidelines for Sexually Transmitted Infections (STI) in Adolescents and Adults

Treatment for neurosyphilis

CSF examination for cell count and differential, protein, glucose, VDRL, FTA-ABS is recommended to establish a diagnosis of neurosyphilis.

Preferred treatment for neurosyphilis is **crystalline penicillin G 4 mu IV q4h for 10 – 14 days.**

Alberta Treatment Guidelines for Sexually Transmitted Infections in Adolescents and Adults (2018) [Updated December 2023]
Alberta Treatment Guidelines for Sexually Transmitted Infections (STI) in Adolescents and Adults

Public health reporting

- Under the Public Health Act, syphilis, regardless of stage, is reportable in Alberta to Public Health.
- The completion of a **Notification of STI form** **is required for every person** treated for confirmed or suspected syphilis.

Contact tracing

- Contact tracing should be initiated during the first visit with the index case.
- Contact information may be completed on the Notification of STI form and followed by a partner notification nurse.
- All sexual or perinatal contacts need to be located, assessed, tested, and treated.
- Trace back periods for contacts vary as per table below:

Stage of syphilis	Trace-Back Periods
Primary	3 months prior to onset of symptoms
Secondary	6 months prior to onset of symptoms
Early latent	1 year prior to diagnosis
Late latent/Tertiary	Assess long-term partners as appropriate
Congenital	Assess mother and sexual partner(s)

Follow-up

To ensure adequate serological response after treatment, patients require follow up serology.

Infectious

- Follow up serology at 1, 3, 6 and 12 months.
- Serological response to treatment is reflected by a decline in RPR dilutions.
- Follow up is extended to 24 months for those who are HIV co-infected.

Non-infectious

- Follow up serology at 12 months and 24 months.

Pregnancy

- Follow-up of the infant may be required – depending on the mother's syphilis history (will be determined by an STI Specialist and Pediatric Infectious Diseases).

Determining an adequate serologic response to treatment is based on the stage of infection. Continue to monitor patients until RPR is nonreactive or declines to a stable serofast titer (at last 12 to 24 months post treatment).

Syphilis (alberta.ca)

Prevention

Prevention counseling

Prevention

Prevention counseling

Provide information regarding syphilis:

- Sores are often painless and may go undetected; patients may not know they are infected.
- Symptoms will go away on their own, but the infection persists and can attack organs (i.e., eyes, heart, brain, skin, joints, etc.).
- Infectious syphilis increases the risk for HIV transmission and acquisition.
- Syphilis can be transmitted to babies during pregnancy or during birth. Syphilis in a baby can cause devastating long-term health and developmental problems for the child that may require long term follow-up.

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Prevention

All individuals who are identified as cases or contacts and others who present with concerns about syphilis should be provided with:

- Facts about the disease and how it is transmitted
- Treatment and the follow-up required
- Discussion of risk reduction behaviors:
  - properly and consistently using barrier methods such as condoms and dental dams.
  - reducing the number of sexual partners.
  - syphilis screening of individuals at risk and routine screening if pregnant.
  - limiting drug or alcohol use, which may reduce inhibitions and affect decision-making and negotiating skills.
- Information on the importance of contact tracing
- Reassuring the patient that public health takes protecting their confidentiality very seriously while carrying out contact tracing responsibilities

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections. Syphilis Chapter, Revised January 2010
https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html

Case Reviews

Case 1: Primary syphilis

Case 2: Late latent syphilis

Case 3: Biological false positive

Case 1: Primary syphilis

Jamie, 25-year-old with a 5-day history of sore on shaft of penis (painless, indurated ulcer) and bilateral inguinal lymphadenopathy:

- Reports opposite and same-sex partners. Last sexual contact 3 weeks ago with a female partner. Two other partners in past three months.
- No rash, no malaise, no CNS or CVS concerns.

Testing | Treatment and management

Routine STI screening
- Urine for gonorrhea and chlamydia negative

Collected serology:
- HIV Non-Reactive
- Syphilis EIA Reactive, RPR Reactive 1:8 dilutions; TPPA Reactive

Collected a swab from the sore:
- Syphilis PCR positive
- herpes and varicella negative

Contact local Partner Notification Nurse and/or STI Centralized Services for assistance in patient management.

Case 1: Primary syphilis

Jamie, 25-year-old with a 5-day history of sore on shaft of penis (painless, indurated ulcer) and bilateral inguinal lymphadenopathy:

- Reports opposite and same-sex partners. Last sexual contact 3 weeks ago with a female partner. Two other partners in past three months.
- No rash, no malaise, no CNS or CVS concerns.

Testing

Treatment and management

Consider presumptive treatment for syphilis due to presence of sore.

- Treat with penicillin G benzathine 2.4 million units IM (BICILLIN® L-A)
- Interview for sexual partners in past three months
- Provide counselling and education
- Complete the Notification of STI form and send to STI Centralized Services

Staging and review of case completed by STI Medical Director: **Diagnosed as primary syphilis** letter sent to health care provider with follow up recommendations

- Follow up serology recommended:
  - Syphilis at 1, 3, 6, and 12 months and HIV at 1-and 3-months post treatment

Case 2: Late Latent syphilis

Patrick, 58-year-old, recently engaged to an opposite sex partner who he has been dating for 8 months, requesting routine STI/HIV testing:

- Asymptomatic.
- Last syphilis testing was over 9 years ago; negative EIA result.
- No signs or symptoms of infectious syphilis and normal neurological and cardiac exams (no tertiary syphilis).

Testing | Treatment and management

Routine STI screening

- Syphilis screen (EIA) is Reactive; RPR Reactive 1:4; TPPA Reactive
- Serology repeated 4 weeks later and remains unchanged. (No rise in RPR)
- HIV Non-Reactive

Contact local Partner Notification Nurse and/or STI Centralized Services for assistance in patient management.

Case 2: Late Latent syphilis

Patrick, 58-year-old, recently engaged to an opposite sex partner who he has been dating for 8 months, requesting routine STI/HIV testing:

- Asymptomatic.
- Last syphilis testing was over 9 years ago; negative EIA result.
- No signs or symptoms of infectious syphilis and normal neurological and cardiac exams (no tertiary syphilis).

Testing

Treatment and management

Presumptive treatment not recommended as history suggests that the infection was acquired greater than 12 months ago.

Staging and review of case completed by STI Medical Director: **Diagnosed as late latent syphilis** letter sent to health care provider with follow up recommendations:

- Treat with penicillin G benzathine 2.4 million units IM (BICILLIN® L-A) for 3 weekly doses
- Interview for long term sexual partners (current and previous long-term partner)
- Provide counselling and education
- Follow up serology at 12- and 24-months post treatment
- Complete the Notification of STI form and send to STI Centralized Services

Case 3: Biological False Positive

Kristen, 31-year-old in monogamous relationship for 6 years with opposite sex partner:

- Pregnant, 12 weeks gestation by ultrasound.
- No current or past signs or symptoms suggestive of syphilis.

Testing | Treatment and management

Prenatal panel:

- HIV Non-Reactive
- Syphilis Screen (EIA) Reactive; RPR Non-Reactive; TPPA Non-Reactive
- Serology repeated again 4 weeks later and remains unchanged

Contact local Partner Notification Nurse and/or STI Centralized Services for assistance in patient management.

Case 3: Biological False Positive

Kristen, 31-year-old in monogamous relationship for 6 years with opposite sex partner:

- Pregnant, 12 weeks gestation by ultrasound.
- No current or past signs or symptoms suggestive of syphilis.

Testing

Treatment and management

Presumptive treatment not recommended as evidence suggests that this is a biological false positive.

Staging and review of case completed by STI Medical Director: **Diagnosed as biological false positive.** Letter sent to health care provider with follow up recommendations:

- Provide counselling and education
  - The patient may continue to have reactive syphilis EIA in the future.
- Follow up serology at delivery.
- Women at higher risk require screening more frequently in pregnancy.

References

Alberta Health, *Alberta Treatment Guidelines for STI in Adolescents and Adults (2018).* https://open.alberta.ca/publications/treatment-guidelines-for-sti-2018

Alberta Health, Public Health Notifiable Disease Guidelines, *Syphilis.* 2012. Syphilis (alberta.ca)

Alberta Health Services, Blue Book: Standards for the Management and Evaluation of STI Clinic Patients. April, 2019 https://www.albertahealthservices.ca/assets/info/hp/srh/if-hp-srh-the-blue-book.pdf

Alberta Health Services, Notifiable Sexually Transmitted Infection (STI) Professional Support Document (PSD).

CDC. National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention, Division of Sexually Transmitted Diseases Program and Training Branch. *Self-Study STI Module* –Syphilis 2020. https://www.std.uw.edu/go/pathogen-based/syphilis/core-concept/all

Interactive Health Data Application. http://www.ahw.gov.ab.ca/IHDA_Retrieval/

New York City Department of Health and Mental Hygiene Bureau of STI. (March, 2019) *The Diagnosis, Management and Prevention of Syphilis: An update and review.* https://www.nycptc.org/x/Syphilis_Monograph_2019_NYC_PTC_NYC_DOHMH.pdf

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections, *Syphilis Chapter*, 2016. https://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

Thank you!

Click here to complete our survey.
Your feedback is helpful and will improve the module.

For more information, call STI Centralized Services (toll free) at 1-855-945-6700, option 4.

Alberta Health Services