

Congenital Syphilis Notification Timeline:**From Lab/Practitioner to Public Health:** Within 72 hours.**From Public Health to Saskatchewan Ministry of Health:** Within 2 weeks.**Public Health Follow-up Timeline:** Initiate within 72 hours.**Notification of infant exposed to syphilis in utero or during birth:****From Practitioner to Public Health:** Within 72 hours.**From Public Health to Saskatchewan Ministry of Health:** Within 2 weeks.**Public Health Purpose for Notification**

- To support a system-wide analysis of root causes to prevent further cases;
- To track epidemiology trends of congenital syphilis in Saskatchewan including risk factors and distribution;
- To identify locations where increased syphilis rates in the heterosexual population may be occurring in order to inform other interventions and prevention measures;
- To ensure mothers and babies get the treatment and follow-up needed to manage the syphilis infection, even if the dyad is separated after birth;
- To monitor the effectiveness of prevention and control measures;
- To take timely and evidence informed actions on outbreaks;
- To support physicians/ RN(NP)s in universal screening for syphilis in first trimester or first prenatal visit with more frequent re-screening in certain circumstances;
- To inform the public and medical community about congenital syphilis and provide updated recommendations for testing and follow-up based on emerging trends.

Surveillance Case Definition¹

Confirmed Case (adopted from Manitoba Health, 2023)	Early Congenital Syphilis (within 2 years of birth)	Identification of <i>Treponema pallidum</i> by dark-field microscopy, fluorescent antibody, or detection of <i>Treponema pallidum</i> DNA by nucleic acid amplification (NAAT) such as polymerase chain reaction (PCR) in an appropriate clinical specimen, or equivalent examination of material from nasal discharges, skin lesions, placenta, umbilical cord or autopsy material of a neonate (up to 4 weeks of age); OR
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¹ Surveillance case definitions ensure uniform reporting to allow comparability of surveillance data. The definition is not intended to be used for clinical or laboratory diagnosis or management of cases.

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		Reactive serology (non-treponemal and treponemal) from venous blood (not cord blood) in an infant/child with or without clinical, other laboratory, or radiographic evidence of congenital syphilis^a, but who has <i>one or both of the following</i>: • Rising syphilis serologic titres (at least 4-fold higher) upon follow-up where there is evidence that the mother had a syphilis infection during pregnancy • Titres greater than or equal to 4-fold higher than those of the mother's when collected at the same time or within a week, in the immediate postnatal period. OR Reactive serology (treponemal and nontreponemal) from venous blood (not cord blood) in an infant/child with clinical, other laboratory, or radiographic evidence consistent with congenital syphilis^a whose mother was seropositive or PCR positive for syphilis during pregnancy, at delivery, or in the immediate post-partum period. OR A child who does not meet the above criteria but has persistently reactive treponemal serology between 18 and 24 months of age (regardless of maternal treatment status and infectious status).
Probable Case^c (Manitoba Health, 2023)	Early Congenital Syphilis (within 2 years of birth)	Reactive serology (non-treponemal and treponemal) from venous blood (not cord blood) in an infant/child without clinical, laboratory, or radiographic evidence of congenital syphilis^a whose mother had • untreated or inadequately treated^b syphilis at delivery. OR • evidence of reinfection or relapse in the pregnancy^d following appropriate treatment^e
Confirmed Case (Manitoba Health, 2023)	Syphilitic Stillbirth^f	A fetal death that occurs after 20 weeks gestation with laboratory confirmation of infection (e.g., detection of <i>T. pallidum</i> DNA in an appropriate clinical specimen, fluorescent antibody or equivalent examination of material from placenta, umbilical cord or autopsy material).
Probable Case (Manitoba Health, 2023)	Syphilitic Stillbirth	A fetal death that occurs after 20 weeks gestation without laboratory confirmation of infection and where the mother had • untreated or inadequately treated^b infectious syphilis

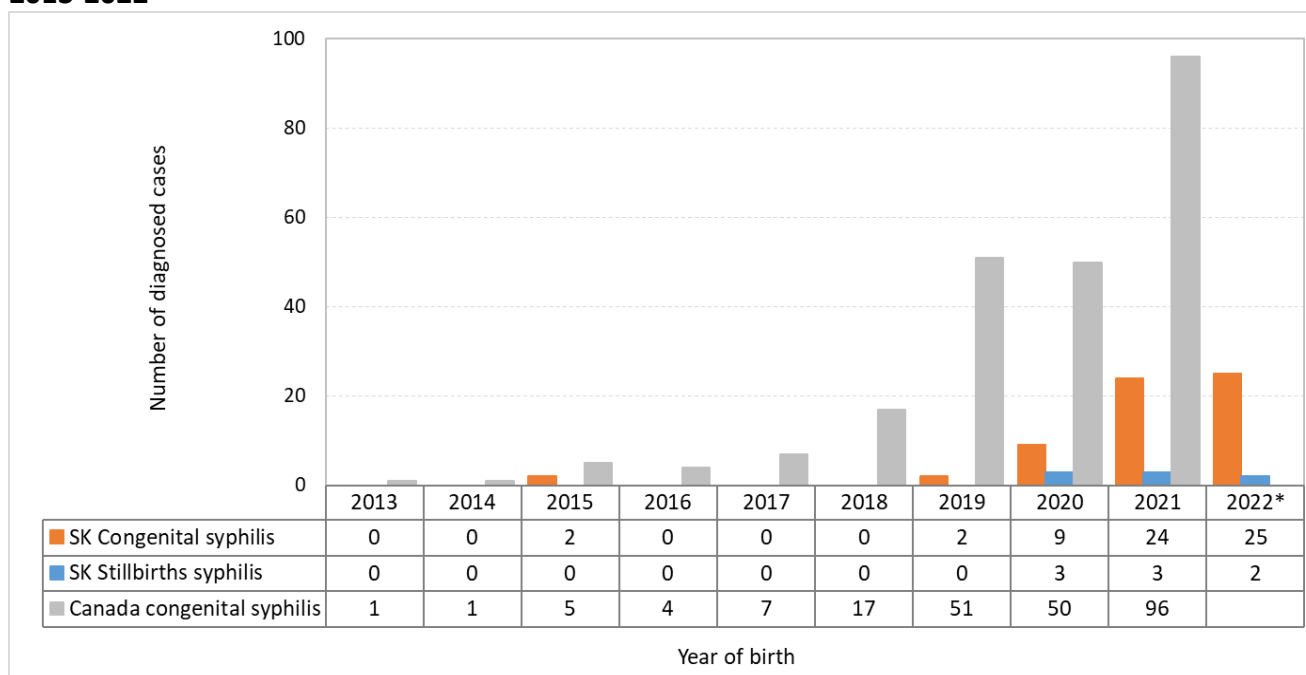
		prior to delivery OR evidence of reinfection or relapse in pregnancy^d following appropriate treatment^e with no other cause of stillbirth established.
Confirmed Case (Manitoba Health, 2023)	Late Congenital Syphilis (greater than two years after birth)	Reactive treponemal serology (regardless of nontreponemal test reactivity) along with characteristic late manifestations of congenital syphilis^a in a child whose mother was known or considered to be seropositive for syphilis during pregnancy, without documented evidence of adequate treatment, AND No other known source of exposure (i.e. infection must have occurred in utero).
^a Includes any evidence of congenital syphilis on physical examination (e.g., hepatosplenomegaly, rash, condyloma lata, snuffles, pseudoparalysis), evidence of congenital syphilis on radiographs of long bones, a reactive CSF VDRL, an elevated CSF count or protein without other cause. NOTE: neonates may not display clinical manifestations of congenital syphilis and may meet laboratory criteria only. ^b Inadequate treatment consists of any non-penicillin therapy; or penicillin (all doses prescribed) administered during pregnancy but less than 30 days before delivery; or despite treatment there has been an inadequate drop in nontreponemal titres. ^c A child that meets a probable case definition should remain staged as a probable case if testing at 18-24 months is non-reactive. If they still have a reactive treponemal test at ≥ 18 months old, then their classification should be changed to “confirmed”. ^d Such as rising nontreponemal titres at least 4-fold higher ^e Penicillin (all doses prescribed) were administered more than 30 days before delivery ^f For reporting purposes, syphilitic stillbirths should be reported as cases of congenital syphilis.		

Epidemiology and Occurrence

Congenital syphilis is a growing concern as the reported number of confirmed early congenital syphilis cases has increased over the last 10 years in Canada. In 2020, the majority (86%) of all confirmed early congenital syphilis cases reported were observed in Alberta, Manitoba and Saskatchewan (Aho et.al, 2022).

There has been an increase since 2018 in syphilis in women of childbearing age, including pregnant women, which contributes to the risk of congenital syphilis. Cases of congenital syphilis continue to rise (Figure 1).

Figure 1

Syphilitic Stillbirths in Saskatchewan/Congenital Syphilis Saskatchewan and Canada, 2013-2022

*2022 data is preliminary

Additional Background Information**Infectious Agent***Treponema pallidum*, a spirochete bacterium.**Signs and Symptoms**

Congenital syphilis is a multisystem infection caused by *Treponema pallidum* and transmitted to the fetus via the placenta. Infected infants are frequently asymptomatic at birth and may be seronegative if maternal infection occurred late in gestation. Congenital syphilis can have severe debilitating effects and can lead to stillbirth or perinatal death. Spontaneous abortion, stillbirth, or hydrops fetalis occurs in approximately 40% of cases if maternal syphilis is acquired during pregnancy, with risk being highest for first-trimester infection (CPS, 2018).

Early manifestations of congenital syphilis can appear by two months of age and later manifestations can appear by 2 years of age.

Clinical evidence of **early congenital syphilis** may include rhinitis/snuffles, hepatomegaly with or without splenomegaly, skeletal abnormalities,

maculopapular rash, condylomata lata, jaundice, generalized lymphadenopathy, or CNS involvement.

Clinical evidence of **late congenital syphilis** may include Hutchinson's triad of interstitial keratitis, peg-shaped upper incisors, and eighth cranial nerve deafness. Hearing loss can be sudden and usually occurs at eight to 10 years of age.

For more details on signs and symptoms, refer to the [Canadian Pediatric Society's Congenital Syphilis: No longer just of historical interest](#).

Reservoir

Humans are the only known reservoir (Alberta Health, 2021).

Incubation Period

As most exposures occur in utero, the incubation period of congenital syphilis is not clearly defined. A timeline from exposure to symptom development is difficult to determine due to the pregnancy (Alberta Health, 2021).

Period of Communicability

Sores and lesions, especially with drainage, are considered infectious in the infant. Infected infants may have moist mucocutaneous lesions that are more widespread than in adult syphilis. Proper protective equipment is necessary when handling/caring for a baby with open syphilis lesions or rhinitis.

Congenitally infected newborns are generally non-infectious following at least 24 hours of adequate antibiotic therapy (Alberta Health, 2021).

Mode of Transmission

The majority of infants with congenital syphilis are infected in utero (transplacentally), but they can also be infected by contact with an active genital lesion at the time of delivery (CPS, 2018). The risk of transmission is much greater when the mother has untreated primary, secondary or early latent syphilis in pregnancy than if she has late latent syphilis.

Kissing has rarely been reported as a route of transmission (PHAC, 2021), but you can get syphilis when your mouth or other part of your body touches a syphilis sore on a person who has the disease (CDC, 2022).

Infected infants may have moist mucocutaneous lesions that are more widespread than in adult syphilis and are a potential source of infection. Respiratory secretions of infected infants with snuffles are also highly infectious.

Breastfeeding by mothers with primary or secondary lesions of syphilis on the breast carries a theoretical risk of transmission of syphilis to the baby. Therefore, infected mothers should ensure that the baby or pumping equipment does not come in contact with a sore. If sores are present on the breast, pumping or hand expression is encouraged to maintain milk supply. However, if any parts of the breast pump touch the sores while pumping, the milk should be thrown away (Office on Women's Health, 2021).

Risk Factors

Infants born to a woman with infectious syphilis in pregnancy are at risk of being born with congenital syphilis. The risk of vertical transmission depends primarily on the stage of maternal syphilis:

- 70%-100% if the mother has untreated primary or secondary syphilis during pregnancy,
- 40% if she has untreated early latent syphilis (as she remains at risk of reactivation) and
- Less than 10% if she has late latent. (CPS, 2018)

Additional risk factors that are often associated with congenital syphilis include lack of prenatal care and missed opportunities for timely and effective treatment, undiagnosed or late diagnosis of maternal syphilis, inadequate treatment of maternal syphilis, and contact with an active genital lesion at the time of delivery.

Lab Reports and Interpretation

The diagnosis of congenital syphilis can be difficult, as maternal IgG antibodies can be transferred through the placenta to the fetus, complicating the interpretation of reactive serologic tests for syphilis in neonates. Therefore, the interpretation of reactive antibodies in the neonate must take into consideration the maternal history, including stage of syphilis, history of treatment, and syphilis serology results. Syphilis serology testing on patients <18 months will always have a Syphilis Total Antibody Screen (treponeme-specific), Rapid Plasma Reagin (RPR, nontreponemal semi-quantitative test), and *Treponema pallidum*-Particle Agglutination (TP-PA, treponeme-specific) performed.

The direct detection of *Treponema pallidum* in a sample from an infant or stillbirth is considered confirmatory. Direct detection is possible using molecular testing (i.e. polymerase chain reaction, PCR) or histopathology examination. Darkfield microscopy is no longer available. Histopathology can be performed on biopsies or tissue from the placenta, umbilical cord, or autopsy samples. PCR can be performed on swabs from moist mucocutaneous lesions, nasopharyngeal swab, or on samples from a suspected

still birth. These direct detection methods are highlight specific, but lack sensitivity so negative results do not rule out infection.

For Saskatchewan Health Authority maternal child health clinical resources, refer to <https://www.saskhealthauthority.ca/intranet/health-provider-resources/clinical-resources/maternalchildrens-health-clinical-resource>

Public Health Investigation²

I. Case

The investigation of congenital syphilis requires correlation of clinical manifestations, maternal treatment history, and maternal laboratory results.

For maternal management and treatment, refer to CD manual section [5-70 – Syphilis](#).

History of Mother

- Key elements to inquire about include:
 - Was maternal prenatal care received (at least one visit for pregnancy-related care)?
 - Was maternal treatment for infection during pregnancy assessed as adequate?
 - Was follow-up bloodwork of mother completed and was there an adequate serological response?

Public Health Interventions

Assessment

- Assess maternal contacts.

Communication

- Ensure that parent is aware of infant's exposure to syphilis. Note: It will be the infectious disease specialist or the primary care provider that will provide diagnosis of congenital syphilis.
- Individuals may be difficult to reach after hospital discharge. The ordering practitioner or pediatric infectious disease specialist should be contacted to discuss circumstances of the case and to verify appropriate treatment provided.

Education

- All parents/caregivers of congenital cases should be provided counselling regarding:
 - communicability, incubation period, transmission, and signs and symptoms of congenital syphilis;

² An infant born to a mother infected with syphilis during pregnancy may initially be entered into Panorama IOM as a contact to a case and updated to probable or confirmed if the infant meets either case definition.

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- the risk for re-exposure, including the theoretical risk through breastfeeding with a primary or secondary lesion;
 - ways to reduce future risk of maternal exposure;
 - the need for and timing of follow-up serology and other follow up.
 - The follow-up recommended in the event that the infant develops signs and symptoms before he/she has seen a health care provider for re-assessment.
 - All maternal cases should be provided disease information as well as information on prevention and control measures (Refer to CDC manual Section [5-70 Syphilis](#))

Immunization

- There is currently no vaccine available for syphilis prevention.
- Infants should be offered all regularly scheduled and any additional immunizations (e.g., hepatitis B vaccine, etc.) they may be eligible for based on the Saskatchewan Immunization Manual, Chapter 7.³

Referral

- Ensure cases have been referred to a physician or pediatric infectious diseases (ID) specialist for necessary follow-up.

Testing

- At delivery, serology should be taken from both mother and baby (note that cord blood is not suitable) for both treponemal and non-treponemal testing.
- All mothers to newborns should have had syphilis serology drawn during pregnancy. Ensure infants presenting with symptoms or signs compatible with early congenital syphilis have been tested for syphilis even if the mother was seronegative at delivery, as she may have become infected very recently.
- Nasopharyngeal swab taken from infant prior to discharge to assist in early diagnosis.
- Because the suggested treatment regimens do not cure every case of congenital syphilis, follow-up serology is essential and should demonstrate loss of treponemal antibodies by 18 months of age for infants who did not have congenital syphilis. Most children with adequately treated congenital syphilis should have a sustained fourfold or greater drop in RPR and lose treponemal antibodies, by 18 months of age. (CPS, 2018)

³ <http://www.ehealthsask.ca/services/manuals/Documents/sim-chapter7>

Treatment

Treatment for clinical management is determined by the pediatric infectious disease specialist and must be made on the basis of:

- *identification of syphilis in the mother;*
- *adequacy of maternal treatment;*
- *presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate;*
- *comparison of maternal (at delivery) and neonatal nontreponemal serologic titers using the same test, preferably conducted by the same laboratory (CDC, 2021).*
- *A small percentage of cases will require a second course of treatment if RPR titres do not drop as anticipated.*
- *For further information go to:*
<https://cps.ca/en/documents/position/congenital-syphilis>

II. Contact/Contact Investigation

Mother and her sexual partners should be assessed in the presence of congenital syphilis (CPS, 2018).

Public Health Interventions

Assessment

- Assess for maternal symptoms;
- Assess for maternal screening and treatment;
- Assess maternal contacts.

Education

All contacts should receive counselling regarding:

- communicability, incubation period, transmission, and signs and symptoms of syphilis;
- the risk for re-exposure;
- ways to reduce their future risk of exposure;
- the importance of abstinence during entire incubation period and until serologic testing at the end of the incubation period has been confirmed to be non-reactive;
- the need for and timing of follow-up serology;
- the follow-up recommended in the event that they develop signs and symptoms including abstaining from sexual contact until they have seen a physician/nurse (or health care provider) for re-assessment.

Referral

Refer symptomatic individuals to their primary care provider.

Special Considerations

In cases where an infant is born to a mother who was diagnosed with syphilis in pregnancy, and where the infant is placed under the care of child protection services, medical information about the mother's diagnosis may be critical to the ongoing protection and monitoring of the infant's health. It is important to facilitate the collection and disclosure of relevant health information, in accordance with provincial/territorial requirements, in order to allow appropriate follow-up care.

Prevention Measures

Untreated syphilis in a pregnant woman can infect the fetus and result in fetal death or congenital syphilis.

- Ensure appropriate treatment of syphilis for cases and contacts.
- Make prenatal services culturally appropriate, readily accessible and acceptable.
- Educate the parent about symptoms, transmission and prevention of syphilis infection and other STIs.
- Any woman delivering a stillborn infant at ≥ 20 weeks gestation should be screened for syphilis (PHAC, 2022).
- No newborn should be discharged from hospital prior to confirmation that either the mother or newborn infant has had syphilis serology undertaken during pregnancy or at the time of labour or delivery.

Given the resurgence of syphilis in Canada, universal screening of all pregnant women continues to be important and remains the standard of care in most jurisdictions.

- Ensure screening for all pregnant women and ensure testing is available for their partners (Alberta Health, 2021)
- Screening should, ideally be performed in the first trimester and repeated at 28-32 weeks. Screening should occur again at delivery in women at high risk of acquiring or in areas experiencing heterosexual outbreaks of syphilis (PHAC, 2022).
- For Saskatchewan Health Authority maternal child health clinical resources, refer to <https://www.saskhealthauthority.ca/intranet/health-provider-resources/clinical-resources/maternalchildrens-health-clinical-resource>

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Revisions

Date	Change
March 27, 2024	Updated language of “notification of infant born to mother infected with syphilis during pregnancy” to “Notification of infant exposed to syphilis in utero or during birth” (pg 1). Updated notification timeline to within 72 hours to align with Category II reporting requirements.
July 27, 2023	NEW