



# Syphilis (congenital)

## Australian national notifiable diseases case definition

This document contains the surveillance case definition for syphilis (congenital), which is nationally notifiable within Australia. State and territory health departments use this definition to decide whether to notify the Australian Government Department of Health and Aged Care of a case.

Version	Status	Last reviewed	Implementation date
1.4	<p><b>Laboratory Definitive Evidence (stillbirth)</b></p> <p><i>Minor amendment</i> Criteria amended for “Laboratory Definitive Evidence (stillbirth)” to include placenta; umbilical cord; amniotic fluid as suitable specimens.</p>	CDNA 25 August 2023	At publication
1.3	<p><b>Confirmed and Probable case</b></p> <p>Criteria amended to include the reworked sections (laboratory definitive evidence; laboratory suggestive evidence; and clinical evidence) below.</p> <p>The amended sections and criteria have been prepared to assist the classification of congenital syphilis involving a stillborn or neonatal death.</p> <p><b>Laboratory Definitive Evidence</b></p> <p>Relabelling “laboratory definitive evidence” to “laboratory definitive evidence (live birth)” and creation of “laboratory definitive evidence (stillborn)”.</p>	CDNA 24 September 2020	1 January 2021

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	<p>Creation of “laboratory definitive evidence (stillborn)” to enable a stillborn, where serology was not possible, to be classified as a confirmed case in conjunction with “clinical evidence (confirmed)”.</p> <p>Polymerase Chain Reaction (PCR) specified under nucleic acid amplification (NAA) test where this was not explicitly listed in previous case definitions.</p> <p><b>Laboratory Suggestive Evidence</b></p> <p>Relabelling “laboratory suggestive evidence” to “laboratory suggestive evidence (live birth) and creation of “laboratory suggestive evidence (stillborn)”.</p> <p>Creation of “laboratory suggestive evidence (stillborn)” to enable cases involving a stillborn without serology but with laboratory evidence from the placenta, umbilical cord or amniotic fluid to be classified as a probable case.</p> <p>Inclusion of <i>Treponema pallidum</i>-specific rapid immunochromatography to determine positivity in the mother of the congenital syphilis case.</p> <p>Polymerase Chain Reaction (PCR) specified under nucleic acid amplification (NAA) test where this was not explicitly listed in previous case definitions.</p> <p><b>Clinical Evidence</b></p> <p>Restructuring of “clinical evidence” to “clinical evidence (confirmed)” and “clinical evidence (probable)”.</p> <p>“Clinical evidence (confirmed)” enables expert pathology and clinical decision, in conjunction with “laboratory definitive evidence (stillbirth)”, to classify stillborn and neonatal deaths, where serology was not possible, as confirmed cases.</p> <p>“Clinical evidence (probable)” is similar to “clinical evidence” in previous versions but now includes a non-exhaustive list of clinical evidence on physical</p>		

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	<p>examination and parameters to allow expert pathology and clinical decision to classify cases of congenital syphilis.</p> <p><b>Notes</b></p> <p>Notes added for stillbirth and livebirth, neonatal death, perinatal period and a minor update to treatment.</p>		
1.2	<p><b>Reporting</b></p> <p>Inclusion of a syphilis-related stillbirth where this was previously a note for the 'Laboratory definitive evidence' section.</p> <p><b>Laboratory Definitive Evidence</b></p> <p>Inclusion of detection of <i>Treponema pallidum</i> specific IgM in the child.</p> <p>Inclusion of a nucleic acid amplification (NAA) test as a means of direct demonstration of <i>Treponema pallidum</i>.</p> <p><b>Notes</b></p> <p>Removal of the serological criterion for proof of treatment in point 4. This is also reflected in the last sentence of the 'Clinical evidence' section.</p>	CDWG May 2015	1 July 2015
1.1	<p><b>Confirmed Case:</b> 'Laboratory Suggestive and Clinical evidence' moved to define a Probable Case.</p> <p><b>Probable Case:</b> Structure and content of 'Probable Case' section amended to be consistent with Case Definition style guide and comprise Laboratory Suggestive and Clinical evidence.</p> <p><b>Lab Definitive evidence:</b> Extensive rework of section including: removal of specific reference to treponemal IgM assays; inclusion of requirement that NAT and other tests be corroborated;</p>	CDWG O-O-S January 2010	1 January 2011

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	<p>broadening of the specimen sites which might get tested; adding criteria allowing for the persistence of antibody in infants to count as definitive.</p> <p><b>Lab Suggestive evidence:</b> Reworking of section including: removal of specific reference to IgM assays; removing NAT from a non-sterile site (now definitive evidence if corroborated); adding seropositivity in either child or mother.</p> <p><b>Clinical Evidence:</b> Structure and content of 'Clinical Evidence' section amended to be consistent with Case Definition style guide. 'Asymptomatic infection', 'Foetal death in utero' and 'Stillbirth in a foetus greater than 20 weeks gestation' removed from criteria, but accounted for in the notes; details of clinical evidence also removed; rewording of the clause defining inadequate maternal treatment; moving laboratory evidence into appropriate sections.</p>		
1.0	Initial case definition	2004	2004

## Reporting

Both **confirmed cases** and **probable cases** should be notified, including confirmed and probable cases of syphilis-related stillbirth<sup>1</sup>.

### Confirmed case

A confirmed case requires:

1. **Laboratory definitive evidence (live birth<sup>2</sup>)**
- OR
2. **Laboratory definitive evidence (stillbirth<sup>1</sup>) AND clinical evidence (confirmed)**

#### Laboratory definitive evidence (live birth<sup>2</sup>)

Mother and child both seropositive by a treponemal specific test<sup>3</sup>, AND the child is a live birth<sup>2</sup>, AND one or more of the following:

- Direct demonstration of *Treponema pallidum* by any of the following methods: nucleic acid amplification (NAA) test including polymerase chain reaction (PCR)<sup>4</sup>; dark field microscopy; fluorescent antibody or silver stain - in specimens from lesions; nasal discharge; placenta; umbilical cord; amniotic fluid; cerebrospinal fluid (CSF), autopsy material; or other appropriate test sites.
- Detection of *Treponema pallidum* specific IgM in the child.
- The child's serum non-treponemal<sup>5</sup> serology titre at birth is at least fourfold greater than the mother's titre.

## Laboratory definitive evidence (stillbirth<sup>1</sup>)

Mother is seropositive by a treponemal specific test<sup>3</sup>, AND the pregnancy outcome is a stillbirth<sup>1</sup>, AND there is evidence of infection in-utero through:

- Direct demonstration of *Treponema pallidum* in the foetus by any of the following methods: nucleic acid amplification (NAA) test including polymerase chain reaction (PCR)<sup>4</sup>; dark field microscopy; fluorescent antibody; or silver stain – in specimens from: lesions; nasal discharge; cerebrospinal fluid (CSF); autopsy material; placenta; umbilical cord; amniotic fluid or other appropriate test sites.

## Clinical evidence (confirmed)

- In the event of a stillbirth<sup>1</sup> or neonatal death<sup>6</sup>, a pathologist or clinician experienced in congenital syphilis makes a clinical diagnosis of congenital syphilis at autopsy.

## Probable case

A probable case requires:

1. **Laboratory suggestive evidence (live birth<sup>2</sup>) AND clinical evidence (probable)**

OR

2. **Laboratory suggestive evidence (stillbirth<sup>1</sup>) AND clinical evidence (probable)**

## Laboratory suggestive evidence (live birth<sup>2</sup>)

Mother is seropositive by a treponemal specific test<sup>3</sup> OR the mother is seropositive by a *Treponema pallidum*-specific rapid immunochromatography,

AND the child is a live birth<sup>2</sup>,

AND one or more of the following:

- Direct demonstration of *Treponema pallidum* as described under laboratory definitive evidence for a live birth<sup>2</sup> but without serological confirmation in the child
- Child seropositive on non-treponemal<sup>5</sup> testing in the absence of IgM testing.
- A reactive cerebrospinal fluid (CSF) non-treponemal<sup>5</sup> test (i.e. VDRL) in a non-traumatic lumbar puncture on the child.

- A child who remains seropositive by a treponemal specific test<sup>3</sup> at 15 months of age, which is confirmed either by another, different reactive treponemal specific test<sup>3</sup> or a reactive non-treponemal<sup>5</sup> test, in the absence of post-natal exposure to *Treponema pallidum*, including the non-venereal subspecies *Treponema pallidum* subsp. *pertenue* (Yaws) or subsp. *endemicum* (Bejel, endemic syphilis) or *Treponema carateum* (pinta).

## Laboratory suggestive evidence (stillbirth<sup>1</sup>)

Mother is seropositive by a treponemal specific test<sup>3</sup> OR the mother is seropositive by a *Treponema pallidum*-specific rapid immunochromatography,

AND the pregnancy outcome is a stillbirth<sup>1</sup>,

AND there is:

- Direct demonstration of *Treponema pallidum* by any of the following methods: nucleic acid amplification (NAA) test including polymerase chain reaction (PCR)<sup>4</sup>; dark field microscopy; fluorescent antibody; or silver stain – in specimens from: placenta; umbilical cord; amniotic fluid.

## Clinical evidence (probable)

One or more of the following:

- A live<sup>2</sup> or stillborn<sup>1</sup> child with ANY of the following evidence suggestive of congenital syphilis on physical examination: anaemia; osteochondritis; hepatosplenomegaly; skin rash; condylomata lata; rhinitis (snuffles); pseudoparalysis; meningitis; ascites; intrauterine growth retardation; or any other abnormality not better explained by an alternative diagnosis<sup>7</sup>.
- Any features suggestive of congenital syphilis on radiographs of long bones.
- An elevated CSF cell count or protein (without other cause).
- The mother is seropositive in the perinatal period<sup>8</sup> AND has no documented evidence of adequate treatment<sup>9</sup>.
- A pathologist or clinician with relevant skills in congenital infections makes a clinical diagnosis of congenital syphilis, including in the event of a stillbirth<sup>1</sup> or neonatal death<sup>6</sup>.

## Notes:

1. **Still Birth Definition.** A stillbirth is defined as the birth of a baby who has died any time from 20 weeks into the pregnancy through to the date of birth. When the length of gestation (pregnancy) is not known, the birth will be considered a stillbirth if the baby weighs 400 grams or more.
2. A **live birth** is the complete expulsion or extraction from the mother of a baby, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of the voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born.

3. **Treponemal specific tests** are: Treponema pallidum immunoassays, Treponema pallidum haemagglutination assay (TPHA), Treponema pallidum particle agglutination assay (TPPA), Fluorescent Treponemal Antibody Absorption (FTA-Abs) and various IgM assays including 19S-IgM antibody test, or IgM immunoassay. IgM assays should not be used for screening purposes.
4. Treponema pallidum-specific **Polymerase Chain Reaction (PCR)**: In-house in vitro diagnostic devices (IVDs) must comply with the Australian Therapeutic Goods Administration (TGA) regulatory requirements.
5. **Non-treponemal tests** are the agglutination assays Rapid Plasma Reagin (RPR) and Venereal Disease Research Laboratory (VDRL). Any positive sera should be tested by serial dilution to provide an end-titre. Non-treponemal tests may be used to monitor efficacy of treatment. Mother and child sera should be collected contemporaneously and tested in parallel and cord blood should not be used for the investigation of congenital syphilis.
6. A **neonatal death** is defined as the death of a live birth<sup>4</sup> which occurs during the first 28 days of life. This may be subdivided into early neonatal deaths, occurring during the first seven days of life, and late neonatal deaths, occurring after the seventh day but before 28 completed days of life.
7. It is important to note the list of clinical evidence on physical examination is not exhaustive. An experienced clinician can apply judgement as to whether there is sufficient evidence, including other physical signs not listed, to determine whether it is a case.
8. **Perinatal period** for reporting purposes is defined as 20 completed weeks (140 days) of gestation and ends 28 completed days after birth.
9. **Treatment** is considered adequate if: a stage-appropriate penicillin-containing regimen was used 30 days or more prior to delivery, AND all antenatal and delivery pathology investigations were performed and results verified, AND there is no evidence of reinfection.

Treatment with macrolides alone during pregnancy in penicillin-allergic women is no longer regarded as adequate therapy as resistance to macrolides in *T. pallidum* is increasingly common and may arise during therapy.

Although the risk of congenital syphilis is much higher in early-stage disease, in the presence of untreated syphilis the birth of an unaffected child does not guarantee that subsequent children will not be affected.

Adequate treatment during pregnancy does not exclude the diagnosis of congenital syphilis if criteria for a confirmed or probable case are met.