



Northern
Territory
Government

DEPARTMENT OF HEALTH

Congenital syphilis guidelines for the Northern Territory

**Assessment and management of syphilis in pregnancy and the
neonatal period**

3rd edition, 2015

First edition 1994
Second edition 2005
Third edition 2015

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Centre for Disease Control®, Department of Health, Northern Territory 2015

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Version	Date	Changes
3.1	Nov 2015	Amended text 5.2.1. RPR titre of the infant is the <u>same</u> or <u>less than</u> the maternal titre at delivery. 5.2.5. Ensure maternal and infant delivery serology result is checked as infants managed as low risk with an RPR titre ≥ 4 -fold greater than the mother's delivery sample must be reclassified as early congenital syphilis and referred to a paediatrician Page 20. Dot point 6. RPR titre of the infant at birth should be the same or less than the maternal RPR at delivery

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1 Introduction

The first edition of this Northern Territory (NT) Centre for Disease Control (CDC) guideline was released in 1998, based on original guidelines written by Dr Alan Ruben in July 1994. A second edition was released in 2005 with extensive revisions. The current 2015, 3rd edition continues to be largely based on the Australian STI management guidelines for use in primary care,¹ *Guidelines for the management of sexually transmitted infections* issued by the World Health Organization,² the United States Centers for Disease Control and Prevention *Sexually Transmitted Diseases Treatment Guidelines*,³ draft UK *National Guidelines on the Management of Syphilis 2015*⁴ and Australian *Therapeutic Guidelines: Antibiotic*, 2014.⁵

In performing this revision a review of recent literature was conducted and recommendations were compared with current versions of other local, Australian and international guidelines. A detailed explanation for the current recommendations will be found in the background review published in the Northern Territory Disease Control Bulletin, September 2015 (in press). Minor deviations from other guidelines, particularly in regard to the follow-up and investigation of potentially exposed neonates, have been made in consideration of the specific conditions of the NT, in particular the:

- Relatively high incidence of syphilis
- Significant number of previously seropositive pregnant women, mainly in remote communities.
- High mobility of patients in remote communities and resulting difficulties in follow-up
- Lack of access to specialist paediatric care outside of Darwin and Alice Springs.

Recommendations for syphilis screening among pregnant women are consistent with the *Women's Business Manual*⁶ for high prevalence areas, the *Therapeutic Guidelines: Antibiotic*⁵ and Royal Australian and New Zealand College of Obstetrics and Gynaecology guidelines⁷ for other women.

Major changes in 2015 guidelines

Management of pregnant women with syphilis

- Adequate treatment of prior maternal syphilis requires completion of a penicillin regimen appropriate to the stage of infection and an adequate serological response for the clinical situation
- Women treated for early syphilis should be advised to seek advice should any contractions or decrease in foetal movements occur
- Missed penicillin doses are not acceptable for pregnant women receiving therapy for late latent syphilis. Pregnant women who miss any dose of therapy must repeat the full course of therapy
- Monthly follow up RPR tests are recommended in pregnant women with syphilis
- Women who are treated for syphilis after 20 weeks should have foetal and placental ultrasound examination at least once
- All pregnant women should be tested for HIV.

Management of neonates born to mothers with syphilis

- Testing for syphilis IgM in neonatal blood should be considered for neonates at high risk of congenital infection where the diagnosis is on doubt - as directed by a relevant specialist
- Syphilis PCR tests should be performed on high risk and symptomatic neonates from relevant clinical samples such as CSF, skin lesions, nasal secretions and placental tissues
- Neonates who are at risk of congenital syphilis should receive a medical review at 3 months
- Infants with positive treponemal test for syphilis (EIA/TPPA) but negative RPR at 3 months, need a repeat test at 15-18 months.

2 Background

2.1 Epidemiology of congenital syphilis

Historically, the notification rate of infectious syphilis in the NT was significantly higher than elsewhere in Australia, as was the incidence of congenital syphilis. There has been a significant decline over 2005-2013, from a notification rate for early syphilis in 2005 of 45.5 per 100,000 in the NT, compared with 3.1 per 100,000 in Australia, to a NT notification rate of 9.1 per 100,000 in 2013 compared with the National rate of 7.6 per 100,000 in the same year. This has resulted in a corresponding decrease in the NT notification of congenital syphilis from 2.4 per 100,000 (5 notifications) compared with 0.1 per 100,000 for Australia in 2005, to 0.4 per 100,000 (1 case) in 2013 compared with 0.0 for Australia.⁸⁻¹⁰ This decrease in notifications has, at least in part, been attributed to population, including antenatal screening, and better case management, coordinated by syphilis registers.¹¹ However syphilis outbreaks continue to occur in remote regions with cases of congenital syphilis reported in association with these outbreaks. Due to an ongoing outbreak in remote communities of Central Australia and Katherine regions, the NT notification rate for infectious syphilis has risen to 40.5 per 100,000 in 2014, and there were three cases of congenital syphilis notified as part of the outbreak.¹²

2.2 Mother to child transmission of syphilis

Syphilis can be transmitted vertically, from mother to foetus, at any time during pregnancy. Transmission is more likely with untreated early syphilis (primary, secondary and early latent stages); up to 70-100% infants will be infected with still births in up to one-third of cases.¹³⁻¹⁵

Vertical transmission can also occur during late latent stage syphilis during which time it is no longer sexually transmitted. Transmission from mothers with late latent syphilis occur at a much lower rate of 10%.¹⁶ While adverse foetal outcomes can occur with transmission at any stage of pregnancy the consequences of congenital syphilis acquired in the first trimester are often more severe.

Syphilis can be transmitted vertically, from mother to foetus, at any time during pregnancy

2.3 Diagnosis of congenital syphilis

Diagnosing syphilis is complex and requires knowledge of:

- Clinical symptoms and signs
- Latest serology results and any other relevant results such as PCR
- Any previous serology results
- Previous treatment information.

The CDC operates an NT wide syphilis register holding all positive syphilis serology results and treatment details. The syphilis registry provides support to clinicians managing syphilis through access to past information and clinical advice on diagnosis, treatment and follow-up. The registry also coordinates the contact tracing and disease notification process in close collaboration with the relevant clinical service responsible for the patient.

Contact with the NT syphilis register is recommended for all pregnant women testing positive to syphilis in order to access past testing and treatment history and seek guidance in interpreting serology results.

2.4 Clinical features of congenital syphilis

2.4.1 *In-utero*

Syphilis can cause miscarriage, polyhydramnios, foetal hydrops (oedema of two or more foetal components), still birth, premature birth, low birth weight and small size for gestational age.

2.4.2 *Early congenital syphilis*

Early congenital syphilis is defined as onset within the first 2 years of age. Most affected infants are asymptomatic at birth and usually develop clinical features within 3 months.

The major clinical features of early congenital syphilis are:

- Ulceration of nasal mucosa with nasal discharge - rhinitis, ('snuffles')
- Skin lesions: – usually maculo-papular rash, but almost any form of rash can occur including - scaling, annular, vesiculo-bullous and desquamation. Mucous patches, condylomata lata (flat wart like plaques in moist areas) and paronychia may occur. Palms and soles may also be involved
- Fever
- Low birth weight
- Hepato-splenomegaly
- Generalized lymphadenopathy (especially with epitrochlear)
- Haematological abnormalities - anaemia (haemolytic), leucocytosis, leucopenia, thrombocytopenia
- Jaundice
- Osteochondritis (usually perinatal) or periostitis (may take months to appear), 'Parrot's pseudoparalysis' (failure to move an extremity - secondary to pain or fractures)
- Central nervous system abnormalities: often asymptomatic invasion but may cause leptomeningitis or hydrocephalus
- Chorioretinitis, uveitis and glaucoma
- Glomerulonephritis, nephrotic syndrome and pancreatitis
- Fulminant sepsis.

Most affected infants are asymptomatic at birth and usually develop clinical features within 3 months

2.4.3 *Late congenital syphilis*

Untreated or inadequately treated cases of early congenital syphilis may develop late congenital syphilis, which is analogous to tertiary syphilis in adults. Late congenital syphilis is usually diagnosed in late childhood or early adolescence.

The major clinical features of late congenital syphilis are:

- Deformation of bones and teeth

- Interstitial keratitis of the eyes causing photophobia, pain and blurred vision
- Neurosyphilis causing behavioural disturbance, ataxia and cranial neuropathies
- Sensorineural hearing loss.

2.5 Laboratory diagnosis of syphilis

2.5.1 Syphilis serology

Serological tests should be performed on infant's and mother's samples.

Cord blood should not be used because of the possibility of mixing of maternal and foetal circulations.

Serologic testing is an indirect method of diagnosis, depending on maternal antibody response to infection. There are 2 types of standard serology tests; treponemal and non-treponemal.

Serological tests should be performed on infant's and mother's samples, not on cord blood

2.5.1.1 Treponemal antibody tests

(*Treponema pallidum* Particle Agglutination (TPPA), *Treponema pallidum* Haemagglutination (TPHA), Fluorescent Treponemal Antibody absorption - FTA-Abs) are reported as either reactive or non-reactive. Once reactive in an adult, they usually remain reactive for life even if the person is adequately treated. They indicate whether a person has ever had syphilis in their life and do not correlate with disease activity. Newborn babies of infected mothers will have reactive treponemal serological tests due to transplacentally acquired maternal antibodies. In uninfected infants, these tests will revert to negative by 15-18 months.

Australian laboratories use treponemal tests for screening. The initial test is commonly an automated treponemal immunoassay (EIA or CMIA), which detects both IgG and IgM antibodies, without differentiating each antibody. If positive, additional Treponemal tests are performed to confirm diagnosis.

Treponemal IgM assays are not usually recommended as a diagnostic test for maternal syphilis because there is no test with adequate specificity. *Treponema pallidum* specific IgM tests can be performed for infants as directed by a relevant specialist.

In adults reactive treponemal serology tests usually remain reactive for life even if the person is adequately treated

2.5.1.2 Non-treponemal antibody tests

(Rapid Plasma Reagin (RPR)/Venereal Disease Research Laboratory (VDRL) tests)

Positive results are reported as a titre of antibody (e.g. 1:1, 1:2, 1:4 etc.). They have a moderate false positive rate and need to be confirmed by reactive treponemal specific serology tests.

Non treponemal test titres usually decline after treatment and might revert to non-reactive state with time.³ They may revert to non-reactive even in untreated individuals after many

years. In some individuals reactive non treponemal tests in low titres can persist for long periods of time - a response referred to as 'serofast reaction'.

A 2-titre or 4-fold rise of non treponemal test titre (RPR/VDRL) over a previous result (e.g. 1:2 increasing to 1:8) indicates a new infection. A 2-titre or 4-fold decline after treatment (e.g. 1:32 declining to 1:8) indicates an adequate response to treatment.

In the special circumstance of pregnancy, expected reduction in RPR/VDRL titres may not be demonstrable before the birth of neonates, as several months are necessary for a 4 fold drop in RPR titres. Sometimes in late latent syphilis (i.e. of more than 2 years duration) a 2-titre fall after treatment from an already low level titre may not occur.

A titre greater than or equal to 1:8 is also used as an additional marker of early infection and bacteraemia.³ However there is a significant risk of foetal infection in patients with late latent infection with lower titres.

Non-treponemal tests (RPR/VDRL) can vary across different test batches and according to different observers. Most laboratories will keep sera on individual patients for 12-18 months. If there is any doubt about comparing the latest test with the past one, request the laboratory to re-run the 2 specimens in **parallel**. Maternal and infant serology can also be run in parallel for a more reliable comparison.

A 2-titre or 4-fold rise of non treponemal test titre (RPR/VDRL) over a previous result indicates a new infection. A 2-titre or 4-fold decline after treatment indicates an adequate response to treatment

2.5.2 Demonstration of Treponema pallidum from lesions/lymph nodes

Nucleic acid amplification tests (such as PCR) can be used from clinically observable lesions (ulcers, mucosal lesions), from CSF, nasal secretions from infant, and from amniotic fluid, placenta, umbilical cord and tissue samples in some circumstances. These tests are highly sensitive and specific for the diagnosis of syphilis infection when used on appropriate samples.

Availability of these tests may vary and it is advisable to discuss with the testing laboratory before sending specimens.

PCR tests are useful to demonstrate Treponema pallidum directly from lesions and some tissue/body fluid

3 Screening for syphilis in pregnancy

All pregnant women should be tested for syphilis using a treponemal assay during pregnancy, starting preferably at the booking visit **in conjunction with HIV testing**.^{4,5}

For communities and populations with high prevalence of syphilis and for women at high risk of syphilis serial serological testing should be performed later during pregnancy to detect recently acquired infection.⁵

In the NT women under 25 years, women who reside in remote communities, or who are known to have a sexual network connection to a remote community, should be tested at least 3 times during pregnancy: at first visit, 28 weeks, 36 weeks, then also at delivery and at the 6 week post natal check (see Table 1).⁶

Table 1. Testing for syphilis in pregnancy

Group	When to test
Higher risk women	At first visit 28 weeks 36 weeks Delivery 6 week postnatal
Other women*	At first visit

* Selection of such women who do not require retesting during pregnancy should be done carefully and clinicians should promote retesting whenever possible

No child should leave hospital until the syphilis serostatus of the mother is known and documented

4 Assessment and management of syphilis during pregnancy

4.1 Assessment

Take sexual history to determine potential exposures to syphilis and assess for the presence of any symptoms or signs of syphilis. The clinical features of early syphilis are broad and not always apparent, but may include genital or mucosal ulceration, genital lumps, rash, lymphadenopathy, patchy hair loss, fever, hepatitis, arthritis, meningitis, ophthalmic problems, headache and myalgia. Tertiary syphilis may occur in approximately 1/3 of untreated patients 20-40 years following initial infection and can cause neurological symptoms and signs, aortic regurgitation, aortic aneurysms and destructive lesions of bones and soft tissues.

Obtain a history of any past syphilis diagnoses, test results and treatments from the patient medical record and/or the syphilis register.

4.2 Diagnosis and staging

All women with positive syphilis serology during pregnancy should be considered to be infected and provided with treatment and follow-up unless there has been previous adequate treatment appropriate to the stage of syphilis and no evidence of reinfection.

4.2.1 *Previously treated infection*

Women previously treated adequately for syphilis do not require any further assessment or management for themselves or their neonate.

Previous adequate treatment is defined as when **ALL** of the following criteria are met:

- *Treatment with a penicillin/doxycycline regimen adequate to their stage of infection prior to current pregnancy*
- *Treatment completed before the current pregnancy*
- *Documented adequate serological response (4-fold/2-titre decline in RPR, or if treated during late latent stage without drop in RPR) but all titres during current pregnancy and delivery are low and stable (none >1:4)**
- *There is no clinical suspicion of syphilis infection during current pregnancy*

* It may be appropriate to consider women with stable RPR titres > than 1:4 following at least 2 documented courses of penicillin prior to this pregnancy and not considered at high risk of reinfection as **serofast** and do not require treatment. This decision should be made in conjunction with an NT sexual health or infectious diseases specialist.

4.2.2 Early syphilis

Early syphilis is defined as acquisition of syphilis within the past 2 years.

Women are clinically diagnosed with early syphilis if they meet **ANY** of the following criteria:

- *Clinical features of early syphilis (see Section 4.1) and either any reactive syphilis serology or Treponema pallidum PCR*
- *Positive Treponema pallidum PCR from ano-genital/oral ulcers, or from mucocutaneous lesion/s*
- *Reactive syphilis treponemal serology on at least 2 different treponemal tests and negative serology within the past 2 years*
- *4-fold or greater rise in RPR titre within the past 2 years*

4.2.3 Late/unknown duration syphilis

Late syphilis is defined as syphilis characterised by positive serological tests without other evidence of disease:

- *All women with reactive syphilis serology on at least 2 different treponemal serology tests without evidence of either previously treated infection or early syphilis*
OR
- *Those who acquired syphilis >2 years ago*

4.3 Treatment

The treatment of syphilis during pregnancy is largely the same as in non-pregnant adults. Treatment is required for all women except where there is documented evidence of previous adequate treatment for syphilis and no clinical suspicion or reason to suspect reinfection (see Section 4.2.1).

Penicillin is the only drug that reliably treats syphilis during pregnancy. Women with penicillin allergy should be referred to hospital for in-hospital desensitisation. If penicillin cannot be used, treatment must be considered to have been inadequate for the purposes of determining appropriate neonatal follow-up.

Where possible, non-penicillin regimens should be avoided in view of the following:

- There is no sufficient data to recommend ceftriaxone for maternal syphilis and prevention of congenital syphilis
- Macrolides do not reliably cross the placenta, and there are no studies evaluating azithromycin in pregnancy. Azithromycin resistance has been reported in the majority of local and interstate cases
- Doxycycline is contraindicated during pregnancy.

Always repeat the RPR test on the day of treatment to ensure a peak RPR reading is obtained to allow accurate documentation of a post-treatment response

4.3.1 Recommended treatment

4.3.1.1 Early syphilis during pregnancy

Benzathine penicillin 1.8g (2.4 million units) intramuscularly as a single dose

Repeat serology on the day of treatment Note: benzathine penicillin is generally formulated as 900mg pre-filled syringes and thus 2 syringes must be used.

4.3.1.2 Late and unknown duration syphilis during pregnancy

Benzathine penicillin 1.8g (2.4 million units) intramuscularly weekly for 3 weeks

Repeat serology on the day of treatment.

Note: missed or late doses are not acceptable for pregnant women. Pregnant women who miss any dose of penicillin regimen must repeat the full course of therapy.^{3,17}

Note: benzathine penicillin is generally formulated as 900mg pre-filled syringes and thus 2 syringes must be used for each weekly dose.

Treatment of early syphilis can result in a Jarisch-Herxheimer reaction, an immune mediated response to treatment that may cause foetal distress, preterm labour, still birth.

Women treated for early syphilis should be advised to seek advice should any contractions or decrease in foetal movements occur after treatment with penicillin.

All women with syphilis in pregnancy should receive treatment with penicillin; women who are allergic to penicillin undergo desensitisation

4.4 Treatment of sexual partners

4.4.1 Partners of pregnant women with early syphilis

To prevent reinfection, all recent sexual partners of women treated for early syphilis during pregnancy should be tested and given treatment for syphilis.^{18,19}

Persons who had sexual contacts with a woman with primary, secondary or early latent syphilis should be treated presumptively on the day of their testing or even if their test results for Syphilis are negative.

Following time periods are recommended for contact tracing, according to stages of syphilis

- Primary syphilis – 3 months plus duration of symptoms (if uncertain; up to 6 months)
- Secondary syphilis – 6 months plus duration of symptoms (if uncertain : up to 12 months)
- Early latent syphilis – 12 months.

Women should be advised to abstain from sexual contact until one week following the final dose of treatment in both themselves and their partner/s.

Sexual partners who have ongoing sexual contact with women with known early syphilis should be prioritised for follow-up. The CDC Sexual Health and Blood Borne Virus Unit

will provide active assistance to locate and treat these people through the syphilis registry (see Section 2.3).

4.4.2 Long term partners of women diagnosed with late syphilis

Long-term sex partners of persons with late latent syphilis should undergo clinical evaluation and serological testing for Syphilis. Treatment should be started when indicated.

CDC Syphilis register will provide assistance to find out previous testing and treatment information.

4.5 Follow-up

Following treatment for syphilis in pregnancy RPR test should be repeated monthly and at delivery and 6 weeks post-partum.²⁰

Repeat testing with monthly RPR should be considered where possible in women at high risk for reinfection or in geographical areas with high prevalence of syphilis in the NT.⁴

Women who are treated for syphilis after 20 weeks of gestation should have foetal and placental ultrasound examination to evaluate for congenital syphilis.³ Sonographic signs of syphilis indicate a greater risk for treatment failure in the infant. Those cases should be referred to obstetric specialists.

All women with positive syphilis serology who do not meet all criteria for previously adequately treated syphilis must have clear documentation in their antenatal record that their neonate requires assessment and treatment at delivery.

5 Assessment and management of neonates born to women with syphilis during pregnancy

The assessment and management of neonates born to women treated for syphilis during pregnancy depends upon the completion, timing and serological response of maternal syphilis treatment along with the result of an assessment of the neonate.

All neonates born to mothers with positive syphilis serology who are not known to have been adequately treated prior to this pregnancy should be assessed, categorised and managed appropriately*

5.1 No risk neonates

5.1.1 Criteria

Neonates are considered to be at no significant risk of congenital syphilis when **ALL** of the following criteria are met:

- Women completed treatment *before* this pregnancy with a penicillin regimen adequate to their stage of infection
- There was a documented adequate serological response to treatment (4-fold/2-titre decline in RPR, or if treated during late latent stage without a drop in RPR, all titres during pregnancy and delivery are low and stable (no greater than 1:4, see footnote in Section 4)
- There is no clinical suspicion of syphilis acquisition during this pregnancy
- Physical examination of the neonate does not raise suspicion of congenital syphilis.

If ANY of the above criteria are not met go to Section 5.2 (low risk neonates).

5.1.2 Assessment

Routine physical examination of the neonate.

No laboratory investigations.

5.1.3 Treatment

No treatment required.

5.1.4 Follow-up

No follow-up required.

Adequate treatment of prior maternal syphilis requires completion of a penicillin regimen appropriate to stage of infection and an adequate serological response for the clinical situation

* Adequate treatment is defined in Section 4.2.1

5.2 Low risk neonates

5.2.1 Criteria

Neonates are considered to be at low risk of congenital syphilis when they do not meet the criteria of **no risk neonates** (see Section 5.1) and **ALL** of the following criteria are met:

- Mother has been treated during the current pregnancy with a penicillin regimen appropriate to her stage of syphilis
- Treatment is completed more than 30 days prior to birth
- Documented adequate serological response to treatment at or before delivery (4-fold/2-titre decline in RPR, or if treated during late latent stage all RPR titres during pregnancy and delivery are low and stable (no greater than 1:4)
- There is no clinical suspicion of syphilis acquisition later in pregnancy
- Physical examination of the neonate does not raise suspicion of congenital syphilis
- RPR titre of the infant is the same or less than the maternal titre at delivery.³

If ANY of the above criteria are not met go to Section 5.3 (high risk neonates).

5.2.2 Assessment

Perform a physical examination for signs for congenital syphilis (see Section 2.4)

Laboratory tests:

- Syphilis serology which must include RPR. Infant blood must be used, not cord blood. (2 paediatric gold top tubes).

5.2.3 Treatment

Benzathine penicillin 37.5mg/kg (50,000 units/kg) intramuscularly as a single dose.

5.2.4 Notification

All neonates at low risk for congenital syphilis should be notified by laboratories and clinicians to the CDC.

Notification forms are available at:

http://www.health.nt.gov.au/Centre_for_Disease_Control/Notifiable_Diseases/index.aspx

Or by telephone on 89228044.

5.2.5 Follow-up

Immediate:

- Ensure maternal and infant delivery serology result is checked as infants managed as low risk with an RPR titre ≥ 4 -fold greater than the mother's delivery sample must be reclassified as early congenital syphilis and referred to a paediatrician.

At 3 months:

- Physical examination for signs of congenital syphilis (GP or paediatrician)
- Syphilis serology (2 paediatric gold top tubes)
 - If non-reactive RPR and negative EIA/TPPA no further follow-up is required
 - If non-reactive RPR but positive EIA/TPPA repeat serology at 15-18 months
 - If positive RPR, repeat at 6 months and if still positive refer to a paediatrician for assessment and management as probable treatment failure (RPR titres should decline by 3 months and be negative by 6 months of age).

At 18 months:

- Syphilis serology
 - If syphilis EIA, TPPA or RPR is positive after 15-18 months refer to a paediatrician for assessment and management as probable treatment failure.

5.3 High risk neonates

5.3.1 Criteria

All infants who do not meet the criteria for no or low risk and do not have symptoms suggestive of congenital syphilis are considered to be at high risk of congenital syphilis.

For all neonates with symptoms suggestive of congenital syphilis a paediatrician should be consulted.

5.3.2 Assessment

Perform a physical examination for signs for congenital syphilis (see Section 2.4)

Laboratory tests:

- Syphilis serology which must include RPR; infant's blood must be used not cord blood (2 paediatric gold top tubes)
- Full blood count
- Placental tissue and/or amniotic fluid for *T. pallidum* PCR
- Histological examination of placenta.

All cases should have paediatric review or discussion via telephone if outside Darwin or Alice Springs. Following discussion with the paediatrician the following additional tests may be considered, particularly in cases with symptoms which could be consistent with early congenital syphilis:

- Liver function tests
- *T. pallidum* PCR from any mucosal or skin lesions or nasal discharge
- Syphilis IgM serology
- Lumbar puncture with CSF microscopy, protein, PCR and syphilis serology
- X-ray of long bones.

CSF and long bone x-ray evaluation should only be performed for specific clinical indications on advice from a paediatrician

5.3.3 Treatment

Immediately start benzyl penicillin 50mg/kg intravenously 12 hourly for 10 days.

5.3.4 Notification

All neonates at high risk for congenital syphilis should be notified by laboratories and clinicians to the CDC.

Notification forms are available at:

http://www.health.nt.gov.au/Centre_for_Disease_Control/Notifiable_Diseases/index.aspx

Or by telephone on 89228044.

5.3.5 Follow-up

Immediate:

- Ensure maternal and infant delivery serology result is checked as infants managed as high risk with an RPR titre ≥ 4 -fold greater than the mother's delivery sample must be diagnosed as early congenital syphilis and be managed under the care of a paediatrician.

At 3 and 6 months:

- Physical examination by a paediatrician
- Syphilis serology (2 paediatric gold top tubes).

Interpretation and action after the 6 month assessment:

- If no clinical signs are detected, RPR is non-reactive and EIA/TPPA is negative then no further follow-up is required after the 6 month review
- If no clinical signs are detected but RPR is reactive after 6 months refer to a paediatrician for assessment and management as probable treatment failure
- If no clinical signs are detected, RPR is non-reactive but EIA/TPPA is positive repeat serology at 15-18 months
- If any clinical signs are noted at any time assess for possible treatment failure in consultation with a paediatrician.

At 15-18 months:

- Syphilis serology (2 paediatric gold top tubes)
- If EIA/TPPA remain reactive after 15 months refer to a paediatrician for assessment and management as probable treatment failure.

Benzathine penicillin 37.5mg/kg intramuscularly as a single dose for all neonates at risk of congenital syphilis regardless of clinical assessment
Benzyl penicillin 50mg/kg intravenously 12 hourly for 10 days for all neonates with proven or higher risk of congenital syphilis

6 Notification of congenital syphilis

6.1 Notification

Clinicians are required to notify all cases of probable and definite congenital syphilis to the CDC. Cases can be notified through the syphilis registry or to any CDC office.

As the case definitions are complex it is recommended that clinicians notify all potential cases to the CDC, including:

- All children managed as low or high risk of congenital syphilis according to these guidelines
- All children born to a mother with an RPR titre greater than 1 in 4 during pregnancy
- All stillbirths after 20 weeks and/or over 500g where the mother had a positive syphilis test.

6.2 Case definitions

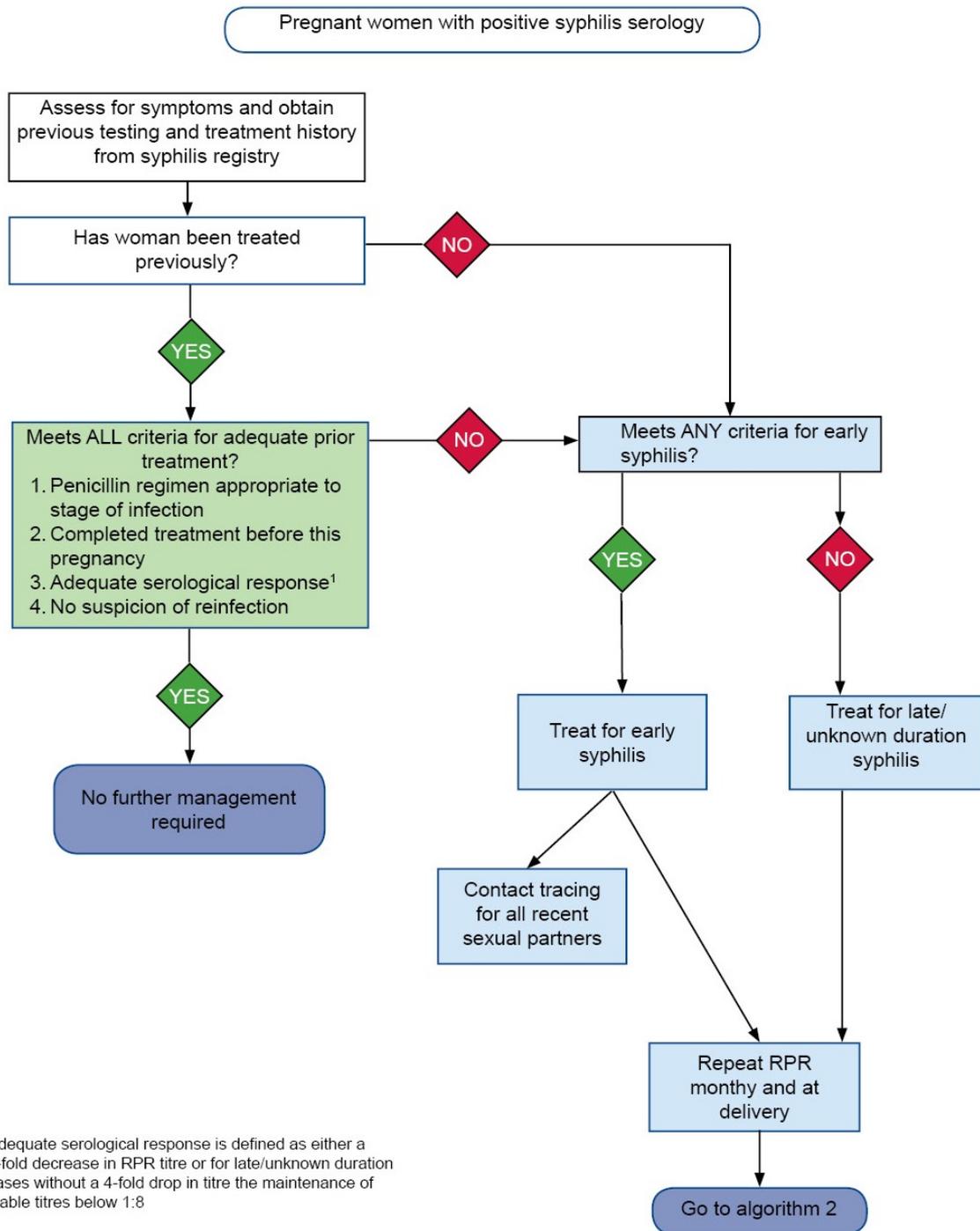
The national case definitions for probable and confirmed congenital syphilis can be obtained from the Communicable Diseases Network of Australia (<http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm>)

References

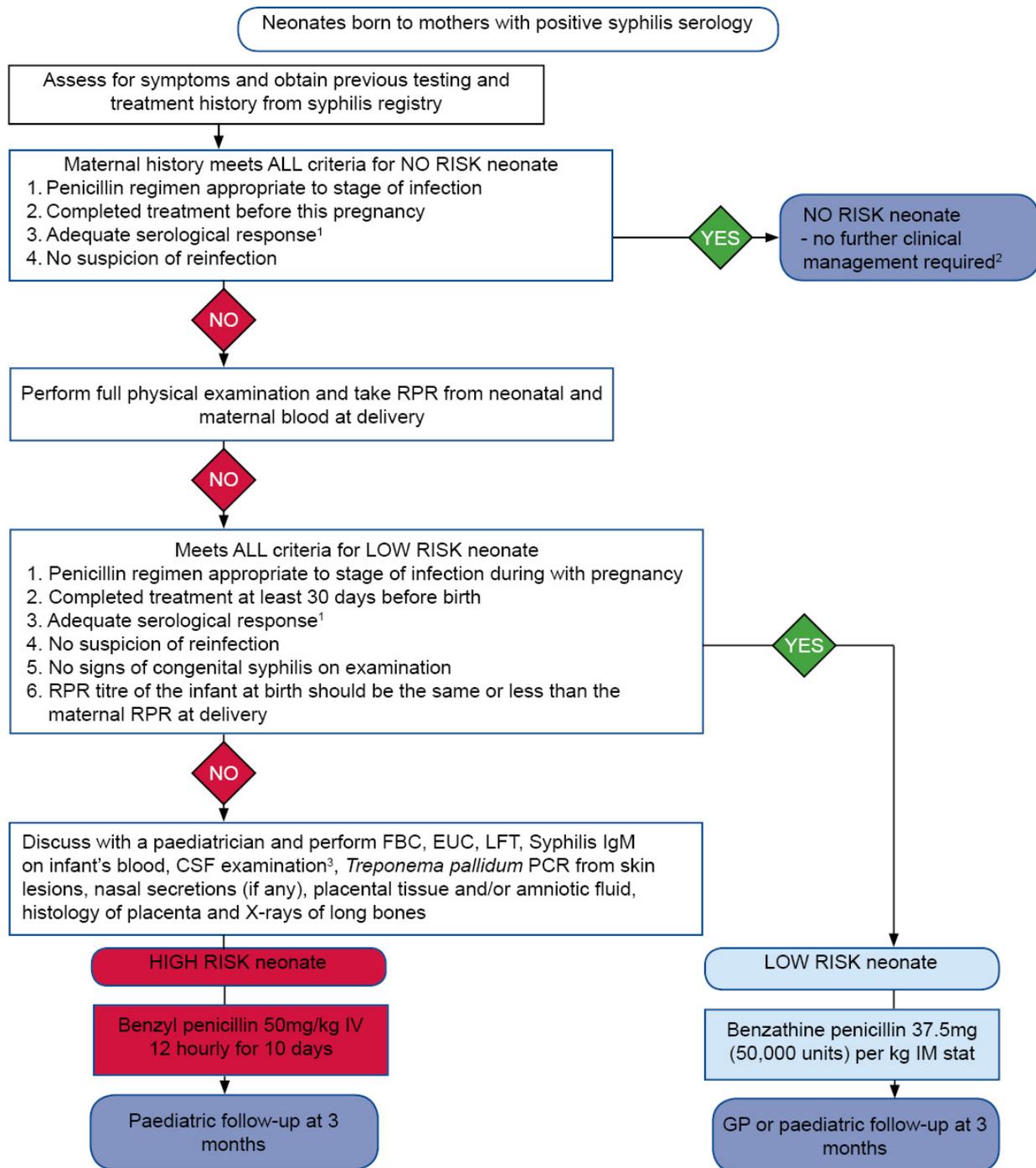
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Algorithm 1: Women with positive syphilis serology in pregnancy



Algorithm 2: Neonates born to mothers with positive syphilis serology



1 Adequate serological response is defined as either a 4-fold decrease in RPR titre or for late/unknown duration cases without a 4-fold drop in titre the maintenance of stable titres below 1:8
 2 NO RISK neonates born to mothers with previously treated late latent syphilis serofast at RPR greater than 1:4 require notification as a probable case of congenital syphilis
 3 CSF: microscopy, protein, PCR and syphilis serology