



CLINICAL PRACTICE GUIDELINE

Syphilis in pregnancy

This document should be read in conjunction with this [Disclaimer](#)

Contents

Key changes in the 2020 KEMH syphilis in pregnancy guideline	2
Abbreviations.....	2
Background.....	3
Epidemiology	3
Clinical manifestations in infected mothers	4
Antenatal syphilis screening	5
Maternal test interpretation.....	5
Assessment and management of positive syphilis serology	7
Treatment of the mother according to stage of disease	7
Early syphilis	7
Late latent syphilis	8
Tertiary syphilis	8
Jarisch-Herxheimer Reaction (JHR).....	8
Maternal follow up	9
Notification	9
Management of partners.....	9
Resumption of sexual activity.....	10
Patient information	10
Neonatal management plan	10
Infection prevention and management.....	10
References	11
Appendix 1: Map of WA regions	13
Appendix 2: Maternal test interpretation flowchart.....	14
Appendix 3: Treatment of positive syphilis serology.....	15

Note- For diagnosis and treatment of syphilis in non- pregnant women consult the [Silver Book guidelines](#)

Aims

- To detect syphilis in pregnant women as soon as possible after the onset of infection
- To optimise clinical and public health management of pregnant women who have syphilis
- To prevent vertical transmission of syphilis
- To provide co-ordinated care with the neonatal team
- To optimise neonatal investigation and management of neonates at risk of syphilis vertical transmission (see neonatal guideline- [Syphilis: Investigation and Management of the Neonate Born to a Mother with Syphilis](#) for management of neonates at risk of congenital syphilis)

Key changes in the 2020 KEMH syphilis in pregnancy guideline

1. As a result of increasing rates of syphilis diagnoses in Australia, including congenital syphilis
 - More frequent screening for syphilis is now recommended in high risk groups including enhanced screening in pregnant women from areas currently experiencing syphilis outbreaks
2. The NT Syphilis Guidelines and the WA Silverbook STI/BBV Management guidelines (which in turn are informed by the National Pregnancy Care Guidelines and Communicable Disease Network Australia's syphilis guideline) have been used as the key resource documents. This is to promote more consistency with protocols already in use in outbreak area of WA and to assist in more consistent risk stratification, assessment and early treatment decisions in the neonate state-wide
3. Processes to improve co-ordination between obstetric, neonatal teams and the Communicable Diseases Control Directorate (CDCD) and metropolitan and regional public health units in the management of maternal syphilis cases

Abbreviations

BBV	Blood borne virus infection
EIA	Enzyme Immunoassays for IgG and IgM
FTA-ABS	Fluorescent <i>Treponema pallidum</i> absorption test
GA	Gestational age
JFR	Jarisch-Herxheimer Reaction
RPR	Rapid plasma reagin
STI	Sexually transmitted infection
TPPA	Treponemal pallidum particle agglutination
VDRL	Venereal disease research laboratory test

Background

Syphilis is a sexually transmitted bacterial infection caused by the spirochaete *Treponema pallidum*. Uncommonly, transmission may also occur from unprotected non sexual contact with infectious skin lesions or be blood-borne (e.g. needle-stick injury from a donor with infectious syphilis). Past infection does not confer immunity and reinfection is possible. Vertical transmission from mother to fetus can occur during pregnancy. Congenital syphilis infection can result in preterm birth, low birthweight, stillbirth, perinatal sepsis, perinatal death and physical malformations.

Epidemiology

Between 2013 and 2017, the notification rate of infectious syphilis in Australia increased 135% from 7.8 per 100,000 in 2013 to 18.3 per 100,000 in 2017, with an increase in both men (119%) and women (309%) The rate of notification for infectious syphilis among Aboriginal and Torres Strait Islander women was 40 times greater than among non-Indigenous women. A syphilis outbreak has involved remote areas in regional Australia, including Western Australia. This outbreak has resulted in congenital syphilis notifications. Prevention of congenital syphilis is a public health priority issue. More frequent screening in pregnancy is now advised in higher risk groups.

See [Appendix 1](#) for Map of WA syphilis outbreak areas

For more detail, see:

- Australian Government Department of Health [Pregnancy Care Guidelines](#) (PDF 4.06MB), under topic "[Syphilis](#)"
- Department of Health Australia: [Infectious Syphilis Outbreak](#)
- Department of Health WA:
 - WA Statistics: [Multijurisdictional Syphilis Outbreak Surveillance Report](#) (May 2019)
 - [Syphilis \(infectious\) Notifications](#) website

Clinical manifestations in infected mothers

Syphilis is a complex multisystem disease that progresses through various stages if untreated.

Stage of syphilis	Time after infection	Clinical Features and perinatal transmission risk
Primary	10-90 days post exposure	<ul style="list-style-type: none"> • Painless ulcer, usually on external genitalia. • May be present elsewhere e.g. in the mouth or on the anus/rectum • Infectious • Vertical transmission risk 70% if untreated
Secondary	30-150 days post exposure	<ul style="list-style-type: none"> • Rash, often macular-papular, may involve palms and soles, mucosal ulcers, condylomata lata, lymphadenopathy, hepatitis, iritis, arthritis, glomerulonephritis, hair loss, cranial nerve palsies. *Clinical signs spontaneously resolve at 3-12 weeks • Infectious • Vertical transmission risk 70% if untreated
Early Latent	<2y post untreated infection	<ul style="list-style-type: none"> • Asymptomatic • Infectious • Vertical transmission risk 40% if untreated
Late latent	>2y post untreated infection	<ul style="list-style-type: none"> • Asymptomatic • Vertical transmission risk 10% if untreated • Sexual transmission uncommon
Tertiary	2-30y post untreated infection	<ul style="list-style-type: none"> • Neurological symptoms/ signs, aortic regurgitation, aortic aneurysm, destructive lesions bones and soft tissues • Vertical transmission risk negligible

Antenatal syphilis screening

Patient characteristics	Testing schedule
Standard testing	<ul style="list-style-type: none"> • Syphilis serology at antenatal booking visit • Other STI / BBV screening recommendations See KEMH Antenatal Care Schedule and STI guidelines
Higher Risk*	<ul style="list-style-type: none"> • Syphilis testing at booking, 28-30 weeks and at birth • Other STI/ BBV screening recommendations: See KEMH Antenatal Care Schedule and STI guidelines
Resident in an outbreak area: <ul style="list-style-type: none"> • Kimberley • Pilbara • Goldfields (See WA map Appendix 1)	<ul style="list-style-type: none"> • Test syphilis at booking, 28 weeks, 36 weeks, delivery and 6 weeks post-partum • Other STI/ BBV screening recommendations: See KEMH Antenatal Care Schedule and STI guidelines.
No antenatal care	<ul style="list-style-type: none"> • Syphilis serology at delivery • Full STI screen- chlamydia / gonorrhoea PCR, hepatitis B, Hepatitis C, HIV serology
Stillbirth after 20 weeks	<ul style="list-style-type: none"> • Syphilis serology recommended
Tested positive to syphilis	<ul style="list-style-type: none"> • Full STI screen- read section Maternal follow-up

* Higher risk women may not be easy to identify, as risk relates to both their own and their sexual partner's risk. Some at risk groups include persons diagnosed with any sexually transmitted infection, previous diagnosis of syphilis, pregnant adolescents, intravenous substance use during pregnancy, limited antenatal care, Aboriginal people aged 15-30y, residence or partner residence in a high prevalence area, especially if 15-29 years old.

Maternal test interpretation (see [appendix 2](#))

Syphilis serology may be confusing to interpret. Contact the microbiology registrar or consultant if assistance in interpretation is needed.

Treponemal tests (EIA IgG and IgM, FTA-Abs), TPPA

Reported as reactive or non-reactive. When reactive these tests (with the exception of IgM) usually remain reactive for life even following adequate treatment. Tests

done at PathWest Laboratory Services use a screening EIA, then a confirmatory TPPA. IgM testing is not routinely performed on the serum of mothers for screening, but may be requested in the investigation of early syphilis and is recommended in neonatal workup in high risk cases.

Non-treponemal tests (RPR, VDRL)

These test antibodies to cardiolipin protein and are a measure of disease activity and are reported as a titre, which is the end point of a serial dilution (e.g. 1:2, 1:4, 1:8, 1:16, 1:32 etc.). Higher levels equate to more active disease and levels equal or greater to 1:8 are often seen in early infection. Biological false positive results may result from other disease processes. Reactive tests usually revert to non-reactive following treatment but frequently revert to non-reactive over a period of time even without treatment. Non-treponemal tests are useful in determining disease activity and response to therapy. For example, a four-fold increase in titre (2-dilution rise) from a previous result (1:2 increasing to 1:8) suggests re-infection; a four-fold fall in titre (2-dilution fall) after treatment (1:32 decreasing to 1:8) suggests an adequate response to treatment. Tests done at PathWest Laboratory Services use the RPR for serum tests and VDRL for any tests on cerebrospinal fluid.

Polymerase chain reaction (PCR)

This tests for the DNA of the organism itself from lesions. If a chancre is present take a dry swab for syphilis PCR. Where there is a risk of syphilis transmission the placenta should be sent for PCR testing at delivery.

False positive results for syphilis

Biological false positive results can occur in the screening EIA or RPR tests. See [appendix 2](#) for interpretation.

Other treponemal infections which are non-sexually transmitted skin diseases from tropical countries e.g. yaws, pinta and bejel can cause the same serological reactions as syphilis.

False negative results for syphilis

If early syphilis is suspected repeat serology in 2-4 weeks, as early testing post infection may be negative due to antibodies not yet having reached detectable levels OR a laboratory phenomenon (called the prozone reaction) which is an artefact of extremely high antibody levels. If there is a high suspicion of early syphilis on clinical grounds, but a negative RPR contact microbiology to discuss retesting on a diluted specimen.

More detail regarding technical aspects and interpretation of syphilis serology is accessible via the following website: [Syphilis: CDNA National Guidelines for Public Health Units](#) (external website, PDF 822.8KB)

Assessment and management of positive syphilis serology

For mothers with positive syphilis serology, (see [Appendix 2: Maternal Test Interpretation](#)), it is critical to establish when infection occurred, the stage of disease and whether effective treatment has been given previously. If effective treatment has been given it is important to exclude re-infection.

Clinicians requiring information about the mother's previous syphilis tests and treatments should contact Communicable Disease Control Directorate during office hours on 9222 0255. Request to speak to the senior epidemiologist or a medical advisor, who will be able to access patient's syphilis information on the WA Infectious Disease Notification Database.

PathWest Serology has records of any testing performed at the WA serology state reference laboratory on their data base. Ring 6383 4418 during office hours.

Treatment of the mother according to stage of disease

- See [Appendix 3: Treatment of Positive Syphilis serology in Pregnancy](#)
- Prompt treatment is required for all women with positive syphilis serology (ideally within 2 days of diagnosis) unless there is documented evidence of previous adequate treatment and no reason to suspect reinfection
- If adequate treatment has not been documented and infection duration is unknown, women should be treated for late latent syphilis
- Serology should be repeated on the day of treatment to allow accurate tracking of RPR response
- Antibiotics
 - See also KEMH Pharmacy: [Benzathine Penicillin](#) medication monograph for maternal treatment
 - For patients who are hypersensitive to penicillin, desensitisation is recommended as penicillin is the only treatment with a robust evidence base. Penicillin allergic patients requiring treatment for syphilis should be discussed with a clinical microbiologist

Early syphilis

- Less than 2 years' duration. Can be primary, secondary or latent (asymptomatic)
- **Benzathine penicillin 1.8g (2.4 million units) IM (given as 2x 900 mg syringes IM in upper outer quadrant of buttock)***
 - *Some experts also recommend a second dose of IM Benzathine penicillin 1 week later however this is not recommended in the Australian Therapeutic Guidelines: antibiotic or national CDNA guidelines due to a lack of evidence
- Treatment of early syphilis may precipitate the [Jarisch-Herxheimer reaction](#) (see

below for considerations and management)

- Close follow up of cases is required to confirm adequate response to treatment

Late latent syphilis

- Latent syphilis of more than 2 years or of indeterminate duration in the absence of tertiary syphilis.
- **Benzathine penicillin 1.8g (2.4 million units) IM once weekly for 3 weeks**

Tertiary syphilis

- This is uncommonly encountered in women of child bearing age. Seek microbiology advice regarding workup and treatment.

Jarisch-Herxheimer Reaction (JHR)

This reaction is a common occurrence in the treatment of early syphilis (< 2 years duration) in adults (including pregnant women) in up to 45% of cases and consists of fever, chills, malaise, hypotension and tachycardia. It begins within 2 hrs of treatment, peaks at 8 hrs and disappears in 24-36 hrs. The reaction occurs only after the first dose of treatment. Management is supportive care. The JHR may precipitate uterine contractions, preterm labour, and/or non-reassuring fetal heart rate tracings in pregnant women treated in the second half of pregnancy.

Women should be counselled to:

- Report symptoms of labour or decreased fetal activity
- Advise hydration and rest, take paracetamol for pain and fever
- KEMH patients should contact KEMH Emergency Centre (EC) or Maternal Fetal Assessment Unit (MFAU) if develop cramping or contractions, change in fetal movements or fever within 24h of penicillin administration

Women with early syphilis (< 2 years duration or with an unknown duration of infection) and a pregnancy gestation of greater than 23 weeks who are able to be admitted to KEMH should be admitted for treatment and monitoring for 24 hours where practicable.

For women residing remote to KEMH with a diagnosis of early syphilis (< 2years gestation or with an unknown duration of infection), the option of transfer to KEMH for treatment should be discussed with the MFM team if the fetus is abnormal on ultrasound and gestation is greater than 23 weeks.

For women residing in remote areas diagnosed with early syphilis, but with no known ultrasound abnormalities, it is preferable for women to be treated at the local hospital or clinic, or at a minimum to stay within an area of health care provision for 24h.

Fetal ultrasound

Fetal and placental ultrasound should be offered to any women treated for syphilis

after 20 weeks gestation to assess placental size, amniotic fluid volume, middle cerebral artery Doppler peak systolic velocity, fetal liver size and assess for hydrops.

Maternal follow up

Screening for other sexually transmitted diseases (i.e. chlamydia, gonorrhoea, HIV, HBV, HCV) must be performed whenever a diagnosis of syphilis is made. Retesting for HIV should be performed at 3 months after a diagnosis of primary syphilis.

- **Refer all pregnant women with syphilis to a public health unit for contact tracing**
- The national CDNA guidelines recommend RPR titres should be monitored at 3, 6, and 12 months post diagnosis. Where there is a high risk of reinfection measurement of monthly RPR titres may be warranted. Maternal RPR should be checked at delivery for comparison with neonatal RPR titres.
- Titres that decrease four-fold or become non-reactive at >4 weeks before delivery indicate successful treatment
- Titres that remain high or increase post treatment may reflect treatment failure or re-infection. Repeat treatment is recommended in these cases
- RPR titres fall slowly, and may take up to 6 months or longer to demonstrate a four-fold drop. RPR titres may also remain serofast at a low level
- Discuss with a microbiologist if there are concerns interpreting the RPR response to therapy

Notification

All new diagnoses of syphilis are notifiable to the WA Department of Health. The form may be found at this link <https://ww2.health.wa.gov.au/Silver-book/STI-or-HIV-notification>

The [national case definitions for syphilis](#) can be obtained from the Communicable Diseases Network of Australia

Management of partners

Refer all pregnant women with syphilis to Metropolitan Communicable Disease Control or to the relevant regional public health unit. Contact tracing of pregnant women with syphilis will be prioritised to prevent reinfection of the mother by an untreated partner. Sexual partners from the last 3 months (if primary infection) and last 2 years (in the case of secondary and early latent syphilis) should be assessed and treated (usually via their GP or a sexual health clinic). Patients with late latent and tertiary syphilis are considered not infectious to sexual partners.

The public health unit in metropolitan Perth is Metropolitan Communicable Disease Control. There are seven regional public health units in rural and remote WA.

- See [Contact details for population/public health units](#)

Resumption of sexual activity

Women should abstain from sexual contact until 5 days after the final dose of treatment for themselves and their partners.

Patient information

Patient information resources which may be helpful:

- [Syphilis](#)
- [All Good \(external website\)](#) (Information in a variety of languages)

Neonatal management plan

All pregnant women diagnosed and treated for syphilis in pregnancy need the details of their investigations and management clearly documented on the MR 410 and in the neonatal shadow file. An assessment of neonatal risk must be made in all cases and the neonatal team must be referred all babies, at delivery. Where a high risk transmission scenario is predicted (treatment less than 30 days before likely delivery) referral to the neonatal team can be made before delivery. All babies born to affected mothers are advised to have a physical assessment, and those meeting the criteria for being at risk will have further investigations and treatment

- See KEMH Clinical Guideline, Neonatology, [Syphilis: Investigation and Management of the Neonate Born to a Mother with Syphilis](#)

Infection prevention and management

- Standard precautions are recommended for all patients, including infants with suspected or proven congenital syphilis.
- Because moist open lesions, secretions, and possibly blood are contagious in all patients with syphilis, gloves should be worn when caring for patients with congenital, primary, and secondary syphilis with skin and mucous membrane lesions.
- Infectivity is diminished following 24hr of appropriate treatment.
- All hospital personnel, who have had close unprotected contact with a patient with early congenital syphilis before identification of the disease or during the first 24 hours of therapy should contact the Infection Prevention and Management department.
- If patient with newly diagnosed early syphilis is labouring, full PPE must be worn for the birth (full length gown, gloves, faceshield) unless more than 24 hours has elapsed since treatment

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Related legislation and policies

Department of Health WA: [Silver book- STI/BBV Management Guidelines](#)

WACHS guideline (access to WA Health employees through Healthpoint)

- [Antenatal and Postnatal Syphilis Screening for Outbreak Regions Guideline](#) (Jan 2020)

Related WNHS policies, procedures and guidelines

KEMH Clinical Guidelines:

- Neonatology- [Syphilis: Investigation and Management of the Neonate Born to a Mother with Syphilis](#)
- Obstetrics and Gynaecology:
 - [Antenatal Care Schedule](#)
 - [HIV Positive-Management of a woman and her neonate](#)
 - [Sexually Transmitted Infections \(STI\); Chlamydia in Pregnancy; Hepatitis B in Pregnancy; Sexually Transmitted Infections: Hepatitis C; Herpes Simplex](#)
- Pharmacy: [Benzathine Penicillin](#) medication monograph

Useful resources

- Department of Health Australian Government: [Infectious Syphilis Outbreak](#)
- [Multijurisdictional Syphilis Outbreak Surveillance Report May 2019](#) (PDF 313KB)
- Department of Health:
 - WA Statistics: [Syphilis \(Infectious\) Notifications](#)
 - [WA Syphilis Outbreak Response](#) (action plan, training, resources)
 - HealthyWA website: [Contact details for population/public health units](#) (including postcodes)
 - [Quick Guide for Opportunistic STI Testing for People with No Symptoms 2019](#)
 - [Quick Guide to STI Management 2019](#)
- WA Country Health Service (WACHS): [Our Regions](#)
- [Syphilis: CDNA National Guidelines for Public Health Units](#) (external website, PDF 822.8KB)

Staff e-learning- [ASHM Syphilis Outbreak Training Website](#)

Patient resources

- [Syphilis](#)
- [All Good \(external website\)](#) (information in a variety of languages)
- [Young Deadly Free](#) (resources for Aboriginal and Torres Strait Islander people)

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Appendix 1: Map of WA regions

The Kimberley, Goldfields and Pilbara regions have been identified as syphilis outbreak regions in 2019

WACHS Regions

Postcodes* for [public health units](#) (PHU):

Kimberley: 6725- 6743, 6765- 6799

Pilbara: 6710- 6723, 6751- 6762

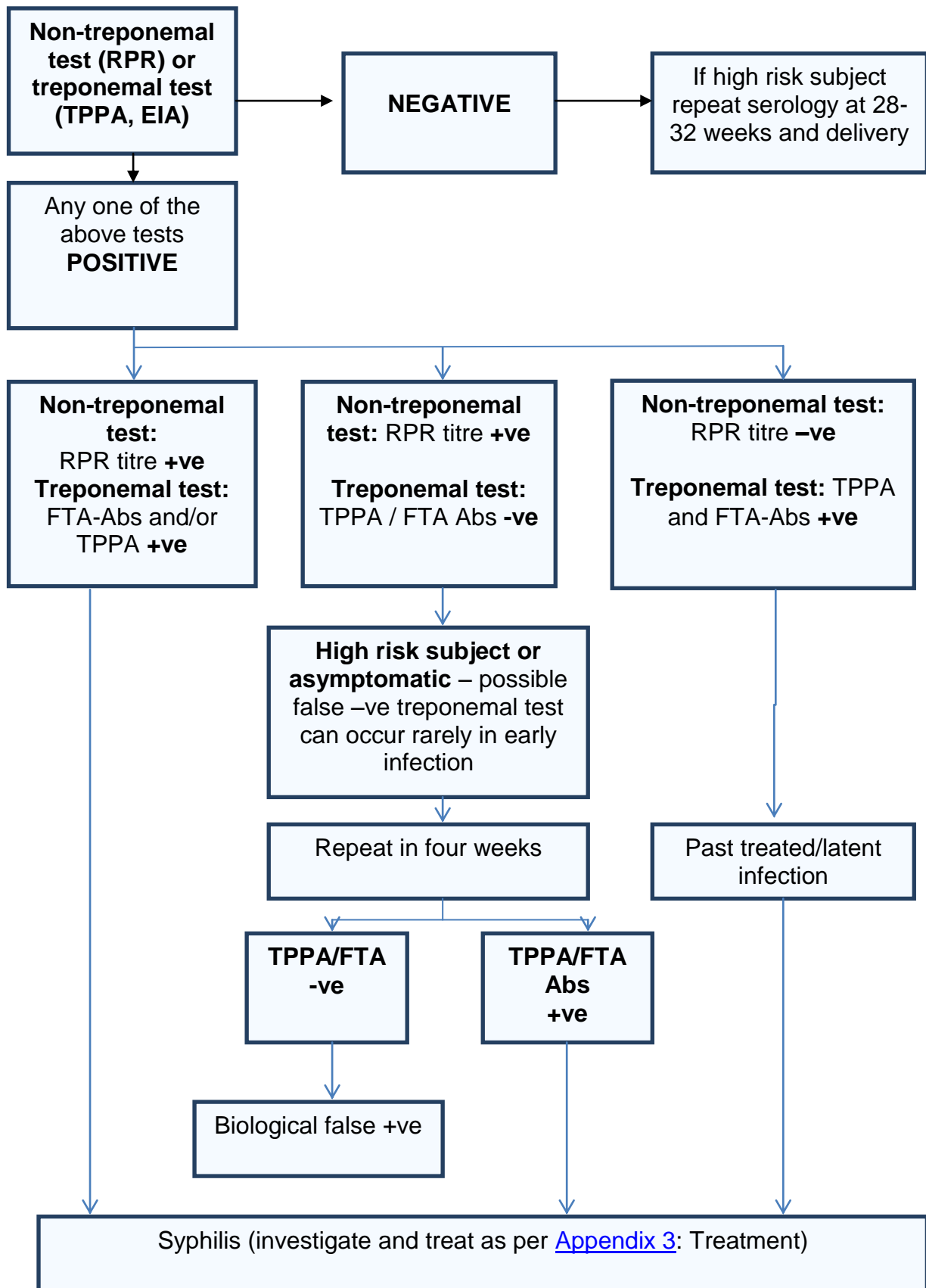
Goldfields: 6429- 6438, 6440- 6452, 6646

*Provided as a guide only and are subject to change. Contact relevant regional [PHU](#) if unsure, and see also [WACHS syphilis guideline](#)



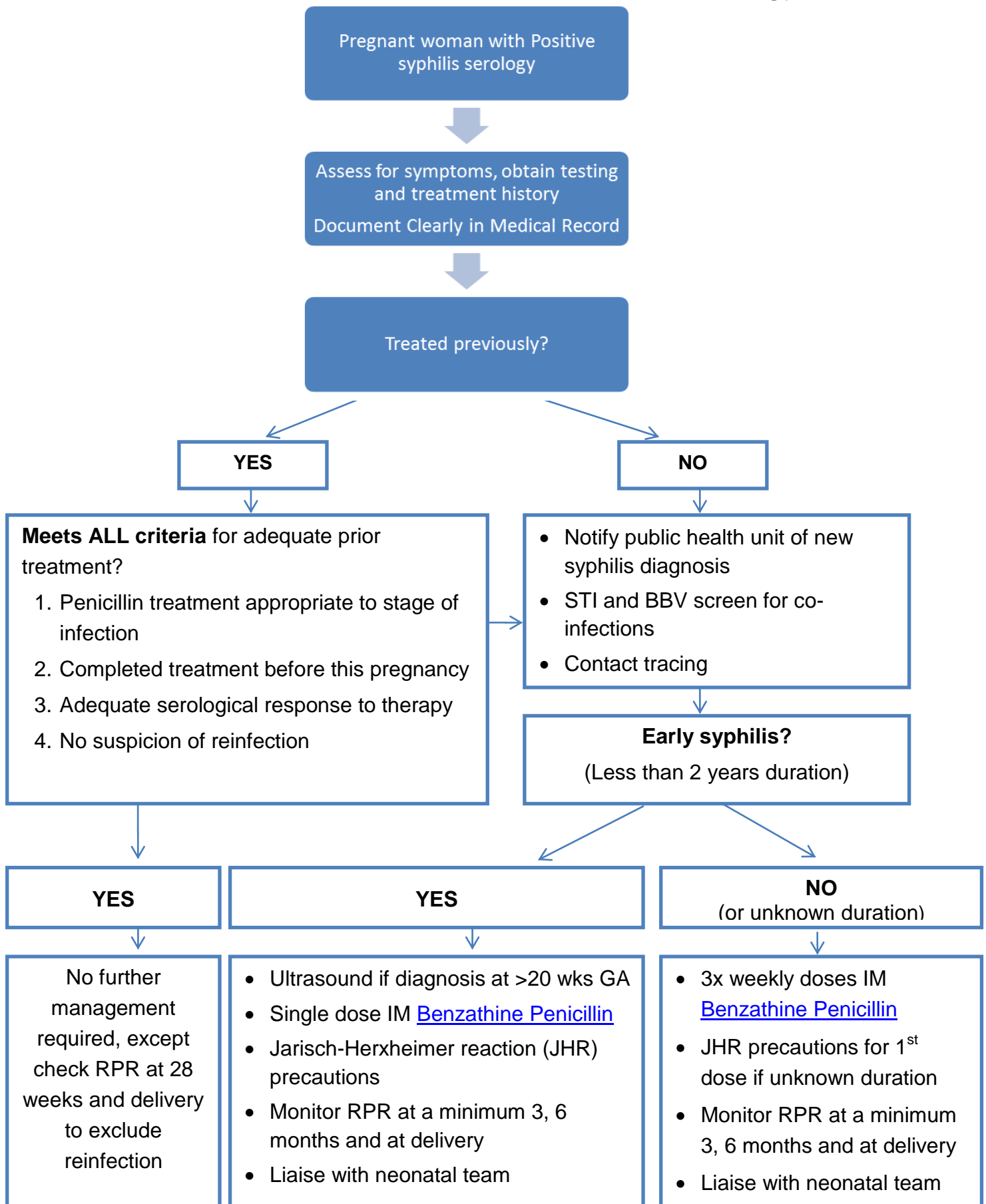
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Appendix 2: Maternal test interpretation flowchart



Acknowledgement: ASID [Management of perinatal infections](#) 2014

Appendix 3: Treatment of positive syphilis serology



Acknowledgment- Flowchart adapted from CDC, Department of Health NT. (2015). Congenital Syphilis Guidelines for the Northern Territory: Assessment and management of syphilis in pregnancy and the neonatal period (3rd ed.).