

Government of Western Australia North Metropolitan Health Service Women and Newborn Health Service



OBSTETRICS AND GYNAECOLOGY CLINICAL PRACTICE GUIDELINE

Syphilis in pregnancy

Scope (Staff):	WNHS Obstetrics and Gynaecology Directorate staff
Scope (Area):	Obstetrics and Gynaecology Directorate clinical areas at KEMH, OPH and home visiting (e.g. Community Midwifery Program and Midwifery Group Practice)

This document should be read in conjunction with this Disclaimer

Note- For diagnosis and treatment of syphilis in **non-** pregnant women consult <u>Silver Book</u> (external website)

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Aims

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

Key changes

In 2023

Details around Public Health role in assisting with Neonatal Management plan added- see p 11.

In 2021

As a result of increasing rates of syphilis diagnoses in Western Australia (WA), including congenital syphilis:

- More frequent screening for syphilis is now recommended for all pregnant women in WA with a 3 test screening regimen as a minimum (booking, 28 weeks, 36 week or at birth if prior to 36 weeks)
- In regional areas with the highest syphilis notification rates, a 5 test screening regimen (booking, 28 weeks, 36 weeks, birth and 6 weeks post-partum) is recommended by the Communicable Disease Control Directorate (CDCD)
- Point of care testing information added

Maternal syphilis screening table

Patient characteristics	Testing schedule	
Standard testing in Western Australia for every pregnancy	Test syphilis serology three times:1. Antenatal booking visit2. 28 weeks3. 36 weeks or at time of any preterm birthOther STI / BBV screening recommendations. See WNHSAntenatal Care Schedule and STI guidelines in Silverbook- STIScreening Recommendations in Pregnant and Post-partumWomen (external website)	
Resident in a regional outbreak area with the highest rates of transmission • Kimberley • Pilbara • Goldfields (See WA map <u>Appendix 1</u>)	Test syphilis serology five times: 1. Antenatal booking visit 2. 28 weeks 3. 36 week 4. Birth and 5. 6 weeks post-partum Other STI/ BBV screening recommendations: See WNHS Antenatal Care Schedule and STI guidelines in Silverbook- STI Screening Recommendations in Pregnant and Post-partum Women (external website)	
Minimal or no antenatal care or no evidence of syphilis testing in this pregnancy as per schedule	Hopatitis C HIV sorology	
Stillbirth > 20 weeks	Syphilis serology recommended	
Tested positive to syphilis	 Full STI screen- read section <u>Maternal follow-up</u> See also <u>Silverbook- STI Screening Recommendations in</u> <u>Pregnant and Post-partum Women (external website)</u> 	

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 WA. Recently, notifications of maternal and neonatal syphilis have also occurred in metropolitan areas. Prevention of congenital syphilis is a public health priority issue. See Department of Health WA <u>Syphilis</u> (Infectious) Notification rates (external website). The marked change in epidemiology has prompted revised guidelines for syphilis screening in pregnancy in metropolitan as well as regional WA.

Identified risk factors for syphilis infection include: persons diagnosed with any sexually transmitted infection (STI), 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 .Higher risk women may not be easy to identify, as risk relates to both their own and their sexual partner's risk. Increased "opt out" screening will assist in detecting women unaware they are at risk of syphilis.

See Appendix 1 for Map of WA syphilis outbreak areas

For more details, see:

- Australian Government Department of Health <u>Pregnancy Care Guidelines</u> (external site, PDF 4.25MB), under topic "<u>Syphilis</u>"
- Department of Health Australia: Infectious Syphilis Outbreak (external site)
 - WA Statistics: Multijurisdictional Syphilis Outbreak Surveillance Report
- Department of Health WA:
 - Syphilis (infectious) Notifications website (external 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	 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	 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	<2 years post untreated infection	 Asymptomatic Infectious Vertical transmission risk 40% if untreated
Late latent	>2 years post untreated infection	 Asymptomatic Vertical transmission risk 10% if untreated Sexual transmission uncommon
Tertiary	2-30 years post untreated infection	 Neurological symptoms / signs, aortic regurgitation, aortic aneurysm, destructive lesions bones and soft tissues Vertical transmission risk negligible

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 birth.

False positive results for syphilis

Biological false positive results can occur in the screening EIA or RPR tests. See <u>appendix 2</u> 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: <u>Syphilis: CDNA National Guidelines for Public</u> <u>Health Units</u> (external website, PDF 647KB)

Point of care (POC) testing for syphilis

In populations at high risk of syphilis where follow up is difficult, a point of care test may be offered in addition to formal serology for syphilis. The Determine Syphilis TP[™] test is a POC test approved by the TGA and national CDNA guidelines. This test does not distinguish between past and recent syphilis but may help inform immediate treatment decisions if positive in the absence of a past diagnosis of syphilis. Formal serological testing is always recommended in parallel. The potential uses and limitations of the test are outlined in the position statements from the <u>Syphilis CDNA National Guidelines for Public Health Units (see p42-44)</u> (external website, PDF, 647KB) and the Australasian Chapter of Sexual Health Medicine <u>Consensus Statement on the Clinical Implications of a Positive Test in the Context of a Previous Negative Syphilis Point of Care Test</u> (external website, PDF, 102KB).

Assessment and management of positive syphilis serology

For mothers with positive syphilis serology, (see <u>Appendix 2</u>: 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 CDCD 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 <u>Appendix 3</u>: 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 WNHS Pharmacy: <u>Benzathine Penicillin</u> Adult (Obstetrics and Gynaecology) 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 <u>Jarisch-Herxheimer reaction</u> (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 abnormal 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 birth for comparison with neonatal RPR titres.
- Titres that decrease four-fold or become non-reactive at >4 weeks before birth 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 <u>https://ww2.health.wa.gov.au/Silver-book/STI-or-HIV-notification</u> (external website)

The <u>national case definitions for syphilis</u> (external website) 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 <u>Contact details for population/public health units</u> (external website)

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:

- <u>Syphilis</u> (external website)
- <u>All Good (external website)</u> (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 MR410 and in the neonatal shadow file (at KEMH this is located: in Antenatal Filing).

Note: Representatives from metropolitan WA maternity hospitals meet regularly to discuss cases through syphilis team meetings coordinated by Public Health.

- Cases discussed in advance will have a neonatal management plan generated, coordinated by Public Health, who will email the plan to the KEMH Coordinator of Midwifery to add into the woman's medical record AND forward to the KEMH Neonatology.
- If the neonatal management plan from Public Health is not available (e.g. if the woman presents to birth at a site other than her booked hospital): The plan may be obtained by contacting Public Health directly or Perth Children's Hospital on-call Infectious Diseases (PCH ID) team.

In all cases where a woman has been diagnosed and treated for syphilis during pregnancy:

- An assessment of neonatal risk must be made according to CAHS Clinical Guideline, Neonatology, <u>Syphilis: Investigation and Management of the</u> <u>Neonate Born to a Mother with Syphilis</u>.
- The neonate should be referred to the neonatal team. Where a high-risk transmission scenario is predicted (treatment less than 30 days before likely birth) referral to the neonatal team can be made before birth.
- The case should be discussed with the PCH ID Team, contacted via the PCH switchboard, as early as practically possible, and within 24 hours of birth.
- 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.

Infection prevention and management (IPM)

- 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 IPM department.
- If patient with newly diagnosed early syphilis is labouring, full PPE must be worn for the birth (full length gown, gloves, face shield) unless more than 24 hours has elapsed since treatment

Abbreviations

BBV	Blood borne virus infection
EIA	Enzyme Immunoassays for IgG and IgM
FTA-ABS	Fluorescent Treponema pallidum 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

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Related WA Health policies and guidelines

Department of Health WA: Silver book-STI/BBV Management Guidelines

CAHS Clinical guideline: Neonatology-<u>Syphilis: Investigation and Management of the</u> <u>Neonate Born to a Mother with Syphilis</u>

WA Country Health Service (access to WA Health employees through Healthpoint)

WACHS Antenatal and Postnatal Syphilis Screening Guideline

Related WNHS policies, procedures and guidelines

WNHS Clinical Guidelines:

- Obstetrics and Gynaecology:
 - Antenatal Care Schedule
 - HIV Positive-Management of a woman and her neonate
 - Infections in Obstetrics- Hepatitis C
 - Sexually Transmitted Infections (STI); Chlamydia in Obstetrics; Hepatitis B in Obstetrics; Herpes Simplex
- Pharmacy: <u>Benzathine Penicillin</u> (Adult) medication monograph

Useful resources (external websites)

- Department of Health Australian Government: <u>Infectious Syphilis Outbreak</u> and Multijurisdictional Syphilis Outbreak Surveillance Reports
- Department of Health:
 - WA Statistics: <u>Syphilis (Infectious) Notifications</u>
 - WA Syphilis Outbreak Response (action plan, training, resources)
 - HealthyWA website: <u>Contact details for population/public health units</u> (including postcodes)
 - Quick Guide for Opportunistic STI Testing for People with No Symptoms 2023
 - Quick Guide to STI Management 2019
 - Quick Guide for Testing and Treatment of Syphilis Infection in WA 2023
- WA Country Health Service (WACHS): <u>WACHS Sites and Regions</u>
- Syphilis: CDNA National Guidelines for Public Health Units (PDF, 647KB)

Staff further reading: ASHM Syphilis: Outbreak Training Website

Patient resources

- HealthyWA: <u>Syphilis (external website)</u>
- <u>All Good (external website)</u> (information in a variety of languages)
- <u>Young Deadly Free (external website)</u> (resources for Aboriginal and Torres Strait Islander people)

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Version history (since March 2020)

Date	Summary
March 2020	 Enhanced screening in pregnant women from areas currently experiencing syphilis outbreaks. The NT Syphilis Guidelines and the WA Silverbook STI/BBV Management guidelines (which in turn were informed by the National Pregnancy Care Guidelines and Communicable Disease Network Australia's syphilis guideline) were used as the key resource documents. This was 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
	 In regional areas with the highest syphilis notification rates, a 5 test maternal screening regimen (booking, 28 weeks, 36 weeks, birth and 6 weeks post-partum) is recommended by the CDCD.
	 Processes to improve co-ordination between obstetric, neonatal teams and the CDCD and metropolitan and regional public health units in the management of maternal syphilis cases
April 2020	Minor amendment- hyperlink updated
May 2021	As a result of increasing rates of syphilis diagnoses in Western Australia (WA), including congenital syphilis:
	 More frequent screening for syphilis is now recommended for all pregnant women in WA with a 3 test screening regimen as a minimum (booking, 28 weeks, 36 week or at preterm birth). In regional areas with highest syphilis rates (Kimberley, Pilbara and Goldfields), 5 tests are still required.
	If minimal or no antenatal care or no evidence of syphilis testing in this pregnancy as per syphilis screening schedule, provide syphilis

	maternal serology at presentation to care. Refer to section in guideline for prioritising requests.
	 Point of care testing information added and epidemiology section updated
June 2023	Details around Public Health role in assisting with Neonatal Management plan added: Representatives from metropolitan WA maternity hospitals meet regularly to discuss cases through syphilis team meetings coordinated by Public Health.
	 Cases discussed in advance will have a neonatal management plan generated, coordinated by Public Health, who will email the plan to the KEMH Coordinator of Midwifery to add into the woman's medical record AND forward to the KEMH Neonatology.
	 If the neonatal management plan from Public Health is not available (e.g. if the woman presents to birth at a site other than her booked hospital): The plan may be obtained by contacting Public Health directly or PCH on-call ID team.
	Neonates born to mothers who have been diagnosed and treated for syphilis in pregnancy: The case should be discussed with the PCH ID Team, contacted via the PCH switchboard, as early as practically possible, and within 24 hours of birth.

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Appendix 1: Map of WA regions

The Kimberley, Goldfields and Pilbara regions have been identified as syphilis outbreak regions with a 5 syphilis screening test recommendation in 2021.

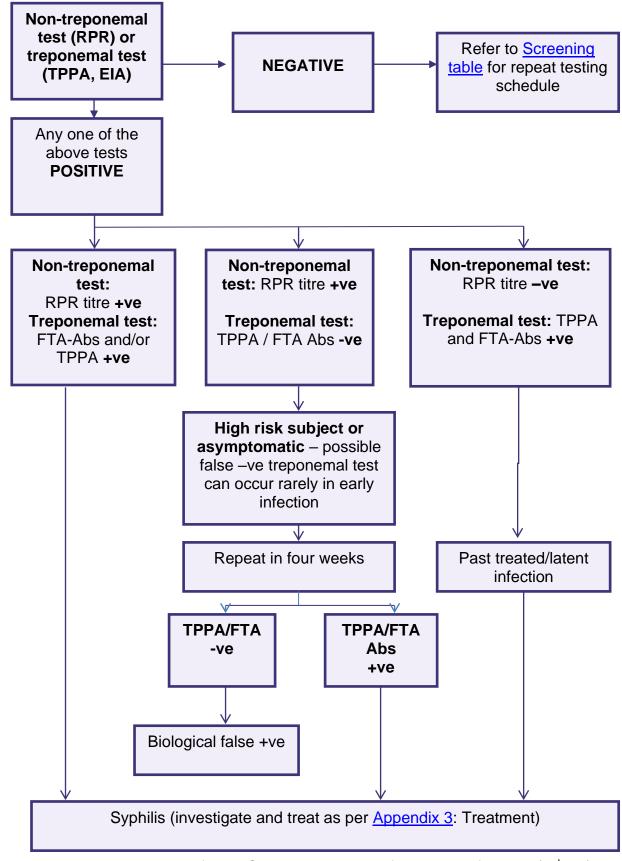
(As of 2021 women residing in other WA regions have a 3 standard test recommendation)

WACHS Regions



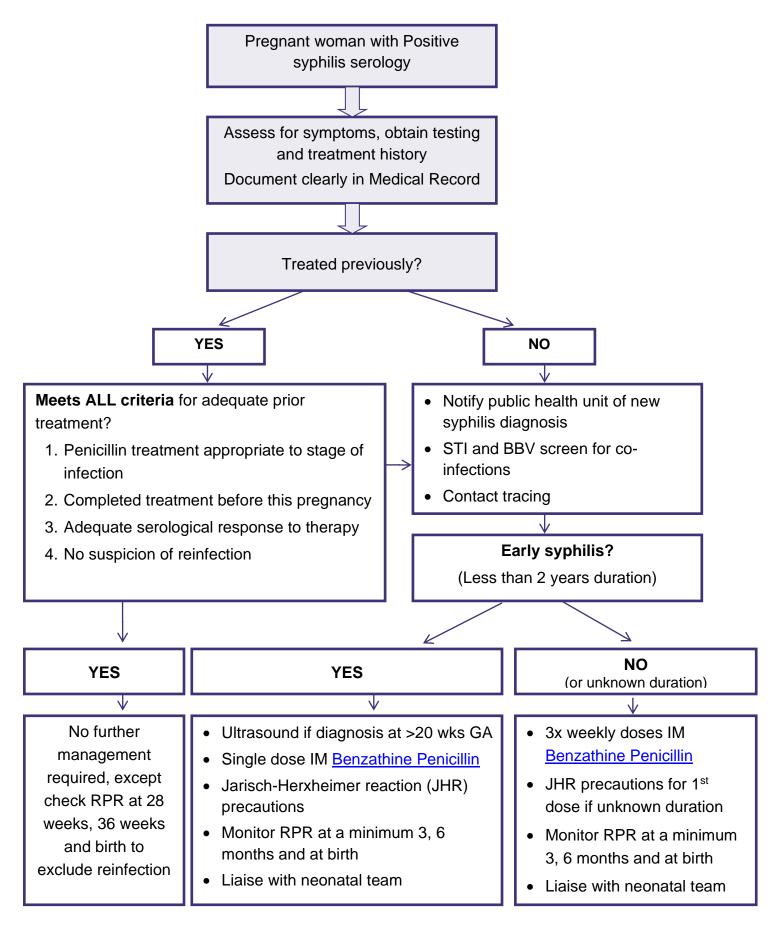
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Appendix 2: Maternal test interpretation flowchart



Acknowledgement: Adapted from ASID. Management of perinatal infections (3rd ed.). 2022.

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.).