Syphilis in Pregnancy / Congenital Syphilis Birth Plan

Guideline Responsibilities and Authorisation

Department Responsible for Guideline	Sexual Health
Document Facilitator Name	Dr Susan Bray
Document Facilitator Title	Sexual Health Physician
Document Owner Name	Karena Birt
Document Owner Title	Health Services Manager
Target Audience	Sexual health, Obstetric, Paediatric and Infectious Disease clinicians
Disclaimer: This document has been developed for use specifically by staff at the former Waikato District Health Board. Caution should be exercised before use outside this district. Any reliance on the information contained herein by any third party is at their own risk and Health New Zealand | Te Whatu Ora assumes no responsibility whatsoever for any issues arising as a result of such reliance.	

Guideline Review History

Version	Updated by	Date Updated	Summary of Changes
1	J Morgan	12/9/2018	Guideline is based on the Australasian Society of Infectious Diseases (ASID) algorithms on syphilis in pregnancy with additional information from UK (BASHH) & USA (CDC) syphilis in pregnancy guidelines. Birth plan adapted from Lakes DHB guideline with permission. Link to NZ Paediatric Surveillance Unit study included
2	J Morgan	31/10/2018	Neonate treatment dosing updated
3	S Bray	18/07/2024	Update to align with NZSHS syphilis in pregnancy guideline 2020

Syphilis in Pregnancy / Congenital Syphilis Birth Plan

Contents

1 Overview

1.1 Background

Cases of congenital syphilis reported in New Zealand have increased since 2017. Unfortunately, inequitable impacts have been reported in Māori and Pacific people many of whom have missed out on antenatal healthcare including syphilis screening and treatment. 2023 reported a rapid rise in syphilis cases NZ wide and Waikato clinicians need to be prepared for a possible increase in syphilis in pregnancy over the next few years.

Syphilis is caused by infection with the bacterium *Treponema pallidum subspecies pallidum* (shortened to *T pallidum* for the purposes of this document). It is transmitted by direct contact with an infectious lesion or by vertical transmission (transplacental) during pregnancy.

Transplacental transmission to the foetus can occur at any stage of pregnancy and at any stage of maternal disease. During pregnancy it may lead to miscarriage, pre-term labour or stillbirth. After delivery it may present as early or late congenital infection if not treated. **Many neonates with congenital syphilis will have no signs or symptoms at the time of birth.**

Foetal abnormalities result from a robust inflammatory response to *T. pallidum* and are more pronounced after 20 weeks of gestation.

Appropriate antibiotics (long-acting penicillin) is sufficient for 98-99% of maternal and foetal syphilis infections but there is still a low risk that maternal treatment in pregnancy will not adequately treat the mother or the foetus. Treatment in the 3rd trimester if it occurs less than 30 days of delivery has a greater risk of treatment failure.

Maternal follow-up is always required after treatment and congenital infection ALWAYS needs to be ruled out.

1.2 Purpose

The aim of this document is to provide a process for coordinated multidisciplinary team (MDT) care of antenatal management of maternal and congenital syphilis at Waikato Hospital.

The full clinical management New Zealand Sexual Health Society syphilis in pregnancy guideline is found at this site Inclusive NZ Sexual Health Guidelines for Professionals | NZSHS.

1.3 Staff group

Sexual Health, Obstetric, Paediatric and Infectious Disease clinicians.

1.4 Patient / client group

Pregnant women diagnosed with syphilis and neonates born to mothers with syphilis in pregnancy.

2 Clinical management

2.1 Maternal Care for Syphilis in Pregnancy

2.1.1 Roles and responsibilities of Multidisciplinary Team (MDT)

Reactive Syphilis Tests in Pregnancy

Sexual Health Service

Waikato Sexual Health Service will provide outpatient management or inpatient advice for infection in the mother. This will include will include treatment of mother, contact tracing, follow up serology, communication with other teams and completion and distribution of a birth plan in the third trimester.

- **<20 weeks gestation** Lead Clinician Sexual Health will communicate the initial management plan via letter to lead maternity carer (LMC) and cc to Obstetrics team, Neonatal team and GP. This letter will be uploaded to clinical workstation.
- **>20 weeks gestation** Lead Clinician Sexual Health will refer to Obstetric team for admission for treatment and foetal monitoring due to possible Jarisch-Harxheimer reaction which may occur after penicillin administration.
- Waikato Sexual Health Service Lead Clinician will review in 3rd trimester **(following 28-week antenatal blood tests)** to check post-treatment serology, contact tracing, and send birth plan to LMC cc to Neonatal and Obstetric teams as to whether the risk of congenital syphilis is less likely or highly probable.
- If follow up serology suggests failed treatment eg RPR increasing or failing to fall further evaluation and treatment will be required by Sexual Health team and referral to the Obstetric team for re-scanning

Lead Maternity Carer (LMC)

LMC to provide coordination of care with Sexual health, Obstetric and Neonatal teams.

During pregnancy

- Request 20-week anatomy scan with information to sonographer/radiologist on syphilis diagnosis.

*20-week anatomy scan request form Syphilis treated in pregnancy at /40. Please check for abnormalities of syphilis eg placentomegaly, hepatomegaly, ascites, bone changes.

- Refer to Obstetrics for a consultation and review after the 20-week scan.
- Liaise with sexual health clinician for syphilis follow up tests.

At delivery

In all cases delivery should occur in the secondary/tertiary level hospital as the on-call Neonatal team will need to manage the newborn.

- Ensure the birth plan is followed.
- Repeat maternal syphilis test (if not taken in last month).
- Refer the newborn for a consultation with neonatal specialist for examination and blood testing.
- Organise for placenta to be swabbed for *T. pallidum* DNA (use green viral swabs as if taking herpes simplex virus PCR) and send to histology for further analysis.
- Inform Sexual Health when the baby has been born.
- Ensure follow up care has taken place.

Obstetrics

Obstetrics to provide a consultation following the 20-week anatomy scan and management of >20-week cases referred by Sexual Health team.

Provide a consultation following referral from LMC for syphilis during pregnancy.

Refer to Maternal Fetal Medicine (Auckland) if any abnormalities noted on 20-week anatomy scan.

>20 weeks gestation (diagnosed and confirmed by Sexual Health)

- Sexual Health clinician to refer to Obstetric team as semi urgent (sending a referral to WAUacutereferrals@waikatodhb.health.nz) for admission and monitoring for first treatment of benzathine penicillin due to the potential for a Jarisch-Harxheimer reaction*.
- Treatment should be given without delay however the woman should be advised that as a reaction to the first dose of treatment may occur, a short period of admission is recommended for continuous fetal monitoring. This may be between 8 -24 hours.
- The remaining doses may be given as an outpatient.
- If the JH reaction induces preterm labour, management should follow standard obstetric care. In some cases where the woman declines admission, it is acceptable to advise the woman
- to seek obstetric attention after treatment if they notice any fever, contractions, or
- decrease in fetal movements
- Obstetric team will then arrange a follow up with scan and antenatal clinic (high risk) within two weeks following treatment.

* ***Jarisch-Herxheimer (JH) reaction is an acute febrile illness associated with headaches, myalgia, arthralgia, chills, rigors and pharyngitis. These symptoms usually occur 2-8 hours after treatment for syphilis is initiated and resolve within 24 hours. This is common in early syphilis and is usually not clinically significant unless there is neurological or ophthalmic involvement or in pregnancy.***

JH reaction occurs in up to 44% of pregnant women and can precipitate preterm labour, and fetal heart rate abnormalities. Stillbirth is a very rare complication of treatment, (usually in case of severely affected fetuses), but concern for this possible complication should not delay treatment.

Infectious Diseases

Infectious disease specialist input will be required if there is suspicion of maternal neurosyphilis. IV benzylpenicillin is recommended for better penetration into the CNS. Hospital admission under General Medicine is required, they will liaise with Infectious Disease clinicians for initial workup and OPIVA assessment.

Note: OPIVA nurse will need to review if patient is suitable, this is not guaranteed due to location or social situation. A PICC line is required and infusers take 2-3 days to order.

If neurosyphilis is confirmed see NZSHS pregnancy guidelines for recommended regime.

Note: A further dose of benzathine penicillin 2.4 MU im to be administered at completion of the benzylpenicillin iv infusion if diagnosed with late latent syphilis (>2 years since acquisition) or unknown duration is recommended in some guidelines.

Please contact OPIVA clinical nurse specialist 8am-5pm Monday to Friday to arrange 07 839 8726 ext 23379

Penicillin allergy- consult with infectious disease pharmacist as desensitisation may be required.

If penicillin allergy is reported this should be confirmed and severity assessed using the PENFAST score. Low risk patients who cannot be delabelled confidently may need an oral amoxicillin challenge, moderate risk may need urgent skin testing and if confirmed allergy, penicillin desensitisation.

Review as per guidance here:
https://viewer.microguide.global/guide/1000000113#content,fbc3f5a9-f75e-4441-ba76-0e3fb35a044a

Risk assessment here
https://viewer.microguide.global/guide/1000000113#content,baab7468-b6b7-4ae0-8aeb-4cfe67ec8778

2.2 Delivery & birth plan for women treated for syphilis in pregnancy

In all cases delivery should occur in the secondary/tertiary level hospital as the on-call Neonatal team will need to manage the newborn.

Acute phone referral to the Neonatal team by the LMC or the midwife at delivery for the examination and tests as per birth plan letter.

The birth plan will classify the risk for congenital syphilis as either highly probable or less likely. The Neonatal team will then contact the designated NICU SMO for further follow up of the newborn.

Congenital syphilis less likely	Congenital syphilis highly probable
• Mother is treated appropriately >4 weeks before birth • Treatment completed > 4 weeks before birth • Mother treated with the correct penicillin regimen for the stage of syphilis • Maternal 4-fold drop in RPR achieved • Final RPR titre ≤ 1:4 (VDRL 1:2)	• Maternal syphilis not treated or inadequately treated, or treatment inadequately documented • Maternal syphilis treated but with inadequate follow-up or without a satisfactory 4-fold drop in RPR titre • Treatment of syphilis in pregnancy with a non-penicillin regimen including ceftriaxone • Treatment of the mother < 30 days prior to the birth (maternal treatment unlikely to have adequately treated the fetus) • Final RPR titre > 1:4 (VDRL > 1:2) • Abnormal fetal ultrasound findings

- Delivery for women treated for syphilis in pregnancy is as per normal procedures.
- Ensure universal precautions with maternal and neonatal contact. Gloves should be worn for handling babies with suspected congenital syphilis as moist open lesions of skin and mucous membranes, secretions and possibly blood are contagious until 24 hours of penicillin treatment has been completed.
- Obtain client consent for the placenta to be examined. Swab placenta for *T. pallidum* DNA (use green viral swabs as if taking herpes simplex virus PCR) and send to placenta to histology (state on form special stains for syphilis) for further analysis.
- Breast feeding is not contraindicated with syphilis unless there is an active syphilis lesion on the breast.

Handling of placenta (whenua)

Whenua has particular importance to Māori people. Many women and whānau may wish to retain her placenta for burial.

The placenta and also the amniotic fluid could also be infectious.

In cases where the placenta is needed for further testing, this should be discussed with the woman and her consent obtained and wishes known regarding return or disposal of the placenta.

Discussion with a neonatal/obstetric doctor is recommended on a case by case basis to determine if a particular woman's placenta is likely to be infectious.

Gloves are to be worn by health care professionals and the woman or her whānau when handling the placenta. The woman and her whānau should be advised to store and transport whenua/placenta in a leakproof container.

2.3 Care for the Newborn-Assessment and Management

Many neonates with congenital syphilis will have no signs or symptoms at the time of birth.

Refer to the NZSHS syphilis in guidelines (for further guidance on examination and tests and treatment page 20 to 26).

2.3.1 Examination

By neonatal doctor will assess for signs of syphilis, these are in birth plan and include checks for hepatosplenomegaly, jaundice, skin, nasal or mouth lesions, pneumonitis, lymphadenopathy, fever, low birth weight, CNS signs e.g. cranial nerve palsies.

2.3.2 Initial Investigations

Cord blood must NOT be used for testing.

Neonatal venous blood sample for syphilis serology: request serum treponemal EIA, RPR, treponemal IgM (IgM is sent to Christchurch).

If infant has muco-cutaneous lesions present, use green viral swabs (as if taking herpes simplex virus PCR) for Direct *T. Pallidum* PCR assay from lesions and / or nasal discharge (if present) (these are sent to Auckland Hospital laboratory).

Further tests to consider if abnormal findings include infant CSF examination: request cell count, protein, VDRL**,** full blood count, urea, electrolytes, creatinine, liver function tests**,** long bone X-rays for osteochondritis & periostitis**,** chest X-Ray (cardiomegaly)**,** neuroimaging**,** ophthalmologic (interstitial keratitis) and a formal audiology examination (sensorineural (8th) nerve deafness.

2.3.3 Interpretation of syphilis serology in neonate

- The interpretation of syphilis serology in neonates requires specialist input as no single test can be used to diagnose congenital syphilis (the NZSHS syphilis in pregnancy guideline will assist in interpretation of tests)
- Compare maternal (at delivery or a month prior) and neonatal syphilis serology.
- Passive transfer of maternal antibodies makes interpretation of neonate serology more complex.
- If neonatal RPR is 4-fold higher than the maternal RPR at birth this is indicative of fetal antibody synthesis and is consistent with congenital syphilis e.g. if maternal RPR at delivery is 1:4 and infant's serology at birth has RPR of 1:16, then this is consistent with a diagnosis of congenital syphilis.
- The diagnosis of congenital syphilis in an untreated infant can be excluded if RPR become non-reactive before 6 months of age.
- TPPA that remains reactive from birth to after 18 months of age is diagnostic of congenital syphilis.

- IgM treponemal tests can be used to differentiate between passively transferred antibodies and
- fetal antibody production in response to infection. A negative IgM result however cannot exclude congenital syphilis. Issues with false positives and false negative tests are not uncommon with IgM tests.

2.4 Infant Follow-up

In most cases congenital syphilis will be less likely, and these infants will require repeat syphilis serology and IgM at 3 months to exclude late seroconversion.

If congenital syphilis is highly probable then further evaluation is required by the neonatal team. Refer to full guidelines.

The designated NICU SMO for newborns from syphilis positive mothers will arrange and follow up on 3 months serology, if not arranged on initial presentation. 3-month follow up can be at Waikato Hospital Day stay.

F. Infant follow up

1. Proven, highly probable, congenital syphilis		2. Asymptomatic, possible, congenital syphilis		3. Congenital syphilis less likely	
6 weeks		6 weeks		Month 3	
☐	Check RPR	☐	Check RPR	☐	Repeat RPR and IgM to exclude late seroconversion
☐		☐		☐	Discharge if results negative
Month 3		Month 3		**OR**	
☐	Check RPR	☐	Check RPR	☐	RPR and/or IgM positive; discuss with Paediatric Team
Month 6		Month 6			
☐		☐	Check RPR, if negative discharge, if positive repeat at 12 months		
Month 12		Month 12			
☐	Check RPR. Discharge if RPR has achieved sustained 4x drop from peak level	☐	RPR negative, no further follow up OR		
		☐	RPR still positive, discuss with Paediatric Team		
			*Note: the RPR is usually negative by six months		

Neonatal RPR should be negative by 6 months of age and the TPPA should be negative by 18 months of age; early reactive results may as a result of passive transfer of maternal antibodies.

2.5 Notification and Reporting

- Syphilis became a notifiable condition in January 2017, but system issues mean that surveillance is still undertaken by ESR and the NZ Paediatric Surveillance Unit (NZPSU) and not yet by formal notification to the medical officer of health.
- There are ongoing enhanced syphilis surveillance studies of all adult cases seen in sexual health clinics (ESR) and, more recently, of all newborns exposed to syphilis during pregnancy (NZPSU) to monitor outcomes including congenital infection cases.
- The sexual health team will complete ESR's enhanced syphilis surveillance form for any maternal infection.
- The paediatric team will complete the congenital syphilis form for all newborns exposed to syphilis during pregnancy; the form is on the University of Otago NZPSU website at: https://www.otago.ac.nz/nzpsu/current-studies/otago685320.pdf

3 Evidence base

3.1 Bibliography / References

Inclusive NZ Sexual Health Guidelines for Professionals | NZSHS

Appendix A – Key Contacts/Participants (as at August 2024)

Sexual Health
Dr Karen Benattar HOD

Dr Susan Bray SMO, Dr Natalie Renaud SMO, Wendy Girling CNS

If ANY antenatal syphilis test is reactive, please refer to or discuss with a Sexual Health Physician: phone clinic reception 0800 322 226 OR contact via switchboard OR email shsadmin@waikatodhb.health.nz OR for community send an urgent BPAC referral OR hospital send urgent via referral coordination centre.

Obstetric
Dr Isabel Camano HOD

Non-acute referrals to Obstetric team via the referral centre

Acute referrals

WAUacutereferrals@waikatodhb.health.nz

Midwifery
Sarah Power, Maternity Quality & Safety Midwife Coordinator
sarah.power@waikatodhb.health.nz

Neonate
Jutta van den Boom, HOD Jutta.VanDenBoom@waikatodhb.health.nz

Infectious Disease
Dr Paul Huggan HOD

On call SMO can be contacted via switch or infectiousdisease@waikatodhb.health.nz

Appendix B – Syphilis in Pregnancy Guidelines

Inclusive NZ Sexual Health Guidelines for Professionals | NZSHS