# Standard Operational Procedure for Syphilis: Antenatal screening, and management and treatment of screen positive women and their babies

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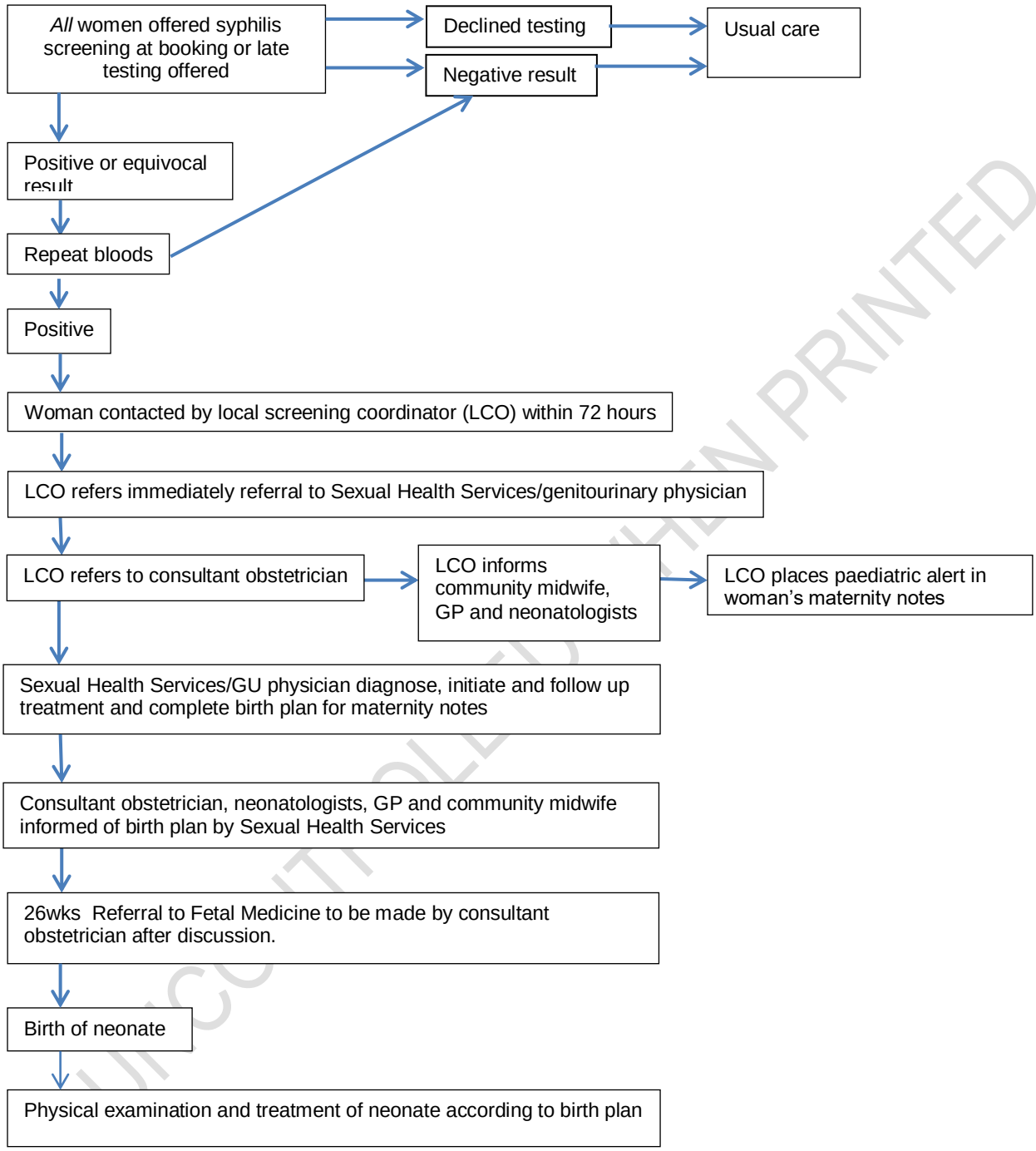
## FLOW CHART FOR SYPHILIS SCREENING DURING PREGNANCY




LCO - local screening coordinator

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## 1. Purpose/Background:

Syphilis is an infectious disease caused by the bacteria-like spirochete infection with the bacterium Treponema Pallidum. It is transmitted primarily through sexual contact with an infectious lesion (chancre), but can be transmitted transplacentally from mother to baby at any gestation during pregnancy or at delivery.

Syphilis infection is staged according to duration of infection- the time from acquisition of primary infection.

Without treatment syphilis progresses through 4 stages:

- Primary and secondary where a person is symptomatic and highly infectious.
- Latent (early/late) where the infection is found at lower levels.
- Tertiary where syphilis re-activates and serious health complications are common.

Syphilis in pregnancy may result in miscarriage, pre-term labour, stillbirth, and congenital syphilis (CS). The level of risk to the baby of having congenital syphilis rages from 70-100% in primary syphilis, 40% in early latent syphilis and 10% in late latent syphilis. Around two thirds of babies with CS will be asymptomatic at birth but most develop symptoms by 5 weeks of age. Untreated CS can result in physical and neurological impairments affecting the child's bones, teeth, vision and hearing.

A positive screening result may identify

- Current active infection
- Syphilis infection in the past that was successfully treated
- False positive or detection of another Treponema infection (Yaws,Pinta).

Any screen positive result will require a comprehensive sexual health assessment and examination by the genitourinary medicine team (GUM)

Only women with acute infection or inadequately treated previous infection will need treatment with a single dose of benzathine penicillin which is effective in most cases.

Treatment is not indicated where there is a biological false-positive test or where syphilis was adequately treated prior to the current pregnancy.

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Any woman requiring treatment in the current pregnancy should be referred to fetal medicine by 26weeks gestation, particularly when there is evidence of early infection as indicated in BASHH guidelines.

Ultrasound findings of fetal hydrops or hepatosplenomegaly can be suggestive of a fetal syphilis infection.

There should be an MDT plan of care and neonatal alert in place for babies requiring assessment at birth. The diagnosis of CS can be very difficult. Most neonates infected with syphilis are asymptomatic at birth and passive transfer of maternal IgG across the placenta may cause reactive neonatal syphilis serology, even in the absence of CS.

## 2. Scope:

This document is for use by all obstetricians and midwives and it applies to all women cared for by the Maternity Services at St Mary's Hospital.

## 3. Responsibilities

It is the responsibility of all Midwifery Nursing and medical staff to:

- Access read understand and apply this SOP
- Attend any mandatory training pertaining to the SOP

It is the responsibility of the department to:

- Ensure the SOP is reviewed as required in line with trust and national recommendations
- Ensure the SOP is accessible to all relevant staff

## 4 Procedure:

### 4.1 Staff Responsibilities

- It is the responsibility of the local LCO to put a failsafe process in place to ensure that all women who accept antenatal syphilis screening complete the pathway effectively. This includes good communication between the laboratory and maternity services for requests for repeat samples, reoffer of screening to women who have declined testing.

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- It is the responsibility of the midwife requesting the syphilis screening to check the screening samples have been received by the laboratory, that they have reported results within 10 days and to document the results in the woman's hand held notes.
- Once referred to Sexual Health Services/GU physician, the responsibility for the woman's treatment remains with Sexual Health Services/GU physician.
- It is the responsibility of the LCO to ensure there is follow up for syphilis positive women who choose to terminate or miscarry their pregnancy.

### 4.2 Management of women with positive syphilis screen

- If a woman discloses at booking that she is syphilis positive refer to Sexual Health Services/GU physician immediately and consultant obstetrician. Inform LCO *and* carry out the syphilis screening test.
- Screening for syphilis can be offered at any time during pregnancy and urgently during labour, for those are late to book or if there has been a further infection risk.
- The LCO is informed directly by the lab of positive results in a weekly laboratory failsafe report. The LCO will inform the woman and her community midwife if there is a need for further confirmatory screening.
- If the result is equivocal, the LCO will request the community midwife to retake bloods as soon as possible after notification.
- Newly diagnosed Syphilis positive women will be contacted by the LCO.
- The LCO will refer the woman as soon as possible to Sexual Health Services and GU physician and ensure obstetric consultant review.
- The LCO will inform the community midwife, neonatologists and the woman's GP.
- Sexual Health Services/GU physician will make a clear maternal diagnosis and communicate this to the MDT.
- Maternal diagnosis will determine whether:
    - maternal treatment is not indicated
    - maternal treatment is indicated
    - treatment plan

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- Following treatment for syphilis it is the responsibility of Sexual Health Services/GU physician to ensure bloods are repeated to confirm that treatment has been effective.
- Guidance regarding screening for other sexually transmitted disease, contact tracing and sexual abstinence should be given by Sexual Health Services as per current guidelines.
- Appropriate, visible paediatric alerts should be placed in the woman's maternity notes for the attention of midwives and neonatologists at the time of delivery to ensure timely paediatric referral and screening.
- A birth plan (Appendix C) should be completed by Sexual Health Services/GU physician for plan of care and communication of plan to the multi-disciplinary team. The birth plan should be updated as required during pregnancy according to treatment and efficacy of treatment.

### 4.3 Management of babies born to women with positive syphilis screen

- The LCO will inform neonatologists about women who are syphilis positive as soon as the confirmed positive screening is identified during pregnancy.
- A birth plan should be available in the maternity notes for every baby at risk of congenital syphilis stating the level of risk of the fetus/neonate and plan of care.
- All neonates at risk of congenital syphilis will require a physical examination by neonatologists at birth as per birth plan (Appendix C).
- Diagnosis and treatment of congenital syphilis will be made by Sexual Health Services/GU physician in conjunction with neonatologists.

## 5 Implementation/training/awareness

- This is a review of a current document and it formalises current practice.
- Once ratified it will be available in all clinical areas within the Maternity Unit and on the intranet.
- All new, reviewed and ratified documents are notified to staff via the monthly maternity newsletter

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## 6. Auditable Standards

Every positive case of syphilis occurring in pregnancy is monitored by the local LCO and reported through the Integrated Screening Outcomes Surveillance Service (ISOSS).

Monitoring and audit are undertaken by the LCO as per the Guidelines for management of maternal antenatal screening tests.

The results of monitoring are presented and reported by the local LCO to Public Health England via annual report and the Key Performance Indicator (KPI) submission. Quality reports are also monitored at trust level via Quality Governance Committee, Patient Safety Sub Committee and Quality, Risk and Patient Safety Performance.

Sexual Health (IoW) reports all sexually transmitted infection diagnoses to Public Health England via Genitourinary medicine clinic activity dataset. All cases are discussed locally at the multi-disciplinary screening steering group.

In the event of process failure of any part of this guidance, an investigation will be undertaken using trust investigation procedure and, if appropriate, via the screening incident assessment form (SIAF).

## 7. Related Documents:

**Guidelines/SOP's:**

- Guidelines for the management of maternal antenatal screening tests

**Patient Information:**

Patient information is downloaded from the national screening committee website as required to ensure use of the most up to date literature available

## 8. References:


- **(**WHO (2017) *Guidelines on Syphilis Screening and Treatment for Pregnant Women* World Health Organisation: Geneva http://apps.who.int/iris/bitstream/10665/259003/1/9789241550093-eng.pdf?ua=1
- Kingston et al (2015) UK National Guidelines on the management of syphilis 2015 *International Journal of STD and AIDS* DOI: 10.1177/096462415624059 https://www.bashhguidelines.org/media/1148/uk-syphilis-guidelines-2015.pdf


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- https://www.bashhguidelines.org/media/1148/uk-syphilis-guidelines-2015.pdf
- https://www.bashhguidelines.org/media/1220/syphilis-in-pregnancy-amendment-2019.pdf
- https://www.bashhguidelines.org/media/1196/syphillis-bp_print_2016_p3.pdf
- https://onlinelibrary.wiley.com/doi/10.1111/jdv.16946
- Public Health England (2017) *Infection reports* Vol 11 (2) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/583576/hpr0217_naism.pdf
- Public Health England (2016) *NHS Infectious Diseases in Pregnancy Screening programme: Standards 2016 to 2017*
- NICE (2016) Antenatal care for uncomplicated pregnancies https://www.nice.org.uk/guidance/cg62/resources/antenatal-care-for-uncomplicated-pregnancies-pdf-975564597445
- Public Health England (2017) *NHS public health functions agreement 2017-18 Service specification no 15 NHS Infectious Diseases in pregnancy Screening Programme*
- Public Health England (2015) *Managing Safety Incidents in NHS Screening Programmes* PHE: London


## 9. DISCLAIMER

It is the responsibility of staff to check the Trust intranet to ensure that the most recent version/issue of this document is being referenced.

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| DOCUMENT HISTORY | | | | | |
|---|---|---|---|---|---|
| **Date of Issue** | **Version No.** | **Next Review Date** | **Date Approved** | **Director Responsible for Change** | **Nature of Change** |
| March 2018 | 1.0 | 06.03.21 | 06.03.18 | Clinical Director of SWCH | Approved at Maternity CSG |
| March 2021 | SOPv1 | March 2024 | 9th March 2021 | MCSG | Converted to SOP format reviewed and ratified |

Syphilis Birth Plan (October 2016) SP Higgins, P McMaster, M Kingston

# SYPHILIS BIRTH PLAN

**To Midwife / Obstetric Team**

No need to contact on-call paediatric team from syphilis viewpoint ☐

Contact on-call paediatric team when baby is delivered ☐

Send placenta for histology and PCR if treatment indicated for infant ☐

Mother's name ..... Mother's DOB .....

Mother's address .....

Mother's hospital number ..... Mother's GUM number .....

Mother's consent to record GU number in hospital records: ☐

Mother's phone numbers: Mobile .....

Landline .....

Estimated date of delivery .....

## MATERNAL SYPHILIS DIAGNOSIS:

Adequately treated before this pregnancy ☐

Early latent ☐

Late latent ☐

*Other examples:*

..... primary ☐

..... secondary ☐

..... inadequately treated /treatment not documented ☐

..... possibility of re-infection from untreated partner ☐

..... unbooked ☐

## GUM ADVICE TO PAEDIATRICIANS

Infant requires no physical examination above routine. No syphilis serology ☐

**OR**

Assess infant clinically: if no physical signs of syphilis check 'initial blood tests' (see page 2) ☐

**OR**

Treat infant at birth after clinical assessment, 'initial blood tests' and 'further tests' (see page 2) ☐

**Please discuss all infant blood test results with GUM & Paediatric infectious diseases team.**
Out of hours, contact the GUM or infectious diseases registrar on call via switchboard

Signed..... (GUM Consultant) ..... Date .....

**COPIES** (of pages 1–4 only) **TO CONTACTS:**
GP gets copy of page 1 only

Matron, Delivery Suite; ..... Neonatal consultant, Paediatric ID Consultant ..... Obstetric Consultant, Screening Midwife

## INFANT FOLLOW-UP

Ideally, this should be done in liaison with consultant colleague in genitourinary medicine.

**1**
**Infants treated for syphilis at birth**
*Months 1 and 3:* check RPR and treponemal IgM.

*Month 6:* check RPR

*Month 12:* check RPR. Discharge if RPR has achieved sustained 4x drop from peak level.

**2**
**Infant not treated for syphilis**
RPR <4 x mother's, IgM negative at birth

*Month 3:* check RPR and treponemal IgM.

*Month 6:* check RPR- if negative discharge, if positive repeat at 12 months.

*Month 12:* RPR negative, no further follow-up.

*Month 12:* RPR still positive, discuss with GUM colleague.

*(Note: the RPR is usually negative by six months).*

**3**
**Infant not treated for syphilis and RPR and IgM negative at birth**
*Month 3:* repeat RPR and IgM and discharge if still negative.

*Month 3:* RPR and/or IgM positive- discuss with GUM colleague.

Neonatal RPR should be negative by 6 months of age and the TPPA by 18 months of age when they are reactive as a result of passive transfer of maternal antibodies.

## SIBLINGS FOR SCREENING

None:..... ☐

Name(s): ..... DOB:..... Sex:.....

..... ..... .....

..... ..... .....

..... ..... .....

..... ..... .....

## GUIDE TO INFANT LABORATORY TESTS

**Treponemal IgM**
A positive treponemal IgM test is supportive of a diagnosis of congenital syphilis, but must be interpreted in conjunction with the history, clinical signs and results of other syphilis blood tests. A negative IgM test does not exclude infection as the IgM response may be delayed or suppressed.

**Rapid plasma reagin (RPR) or Venereal disease research laboratory (VDRL) test**
The RPR and VDRL are different versions of the same test and availability will vary between laboratories. Passive trans-placental transfer of maternal IgG antibodies may cause a false positive RPR/VDRL test in the newborn but these usually revert to negative by 6 months. A positive RPR/VDRL test at a titre four-fold or more that of the mother (e.g. mother 1: 4, infant 1:16) supports a diagnosis of congenital syphilis, and should be repeated. Ideally, maternal and infant tests should be timed as closely as possible and no greater than one month apart.

**A neonatal RPR/VDRL titre less than four-fold that of the mother's (e.g. mother 1:16, infant 1:8) does not exclude congenital syphilis. Please discuss all neonatal test results with GUM and Paediatric ID consultant.**

**Full blood count**
May show non-haemolytic anaemia, leucocytosis or leucopenia, thrombocytopenia, polychromasia, or erythroblastaemia.

**Liver function tests/transaminases**
Syphilitic hepatitis may cause elevated levels of alkaline phosphatase, AST/ALT, bilirubin.

**U+E, creatinine**
Syphilis can cause glomerulonephritis resulting in uraemia.

**Polymerase chain reaction (PCR) testing**
Ulcers, nasal discharge, mucous membrane lesions or moist skin rashes can be swabbed and the sample sent in viral transport medium (to Clinical Virology, Manchester Royal Infirmary) for T pallidum PCR testing.

**Dark ground microscopy (DGM)**
Ulcers, nasal discharge, mucous membrane lesions or moist skin rashes can be sampled and used to directly visualise T pallidum. However, specimen collection and microscopy require prior training. Microscopy should take place as soon as possible after the specimen is obtained. Call GU Medicine if you wish to perform DGM.

**Placenta**
The syphilitic placenta may appear macroscopically normal. If the fetus is severely affected by syphilis the placenta may appear paler, larger and thicker than normal. Histology of the placenta and cord (with special staining) may provide evidence of congenital infection.

**Radiology**
Most bone lesions in congenital syphilis are not clinically apparent. However, osteochondritis, periostitis and osteomyelitis are frequently present, most often in the long bones and ribs. Periostitis of the skull can produce frontal bossing on x-ray.

## PHYSICAL SIGNS OF EARLY CONGENITAL SYPHILIS

- Jaundice, anaemia, generalised lymphadenopathy, hepatosplenomegaly, non-immune hydrops, pyrexia, failure to move an extremity (pseudoparalysis of Parrot), low birth weight.
- Skin rash (usually maculo-papular but almost any form of rash is possible); palms and soles may be red, mottled and swollen. Vesicles or bullae may be present.
- Condylomata lata (flat, wart-like plaques in moist areas such as perineum)
- Osteochondritis, periosteitis (elbows, knees, wrists)
- Ulceration of nasal mucosa, rhinitis ('snuffles' usually after the first week of life)

**Approximately half of all neonates with congenital syphilis are normal on initial examination**

## INITIAL BLOOD TESTS

Send a venous blood sample for serum RPR and treponemal IgM (take blood from the neonate, not the umbilical cord).

## ADDITIONAL TESTS ON INFANT IF LESIONS PRESENT (see page 4)

1. T pallidum polymerase chain reaction (PCR) test
2. Dark ground microscopy (DGM)

## FURTHER TESTS IF TREATMENT INDICATED (see below)

1. FBC,U+E, LFT, ALT/AST
2. HIV antibody
3. Lumbar puncture for CSF WCC, VDRL or RPR, TPPA, protein
4. Long bone X-rays for osteochondritis and periostitis
5. Chest X-ray for cardiomegaly
6. Cranial U/S scan
7. Ophthalmology assessment for interstitial keratitis
8. Audiology for 8th nerve deafness

## INDICATIONS FOR FURTHER TESTS AND TREATMENT

1. Mother inadequately treated (GUM consultant will advise, see above)
2. Infant has clinical signs consistent with syphilis
3. Infant's RPR/VDRL titre 4x mother's on two occasions (e.g mother's RPR 1:4, infant's RPR 1:16). Sample from mother to be taken no greater than 4 weeks before that of infant.
4. Infant has positive treponemal IgM test together with corroborative history, clinical signs. GUM consultant will advise.
5. Infant has positive dark ground microscopy
6. Infant has positive T pallidum PCR test together with corroborative history, clinical signs. GUM consultant will advise.

## TREATMENT OF NEWBORN

Benzylpenicillin 25 mg/kg 12hrly IV for 7 days, then 8 hrly on days 8, 9 and 10 (total of 10 days)

## FOR GU MEDICINE USE

## MATERNAL FACTORS

| DECREASING NEONATAL RISK | | INCREASING NEONATAL RISK | |
|---|---|---|---|
| Treatment completed | ☐ | **Partial or no treatment*** | ☐ |
| Treated with penicillin | ☐ | **Treated with non-penicillin*** | ☐ |
| Treatment completed >30 days pre-delivery | ☐ | **Treatment <30 days before delivery*** | ☐ |
| Late syphilis | ☐ | Early syphilis | ☐ |
| 4x drop in RPR achieved | ☐ | 4x drop in RPR not achieved | ☐ |
| Final RPR titre <1 in 2 (VDRL1 in 1) | ☐ | Final RPR titre >1 in 4 (VDRL >1 in 2) | ☐ |
| HIV negative | ☐ | HIV positive | ☐ |

***The presence of any one of the 'bold' (asterisk) factors above constitutes inadequate maternal treatment and requires treatment of the infant at birth.**

**Congenital syphilis can still occur despite the absence of any of the three 'bold' factors.**

Copy pages 1–4 to those on circulation list. Copy pages 1–5 to be retained in GUM notes

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