Genital Infections in Pregnancy

What's New:

No changes since last review

CONTENTS

Introduction

This guideline is designed to:

- highlight the impact of common STIs on the pregnant woman and her child who may be exposed either in utero or during delivery
- Highlight any management recommendations which may be different in pregnancy
- **This guideline should be used in conjunction with the guideline specific to the infection in question**

It is beyond the remit of this guideline to advise on the management of HIV and hepatitis B during pregnancy.

Group B Streptococcus (GBS) is recognised as an important cause of severe early onset infection in newborns. GBS is not a sexually transmitted infection but is present in the vagina of approximately 50% of all pregnant women. Therefore, guidance is included to assist with the management of pregnant women in whom GBS is considered to be an incidental finding.

General Points

- Discuss the advantages of details regarding diagnosis of an STI being included within maternity records and (where permission is granted) inform the obstetric team.
- The physiology of pregnancy can alter the natural history of an STI
- It is safe to perform vaginal examination and take cervical swabs in the pregnant woman.
- **No** woman should be given **doxycycline, quinolones (e.g. ciprofloxacin/moxifloxacin)** or treated with **podophyllotoxin** or **imiquimod** preparations unless there is no risk of pregnancy.
- Partner notification is essential to reduce the possibility of re-infection
- Do not assume every pregnant woman has had HIV / syphilis testing as part of antenatal testing. She may have opted out of testing or not yet had her booking bloods. Even if she has been tested earlier in the pregnancy, women presenting with STIs should be offered repeat testing for HIV/Syphilis
- Patients planning a pregnancy should be encouraged to be tested for HIV/syphilis.
- The finding of GBS in the vagina or urine of a woman who is pregnant is **significant** and this information needs to be shared with her obstetric team.

Bacterial Vaginosis

- Bacterial vaginosis (BV) may increase risk of late miscarriage, preterm birth, premature rupture of membranes and post-partum endometritis.
- There is no evidence to support screening asymptomatic pregnant women, for BV.
- Symptomatic pregnant women should be treated in the usual way; First line should be metronidazole 400mg oral twice daily 5-7days. The manufacturer recommends avoiding metronidazole 2g stat oral dose.

Metronidazole 400mg BD PO 5- 7days

- No teratogenic or mutagenic effects in infants have been found with metronidazole.
- Women with asymptomatic BV in pregnancy should be discussed with the obstetrician as the evidence related to treating BV to prevent adverse pregnancy outcomes is conflicting.

Chlamydia

- Studies show an association between Chlamydia Trachomatis (CT) and miscarriage, preterm birth and low birth weight. They also suggest an increased risk of complications the earlier in the pregnancy the infection occurs.
- Infants born vaginally to mothers with untreated genital CT infection are at risk for developing CT conjunctivitis (15- 50%) and/or pneumonia (5-30 %).
- Up to 1/3 of woman with CT delivering vaginally will develop puerperal infection.
- Azithromycin use in pregnancy remains off label but its use is generally recommended for uncomplicated genital, rectal & pharyngeal infection.

Oral Azithromycin 1g immediately then 500mg once on days 2 and 3. If Azithromycin contraindicated use Erythromycin 500mg twice daily for 14 days OR Erythromycin 500mg four times daily for 7 days OR Amoxicillin 500mg three times daily for 7 days

- A BASH statement from 2017 raised concerns that some antibiotics (including Azithromycin) may be associated with an increased risk of spontaneous abortion when used in pregnancy. However, as Azithromycin is more effective and better tolerated than other antibiotics used to treat CT, the Clinical Effectiveness Group sees no reason to change guidance at this time. **The potential risks and benefits should be discussed with the patient and documented in clinical notes.**
- **Doxycycline should not** be used in pregnancy.
- A test of cure should be performed a minimum of 3 weeks after treatment. This is essential in rectal infection.
- A repeat test at 36 weeks gestation is recommended.
- Partner notification should be undertaken.

Genital Warts

- Genital warts often present during pregnancy.
- C-section is rarely indicated, and this tends to be due to obstruction– vaginal outlet/cervix. The lesions may avulse or haemorrhage, or cause shoulder dystocia during delivery. It is not indicated to prevent vertical transmission.
- The only serious potential complication to the infant is recurrent respiratory papillomatosis (warts on larynx). This occurs very rarely in about 4/100,000 births.

- Treatment may not always be required, but aims to reduce the amount of lesions present at delivery and, therefore, neonatal exposure to the virus.
- **Do not use podophyllotoxin**, **imiquimod** or **catephen** in pregnancy.
- Cryotherapy can be offered but this may not be effective.
- Warts often spontaneously resolve in the weeks following delivery.

Consider Cryotherapy

Gonorrhoea

- Gonorrhoea has been shown to be associated with preterm rupture of membranes, preterm birth, low birth weight and post-partum infection. There may be a greater rate of complications the earlier in pregnancy the infection occurs.
- The perinatal transmission rate is about 30 to 40 % in women with cervical infection. Intrauterine infection can also occur after rupture of the membranes.
- In the newborn, the eye is the most frequent site of gonococcal infection. It is typically characterized by a purulent discharge . Without treatment, the infection can extend leading to ulceration, scarring, and visual impairment.
- Other localised gonococcal infections include infections of other mucosal surfaces (pharynx, vagina, urethra, and anus) and scalp abscess.
- In newborns, systemic gonococcal infection (e.g. septic arthritis, sepsis, and/or meningitis) is rare and is usually a complication of localised infection.
- Cefixime and ceftriaxone are not thought to be harmful in pregnancy

Ceftriaxone 1g IM STAT or If true penicillin allergy: Spectinomycin 2g IM STAT. Consult Senior before use

- **Do not use quinolones e.g. ciprofloxacin** in pregnancy.
- For penicillin allergic clients, consult senior colleague for advice.
- If unable/refused IM injection then consult BASHH guidelines and discuss with a senior. Azithromycin 2g STAT can be considered in these cases but only when the isolate is known to be susceptible to Azithromycin and the manufacturer recommends this only when no other alternatives are available.
- Test of cure should be offered 3 weeks after treatment.
- A repeat test at 36 weeks gestation is recommended to exclude re-infection.
- Partner notification should be undertaken.
  For **bacterial pharyngeal infections** please discuss with GUM Doc of the day

Herpes Simplex

Discuss all clients presenting with genital HSV in pregnancy with a senior GUM clinician There should be liaison with the patient's obstetric team.

Since 2014 in the UK we have Joint BASHH and RCOG Guidance for the Management of Genital Herpes in Pregnancy.

- The incidence of neonatal Herpes Simplex Virus (HSV) infection in the UK is 1.65 in 100,000 live births annually and 85% of neonatal HSV infections are acquired perinatally.
- HSV is acquired perinatally when HSV infection, either symptomatic or asymptomatic, is present in the genital tract of the pregnant woman at the time of delivery.
- Factors that may influence perinatal transmission include the type of maternal HSV infection (primary versus recurrent), maternal HSV antibody status, duration of ruptured membranes, use of fetal scalp monitors, and mode of delivery (C section versus vaginal).
- The mortality of untreated disseminated neonatal HSV exceeds 80%.
- The risk is greatest when a woman acquires a new infection (primary genital herpes) in the third trimester, particularly within 6 weeks of delivery.
- Recurrent herpes is associated with a very low risk of neonatal herpes. However, a recurrence at the time of delivery may cause localised forms of neonatal herpes.
- Although Aciclovir is not licensed for use in pregnancy, there is substantial clinical experience supporting its safety.

The following is only a summary of key areas:

First and Second Trimester Acquisition (until 27+6 completed weeks of pregnancy)

- There is no evidence of an increased risk of spontaneous miscarriage with primary genital herpes in the first trimester.
- There is no evidence that HSV acquired in pregnancy is associated with congenital abnormalities.
- Treatment should not be delayed and will usually be oral Aciclovir 400mg TDS usually for 5 days
- The obstetrician/midwife needs to be informed that this is a new infection in pregnancy, preferably in writing.
- Women with suspected genital herpes who are having midwifery –led care should be referred for review by an obstetrician.
- In general, a vaginal delivery should be anticipated provided that delivery does not ensue within the next 6 weeks.
- Paracetamol and topical lidocaine 2% gel can be offered for symptomatic relief.
- Following first or second trimester acquisition daily suppressive Aciclovir 400mg TDS from 36 weeks gestation reduces HSV lesions at term and has been shown to reduce asymptomatic viral shedding. Note that suppression doses are TDS rather than BD in pregnancy.

Treatment: Aciclovir 400mg PO TDS for 5 days

1st or 2nd Trimester Acquisition Suppression from 36 weeks: Aciclovir 400mg PO TDS

Third Trimester Acquisition (from the 28th week of pregnancy)

- There is some evidence for increased peri-natal mortality (preterm labour, low birth weight, still birth). However the data is conflicting.
- Treatment should not be delayed and should be in line with the clinical condition. It will usually involve the use of oral (or intravenous) Aciclovir, in standard doses (oral Aciclovir 400mg TDS until delivery).

- Women with suspected genital herpes who are having midwifery –led care should be referred for review by an obstetrician. They should both be informed.
- Expert advice needs to be sought concerning the likely mode of delivery. C section is the recommended choice of delivery for all women presenting with a first episode of genital herpes within 6 weeks of expected delivery as the risk of neonatal transmission of HSV is 41%.
- It can be difficult to distinguish between primary and recurrent HSV infections, as in up to 15% of cases where a woman presents with a first episode of clinical HSV, it will actually be a recurrent infection. For women presenting with a first episode of genital herpes in the third trimester, particularly within 6 weeks of the expected delivery, type specific HSV antibody testing (immunoglobulin G antibodies to HSV-1 and HSV -2) is advisable. This is not available in Scotland but should be discussed with local virology services as it can be performed elsewhere. The presence of antibodies of the same type as the HSV isolated on genital swabs would confirm this episode to be a recurrence rather than a primary episode and elective C Section would not be indicated to prevent neonatal transmission. However, it may take 2-3 weeks for results of this test. It is therefore recommended that an initial plan of delivery should be based on the assumption that all first episodes are primary genital herpes. Interpretation of serology can be complicated; results should be discussed with virologists or genitourinary physician.
- The neonatologist should be involved in advance of delivery.

3rd Trimester Acquisition: Aciclovir 400mg PO TDS until delivery

Recurrent Genital Herpes (initial episode predates pregnancy)

- Women with recurrent genital herpes should be informed that the risk of neonatal herpes is low, even if lesions are present at the time of delivery (0-3% for vaginal deliveries).
- There is **no** increased risk of preterm labour, premature rupture of membranes or fetal growth restriction associated with women seropositive for HSV.
- There are no congenital abnormalities associated with recurrent genital herpes infections.
- The majority of recurrent episodes of genital herpes are short lasting and resolve within 7-10 days without antiviral treatment.
- Vaginal delivery should be anticipated in the absence of other obstetric indications for C-Section.
- Daily suppressive Aciclovir 400mg TDS may be considered from 36 weeks as it may reduce asymptomatic shedding and HSV lesions at term. The risks and benefits should be discussed with the patient.

Recurrent Genital Herpes Suppression: Aciclovir 400mg PO TDS (from 36 weeks until delivery)

For all patients with recurrent HSV in pregnancy, consider continuing aciclovir in the initial postnatal period to prevent an outbreak immediately post delivery

Management of Women with primary or recurrent genital lesions at onset of labour

This is beyond the scope of this guidance. Refer to BASHH/RCOG guidance

Genital herpes in preterm labour

This is beyond the scope of this guidance. Refer to BASHH/RCOG guidance

Management of HIV positive women with HSV infection

This is beyond the scope of this guidance. Refer to BASHH/RCOG guidance

Syphilis

Syphilis in pregnancy should be managed as clinically urgent by a multidisciplinary team including GUM, Obstetrics, Paediatrics and General Practice.

Screening

- All pregnant women are offered serological screening for syphilis at their initial antenatal appointment. This should be repeated if the woman is at risk of infection.
- Treponema pallidum can be transmitted transplacentally at any stage of pregnancy; the risk is dependent on the stage of maternal infection and duration of fetal exposure.
- Syphilis can cause polyhydramnios, miscarriage, pre-term labour, stillbirth, hydrops and congenital syphilis.
- Maternal co-infection with HIV may increase the transmission risk of syphilis.

Management

- See Appendix 1 for how positive results in pregnancy should be handled.
- GU Physicians should make a clear diagnosis and communicate this clearly in a birth plan (Appendix 2).

  The outcome could be:
  a. Maternal treatment not indicated
     - Biological false positive test
     - Syphilis adequately treated before this pregnancy
  b. Maternal treatment indicated
     - Active syphilis of any stage
     - Unclear history of syphilis treated prior to this pregnancy

- When women have been cured of syphilis prior to pregnancy, their RPR should be checked at booking and then repeated at 28 weeks gestation. If re-infection is excluded, the woman requires no further treatment and the neonate will not require testing.
- Re-treatment in pregnancy is indicated where there is uncertainty of treatment or serologic cure is in doubt.
- Partner notification is essential to reduce the possibility of re-infection.

Treatment

- A single dose of benzathine penicillin G 2.4 MU is effective in most cases. Local Sandyford practice is to treat with 2 doses.

Benzathine Penicillin G 2.4 MU Intramuscular on Day 1 & 8 See syphilis guidelines for administration

- Those with penicillin allergy: It is no longer recommended to use Macrolide antibiotics (Azithromycin or Erythromycin) to treat syphilis in pregnancy due to unacceptably high failure rates. Instead a thorough history should be ascertained of the possible allergy and discussed with a GUM senior. If a history of true allergic reaction exists then an urgent referral should be made to local immunology/allergy services for consideration of de-sensitisation.

- In pregnancy the rate of the Jarisch-Herxheimer reaction is the same as in the non-pregnant, circa 40%. This may cause uterine contractions and fetal heart decelerations, as a result of maternal fever. Therefore, there may be a theoretical increased risk of spontaneous and iatrogenic preterm delivery and fetal demise. However, these complications are also associated with Syphilis infection. Management should be supportive with antipyretics. Steroids are not effective in reducing these effects.

- If delivery occurs within 30 days after completion of therapy the neonate will require empirical treatment. This also applies in a suspected case of congenital syphilis, those born to mothers with non -penicillin treatment regimens and those born to mothers without documented evidence of adequate treatment.

- Partner Notification should be undertaken to prevent re-infection.

Follow Up

- It may take several months to observe a four-fold drop in RPR/VDRL titre and in many pregnancies labour will occur before these periods have elapsed. Moreover, women with late syphilis may have serofast RPR/VDRL titres. Hence, serological cure may not be demonstrable before birth of the neonate.

<u>Trichomonas Vaginalis</u>

- Trichomonas vaginalis (TV) has been associated with premature rupture of membranes, preterm delivery, and low birth weight.
- There is no evidence to support asymptomatic screening for TV.
- Symptomatic pregnant woman can be treated regardless of the stage of the pregnancy, although some clinicians have preferred to defer treatment until the second trimester. If symptoms do not resolve a test of cure is indicated.
- When a patient is asymptomatic some clinicians may recommend deferring therapy until after 37 weeks' gestation. Senior clinicians should counsel patients regarding the potential risks and benefits of treatment and communicate the option of therapy deferral in asymptomatic pregnant women until after 37 weeks' gestation.
- Pregnant women can be treated in the usual way; apart from avoiding high doses regimens of metronidazole .

Metronidazole 400mg bd PO 7 days

- No teratogenic or mutagenic effects in infants have been found with metronidazole.
- The safety of tinidazole in pregnant women, however, has not been well evaluated.

Partner notification should be undertaken to prevent re-infection.

Vulvovaginal Candidiasis

- Vulvovaginal candidiasis (VVC) is common during pregnancy and doesn't require treatment unless symptomatic.
- There is no evidence of any adverse effect on pregnancy.
- Topical imidazoles (e.g. clotrimazole) have been found to be effective in pregnant women with VVC but a longer treatment regimen may be required.

Clotrimazole 500mg vaginal pessary nocte for up to 7 nights

- **Oral antifungals should be avoided during pregnancy** (congenital abnormalities reported with high doses)

Group B Streptococcal (GBS) Colonisation

- About 50% of all pregnant woman in the UK carry GBS in their vagina.
- GBS can be passed from mother to baby. When this happens it can occasionally cause severe illness in the newborn (known as neonatal GBS).
- Only 1 in every 2000 newborn babies born in the UK and Ireland is diagnosed with neonatal GBS.
- Women in whom GBS has been found in the urine or swabs from the vagina (or rectum) taken for other reasons are likely to be offered antibiotics during labour**. It is important that the pregnant women and their midwifery or obstetric team are made aware of the presence of colonisation.**
- Women with GBS in the vagina do not need antibiotics in pregnancy prior to labour unless they have a symptomatic infection (for example a urine infection).
- Women with GBS urinary tract infection during pregnancy should receive antibiotics at the time of diagnosis **(on discussion with the women's obstetric team)** as well as during labour.
- Antenatal prophylaxis for vaginal / rectal colonisation detected incidentally earlier in a pregnancy does not reduce the likelihood of colonisation at the time of delivery so is not recommended.
- There is no national screening programme for GBS in the UK as there is no clear evidence to show that screening all pregnant women in the UK would be beneficial overall.
- Vaginal swabs should not be taken in pregnancy unless there is a clinical indication to do so.
- The RCOG have written a patient information leaflet for women who are expecting a baby or planning to become pregnant about Group B Streptococcus infection which is available at:

  https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg36/

References

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https://www.bashhguidelines.org/media/1041/bv-2012.pdf [accessed Dec 2021]

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Interventions for trichomoniasis in pregnancy (Review) Gülmezoglu AM, The Cochrane Collaboration

https://www.cochrane.org/CD000220/PREG_interventions-for-trichomoniasis-in-pregnancy [accessed Dec 2021]

The Royal College of Obstetricians and Gynaecologists green top guideline Number 36 Second edition July 2012

'The Prevention of Early-onset Neonatal Group B Streptococcal Disease'

https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg36/ [accessed Dec 2021]

Appendix 1

Antenatal Syphilis Management

Lab report EIA positive antenatal sample to Sandyford Shared Care team

Result to 'GUM results' list for interpretation and documentation of plan on NaSH.

GUM cons to add to antenatal syphilis worklist on clinical portal

SHA team to action plan as follows:

Result consistent with false positive EIA

Inform obstetric team and advise repeat serology ASAP

Result consistent with active infectious syphilis

Inform obstetric team

Recall women to Sandyford for repeat serology and GUM consultation

Result consistent with previously treated or late latent syphilis

If previous treatment not confirmed

Inform obstetric team

Recall women to Sandyford for repeat serology and GUM consultation

If previous treatment and unchanged serology confirmed:

Document on clinical portal.

Letter to GP, Obstetrician/Midwife and neonatal team (use template on NaSH)

GUM cons to document in Obstetric record.

GUM team manage syphilis infection as per protocol.

Letter to GP, named Obstetrician/Midwife and neonatal team (use template on NaSH) – preferably electronically.

To be emailed to neonatal team at relevant hospital

- PRMH Lea.Rodden@ggc.scot.nhs.uk
- QEUH fetal.medicine@ggc.scot.nhs.uk

Neonatal contacts to discuss high risk cases:

QEUH/RAH – Dr Andrew MacLaren Andrew.MacLaren@ggc.scot.nhs.uk

PRMH – Dr Andrew Powls Andrew.Powls@ggc.scot.nhs.uk

Neonatal Syphilis blood results

The failsafe team are automatically copied in on these results. The baby will have a NaSH record and results documented and they will be put on the 'GUM results?' tab on NaSH for senior GUM clinician review and comment, alongside mum's NaSH record for review.

Appendix 2

Letter to GP, Obstetrics & Neonatal team re: Antenatal Syphilis Diagnosis & Management

- And to be uploaded to mum & baby's Badgernet and clinical portal records

Name: _____ **CHI:** _____ **Date:** _____

Date of syphilis diagnosis: _____ Pregnancy EDD: _____

Stage of syphilis diagnosed in pregnancy _____

Additional Information _____

HIV and other BBV status _____

Treatment details _____

Date treatment completed/due to complete _____

Syphilis serology results (date_____)	
EIA	
TPPA	
IgM	
RPR	

*Please note further serological follow up will be completed by Sandyford

GUM ADVICE TO PAEDIATRICIANS (tick as required)

- **see West of Scotland congenital syphilis guideline**

Infant requires no physical examination above routine. No syphilis serology required	
Assess infant clinically: if no physical signs of syphilis, perform syphilis serology on infant serum (not cord blood) for EIA IgM and RPR. ***N.B. If physical signs are present consider additional investigations. Refer to West of Scotland Syphilis guideline and discuss with GUM or ID consultant***	
Treat infant at birth with _____ after clinical assessment, perform syphilis serology on infant serum (not cord blood) for EIA IgM and RPR and additional tests as per guideline	

Please discuss infant blood test results with GUM (or Paediatric infectious diseases team if OOH or suspicion of neonatal infection)

Follow Up

Infants who have serology tests at birth require follow up as per the three pathways detailed in the WoS guideline. Tick the appropriate follow-up pathway below once the infant's serology is known.

Baby Name _____ CHI _____

Age	**Infants treated for congenital syphilis at birth**	**Infant not treated for syphilis and RPR <4x mother's and IgM negative at birth**	**Infant not treated for syphilis and RPR and IgM negative at birth**
Select Follow up pathway	☐	☐	☐
1 month	RPR TP Syphilis IgM		
3 months	RPR TP Syphilis IgM	RPR TP Syphilis IgM	RPR TP Syphilis IgM **If negative: discharge** **If positive: Repeat at 6 months**
6 months	RPR	RPR **If negative: discharge** **If positive: repeat at 12 months**	RPR **If negative: discharge** **If positive: discuss with GUM team.**
12 months	RPR **Discharge if RPR has achieved sustained 4x drop from peak level.** **If RPR remains higher, discuss with GUM team.**	RPR **If negative: discharge** **If positive: discuss with GUM team.**	

For further information please contact Sandyford on 0141 211 8634.

Yours sincerely,

Signature: _____ Consultant in Genitourinary Medicine

Signature: _____ Consultant Neonatologist