CLINICAL GUIDELINE

Document Title: Guideline for Prevention of Early Onset Neonatal Group B Streptococcal (GBS) Disease

This document is relevant for staff at: *(please indicate)*	Luton Hospital site	Bedford Hospital site	Both Hospital sites
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Document Author / Responsible Author(s):
[redacted] - Consultant Obstetrician and Gynaecologist
[redacted] – Consultant Obstetrician and Gynaecologist
[redacted] Consultant Obstetrician and Gynaecologist

Document Developed in consultation with:
[redacted] – Neonatal Consultant
[redacted] - Pharmacy

Is this document new or revised / or has minor amendments?
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Reason for minor amendments? Please highlight all amendments in your document.
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Target Audience/Scope:
Obstetricians, Midwives, Neonatologists

Associated Trust Documents:
At Luton site:
SOP: Follow Up of Results of Samples Taken in Maternity Services

Cross site:

SOP: BLMK LMNS Approach in Improving Outcomes for Black, Asian & Ethnic Minority pregnant Women – Based on Recent Covid-19 Pandemic Experience

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Guideline for Prevention of Early Onset Neonatal Group B Streptococcal (GBS) Disease

1. Background

Group B streptococcus (GBS) is a common form of bacteria carried by 20-40% of adults (GBSs ORG 2018), it is present in both males and females and is usually harmless (UK National Screening Committee NSC 2017). It is not a sexually transmitted disease. For 25% of the female population, GBS is found in the vagina, however it can also be found in the urine and in the rectum.

GBS may be transmitted to the baby during labour. Whilst for most babies this may not cause any ill effects for a small number it can result in the baby being unwell (NSC 2017). The risks to the baby are early onset of GBS (from birth until 6 days of age) and late onset of GBS (from 6 days of age until 3 months old). GBS is also recognised to cause preterm delivery, maternal infections, stillbirths and late miscarriages. Preterm babies are more at risk of GBS infection due to their immature immune systems.

Early onset of GBS infection is more common with an incidence of 0.57/1000 births in the UK and Ireland (RCOG 2017). In order to reduce this risk, mothers with specific recognised risk factors for GBS Infection (see risk factors and intrapartum management flow chart on page 5) should be offered intrapartum antibiotic prophylaxis (IAP) and have their pregnancy care under Consultant leadership.

All pregnant women who are GBS carriers should be provided with patient information leaflet *Group B streptococcus (GBS) infection in newborn babies.*

For women presenting with symptoms of Covid-19 please also refer to SOP: BLMK LMNS Approach in Improving Outcomes for Black, Asian & Ethnic Minority Pregnant Women.

2. Antenatal Screening

The UK National Screening Committee recommends that routine or universal screening for antenatal GBS should not be introduced into UK practice. A maternal request is not an indication for bacteriological screening.

All clinicians should be aware of the clinical risk factors that increase the risk pregnant women having a baby with EOGBS disease. These are:

- Having a previous baby with GBS disease
- Preterm birth
- Prolonged rupture of the membranes
- Pyrexia
- GBS found in current pregnancy on vaginal swabs or in the urine
- Suspected maternal intrapartum infection, including suspected chorioamnionitis

Pregnant women with <u>past history of GBS carrier status</u> should be informed that their likelihood

of current GBS carrier status is 50%. They should be counselled about the option of intrapartum antibiotic prophylaxis (IAP), or bacteriology testing in late pregnancy with the offer of IAP if the result is positive.

The bacteriology testing should be carried out 3-5 weeks prior to anticipated delivery. (For example carry out the bacteriology test between 35-37 weeks for otherwise low risk women; or carry out the bacteriology test at 32 – 34 weeks for women with twins. No screening test is entirely accurate. Between 17% and 25% of women who have a positive swab at 35–37 weeks of gestation will be GBS negative at delivery. Between 5% and 7% of women who are GBS negative at 35–37 weeks of gestation will be GBS positive at delivery.

When testing for GBS carrier status, a swab should be taken from the lower vagina and the anorectum area. A single swab (vagina then anorectum) or two different swabs can be used

After collection, the swabs should be processed as soon as possible. It is important that on the ICE request system, we should specifically state to look for GBS. If processing is delayed, specimen should be refrigerated.

Please note that once the sample gets to the microbiology lab, the sample is cultured in an enriched medium (ECM – enriched culture medium).

IAP should be offered to women with a previous baby with early- or late-onset GBS disease.

3. Antenatal care

Pregnant women who have confirmed GBS bacteriuria in the index pregnancy should be treated with Amoxicillin 500 milligrams TDS for 5 days. If they have penicillin allergy – see sensitivities on the report. These women should also be offered IAP.

Pregnant women with positive GBS vaginal swab or rectal swab discovered in the index pregnancy should only be treated if they are symptomatic. These women should be offered IAP.

Mothers with risk factors should be identified and the risks recorded in the antenatal and labour notes on the management plan pages. When mothers are identified to have risk factors an Alert Sticker (see below) should be placed in the

- Bedford Hospital: hand held maternity notes on the special features page, labour, delivery & postnatal plan section.
- Luton & Dunstable Hospital: Blue maternity hospital notes and Green Handheld Notes

Group B Strep Alert Sticker

Any mother with positive GBS results should be given a GBS leaflet such as the RCOG patient information leaflet Group B streptococcus (GBS) infection in newborn babies.

IAP for GBS is not necessary if delivering by pre-labour lower segment caesarean section with intact membranes

IAP should be offered to any woman who had a previous baby who was treated for early or late onset of GBS.

Bacteriological testing for GBS carriage is not recommended for women with preterm SROM. IAP should be administered once labour is confirmed or induced irrespective of GBS status.

IAP is recommended for women who are in confirmed preterm labour and unknown GBS colonisation.

Membrane sweep is not contraindicated in women who are GBS carriers.

The method of induction of labour (IOL) is in line with the IOL guideline (CG 283 at Luton site) for women with GBS carrier status with intact membranes. They should receive intravenous IAP once labour is established. Please see section 4.2 and 4.3 for women with GBS carrier status with P-PROM and SROM at term.

4. Intrapartum

4.1 Preterm labour

All **confirmed** preterm labour should receive IAP. Although the risk of Early Onset Group B Streptococcus (EOGBS) disease in infants of this group of women is estimated 2.3 per 1000, the overall risk of (early-onset and late-onset) GBS infection is higher with mortality rate from this infection estimated about 20-30% for preterm versus 2-3% at term.

4.2 Preterm Prelabour Ruptured of Membranes (P-PROM)

IAP should be given to all P-PROM once they are in labour.

Pregnant women who are GBS carriers with confirmed P-PROM before 34+0 weeks should receive erythromycin as per the P-PROM guideline. For this group of women consider delivery at 34 weeks if they remain well. But consider delivery sooner if they develop chorioamnionitis.

Pregnant women who are GBS carrier with confirmed P-PROM from 34+0 weeks, should have delivery expedited.

4.3 Spontaneous Rupture of Membranes at Term

Pregnant women who are GBS carriers should be offered immediate IAP and induction of labour as soon as reasonably possible.

Water birth is not contraindicated for GBS carriers provided IAP is given

5. Intrapartum Antibiotic Prophylaxis (IAP)

The IAP antibiotic of choice is **benzylpenicillin IV** 3g loading dose followed by 1.5g four hourly during labour.

For women with history of penicillin allergy:

- Provided she has not had severe allergy to penicillin, a cephalosporin should be used. If there is any evidence of severe allergy to penicillin, vancomycin should be used. However, if there is sensitivity to clindamycin on the swab result, then clindamycin may be used instead of vancomycin.

- Vancomycin IV 1g twelve hourly. Pre-level to be taken not more than one hour before 3rd dose and check level before giving 4th dose (if abnormal discuss with microbiology)

  Rapid infusion of vancomycin may cause severe hypotension (including shock and cardiac arrest), wheezing, dyspnoea, urticaria, pruritus, flushing of the upper body ('red man' syndrome), pain and muscle spasm of back and chest. Stop the infusion and consult a doctor if they occur. Effects may last between 20 minutes and up to several hours after stopping administration.
  Slow intravenous administration of vancomycin over no less than 120 minutes should minimize the risk of infusion-related adverse effects

Please note, if the patient develop sepsis, please treat the patient with appropriate antibiotics in-line with sepsis guideline.

All clinicians should be aware of the potential adverse effects of IAP. The incidence of maternal anaphylaxis reaction from antibiotics exposure during pregnancy is 0.8/100 000 maternities.

Vaginal cleansing (such as chlorhexidine) should not be used during the intrapartum period as it does not reduce the neonatal risk of GBS disease.

Women who decline IAP should be advised that baby needs close monitoring for 12 hours after birth and discouraged from early self-discharge.

Where there is history of a previous GBS sepsis or death of an infant AND the mother has not received adequate intrapartum prophylaxis, the infant should be screened and treated for sepsis, so please inform the neonatal team.

6. Postnatal Care

Breastfeeding should be encouraged regardless of the GBS status.

6.1 Neonatal Care

Parents and carers should be vigilant for signs and symptoms of EOGBS in their newborn. These include:

Signs of Early Onset Group B Strep Infection	Additional Signs of Late Onset Group B Strep Infection
• Rapid breathing / stopping breathing/working hard to breathe • Grunting • Noisy breathing, moaning • Inconsolable crying • High pitched cry • Unusually floppy • Poor feeding • Lethargic / abnormally drowsy • Irritability • High / low temperature • High / low heart rate • High / low respiratory rate • Hypoglycaemia • Pale blotchy skin	• High pitched cry, whimpering, moaning • Blank staring or trance like expression • Floppy body • Dislike of being handled • Tense or bulging fontanelle • Turns away from bright light • Involuntary body stiffening / jerking movements. • Pale and blotchy skin (Group B Strep Support, 2018)

They should seek immediate medical advice urgently.

6.1.1. Term babies with mothers who received IAP 4 hours prior delivery

If the baby is clinically well, they do not need special neonatal observations and can be treated as low risk

6.1.2. Term babies with mothers who did not receive adequate IAP

If the babies are well, they need to be assessed at birth for clinical indicators of neonatal infection (see Appendix 1) with neonatal observation warning chart completed at 0,1st and 2nd hour, followed by 2 hourly until the 12th hour.

6.1.3. Term babies whose mothers have a past history of an affected GBS baby.

Management is the same as 6.1.2

Postnatal antibiotics prophylaxis is not recommended for asymptomatic babies in the absence of antenatal risk factors.

Babies with clinical signs of EOGBS should be treated with penicillin and gentamicin within an hour of decision to treat.

7. Information for parents

All parents should be advised of the need for careful monitoring and observation if their baby is considered to be at risk of developing Group B Strep and informed and involved with any proposed care decisions. They should be given the details of the Group B Strep support charity www.gbss.org.uk/

They should be informed of the signs of both early and late onset Group B Strep Infection as detailed below.

8. References

East of England Neonatal ODN, 2022, East of England Neonatal Antibiotic Policy, Antibiotic-Guideline-January-2022.pdf (eoeneonatalpccsicnetwork.nhs.uk)

Royal College of Obstetricians and Gynaecologists Green-top Guideline 36: Prevention of Early-onset Neonatal Group B Streptococcal disease
RCOG September 2017.
http://onlinelibrary.wiley.com/doi/10.1111/1471-0528.14821/pdf

NICE: Neonatal Infection: antibiotics for prevention and treatment.
NG 195. April 2021
https://nice.org.uk/guidance/ng195

Kaiser Sepsis Guideline for the East of England Neonatal ODN
October 2021
https://www.eoeneonatalpccsicnetwork.nhs.uk/neonatal/downloads/kaiser-sepsis-guideline/

9. Useful links and support groups

Royal College of Obstetricians and Gynaecologists. *Group B Streptococcal (GBS) infection in newborn babies. Information for you*. London: ROCG; 2017

https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-groupb-streptococcus-gbs-infection-in-newborn-babies.pdf

Free information materials both printed and online are available from the Group B Strep Support

http://gbss.org.uk/

10. Auditable Standards

Standards to be audited	Lead for the audit	Frequency, audit Tool and Methodology	Reporting arrangements	Acting on recommendations and Lead (s)	Change in practice and lessons to be shared Dissemination of results/action plans.
• Women receiving intrapartum antibiotic prophylaxis (100%) – Preterm labour – Previous invasive GBS disease – Known GBS carrier – GBS bacteriuria • Proportion of pregnant women given GBS leaflet (100%) • The use of Group B Strep Alert Sticker	Will be nominated by the maternity audit leads (Consultant or Midwife) according to the Maternity Governance Audit plan	This will be performed according to audit plan. The auditors will analyse the data and develop recommendations and action plans from the audit results.	The audit results, recommendations and action plans will be circulated, and presented either at an audit meeting, a Clinical Governance day or at a Risk and Audit meeting.	The O & G Risk and Governance Committee will approve recommendations and action plans to be implemented within a specific time frame. The auditors will implement and monitor action plans with support from the clinical leads, senior midwives and pertinent groups. There will be six-monthly update of action plans. The O & G Risk and Governance Committee will oversee the implementation and monitoring of the action plans.	The audit results and approved action plans will be disseminated by the maternity audit team to all relevant staff groups, pertinent meetings and through the Delivery Suite newsletter, Risk and Governance newsletter, the Senior Staff meetings, the Delivery Suite Forum and by email. The Trust Audit and Clinical Effectiveness Group will be updated regularly by the maternity audit team.

Appendix 1: East of England (EOE) Guideline** Early Onset Sepsis Risk Assessment for Infants ≥ 34/ 40

The midwife should contact the neonatal team if infants have 1 red flag or 2 amber (non-red flags).

Risk Factors	
Suspected or confirmed infection in another baby in the case of a multiple pregnancy	
Preterm birth following spontaneous labour (before 37 weeks' gestation)	
Confirmed rupture of membranes for more than 18 hours before a preterm birth	
Confirmed prelabour rupture of membranes at term for more than 24h hours before onset of labour	
Intrapartum fever higher than 38°C, if there is suspected or confirmed bacterial infection	
Confirmed or suspected chorioamnionitis	
Invasive GBS in previous baby ▮(see box on the right) or maternal GBS colonisation, bacteriuria or infection in current pregnancy	

▮ Where there is history of a previous GBS sepsis or death of an infant AND the mother has not received adequate intrapartum prophylaxis, the infant should be screened and treated.

Clinical Signs	
Apnoea	
Seizures	
Need for cardiopulmonary resuscitation	
Need for mechanical ventilation	
Signs of shock	
Altered behaviour or responsiveness	
Altered muscle tone (eg floppiness)	
Feeding difficulties (e.g. feed refusal)	
Feed intolerance, including vomiting, gastric aspirates and abdominal distension	
Abnormal heart rate (bradycardia or tachycardia)	
Signs of respiratory distress	
Hypoxia (e.g. central cyanosis or reduced oxygen saturation level)	
Persistent pulmonary hypertension of newborns	
Jaundice within 24 hours of birth	
Signs of neonatal encephalopathy	
Temperature abnormality (less than 36°C or higher than 38°C) not environmental	
Unexplained excessive bleeding, thrombocytopenia, or abnormal coagulation	
Altered glucose homeostasis (hypoglycaemia or hyperglycaemia)	
Metabolic acidosis (BE ≥ -10 mmol/L)	

Appendix 2a: Identification and Confirmation of GBS Results at Luton and Dunstable Hospital Site

ALL reports direct to Antenatal Clinic (ANC) to be seen by ANC Midwife*
Microbiology will telephone results to [redacted] Mon-Fri [redacted] 09:00-17:00
Out of hours [redacted] (Labour Ward)

GBS in Urine

Midwife to inform woman and discuss options*

Write 'GBS- for Intrapartum Antibiotics Prophylaxis'
on the special instruction for labour page
Treat with Amoxicillin 500mg tds x 5 days
(if penicillin allergy – see sensitivities)

GBS on Vaginal Swab

Midwife to inform woman and discuss options* Reinforce with leaflet
Reinforce with leaflet
Write 'GBS - for Intrapartum Antibiotics Prophylaxis"
on the special instruction for labour page

***Sequence of events**

- Report received from microbiologist - date and document in blue and hand held maternity notes.
- Check whether current inpatient, if so inform ward who will inform woman, give leaflet and inform obstetric team.
- If delivered less than 48 hours, inform neonatal registrar on [redacted] (who may discuss with on call consultant).
- If delivered more than 48 hours, inform community midwife who will inform woman and check baby is well and ensure GP is aware
- If antenatal and not inpatient the clinic midwife dates and records following actions –
    - Inform woman by telephone – if no reply – community midwife (CMW) to visit– if no reply – letter and leaflet through door and asked to contact ANC midwife – if no response – check with GP -- if still no response – contact next of kin to ascertain contact details (aim to complete the cycle within 7 days)
    - Offer opportunity for woman to discuss with midwife (MW) or obstetrician in ANC
    - When woman informed give leaflet and document in handheld notes (or at next visit)

Appendix 2b: Identification and Confirmation of GBS Results at Bedford Hospital Site- failsafe process

Ideally all staff who collected a sample will chase and act on results.
All staff must remember to document on the swab request form that the patient is pregnant and the test is for GBS.
ALL positive GBS must be reported to Antenatal Clinic (ANC) and be seen by ANC Midwife*
Microbiology will email [redacted]
The antenatal clinic manager, inpatient and community manager midwives should have access to this generic email address

GBS in Urine

Midwife to inform woman and discuss options*

Write 'GBS- for Intrapartum Antibiotics Prophylaxis'
on the special instruction for labour page
Treat with Amoxicillin 500mg tds x 5 days
(if penicillin allergy – see sensitivities)

GBS on Vaginal Swab

Midwife to inform woman and discuss options*
Reinforce with leaflet
Write 'GBS - for Intrapartum Antibiotics Prophylaxis"
on the special instruction for labour page

***Sequence of events**

- Report received from microbiologist - document the result and the plan in the hand held maternity notes and scan the paper with documentation on Mediviewer.
- Check whether current inpatient, if so inform ward who will inform the woman, give leaflet and inform obstetric team.
- If delivered less than 48 hours, inform neonatal registrar on [redacted] (who may discuss with on call consultant).
- If delivered more than 48 hours, inform community midwife who will inform woman and check baby is well and ensure GP is aware
- If antenatal and not inpatient the clinic midwife dates and records following actions –
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    - Offer opportunity for woman to discuss with midwife (MW) or obstetrician in ANC
    - When woman is informed the midwife must ensure the GBS leaflet is given and document in handheld notes (or at next visit)

Appendix 3: Pathway of care