HUTT maternity
Hutt Valley Maternity Care

HUTT VALLEY DHB

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Group B Streptococcus (GBS) Management and Prophylactic Antibiotics in Labour Policy

Hutt Maternity Policies provide guidance for the midwives and medical staff working in Hutt Maternity Services. Please discuss policies relevant to your care with your Lead Maternity Carer.

Introduction

The Lancefield group B beta-haemolytic streptococcus (*Streptococcus agalactiae*), usually referred to as Group B Streptococcus (GBS) is a recognised cause of bacterial infection in neonates up to three months of age; it is a significant cause of neonatal morbidity and mortality. It is the most frequent cause of severe early-onset (less than 7 days of age) infection in newborn infants. (Hughes, RCOG 2017). Early-onset neonatal GBS disease (EOGBS) is acquired by the baby by vertical transmission from the birth canal at the time of labour and birth. It is an important and largely preventable public health problem. (Darlow 2015)

GBS is present in the bowel flora of 20-40% of adults (this is called 'colonisation'). People who are colonised are called 'carriers', and this includes pregnant women. There is no evidence that its carriage rate is specifically affected by pregnancy. (Hughes, RCOG 2017) The presence of GBS in the bowel flora is usually harmless and cannot be eradicated by antibiotics. In women, the vagina may also be colonised intermittently. Unfortunately there is currently no point of care test for the presence of GBS in the vagina at the time of labour.

There is considerable variation in practise regarding the best strategy to prevent early-onset neonatal GBS disease (EOGBS). (Hughes, RCOG 2017) In the United States and Canada the approach is for universal screening, whilst the United Kingdom has adopted a risk-based approach. (Darlow 2015; Hughes, RCOG 2017) Neither will prevent all cases of EOGBS, and both have risks and benefits (Darlow 2015).
The use of intravenous antibiotics for well women with GBS risk factors in labour to reduce the risk of EOGBS is known as intrapartum antibiotic prophylaxis. This reduces but does not eliminate the risk of vertical transmission.

In New Zealand, a consensus guideline was published in 2014-15, agreed by the New Zealand College of Midwives, the Paediatric Society of New Zealand, the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (New Zealand Committee) and the Australasian Society of Infectious Diseases (New Zealand sub-committee). (Darlow 2015) A risk-based GBS prevention strategy is recommended for New Zealand, as it is the most clinically effective and cost effective for the New Zealand context. Universal routine antenatal GBS screening is not recommended.

The following guideline is based upon this consensus guideline. It is indebted to the Christchurch Women's Hospital Maternity Guideline "Group B Streptococcus – management and prophylactic antibiotics in labour", dated September 2017.

Purpose

This guideline outlines the practice that relates to the risk-assessment for and management of pregnant women either with or at risk of GBS colonisation and infection. The objective of this guideline is to minimise the incidence of early-onset neonatal infection due to Group B Streptococcus (GBS).

Scope

All medical, midwifery and neonatal staff employed by Hutt Valley DHB. All Hutt Valley DHB Maternity access holders.

Guideline

A risk-based GBS prevention strategy is recommended.
The management can be considered in two parts:

1) Identifying GBS risk factors
2) Managing GBS risk factors

Known GBS Risk Factors

- A previous baby affected by GBS infection
- GBS bacteriuria (of any count) this pregnancy
- Intrapartum maternal temperature of ≥ 38.0°C
- Pre-term labour (less than 37 weeks) and imminent birth, with or without ruptured membranes
- Prolonged rupture of membranes ≥ 24 hours (unless 'GBS swab' negative, as described below)
- GBS colonisation diagnosed in this pregnancy (unless a subsequent negative 'GBS swab' screening test result is available ≥ 37+0 weeks

Principles of Management

- All women with risk factors for early onset neonatal GBS infection should be offered treatment in labour with intravenous antibiotics (intrapartum antibiotic prophylaxis).
- Intrapartum antibiotics prophylaxis is intended to have a narrow spectrum, to reduce the risk of antibiotic resistance and unwanted side-effects.
- Women with clinical signs of infection require immediate aggressive treatment with broad-spectrum intravenous antibiotic therapy, instead of the intrapartum antibiotic prophylaxis regimen.
- Penicillin allergy may be significant in this context and documentation of details of any previous immediate (within 24 hours) hypersensitivity reactions such as anaphylaxis, angioedema, laryngospasm, bronchospasm or urticaria is important and should, ideally, be a part of the antenatal assessment.

'GBS swab'

A combined low vaginal and anorectal bacterial swab, known as the 'GBS swab', is used for GBS screening. A selective enrichment broth process is required for culture, so the request form needs to specifically state it is for GBS screening.

- The same swab is used for both the vagina and anus – see appendix 1
- It can be collected by a clinician or the woman
- Request form must clearly state “GBS screen”

Screening should be offered at 35 to 37 weeks gestation.
The result should be used to inform labour management.

Known penicillin allergy
If a woman has a known penicillin or cephalosporin allergy, please state this on the request form so that that GBS culture can be tested for Clindamycin and Erythromycin sensitivity.

GBS Bacteriuria (UTI) during pregnancy
GBS bacteriuria of any count and at any stage of pregnancy is a risk-factor for early-onset neonatal GBS disease.
Most experts will only treat the bacteriuria with the appropriate antibiotics when the colony count is > 10^5 colony forming units per ml. (Darlow 2015) Treat as per the sensitivities, but typically either of the following are appropriate:

- Amoxicillin PO 500mg TDS for 5 days
- Nitrofurantoin PO 50mg QID for 5 days

A repeat MSU should be taken 2-4 weeks after treatment is recommended, to confirm eradication of GBS from the bladder.
If GBS bacteriuria is detected at any stage of pregnancy, **intrapartum antibiotic prophylaxis should be offered**.

Incidental finding of GBS on vaginal swab
An incidental finding of vaginal and/or rectal GBS colonisation in pregnancy is not to be treated with antibiotics, as GBS cannot be eliminated from its reservoir in the large bowel.
An incidental finding of GBS in pregnancy greater than 5 weeks before labour is unreliable and may result in unnecessary intervention in labour.
It is suggested to repeat the swab at 37 weeks to see if the vaginal colonisation has been spontaneously cleared. If this second swab is negative for GBS, a woman can be considered GBS negative.

Established Pre-Term Labour
Preterm labour (before 37 weeks) is a risk factor EOGBS and so intrapartum antibiotic prophylaxis should be offered.

Pre-Term Pre-Labour Rupture of Membranes (PPROM)
Please refer to the ‘Pre-term pre-labour rupture of membranes (PPROM)’ guideline.

Pre-Labour Caesarean Section
Women with risk factors for GBS who have intact membranes and no signs of infection and require a pre-labour elective or emergency Caesarean section **do not require** prophylaxis for EOGBS.

Pre-Labour Rupture of Membranes at Term (Term PROM)
In the event of pre-labour rupture of membranes at term in women who are well and with no risk factors for GBS, please refer to the ‘Pre-labour rupture of membranes at term (Term PROM)’ guideline.

Pre-Labour Rupture of Membranes at Term with GBS Risk Factors

Women with risk factors for GBS who are well and have pre-labour rupture of membranes (term PROM) are at a higher risk of having a baby affected by early-onset neonatal GBS disease (EOGBS).

It is recommended that they are offered an induction of labour as soon as practicable, with intrapartum antibiotic prophylaxis commended at the start of induction.

Indications for offering women induction of labour include any of the following:

- **A previous baby affected by GBS infection**
- **GBS urine infection in this pregnancy**
- **GBS colonisation in this pregnancy** (unless a subsequent negative 'GBS swab' result taken ≥ 37+0 weeks is available)
- **Prolonged ruptured membranes (ROM) ≥ 18 hours**
  - Women who do not establish in labour by 18 hours after ROM are to be offered an induction of labour at this time or as soon as practicable after (e.g. the next morning if the 18 hour point is in the middle of the night), and should be offered prophylactic antibiotics from the time of first intervention (e.g. first vaginal examination or starting oxytocin infusion).
  - Women in spontaneous labour who do not give birth before 18 hours after ROM require the offer of prophylactic antibiotics at 18 hours post-rupture membranes.
  - Women with a negative 'GBS swab' result taken ≥ 37+0 weeks, do not require intrapartum antibiotic prophylaxis, even if they have prolonged ROM ≥ 81 hours, as long as they remain well, although they can chose to have it.
- **Signs of infection in association with pre-labour ruptured membranes at term**
  - These women require careful assessment and the immediate offer of intravenous broad-spectrum antibiotic therapy (not GBS prophylaxis regime)
  - If vaginal birth is appropriate, it is recommended that they are offered an induction of labour as soon as possible

Intrapartum Management

Intravenous intrapartum antibiotic prophylaxis is recommended to be offered to all women with GBS risk factors in active labour, or at the commencement of intervention resulting from the above risk factors, whether or not they have ruptured membranes.

While the standard recommendations for prophylactic IV antibiotics for EOGBS is for them to be administered only in the active phase of labour, this guideline advises that antibiotics be started at the time of first intervention, e.g. the commencement of induction of labour, and not delayed until labour is established. This is because there can be a considerable delay between intervention and active labour for these women with established GBS risk factors, leaving the baby more vulnerable to infection.

The optimal duration of intrapartum antibiotic prophylaxis is not currently established, but previous recommendations were to start at least four hours prior to birth. More contemporary evidence suggests that antibiotics may still be effective is there is likely to be at least one hour before the birth. (Illuzzi 2006).

Inform the Paediatric / SCBU Team if there is:

- A history of a previous baby affected by GBS infection
- There has been less than an hour between first antibiotic dose and birth
- Any suspicion of intrauterine infection / chorioamnionitis

Intrapartum Management In The Primary Unit Setting

GBS risk factors are not necessarily a contraindication for a woman to birth in a primary birthing unit. If the LMC is confident to give IV antibiotics within their own scope of practice, then discussions can take place with the woman and the primary unit managed to negotiate the appropriate place of birth.

It is recommended that LMCs consult the on-call Obstetric Team prior to commencing IV antibiotics in a primary unit. Only well women, at term and in active labour, who have also have GBS risk factors, should be considered for primary unit birth. It is not appropriate for women in preterm labour or with any signs of maternal or fetal infection to be at a primary unit. It is recommended that any labouring women with any concerning features should be admitted to Hutt Hospital Maternity.

Primary units will need to ensure that they have appropriate training and equipment in place to deal with the unlikely event of an anaphylactic reaction to antibiotics.

Maternal Fever and Suspected Intrauterine Infection / Chorioamnionitis

Maternal fever is a high-risk sign of infection that requires broad-spectrum antibiotic therapy and additional monitoring, including fetal monitoring.

Where there are clinical signs of infection, appropriate specimen samples should be taken if at all possible; remember, however, not to delay initiation of antibiotic therapy if are issues getting sample. Samples to take include:

- Peripheral blood cultures – two sets if possible
- Urine for MSU / CSU
- High vaginal swab
- 'GBS swab'

Clinical signs of intrauterine infection / chorioamnionitis include maternal fever (≥ 38.0°C) with two or more of the following:

- Abdominal tenderness (between contractions)
- Vaginal discharge
- Offensive liquor
- Maternal tachycardia
- Fetal tachycardia

Note – ruptured membranes are not necessary for the diagnosis of chorioamnionitis

Women with a fever or signs of chorioamnionitis require immediate treatment and intervention.

Neonatal Consultation

Newborns of mothers who have had GBS risk factors, regardless of whether the mother has received intrapartum antibiotics or not, also require close observation for signs or sepsis, particularly during the first 24 hours of life. Hospital stay is recommended. If birthed occurred at Te Awakairangi Birthing Unit, LMC needs to liaise with on-call Paediatrician if any concerns.

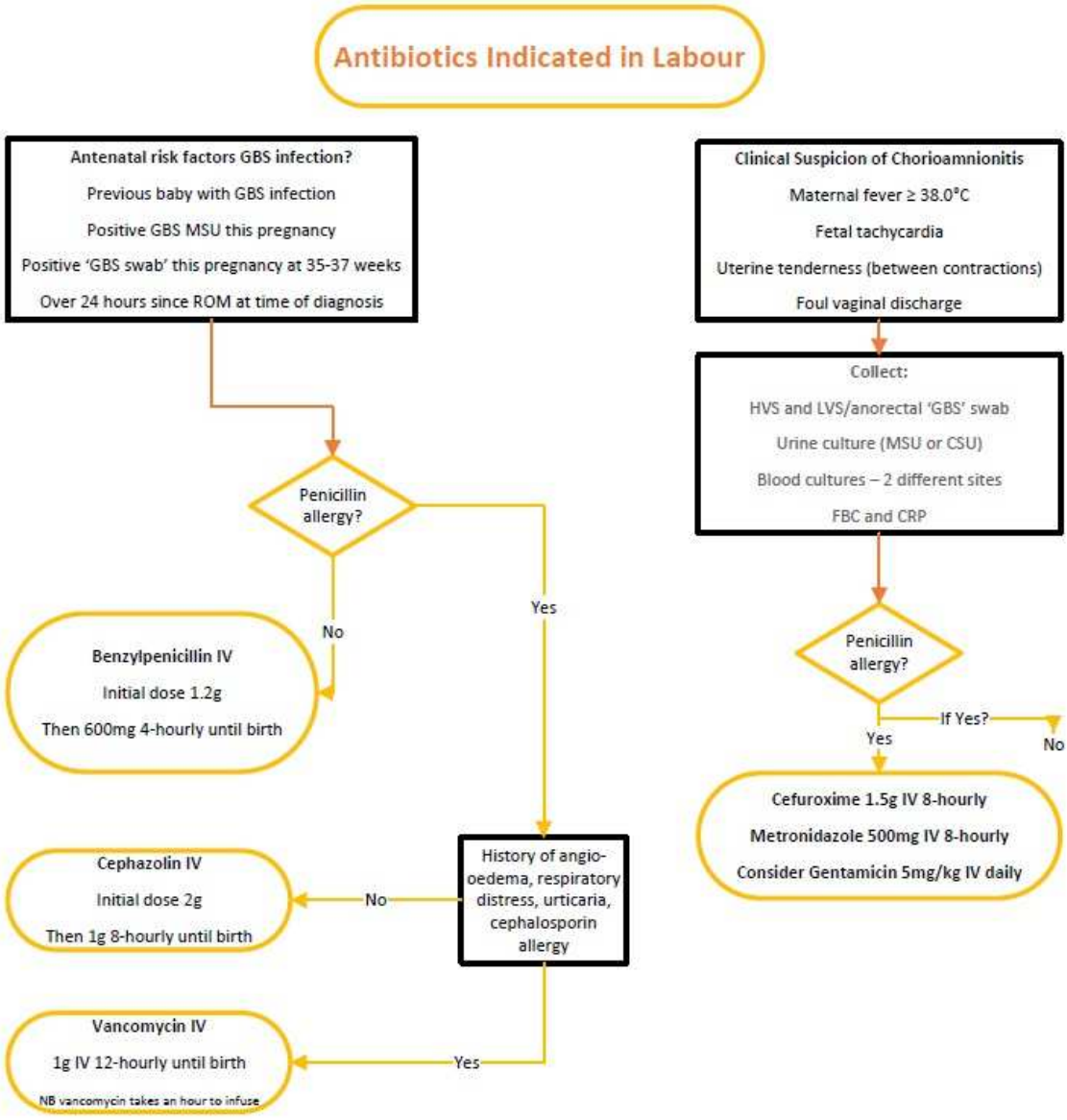
The neonate should be observed for signs of infection:

- Grunting
- Lethargy
- Irritability
- Very low or very high body temperature

Note that a poor Apgar score at birth can be due to sepsis.
Infection can occur even if the mother has received prophylactic antibiotics and even if she was deemed before birth to be low-risk for GBS disease.
If the woman, her family / whānau or any healthcare professional sees any signs of sepsis, please refer to Paediatric / SCBU team urgently.
A plan should be established prior to birth, if possible, regarding the level of ongoing neonatal observation and/or empirical treatment that is indicated after birth.

Appendix 1: Instructions for the collection of the 'GBS swab'

Appendix 1: Antibiotics indicated in Labour



Taken from the Centers for Disease Prevention
https://www.cdc.gov/groupbstrep/downloads/gbs_swab_sheet21.pdf

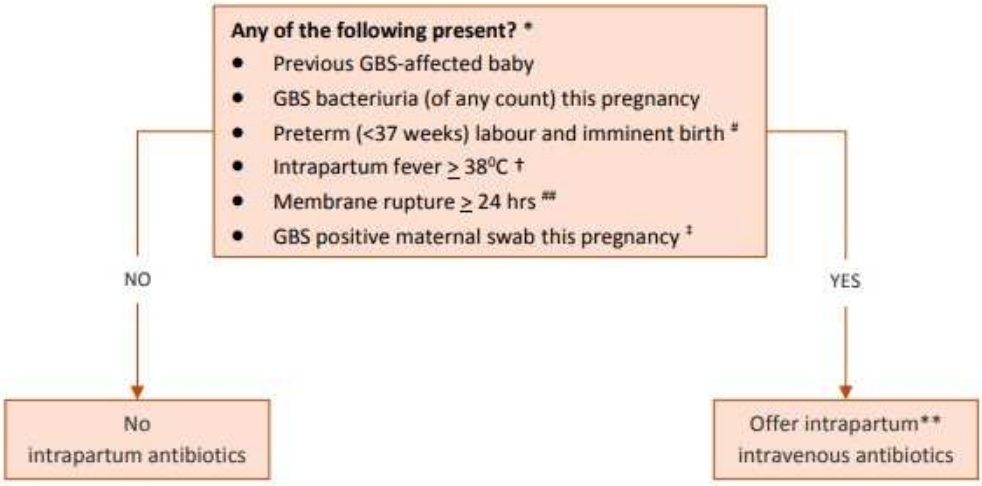
Appendix 3: GBS Algorithm

See appendix 1 GBS algorithm of Christchurch guideline / Wellington OB QR-01

Canterbury District Health Board
Te Poari Hauora ō Waitaha

WOMEN'S HEALTH SERVICE
Christchurch Women's Hospital
Maternity Guideline

APPENDIX 1 GBS ALGORTHM



* Except in women with intact membranes undergoing pre-labour elective caesarean section and have no fever.

\# Refer to the related guideline Pre-Term Labour/Birth (W&CH/GL/M/0027), for different antibiotic regimen.

† If chorioamnionitis is suspected, GBS chemoprophylaxis is insufficient and aggressive treatment with broad-spectrum antibiotics is required (see Appendix).

Intrapartum chemoprophylaxis is **not** required for women with a **GBS negative swab** (see below), even if ROM ≥ 24 hours, if no maternal fever/chorioamnionitis.

‡ A '**GBS swab**' is recommended, following an incidental GBS positive swab earlier in this pregnancy, to inform labour management recommendations. A **GBS swab** requires collection of a combined vaginal-rectal swab at ≥ 37 weeks gestation and a selective broth incubation step.

** While the standard recommendation is for the antibiotics to be given only in the *active phase* of labour, it is recommended here that they be given **at the time of intervention**, eg. commencement of induction, and not delayed until labour is established.

References

Centers for Disease Control and Prevention. Prevention of perinatal group B streptococcoal disease, revised guidelines from CDC, 201. MMWR 2010,59 (No. RR-10), pp14 doi

Darlow B et al. The prevention of early-onset neonatal group B streptococcus infection: New Zealand Consensus Guidelines. NZMJ 2015, Vol 128, No 1425, pp. 69-76.

Hughes RG et al on behalf of the Royal College of Obstetricians and Gynaecologists. Prevention of early-onset neonatal group B streptococcal disease. Green-top Guideline No. 36. BJOG 2017;124:e280-e305. doi

Lluzzi J and Bracken M. Duration of intrapartum prophylaxis for neonatal Group B Streptococcal disease: a systematic review. *Obstet Gynecol*. 2006 Nov;108(5):1254-65 doi

Informed Consent

The right of a consumer to make an informed choice and give informed consent, including the right to refuse medical treatment, is enshrined in law and in the Code of Health and Disability Consumers' Rights in New Zealand. This means that a woman can choose to decline treatment, referral to another practitioner, or transfer of clinical responsibility. If this occurs follow the process map on page 18 of the Referral Guidelines (Ministry of Health, 2012).