Group B Streptococcus (GBS) - Prevention of Early-Onset Neonatal Infection

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• Directorate(s)	Women's Health, Child Health
• Department(s)	Maternity, Newborn Services
• Used for which patients?	All antenatal wāhine, newborn pēpi
• Used by which staff?	All clinicians in maternity including access holder Lead Maternity Carers (LMCs), clinicians in the Neonatal Intensive Care Unit (NICU)
• Excluded	
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1. Purpose of guideline

The purpose of this guideline is to prevent early onset neonatal Group B Streptococcal (GBS) infection, through safe and evidence based care of wāhine requiring GBS prophylaxis within Auckland District Health Board (Auckland DHB). Considerations of the care of the pēpi post-birth, are also included.

It is important that informed discussion takes place that avoids confusion for the wāhine and family around the rationale of prophylaxis antibiotics. Namely that they provide prophylaxis cover for the pēpi not for the mother – a common misconception. Documented if informed consent is given or not, and the rationale for decline.

These guidelines have been adapted from the New Zealand (NZ) Group B Streptococcal (GBS) Consensus Guidelines (see Supporting evidence, Darlow et al, 2015).

2. Background

Early-onset neonatal infection with GBS is a significant cause of morbidity and mortality. The incidence of early-onset neonatal sepsis with GBS was 0.26/1000 live births (1:4,000 babies) in a NZ surveillance study from 2009-2011.

GBS prophylaxis given in labour to a wāhine whose pēpi is at risk of neonatal infection from GBS in the first seven days of life has been shown to significantly reduce this risk.

Auckland DHB continues to follow the recommendations of the expert multidisciplinary NZ GBS Consensus Working Party. Their 2015 Consensus Guideline recommends that a *risk-based* prevention strategy continues to be recommended for NZ, as it is the most clinically appropriate and cost-effective strategy for the NZ context. The national guideline further states that routine universal screening is not recommended.

3. Identification of a pēpi at risk of GBS

Assess for antenatal and intrapartum risk factors and offer a recommendation for GBS prophylaxis accordingly.

Risk factors for recommending GBS prophylaxis (also refer to Flow chart 1 for guidance).

3.1 Antenatal risk factors

- Previous pēpi with GBS disease (**Note**, this does not mean GBS found in the mother in a previous pregnancy, only if a pēpi is affected with GBS disease).
- GBS found in urine at any time during pregnancy.
- Incidental finding of positive GBS on vaginal swab at 35 – 37 weeks (screening not recommended).
- Incidental finding of positive GBS on vaginal swab at any time of pregnancy (if not followed up by a negative repeat swab done specifically to detect GBS between 35-37 weeks' gestation).

3.2 Intrapartum risk factors

- Pre-term labour <37 weeks' gestation.
- Prolonged rupture of membranes (PROM) >18 hours.
- Maternal Fever (≥38°C on two occasions 30 minutes apart). Assessment and diagnosis of chorioamnionitis in collaboration with LBS on call obstetric team.

Wāhine with pre-labour rupture of membranes and known to have an antenatal risk factor where GBS prophylaxis would be recommended should be advised to come to Wāhine's Assessment Unit for an assessment as soon as possible - refer to Rupture of Membranes in Pregnancy.

Wāhine having a caesarean section prior to labour with intact membranes do not need GBS prophylaxis.

Wāhine having a caesarean section in labour who are receiving GBS prophylaxis will additionally need surgical site infection prophylaxis bundle.

The following flowchart shows Auckland DHB risk-based approach to GBS prophylaxis.

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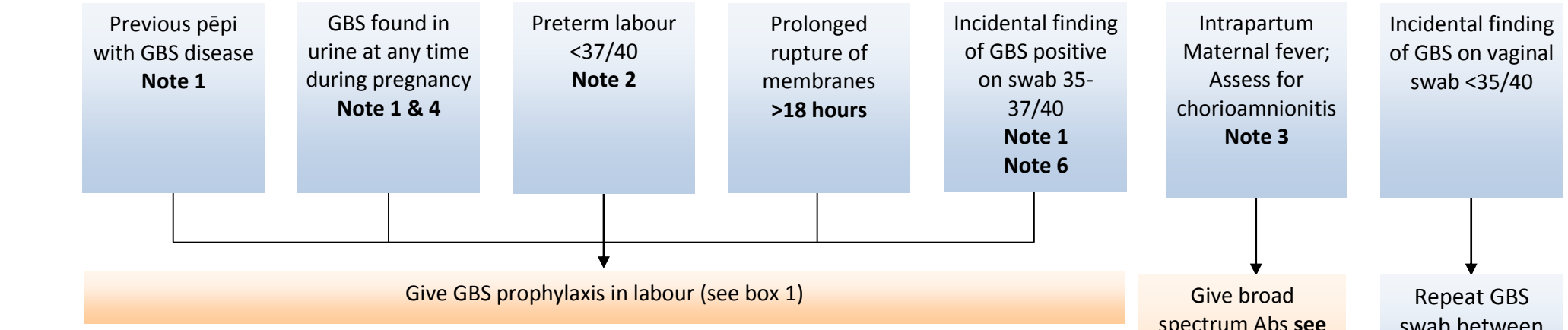
Flow chart 1: Auckland DHB risk-based approach to GBS prophylaxis



Box 1
Recommended GBS prophylaxis in labour antibiotic regime
GBS RISK FACTORS WITH NO CLINICAL SIGNS OF INFECTION
Benzyl penicillin 1.2 g IV loading dose then 600 mg 4 hourly until birth
If allergic to penicillin, consider:
Cefazolin 2 g IV loading dose then 1 g 6 hourly until birth, or
Vancomycin As per Vanculator (on Co**GBS RISK FACTORS WITH CLINICAL SIGNS OF INFECTION**
Cefuroxime 750mg IV q6h
Metronidazole 400mg po q12h
Gentamicin 5mg/kg IV stat/q24h

Key notes
Note 1: *+ give the Auckland DHB GBS patient information pamphlet to all affected wāhine*
Note 2: *+ refer to Auckland DHB Pre-term labour & Rupture of Membranes guidelines*
Note 3: *Maternal fever: ≥38 on two occasions 30 minutes apart + assessment of clinical diagnosis of chorioamnionitis by LBS on call obstetric team + take blood cultures prior to commencing antibiotics*
Clinical signs of chorioamnionitis include maternal fever (≥ 38°C) accompanied by any of the following:
abdominal tenderness, vaginal discharge, offensive liquor, maternal tachycardia, fetal tachycardia.
Note: ruptured membranes are not necessary for the diagnosis of chorioamnionitis.
Wāhine with clinical signs of infection require immediate treatment with intravenous Broad Spectrum Antibiotic. Therapy, NOT GBS Prophylaxis regimen.
Note 4: *+ treat as UTI at the time of finding GBS in urine culture*
Note 5: *Do not offer GBS prophylaxis even if prolonged ROM. If signs of chorioamnionitis see Note 3*
Note 6: *Routine screening not recommended ; GBS swab only valid if low vaginal-anorectal swab taken,and specific request to lab for 'GBS screen'*

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4. Group B Streptococcal (GBS) prophylaxis

Start GBS prophylaxis when the wāhine is in active or established labour. In the setting of induction of labour, start GBS prophylaxis either at start of intravenous (IV) oxytocin or once wāhine is in active labour, whichever is the sooner. Factors to consider with timing of starting GBS prophylaxis include previous labour duration, parity, anticipated time to birth, and number of GBS risk factors.

Ideally prophylaxis is started at least four hours before birth. GBS prophylaxis may still be effective if given even one hour before birth, so do start it even if delivery seems imminent.

Penicillin is preferred because of its narrow spectrum of activity and lack of microbial resistance:

- Benzyl penicillin 1.2 g IV loading dose then 600 mg four hourly until birth
- If allergic to penicillin, consider
  - Cefazolin 2 g IV loading dose then 1 g six hourly until birth, or
  - Vancomycin as per Vanculator (on Concerto).

5. Neonatal management

The pēpi will have observations as per the Newborn Early Warning Score (NEWS) chart whether or not the mother received appropriate GBS prophylaxis.

If the wāhine received GBS prophylaxis in labour less than four hours prior to birth,the pēpi is required to stay at Auckland City Hospital for a minimum of six hours before transferring to Birthcare and have a NEWS score of 0 just prior to transfer. The pēpi requires a total of 24 hours of observations prior to discharging home. Any pēpi showing signs of sepsis requires urgent neonatal team review.

The wāhine and her family/whānau need to be aware of the signs of infection to look for in their pēpi, which may be non-specific such as respiratory distress (with audible ‘grunting’, and/or rapid breathing), poor feeding or just looking ‘unwell’.

The neonatal management is further explaned in the following flow chart 2.

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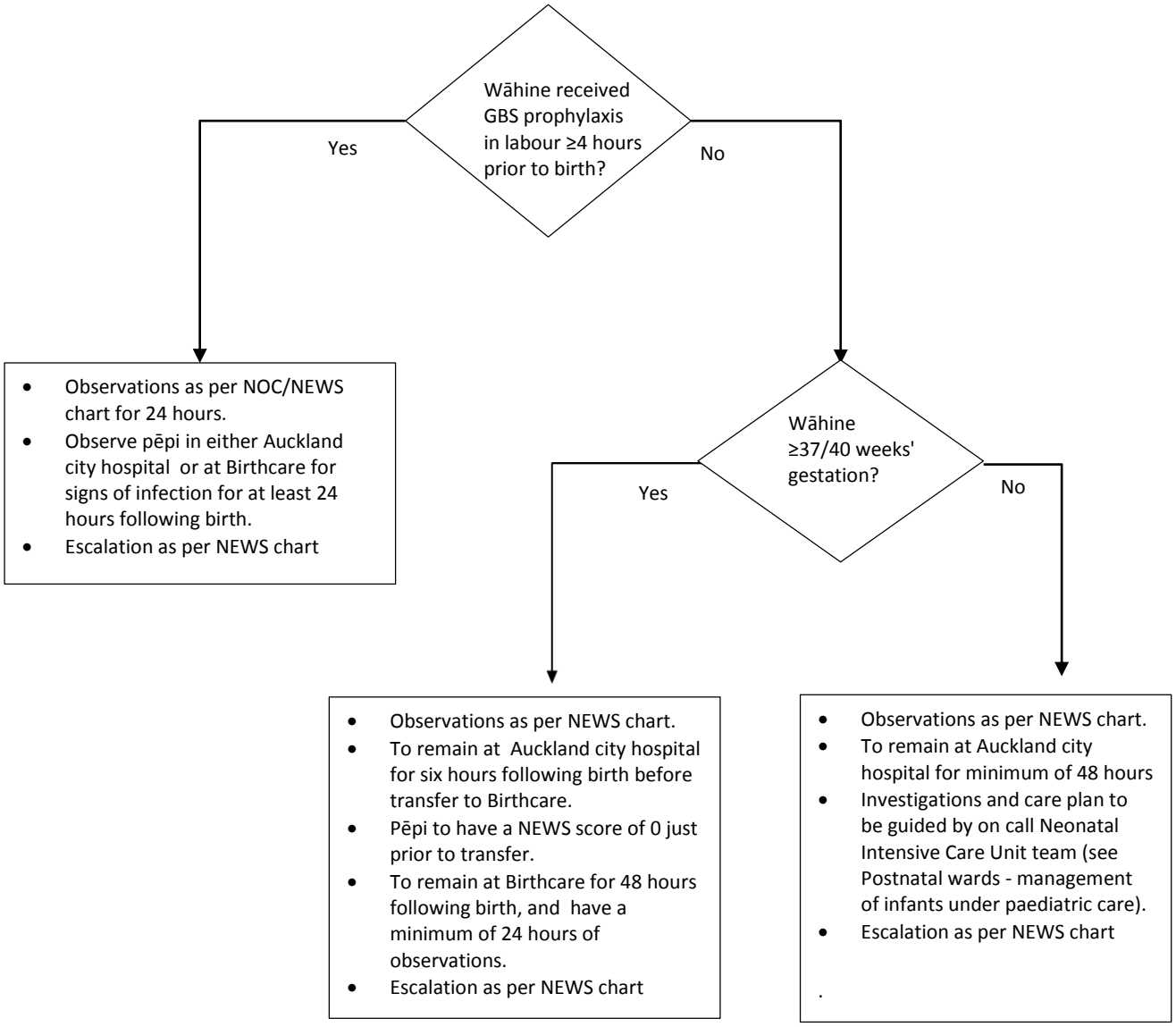
Flow chart 2: Neonatal Management



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6. Frequently asked questions

Question	Answer
What do I do if the wāhine is found to have GBS on a urine culture at some point during the pregnancy?	• Treat with oral antibiotics as per sensitivities, even if asymptomatic, in order to prevent pyelonephritis, sepsis and preterm labour. • Add GBS bacteriuria as a risk in Healthware. • Advise the wāhine that she should receive GBS prophylaxis in labour to reduce risk of early-onset neonatal GBS sepsis, and document this advice. • Give wāhine the Auckland DHB GBS pamphlet.
If a wāhine has had GBS on a urine culture earlier in pregnancy, or a previous pēpi with GBS disease, would I offer her routine screening at 35-37 weeks?	• No, these wāhine already have an antepartum risk factor and should be offered GBS prophylaxis in labour. • This should be added to risksheet in Healthware if not already done so.
If a wāhine has had GBS on a urine culture earlier in the pregnancy, or a previous pēpi with GBS disease, do I need to offer her GBS prophylaxis in labour even if she does not have ruptured membranes >18 hours?	• Yes, these wāhine already have an antepartum risk factor and should receive GBS prophylaxis in labour • This should be added to risksheet in Healthware if not already done so.
What if a wāhine had GBS detected vaginally in a previous pregnancy, do I need to offer her GBS prophylaxis?	• No, vaginal carriage of GBS is normal and does not require antibiotic treatment. Vaginal carriage of GBS in a previous pregnancy does not imply GBS carriage at the time of birth. • However, if her pēpi was affected, then she should be offered GBS prophylaxis.
What do I do if the wāhine is found to have GBS as an incidental finding on a vaginal swab <35 weeks?	• Vaginal carriage of GBS is normal and does not require antibiotic treatment. Vaginal carriage of GBS earlier in pregnancy does not imply GBS carriage at the time of birth. • Recommend a follow up **low vaginal-anorectal swab** specifically requesting 'for GBS screening' on the lab requisition at 35-37 weeks. Then follow the algorithm (see Flow chart 1) based on the 35-37 week result • If GBS swab is not repeated at 35-37 weeks, or result is unknown, she should be offered GBS prophylaxis in labour.
What about universal screening for GBS?	• Universal or routine screening is not recommended, it is outside national and Auckland DHB guidelines. • Vaginal swabs have very poor predictive value for GBS in labour before 35-37 weeks and should never be taken.

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Question	Answer
	• After 35-37 weeks the predictive value is increased however a false negative rate of 10% and a false positive rate of 50% have been reported (Darlow et al, 2015). • Maximal detection is with **low vaginal-anorectal swab**. The swab can be clinician or patient collected. • **The requisition should specifically state 'for GBS screening'**. If the wāhine has a penicillin allergy, request sensitivity testing.
If a wāhine undergoes routine screening at 35-37 weeks (which is outside guidelines) and is screen negative, and then goes on to have ruptured membranes >18 hours or goes into preterm labour, should I give her GBS prophylaxis?	• No, she already has had universal screening which is negative.
If this was a low vaginal swab only and was done at 35-37 weeks for another reason, and there was no GBS reported, is this the same as a negative screen?	• No, because GBS screening should also include anorectum and specifically have 'GBS screening' stated on the requisition; this wāhine should undergo risk-based screening.
What if the wāhine has a caesarean not in labour with intact membranes?	• No, she does not need GBS prophylaxis.
What if the wāhine is having GBS prophylaxis in labour and then needs an emergency caesarean, does she still need Cefazolin?	• Yes, she still needs surgical site infection prophylaxis bundle.
What if the wāhine develops a fever in labour?	• A wāhine with temperatures ≥38°C on two occasions 30 minutes apart should be reviewed by the Delivery Unit team on call, in order to assess for chorioamnionitis, to consider giving broad spectrum antibiotics and paracetamol, and to discuss optimal timing of delivery. • GBS prophylaxis is not adequate management of fever in labour and will not reduce the risk of postpartum endometritis nor neonatal sepsis.

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7. Supporting evidence

- Darlow, B., Campbell, N., Austin, N., Chin, A., Grigg, C., Skidmore, C., ... & Werno, A. (2015). The prevention of early-onset neonatal group B streptococcus infection: New Zealand Consensus Guidelines 2014. *New Zealand Medical Journal*, *128*(1425):69-76.
- Royal College of Obstetricians & Gynaecologists (RCOG). (2017). *Prevention of early onset neonatal Group B Streptococcal Disease*. Green-top guideline No. 36.
- Royal Australian and New Zealand College of Obstetricians & Gynaecologists (RANZCOG). (2016). *Maternal Group B Streptococcus in pregnancy:screening and management*. Statement C-Obs 19.

8. Associated documents

- Rupture of Membranes in Pregnancy
- Preterm labour (PTL) - Management of Threatened and Active PTL
  Newborn Assessment: Observation Chart and Early Warning Score policy

Patient information

- Group B Streptococcus information pamphlet

Other

- Postnatal Wards - management of infants under paediatric care
  https://www.starship.org.nz/for-health-professionals/pēpi-services-clinical-guidelines/p/postnatal-wards-management-of-infants-under-paediatric-care/#Sepsis-risk-factors-at-delivery

9. Disclaimer

No guideline can cover all variations required for specific circumstances. It is the responsibility of the health care practitioners using this Auckland DHB guideline to adapt it for safe use within their own institution, recognise the need for specialist help, and call for it without delay, when an individual patient falls outside of the boundaries of this guideline.

10. Corrections and amendments

The next scheduled review of this document is as per the document classification table (page 1). However, if the reader notices any errors or believes that the document should be reviewed ***before*** the scheduled date, they should contact the owner or Document Control without delay.