Prevention of Neonatal Group B Streptococcus Infection (GBS)

Guideline Responsibilities and Authorisation

Department Responsible for Guideline	Women's Health
Document Facilitator Name	Pip Wright, Angela Tay, Karen Barnes, Vinayak Kodur
Document Facilitator Title	Midwifery Educator, Obstetrics and Gynaecology Registrar, Midwife Manager, NICU SMO
Document Owner Name	Isabel Camano
Document Owner Title	Clinical Director: Obstetrics
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Guideline Review History

Version	Updated by	Date Updated	Description of Changes
8	Pip Wright	15/8/2017	New template added more antibiotic choices for treatment Included neonatal updated changes.
9	Sarah Power	Nov 2021	Review and update to include NOC NEWS (Not published)
10	Pip Wright / Angela Tay	May 2023	Added a risk-based approach to GBS prophylaxis flow chart for ease of use when deciding who gets what treatment
10	Karen Barnes Vinayak Kodur	Mar 2024	Flow Chart and text for management and observations of Neonate corrected incorporating NICU guideline 4381 (pending deletion)

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Contents

1. Overview

1.1 Purpose

The purpose of this guideline is to prevent early onset neonatal Group B Streptococcal (GBS) infection, through safe and evidence-based care of woman requiring GBS prophylaxis within Health NZ Waikato. Considerations of the care of the neonate post-birth, are also included.

It is important that informed discussions take place that avoids confusion for the woman and family around the rationale for prophylaxis antibiotics. Namely that they provide prophylaxis cover for the neonate, not for the mother – a common misconception. Document if informed consent is given or not, and the rationale for decline.

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

1.2 Background

	Neonatal GBS Infection	
	Early Onset	Late Onset
Onset	Within first 7 days 70% are symptomatic at birth 95% are symptomatic at 24 hours	Day 8 – 3 months
Proportion of infections	80%	20%
Incidence	1-2 / 1000 Without antibiotic prophylaxis 0.5 / 1000 With antibiotic prophylaxis	
Mortality rate	5 – 10 / 100 Mostly in preterm babies	

Antenatal maternal colonisation with GBS is a recognised risk factor. Approximately 10-30% of women have recto-vaginal colonisation. Thus, only a very small proportion of babies born to GBS carrying mothers will go on to become infected. On the other hand, the mortality rate for babies with Early Onset GBS Disease is approximately 5-10% (mostly preterm babies).

GBS is commensal bacteria of the lower intestinal tract. It is harmless and cannot be eradicated by antibiotics. It may colonise the vagina intermittently.

In women with risk factors, intravenous antibiotics in labour reduce the risk of early onset neonatal GBS infection. Rapid intrapartum diagnosis of GBS is not yet available.

1.3 Staff group

This guideline applies to all O & G medical staff and midwives providing services in Health NZ Waikato maternity facilities.

1.4 Patient / client group

All pregnant people accessing care through Health NZ Waikato maternity facilities.

1.5 Definitions and abbreviations

Early onset neonatal infection of GBS (EOGBS)	Symptoms of neonatal sepsis, pneumonia or meningitis developing within the first 7 days of birth attributable to GBS.
GBS	Group B Streptococci
IAP	Intrapartum antibiotic prophylaxis
Immediate hypersensitivity reaction	Anaphylaxis, angioedema, laryngospasm, bronchospasm, urticaria within 24 hours.
LMC	Lead Maternity Carer –
NOC/NEWS	Newborn Observation Chart/Newborn Early Warning Score
NICU	Newborn Intensive Care Unit
PROM Pre-labour Rupture of Membranes:	Rupture of the membranes prior to the onset of labour in women at or over 37+0 weeks of gestation.
PPROM Preterm Pre-labour Rupture of Membranes:	Rupture of the membranes prior to 37+0 weeks of gestation.

2. Clinical Management

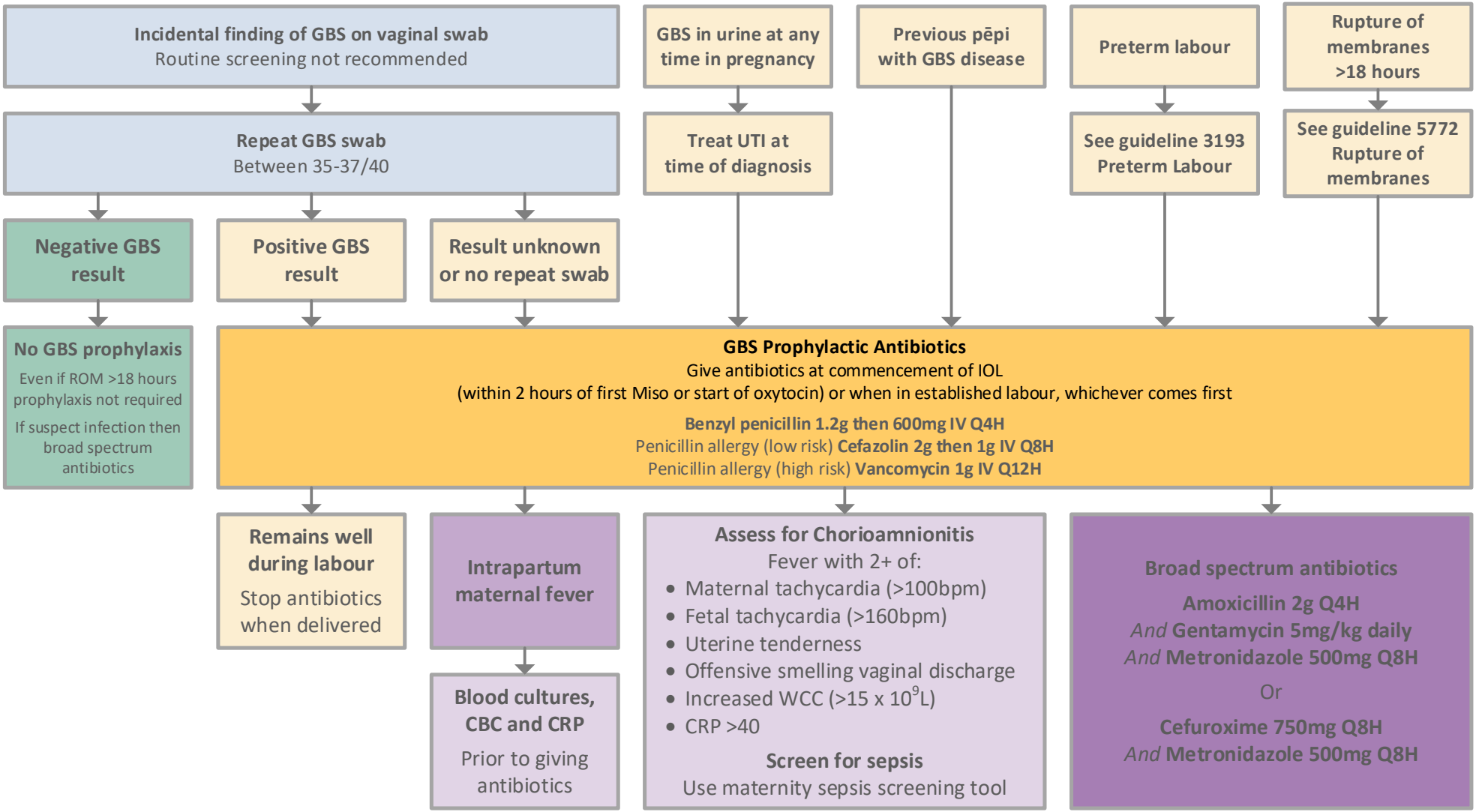
2.1 Identification of a baby at risk of GBS

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

Antenatal	Intrapartum
• Previous baby with GBS disease *(no maternal detection of GBS).* • GBS found in urine at any time during current 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).	• Preterm labour <37weeks gestation *(Guideline 3193 Preterm Labour)* • Prolonged rupture of membranes >18hrs *(Guideline 5772 Rupture of Membranes)* • Maternal Fever

To re-swab at 35-37 weeks a low vaginal and rectal swab (one swab for both) can be taken by the woman or the clinician. The request form must clearly state **"GBS Screen"** and **"use selective broth process".**

2.2 Flowchart for GBS risk assessment



2.3 Group B Streptococcal (GBS) prophylaxis

- Women with pre-labour rupture of membranes and known to have an antenatal risk factor where GBS prophylaxis would be recommended must be assessed by their LMC midwife with a view for referral to WAU as soon as possible where consideration for induction of labour may be considered.
- All women with risk factors for early onset neonatal GBS infection must be offered intravenous antibiotic prophylaxis.
- Start GBS prophylaxis when the woman is in active or established labour.
- In the setting of induction of labour, start GBS prophylaxis with commencement of IOL (within 2 hrs of first Miso or with start of oxytocin) or in established labour, whichever comes first.
- 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 birth seems imminent.
- Penicillin is preferred because of its narrow spectrum of activity and lack of microbial resistance.
- Women having a Caesarean Section prior to labour with intact membranes do not need GBS prophylaxis.
- Women having a Caesarean Section in labour who are receiving GBS prophylaxis will additionally need surgical site infection prophylaxis bundle.

Recommended GBS prophylaxis in labour antibiotic regime

GBS IV Prophylaxis				
Standard practice	Benzyl penicillin	1.2g stat then 0.6g	Q4H	Until delivery
Penicillin allergy low risk	Cefazolin	2g stat then 1g	Q8H	
Penicillin allergy high risk	Vancomycin	1g	Q12H	

2.4 Maternal fever and suspected chorioamnionitis

- **Maternal fever** is a special risk category that requires consideration of broad-spectrum antibiotic therapy and additional monitoring, including fetal monitoring.
- **Ruptured membranes** are not necessary for the diagnosis of chorioamnionitis.
- Women with a fever or signs of chorioamnionitis require immediate treatment and intervention and must be screened for sepsis using the maternal sepsis screening tool.
- Clinical signs of chorioamnionitis include maternal fever (one episode of ≥38°C or two episodes of ≥37.5°C at least an hour apart) with two or more of:
  - Fetal tachycardia.
  - maternal tachycardia
  - purulent vaginal discharge
  - offensive liquor
  - abdominal/uterine tenderness
- Where there are clinical signs of infection, appropriate specimens including blood cultures (2 sets) are required before commencing antibiotic treatment.

Broad-spectrum antibiotic treatment (use guard rails for administration)

Broad spectrum IV antibiotics to cover chorioamnionitis				
Standard option 1	Amoxicillin + Gentamicin + Metronidazole	2g 5mg/kg 500mg	Q4H Daily Q8H	Clinical decision if antibiotics to continue after delivery
Standard option 2 or **Penicillin allergy** low risk	Cefuroxime + Metronidazole	750mg 500mg	Q8H Q8H	
Penicillin allergy high risk	Clindamycin Gentamicin	900mg 5mg/kg	Q8H Daily	

3. Neonatal management

Refer to Newborn Observation Chart and Newborn Early Warning Score chart and guideline 6408.

All babies born over 35 weeks gestation must have a physiological assessment undertaken and documented at 1 and 4 hours after birth and thereafter at frequency appropriate for their clinical condition (at least 4hourly for 24 hours).

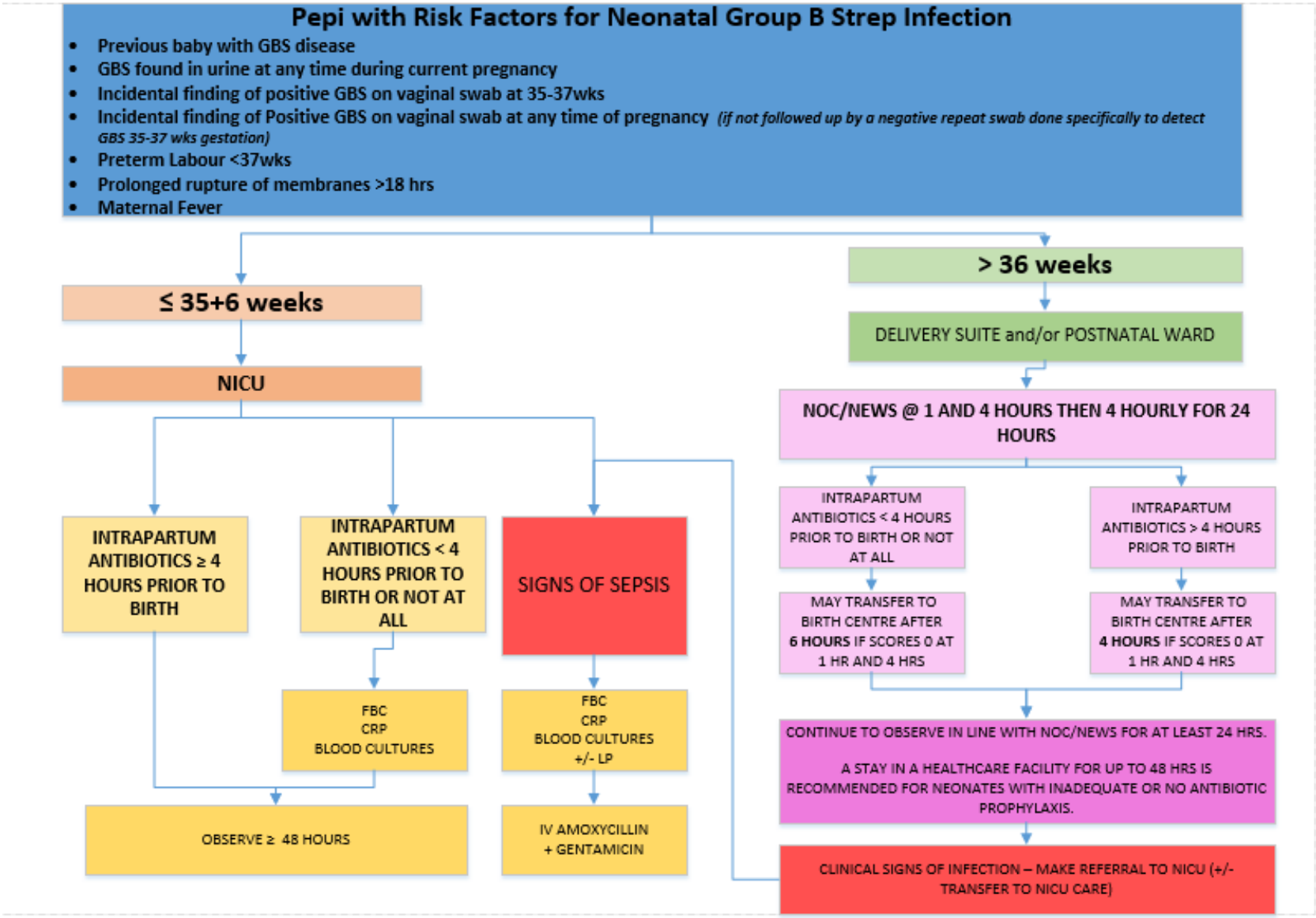
The baby will have observations as per the Newborn Early Warning Score (NEWS) chart whether or not the mother received appropriate GBS prophylaxis.

If the woman received GBS prophylaxis in labour less than four hours prior to birth, the baby is required to stay at Waikato Hospital for a minimum of six hours before transferring to a birthing unit and have a NEWS score of 0 just prior to transfer.

The baby requires a total of 48 hours of observations in a healthcare facility prior to discharging home. Any baby showing signs of sepsis requires urgent neonatal team review.

The woman and her family/whānau must be made aware of the signs of infection to look for in their baby, 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 explained in the following flow chart:


Pepi with Risk Factors for Neonatal Group B Strep Infection
Previous baby with GBS disease
GBS found in urine at any time during current pregnancy
Incidental finding of positive GBS on vaginal swab at 35-37wks
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 35-37 wks gestation)
Preterm Labour <37wks
Prolonged rupture of membranes >18 hrs
Maternal Fever
≤ 35+6 weeks
NICU
INTRAPARTUM ANTIBIOTICS ≥ 4 HOURS PRIOR TO BIRTH
INTRAPARTUM ANTIBIOTICS < 4 HOURS PRIOR TO BIRTH OR NOT AT ALL
SIGNS OF SEPSIS
FBC
CRP
BLOOD CULTURES
FBC
CRP
BLOOD CULTURES
+/- LP
OBSERVE ≥ 48 HOURS
IV AMOXYCILLIN
+ GENTAMICIN
> 36 weeks
DELIVERY SUITE and/or POSTNATAL WARD
NOC/NEWS @ 1 AND 4 HOURS THEN 4 HOURLY FOR 24 HOURS
INTRAPARTUM ANTIBIOTICS < 4 HOURS PRIOR TO BIRTH OR NOT AT ALL
INTRAPARTUM ANTIBIOTICS > 4 HOURS PRIOR TO BIRTH
MAY TRANSFER TO BIRTH CENTRE AFTER 6 HOURS IF SCORES 0 AT 1 HR AND 4 HRS
MAY TRANSFER TO BIRTH CENTRE AFTER 4 HOURS IF SCORES 0 AT 1 HR AND 4 HRS
CONTINUE TO OBSERVE IN LINE WITH NOC/NEWS FOR AT LEAST 24 HRS.
A STAY IN A HEALTHCARE FACILITY FOR UP TO 48 HRS IS RECOMMENDED FOR NEONATES WITH INADEQUATE OR NO ANTIBIOTIC PROPHYLAXIS.
CLINICAL SIGNS OF INFECTION – MAKE REFERRAL TO NICU (+/- TRANSFER TO NICU CARE)

4. Evidence Base

This guideline is based upon recommendations of the GBS Consensus Working Party of the New Zealand College of Midwives, the Paediatric Society of New Zealand, the New Zealand committee of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, the Royal New Zealand College of General Practitioners and Homebirth Aotearoa.

- Early-onset neonatal group B streptococcus infection is acquired by the baby by vertical transmission from the birth canal around the time of birth and is an important and largely preventable public health problem.
- Two strategies for identifying women at increased risk of giving birth to an affected baby have been used: one based on universal antenatal screening and the other on clinical risk factors. In both strategies, mothers identified as at risk are offered appropriate intravenous antibiotics from when labour is established. This intrapartum antibiotic prophylaxis is shown to be effective in preventing vertical transmission of GBS.
- In 2004, an expert multidisciplinary group reviewed the evidence on IAP and the results of a national two-year surveillance study of EOGBS in New Zealand (1998-9). The group agreed a set of guidelines appropriate for New Zealand, which recommended a risk factor-based prevention strategy.
- A repeat national two-year study of EOGBS infection was completed in 2011 through the New Zealand Paediatric Surveillance Unit. This showed that the incidence of EOGBS had halved in the 10 years since the first survey and was 0.25 per 1000 (95% CI 0.17-0.33). The survey also found there were missed opportunities for preventing GBS infection.
- In 2012, the multidisciplinary group reconvened to review the current literature and the NZ data. The group considered that the adoption of a national guideline by all practitioners and District Health Boards had the potential to improve prevention of EOGBS infection.
- The group noted that the most recent recommendation from North America was for universal screening, whilst that from the UK was for a risk-based approach. Neither approach will prevent all cases of EOGBS nor are factors such as the practicalities and cost-effectiveness to be considered. Screening has to be carried out at the right time (35-37 weeks) with the correct technique (vaginal and anorectal swab), reach the laboratory where selective media and enrichment broth are required, and the results need to be available and acted upon.
- A recent study has shown that 10% of women with negative screening were actually positive for GBS when in labour, whilst 50% of women with a positive screen result were negative for GBS when in labour. The screening approach is more expensive and exposes more women to antibiotics than the risk-based approach.
- Lastly, it is likely that the approach to GBS prevention will need to be reviewed again and potentially significantly altered as rapid diagnostic testing in labour and maternal immunization are developed and become cost-effective.

4.1 Recommendations

A risk based GBS prevention strategy continues to be recommended for New Zealand, as it is the most clinically and cost effective for the New Zealand context. Universal routine antenatal GBS screening is not recommended.

GBS information needs to be developed for pregnant women and their whanau/family, using both written and web-based material. Accurate and appropriate information will help decision-making.

5. Supporting evidence

- *Auckland DHB* guideline Group B Streptococcus (GBS) – Prevention of Early-Onset Neonatal Infection 2019. Available from https://www.nationalwomenshealth.adhb.govt.nz/assets/Womens-health/Documents/Policies-and-guidelines/Group-B-Streptococcus-GBS-Prevention-of-Early-Onset-Neonatal-Infection-.pdf
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- NZ Consensus guideline 2014 the prevention of early- onset neonatal Group B Streptococcus Infection - https://www.midwife.org.nz/pdf/Consensus%20Statements/GBS%20FINAL%20agreed-%20March%202014.pdf
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