WACH Maternity

South Eastern Health and Social Care Trust

SOUTH EASTERN TRUST

Title:	**Management of Group B Streptococcal (GBS) Infection and Early Onset of Neonatal Infection.**			
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Ownership:	**South Eastern Health and Social Care Trust**			
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Version No.	3	**Supercedes**	Version 2 (2015)	
Links to other policies	**The Prevention of Early-onset Neonatal Group B Streptococcal Disease RCOG Green Top Guideline No 36 September 2017.** **Neonatal Network Northern Ireland (NNNI) Guidance on Management of infants who are at risk of Early Onset Sepsis (EOS)** **(V3, October 2018)**			

Date	**Version**	**Author**	**Comments**
22/08/2018	0.1	C Dougan	Initial Draft
11/12/2018	0.2	K Steele P Scott P Yew	Consultation with obstetric, paediatric and midwifery colleagues
4/1/2019	0.3	P Scott K Steele	Final consultation process. All areas raised clarified with relevant disciplines.
13/2/2019	0.4	K Steele C McFeely	Final consultation with neonatal colleagues

1.0 INTRODUCTION / PURPOSE OF GUIDELINE

1.1 Group B beta-haemolytic streptococcus (GBS) colonization in the bowel flora is present in 20-40% of adults.

1.2 The incidence of Early Onset Group B Streptococcal (EOGBS) disease in the absence of systematic screening is 0.57/1000 births, an increase in previous incidence rates. Infected babies can develop meningitis, sepsis and pneumonia, and can experience long-term complications such as cerebral palsy, deafness, blindness and learning difficulties. Approximately 1 in every 20 babies who develop GBS infection dies, a decrease from previous estimates.

1.3 GBS infection is usually apparent at or shortly after birth (early onset). Early onset GBS infection generally presents within 12 - 72 hours of birth and can occur through to Day 7 of life. It is characterised by the rapid development of breathing problems and/or septicaemia. Clinical signs in 90% of cases are apparent in first 12-24 hours of life.

1.4 Late onset GBS infection usually occurs between 7-90 days of age.

1.5 Very late onset GBS occurs in infants greater than 3 months of age. These infections are most common in infants who are born before 28 weeks gestation and in children with immunodeficiency.

1.6 This guideline includes guidance on the assessment and management of Early Onset Neonatal Sepsis (EOS). This document provides support for the SET with the implementation of the RCOG Prevention of Early-onset Neonatal Group B Streptococcal Disease.

2.0 DEFINITION / SCOPE OF PRACTICE

2.1 This guideline provides direction for all health care professionals involved in the care of childbearing women, both in the hospital and in the community.

2.2 Its' aims are:

1. to maintain optimal care throughout pregnancy, childbirth and the postnatal period for the mother and her baby.
2. to identify those mothers/babies at most risk from GBS infection, plan and administer appropriate care.
3. to maintain high clinical standards and continuity of care.

2.3 The pregnant woman who has previously had a baby who developed a GBS infection or in whom GBS carriage has been detected in this pregnancy, is not suitable to give birth in the **free standing** Midwifery Led Units (MLUs).

2.4 Women who are colonised with GBS in this pregnancy and have no other risk factors may deliver in the Home from Home. An obstetrician should be

aware/involved in the plan of care and their intrapartum antibiotic prophylaxis (IAP) prescribed by a medical officer on admission to the unit.

3.0 ROLES AND RESPONSIBILITIES

3.1 The health care professional providing care is responsible for identifying risk factors associated with GBS, following up on investigations that have been taken when a woman has presented with clinical symptoms of GBS, and ensuring that appropriate treatment is given when required.

3.2 GBS bacteria may be passed from the hands so all health professionals must adhere to strict hand washing regimes at all times and advise parents and visitors to do the same.

4.0 KEY GUIDELINE PRINCIPLES

ANTENATAL:

4.1 All pregnant women should be provided with an appropriate information leaflet. https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-gbs-pregnancy-newborn.pdf

4.2 Routine bacteriological screening of all pregnant women for antenatal GBS carriage is not recommended as per the UK National Screening Committee 2017 advice.

4.3 If GBS is detected from a vaginal or rectal swab, antenatal treatment is not recommended but IAP should be offered.

4.4 Women with GBS bacteriuria (growth greater than 10^5 cfu/ml) during pregnancy should receive appropriate treatment at the time of diagnosis as well as IAP.

4.5 GBS detected on vaginal swab in the current pregnancy should be offered IAP only. However vaginal swabs should not be taken during pregnancy unless there is a clinical indication to do so. Maternal request is not an indication for bacteriological screening.

4.6 Women with GBS carriage detected in a previous pregnancy with an unaffected baby should be offered either bacterial testing 3-5 weeks prior to expected date of delivery or IAP. In an effort to reduce unnecessary antibiotic administration, bacterial testing by low vaginal and rectal swab is recommended.

4.7 Membrane sweeping is not contraindicated in women who are carriers of GBS.

INTRAPARTUM:

4.8 **Indications for offering GBS Specific IAP are** (Appendix 1)**:**

- Previous baby with GBS infection or where
- GBS culture positive in **previous pregnancy** and baby was unaffected **but** no further testing was undertaken in current pregnancy.

- GBS culture positive in urine or vaginal/rectal swab in the current pregnancy
- Pyrexia (>38^{o}C) in labour (give broad spectrum antibiotics to include GBS cover)
- Suspected chorioamnionitis (give broad spectrum antibiotics to include GBS cover).
- In confirmed preterm prelabour rupture of membranes (PPROM) of any duration once labour is established.
- Women in established preterm labour whether the membranes are intact or not.

4.9 Antibiotic prophylaxis specific for GBS **is not** required for women with known GBS colonisation undergoing elective caesarean section in the absence of labour and with intact membranes.

4.10 The method of induction should not vary based on GBS status. If indicated, IAP should commence when established labour is confirmed following induction.

4.11 Birth in a pool is not contraindicated if the woman is a known GBS carrier provided she is offered appropriate IAP.

4.12 There is no evidence that vaginal cleansing will reduce the risk of neonatal GBS infection.

ANTIBIOTIC REGIMEN IN LABOUR:

4.13 Where antibiotic prophylaxis is offered and accepted, this should be commenced as soon as labour is diagnosed and given regularly until delivery (See Appendix 2 for antibiotic management in labour).

4.14 If chorioamnionitis is suspected, broad spectrum antibiotics including an agent active against GBS should replace GBS specific antibiotic prophylaxis (See Appendix 3 for antibiotic management of chorioamnionitis).

4.15 Clinical features suggestive of chorioamnionitis are:

- Maternal pyrexia in labour >38^{o}C
- Uterine tenderness
- Maternal tachycardia >100 beats per minute
- Fetal tachycardia >160 beats per minute

4.16 The multi-professional team within these maternity units recommends that continuous risk assessment is carried out during pregnancy, labour and postnatally.

MANAGEMENT OF BABIES AT RISK OF EARLY ONSET NEONATAL SEPSIS (EOS)

4.17 Guidance on the assessment and management of babies at risk of EOS is provided in appendices 4 & 5.

TERM PRE-LABOUR RUPTURE OF MEMBRANES

4.19 Women known to be colonised with GBS who experience spontaneous rupture of membranes (SROM) at 37 weeks gestation or more should be offered induction of labour (IOL) immediately and commence IAP.

4.20 For women in whom the carrier status is negative or unknown, expectant management for 24 hours followed by IOL should be offered. For women who request immediate IOL because their carrier status is unknown, this can be considered by the on call team taking into account the workload of the induction of labour bay at the time of the request.

PRETERM PRE-LABOUR RUPTURE OF MEMBRANES

4.21 Women who experience preterm prelabour rupture of membranes (PPROM) should be given erythromycin 250mg 4 times a day for a maximum of 10 days whilst not in labour (or penicillin in those erythromycin allergic).

4.22 Bacteriological testing for GBS is not recommended for women with PPROM.

4.23 In women with confirmed PPROM, the perinatal risks associated with preterm delivery at less than 34+0 weeks are likely to outweigh the risk of perinatal infection. After 34 weeks gestation, consideration of induction of labour is advised.

4.24 Although a large multicentre randomised controlled trial suggested no difference in neonatal outcome at 34-36 weeks gestation, the presence of known GBS colonisation may make early intervention more preferable (ie. At 34 weeks rather than ongoing conservative management) (new RCOG)

4.25 In women with PPROM who are induced or who spontaneously labour, IAP should be commenced when labour is established regardless of GBS carrier status.

PRETERM LABOUR WITH INTACT MEMBRANES

4.26 Women presenting in established preterm labour whether with intact membranes or not, should be offered IAP.

MONITORING OF BABIES IN THE NEONATAL PERIOD

4.27 Maternal IAP will not prevent all cases of EOGBS and the impact on late onset is not known, therefore it is important to maintain a high suspicion of infection in **ALL** newborn babies. 90% of infants who are diagnosed with EOGBS display symptoms within 12 -24 hours.

4.28 In term babies who are clinically well at birth and whose mothers received IAP for prevention of EOGBS more than 4 hours before delivery (and have no other risk factors) evaluation and monitoring from birth for clinical indicators of infection should be undertaken. Vital signs should be checked at 0, 1 and 2 hours and then 2 hourly for 10 hours. If the baby remains well after 12 hours of clinical observation, it can be discharged home with the parents with advice (as per NNNI guidelines 2018). Clinical concerns at any stage should result in assessment by the neonatal team.

4.29 In babies who are clinically well at birth, who are at risk of EOGBS and their mothers did not receive adequate IAP (and have no other risk factors), evaluation and monitoring from birth for clinical indicators of infection should be undertaken. Vital signs should be checked at 0, 1 and 2 hours and then 2 hourly for 10 hours. If the baby remains well after 12 hours of clinical observation, it can be discharged home with the parents with advice. Clinical concerns at any stage should result in assessment by the neonatal team.

4.30 Babies of mothers who had a previous baby with GBS disease (and have no other risk factors) should have evaluation at birth and neonatal vital signs checked at 0, 1 and 2 hours, and then 2 hourly for 10 hours, regardless of whether their mother received adequate IAP. If the baby remains well after 12 hours of clinical observation, it can be discharged home with the parents with advice. Clinical concerns at any stage should result in assessment by the neonatal team.

4.31 The babies of women who have received broad-spectrum antibiotics during labour (or for 24 hours before or after birth) for indications other than GBS prophylaxis require clinical assessment by the neonatal team as per NNNI guidelines 2018.

4.32 Treatment of GBS infection needs to be prompt and aggressive. If a baby needs antibiotic treatment it should be given as soon as possible and always within 1 hour of decision to treat.

4.33 Breastfeeding should be encouraged irrespective of GBS status.

IF MOTHER HAS BEEN DISCHARGED AND GBS DIAGNOSED AROUND DELIVERY

4.34 If the baby is at home, is less than 48hrs old and has no risk factors, the mother should be contacted as soon as possible that day by the paediatrician (UHD) or midwife from free standing midwifery led units and a telephone assessment

made. If no concerns after the phone call the infant should be assessed by the community midwife.

4.35 If the parents or midwife are concerned about the baby the GP can be contacted for referral to Rapid Response Unit. Out of hours, the baby should be sent immediately to Emergency Department for paediatric assessment.

4.36 Where the infant is well and remaining at home the GP should be informed of maternal carrier status and the need for vigilance regarding infection in the baby.

4.37 Where the positive maternal GBS carriage is discovered more than 48hrs but less than 1 month after delivery, the community midwife should be asked to visit and assess the baby. If the baby is well, no further action is needed but the mother should be given advice regarding signs of sepsis. The GP should also be informed.

4.38 If the positive result comes to light more than 1 month after delivery no action is needed regarding the baby but this should be documented in the maternal notes and the GP informed.

5.0 IMPLEMENTATION OF THE GUIDELINE

5.1 This guideline is applicable to all healthcare professionals who are involved in the care of childbearing women in the hospital, midwifery led and community settings.

5.2 This guideline will be available on the Trust intranet site.

5.3 Staff will be made aware of the implementation of the guideline at the multidisciplinary teaching / audit session.

6.0 EVIDENCE BASE / REFERENCES

6.1 Royal College of Obstetricians & Gynaecologist, *Prevention of Early Onset Neonatal Group B Streptococcal Disease*, http://www.rcog.org.uk/resources/public/pdf/group B strep.no36.pdf

6.2 Neonatal Network Northern Ireland Guidance on Management of infants who are at risk of Early Onset Sepsis (EOS) (V3, October 2018)

6.3. Heath PT, Balfour G, Weisner AM, Efstratiou A, Lamagni TL, Tighe H, et al.; PHLS Group B Streptococcus Working Group. Group B Streptococcal disease in UK and Irish infants younger than 90 days. *Lance*t 2004; 363:292-4.

6.4. National Institute for Health and Clinical Excellence, *Antibiotics for early-onset neonatal infection*, Clinical Guideline 149, August 2012.

6.5 Cantey JB[1], Baldridge C, Jamison R, Shanley LA. Late and very late onset group B Streptococcus sepsis: one and the same? World J Pediatr. 2014 Feb;10(1):24-8.

6.6 UK National Screening Committee Feb 2017 – guidance on GBS screening. Available at: https://www.gov.uk/government/news/screening-pregnant-women-for-gbs-not-recommended

6.7 Morris JM[1], Roberts CL[2], Bowen JR[3], Patterson JA[2], Bond DM[2], Algert CS[2], Thornton JG[4], Crowther CA[5]; PPROMT Collaboration. Immediate delivery compared with expectant management after preterm pre-labour rupture of the membranes close to term (PPROMT trial): a randomised controlled trial. Lancet. 2016 Jan 30;387(10017):444-52.

6.8 https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-gbs-pregnancy-newborn.pdf

7.0 CONSULTATION

The review of this document involved consultation with Midwifery managers, obstetricians, paediatricians, microbiologist

8.0 APPENDICES 1-5

Appendix 1	RCOG Pathway of Care, 2017
Appendix 2	Antibiotic Regimen in Labour
Appendix 3	Antibiotic Treatment of Chorioamnionitis
Appendix 4	Neonatal Network NI Risk Factors, 2018
Appendix 5	Any Risk factors/Clinical Indicators – flowchart, 2018

9.0 EQUALITY STATEMENT

In line with duties under the equality legislation (Section 75 of the Northern Ireland Act 1998), Targeting Social Need Initiative, Disability discrimination and the Human Rights Act 1998, an initial screening exercise to ascertain if this policy should be subject to a full impact assessment has been carried out.
The outcome of the Equality screening for this guideline is:

No impact.

SIGNATORIES

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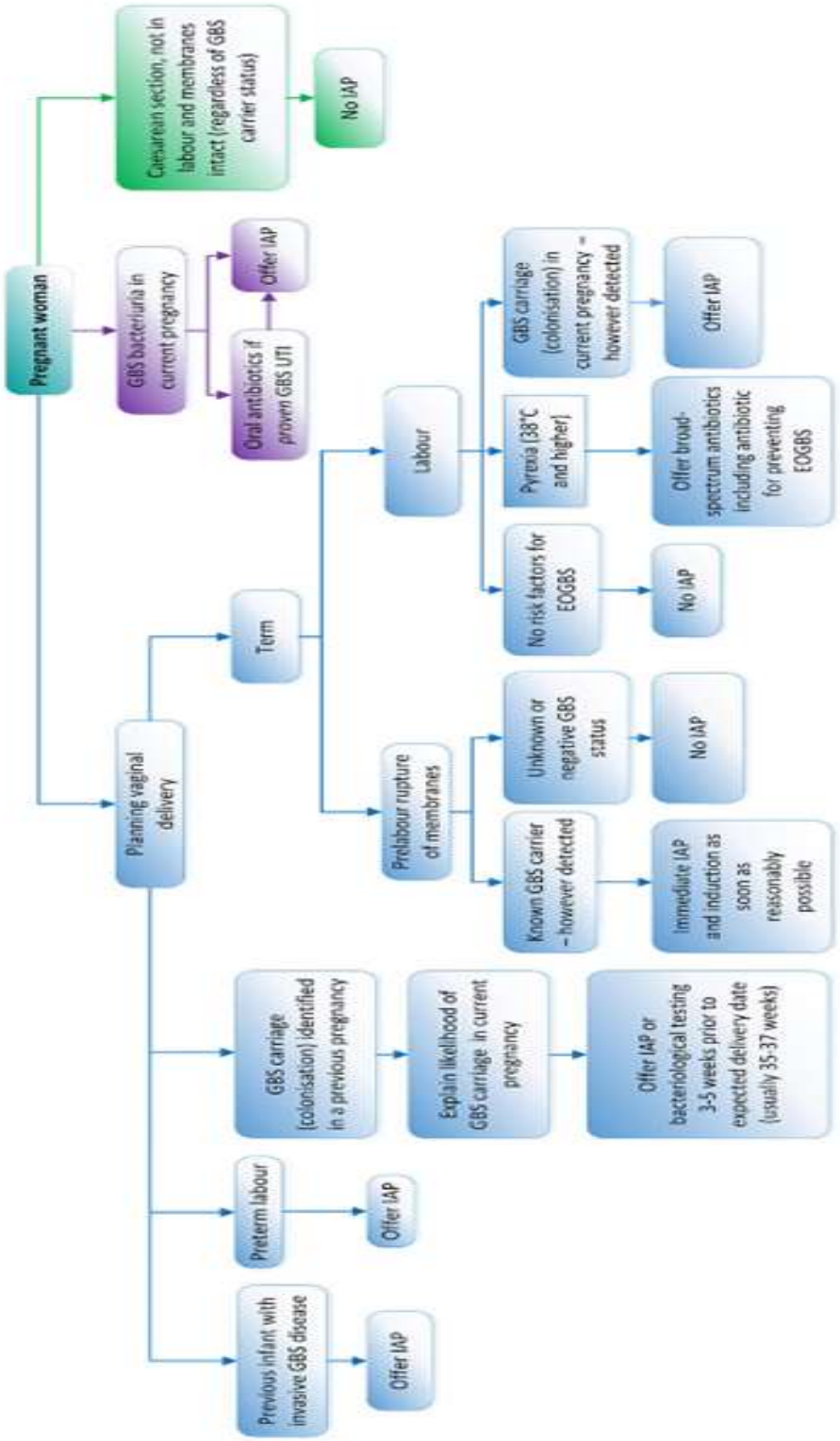
Appendix 1 - RCOG 2017



Appendix 2 – Antibiotic Regimen in Labour

Benzylpenicillin 3g IV stat after onset of labour, followed by Benzylpenicillin 1.5g IV 4 hourly until delivery.

In non-severe penicillin allergy (i.e. no anaphylaxis, angioedema, respiratory distress or urticaria)

Cefuroxime 1.5g IV stat after onset of labour, followed by Cefuroxime 750mg IV every 8 hours until delivery.

In severe penicillin allergy (i.e. anaphylaxis, angioedema, respiratory distress or urticaria)

Vancomycin 1g IV every 12 hours (administer in 250ml saline 0.9% over at least 100 minutes). Please note dose reductions are required in renal impairment. Use booking in weight to calculate creatinine clearance, and dose as per Trust Vancomycin prescribing chart. A vancomycin dosing calculator is available on Microguide ®. Levels should be checked pre fourth dose should the patient still be on prophylaxis at this time point.

The antibiotics should be stopped after delivery unless clinically indicated otherwise.

Note: Clindamycin can no longer be recommended as the current resistance rate in the UK is 16%. This is in accordance with the RCOG guidelines

To optimise the efficacy of antibiotic prophylaxis, the first dose should ideally be given 4 hours before delivery or at least two hours before delivery to obtain optimal antibiotic concentration in the amniotic fluid

Appendix 3 – Antibiotic Treatment of Chorioamnionitis

Clinical features suggestive of chorioamnionitis are:

- Maternal pyrexia in labour >38^{o}C
- Uterine tenderness
- Maternal tachycardia >100 beats per minute
- Fetal tachycardia >160 beats per minute

Amoxicillin 2g IV 8 hourly + Metronidazole 500mg IV 8 hourly until delivery

In non severe penicillin allergy (i.e. no anaphylaxis, angioedema, respiratory distress or urticaria)

Cefuroxime 1.5g IV 8 hourly + Metronidazole 500mg IV 8 hourly until delivery

If severe penicillin allergy (i.e. anaphylaxis, angioedema, respiratory distress or urticaria) or cephalosporin allergy

Clindamycin 900mg IV 8 hourly until delivery (need to review and discuss if not responding as clindamycin resistance in one of the potential causative organisms (group B Streptococcus) is rising)

Contact Medical Microbiologist if no evidence of response to the above antibiotics.

Post delivery, if patient clinically well and cultures remain negative at 48 hours, stop antibiotics.

Appendix 4 - NNI Risk Factors, 2018

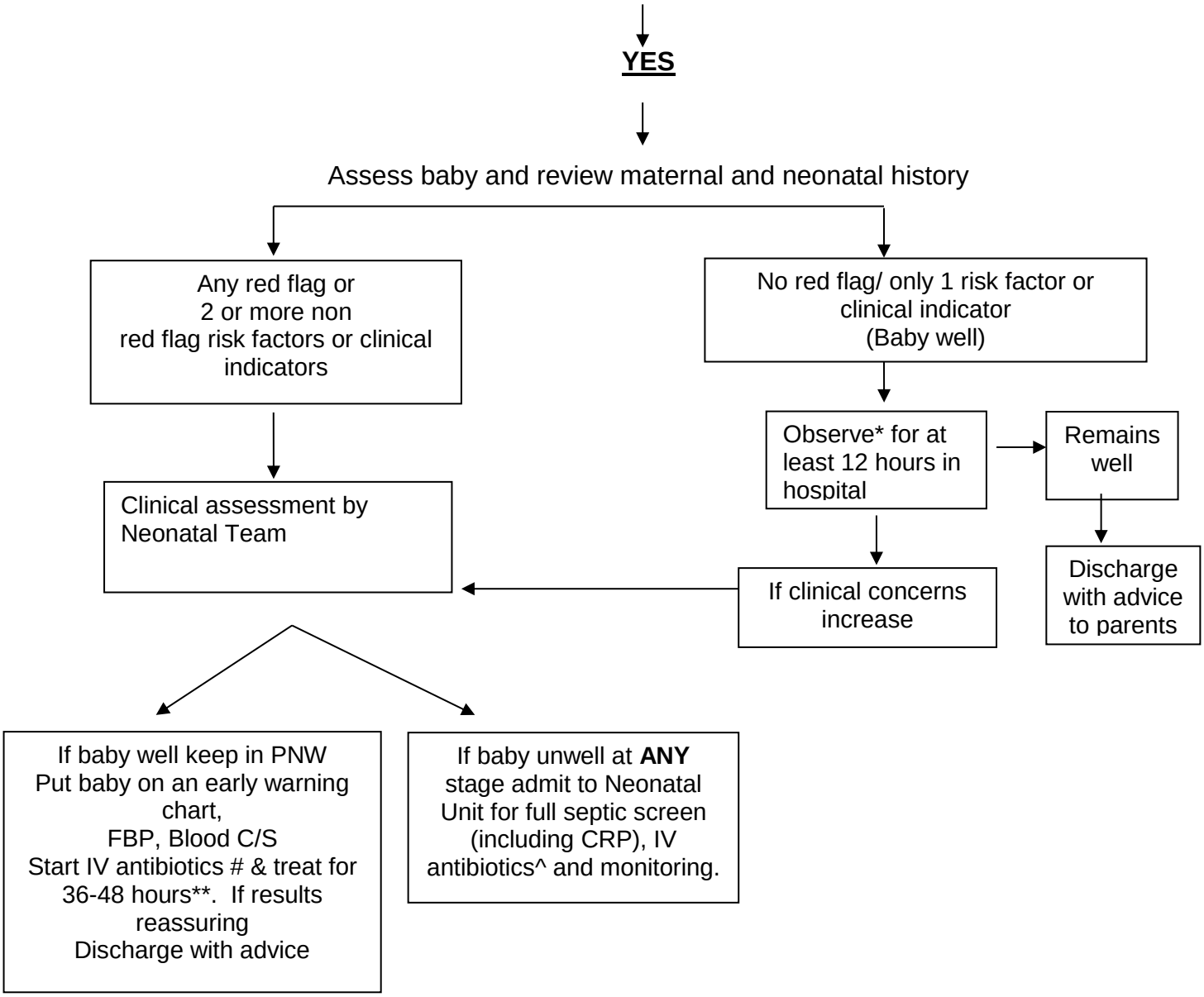
RISK FACTORS

RED FLAG	NON RED FLAG
• Parenteral antibiotics to mother at any time during labour or 24 hours before or after birth (NOT IAP) • Suspected or confirmed infection in another baby in multiple pregnancy	• Ruptured membranes for >18 hours in preterm • Maternal Intrapartum pyrexia (>38^{o}C) • Maternal group B streptococcal colonisation, bacteriuria or infection in the current pregnancy • Invasive GBS in a previous baby • Confirmed or suspected chorioamnionitis • Prelabour rupture of membranes • Preterm birth following spontaneous labour (<37 weeks)

CLINICAL INDICATORS

RED FLAG	NON RED FLAG
• Respiratory distress starting more than 4 hours after birth • Seizures • Need for mechanical ventilation in a term baby • Signs of shock	• Altered behaviour or responsiveness • Altered muscle tone • Feeding difficulties • Feed intolerance • Abnormal heart beat • Signs of respiratory distress • Hypoxia • Jaundice within 24 hours • Apnoea • Signs of neonatal encephalopathy • Need for Cardio-pulmonary resuscitation • Need for mechanical ventilation in a preterm baby • Persistent fetal circulation (persistent pulmonary hypertension) • Temperature abnormality unexplained by environmental factors • Unexplained excessive bleeding, thrombocytopenia, or abnormal coagulation • Oliguria persisting beyond 24 hours after birth • Hypoglycaemia or hyperglycaemia • Metabolic acidosis (base deficit of 10mmol/litre of greater) • Local signs of infection

Appendix 5 – Any Risk factors/Clinical Indicators – flowchart, 2018



* Observe at 0, 1 and 2 hours and then 2 hourly for 10 hours. If observation for more than 12 hours, increase interval to 4 hourly.

Refer to Antibiotic Policy.

** 36 hours in babies where blood culture is available at 36 hours. If not observe for 48 hours.

^ If a baby needs antibiotic treatment it should be given as soon as possible and always within 1 hour of the decision to treat.