

Early onset GBS disease

Clinical Guideline Presentation



45 minutes

Towards CPD Hours

References:

The Queensland Clinical Guideline *Early onset Group B Streptococcal disease* is the primary reference for this package.

Recommended citation:

Queensland Clinical Guidelines. *Early onset Group B Streptococcal disease* clinical guideline education presentation E16.20-1-V2-R21, Queensland Health. 2016.

Disclaimer:

This presentation is an implementation tool and should be used in conjunction with the published guideline. This information does not supersede or replace the guideline. Consult the guideline for further information and references.

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Learning objectives



- Understand why Group B Streptococcus (GBS) is important in pregnancy
- Identify risk factors for early onset Group B Streptococcal disease (EOGBSD)
- Identify how the risk of EOGBSD can be reduced
- Identify appropriate neonatal care

Group B Streptococcus

Why is GBS in pregnancy important?

- GBS is the most frequent cause of early onset (day 0-7) neonatal infection and can cause serious illnesses and even death in the newborn baby very quickly
- 10-30% of all healthy women are **colonised** in their lower genital tract with GBS
- These women are not sick and don't need any treatment. GBS can come and go at different times throughout pregnancy
- GBS can pass from the pregnant colonised mother to her baby during birth

Also referred to as:

- GBS
- Group B Streptococcal disease
- Group B Strep
- *Streptococcus algalactiae*

Early onset Group B Streptococcal disease occurs in the newborn 0-7 days after birth (most commonly in the first 72 hours).

Late onset Group B Streptococcal disease occurs in the newborn more than 7 days after birth. The risk is not reduced by intrapartum antibiotics.



Risk reduction



How can the risk of EOGBSD be reduced?

- Giving prophylactic antibiotics to women with risk factors when they are in labour, can reduce GBS transmission to the baby during birth
- It is vital there is a single service-wide, reliable and systematic approach to identifying women for whom intrapartum antibiotic prophylaxis (IAP) is indicated. This will help reduce 'missed' opportunities for IAP
- Auditing care so opportunities for further risk reduction can be identified

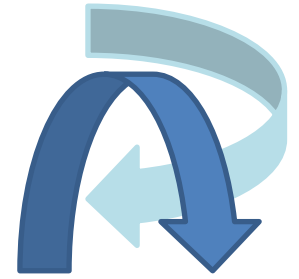
Risk factors for GBS

- GBS colonisation in current pregnancy
- GBS bacteriuria in current pregnancy
- Preterm labour at less than 37+0 weeks
- Previous baby with EOGBSD
- ROM longer than 18 hours
- Maternal temperature 38 °C or higher intrapartum or within 24 hours of birth

Measures not recommended

- Vaginal disinfection with chlorhexidine in labour
- Antenatal treatment of GBS colonisation

Different approaches



Which women need antibiotics?

There are **two main approaches** to identifying which women need intrapartum antibiotics.

What approach does QH recommend?

QH recommends the risk factor approach. Refer to the guideline for positive and negative aspects of each approach.

Two main approaches

Risk factor approach

Identify and treat with intrapartum antibiotics, all women with risk factors for EGOBDS.

Universal screening approach

- Swab all pregnant women for GBS carriage at 35–37 weeks gestation
- Treat women with a positive GBS results with intrapartum antibiotics
- Also treat women in preterm labour, or where GBS carriage status is unknown or if the woman had a previous infant with EGOBDS

Intrapartum antibiotics

When are antibiotics given?

Assess women for **risk factors** during pregnancy and at the onset of labour.

If risk factors are present, recommend intrapartum prophylactic antibiotics (IAP) at the onset of labour.

What antibiotics are recommended?

Benzylpenicillin 3 grams IV as a loading dose, and then

Benzylpenicillin 1.8 grams IV every 4 hours until birth.



Risk factors for GBS

- GBS colonisation in current pregnancy
- GBS bacteriuria in current pregnancy
- Preterm labour at less than 37+0 weeks
- Previous baby with EOGBSD
- Rupture of membranes longer than 18 hours
- Temperature 38 °C or higher intrapartum

What is adequate IAP?

- Aim for at least one dose of antibiotics 4 hours prior to birth
- If given 2 hours prior to birth, this is still considered 'adequate' prophylaxis for neonatal management

Penicillin allergy



What if the woman has a penicillin allergy?

Assess the **risk of anaphylaxis**

Clinical history is the single most important component of diagnosis of antimicrobial hypersensitivity.

If **lower risk**:

Cephazolin 2 g IV followed by Cephazolin 1 g IV every 8 hours

If **higher risk**:

Clindamycin 600 mg IV every 8 hours

High risk of anaphylaxis:

- History of immediate reaction to penicillins (characterised by development of urticaria, angioedema, bronchospasm or anaphylaxis within 1–2 hours of drug administration)

Low risk of anaphylaxis:

- History of a delayed type (non-immediate) reaction to penicillins (i.e. no history of immediate reaction) characterised by macular, popular or morbilliform rash occurring several days after starting treatment

Caesarean section

Susan is 39 weeks pregnant. Her membranes are intact and she is not in labour. She is booked for an elective caesarean section (CS) today.

Is the risk of a newborn acquiring EOGBSD reduced by CS?

GBS can be transmitted from mother to infant even through intact membranes and even in the absence of labour.

However, the risk for transmission is very low until labour begins or membranes rupture.

This is why GBS positive women who have laboured or who have ruptured membranes require antibiotic prophylaxis even if they are undergoing caesarean section.

Should IAP be recommended to Susan?

No. Women with intact membranes and who are not in labour do not require IAP if they have a CS.

However, Susan should still have routine surgical antibiotic prophylaxis as for any surgical procedure.

If Susan goes into labour before her CS, should you recommend IAP?

Yes, recommend IAP if there is active labour or ruptured membranes prior to a CS.

GBS positive

At 29 weeks gestation Tania was admitted with threatened preterm labour which settled spontaneously. She was found to be positive for GBS on vaginal/rectal swab at that time. She is now 39 weeks, in labour, membranes intact, and no other risk factors

Should Tania's GBS have been treated with antibiotics at 29 weeks?

No. As Tania was in **threatened** preterm labour and did not go into **established** labour at 29 weeks (i.e. birth was not considered imminent by her health care provider), IAP was not indicated.

A finding of vaginal/rectal GBS does not require treatment in the antenatal period.



Should you screen Tania again for GBS at 39 weeks?

No. It is not necessary to collect another swab for GBS. Tania can be considered at risk for EOGBSD based on the previous detection of GBS colonisation.

Does Tania need IAP in labour?

Yes. GBS colonisation in the current pregnancy is a risk factor for EOGBSD. Recommend IAP to Tania.

GBS Bacteriuria

Chen had a urine culture that was positive for GBS early in pregnancy. This was treated with antibiotics and repeat urine cultures are negative.

Does Chen need IAP?

Yes, studies show that GBS bacteriuria is a sign of heavy colonisation which may not be entirely eradicated with treatment.

GBS bacteriuria in the current pregnancy is a risk factor for EGOBSD.

Recommend IAP to Chen. She does not need to be screened or retested for GBS to confirm her risk status.

If the urine culture is reported as less than 10,000 cfu/mL, should Chen still be considered GBS positive?

Yes. If a urine culture is reported as positive for GBS, then the woman should be considered GBS positive for that pregnancy, regardless of the colony forming units/mL reported.



Obstetric procedures

Amniotomy and internal fetal monitoring (scalp electrode) is needed for Chen. She is receiving IAP.

Are these procedures contra-indicated for Chen because of her GBS status?

No. Although concern has been raised about performing obstetric procedures on GBS-colonised women, available data are not sufficient to determine if they are associated with an increased risk of EOGBSD.

Clinical judgement determines the use of obstetric procedures.

IAP continues.

Should you delay obstetric procedures until Chen has had 4 hours of IAP?

No. Medically urgent procedures should not be delayed in order to achieve a certain duration of IAP.



Temperature in labour

Lila is in early labour at 40 weeks. Her membranes are intact . She has been well and has no risk factors for EOGBSD. Lila develops a temperature of 37.6°C.

Is IAP indicated for Lila?

No IAP is not indicated for a temperature of 37.6 °C alone. There may be a number of physiological reasons for this temperature (e.g. dehydration).

However, her temperature should be monitored regularly in labour.



If temperature is greater than or equal to 38 °C, replace GBS specific antibiotics with broad spectrum antibiotic therapy that includes an agent active against GBS

If maternal temperature **intrapartum or within 24 hours of birth** is greater than or equal to 38 °C, notify paediatric staff immediately, as it may affect neonatal management

Term PROM

Tegan is 38 weeks pregnant when her membranes rupture at home. She presents to birth suite 3 hours later and is not in labour. She has no risk factors for EGOBSD.

Does Tegan need antibiotics started immediately?

No, antibiotics are not recommended for women with PROM at or near term **prior to the onset of labour.**

Ruptured membranes for 18 hours or longer is a risk factor for EGOBSD – **once labour is established.**

There is no difference in maternal/neonatal infectious morbidity or mortality, or stillbirth, when routine use of antibiotics is compared with placebo or no antibiotics for PROM at or near term

What about IAP when Tegan goes into labour?

When Tegan is in labour and her membranes have been ruptured for 14 hours, assess the likelihood of her baby being born in the next 4 hours.

If birth is unlikely in the next 4 hours, then recommend IAP (i.e. membranes likely to be ruptured for 18 hours or longer before birth).

If birth occurs before her membranes have been ruptured for 18 hours, IAP is not indicated.

Preterm PROM

Taylor is 28 weeks gestation with ruptured membranes. She is not in labour and expectant management is recommended. A GBS swab is collected. The result is not available yet.

Does Taylor need antibiotics?

Yes. Advise Taylor that antibiotics following PPRM are associated with a significant reduction in:

- Chorioamnionitis
- Number of babies born within 48 hours
- Neonatal infection
- Number of babies who have an abnormal cerebral ultrasound scan prior to discharge.

Multiple regimens have shown benefit and the evidence is not clear if one regimen is superior to another.

What antibiotics should Taylor have?

The Queensland Clinical Guideline recommends **either**:

- Erythromycin 250 mg oral every 6 hours for 10 days **OR**
- Amoxicillin/ampicillin 2 g IV every 6 hours for 48 hours, followed by amoxicillin 250 mg oral, every 8 hours for a total of 7 days (IV + oral), **PLUS** erythromycin 250 mg oral every 6 hours for 7 days

Preterm PROM

Taylor 's GBS swab comes back positive.

Will Taylor need IAP when in labour?

Yes. When Taylor goes into labour (or has a caesarean section) recommend the usual IAP regimen because she has at least one risk factor for EOGBSD - GBS colonisation in the current pregnancy

She will also have at least one of the following risk factors:

- Prematurity (if she births before term)
- Prolonged rupture of membranes if she is managed expectantly for 18 hours or longer before birth

What if Taylor is still receiving antibiotics for latency when she goes into labour?

If Taylor is receiving IV ampicillin (2 grams IV once followed by 1 g every 6 hours for 48 hours) when she goes into labour, this **is** adequate for IAP

If she is receiving oral antibiotics, this is **not** adequate for GBS prophylaxis and she should be started on the usual IAP regimen

Newborn care

Which babies are at risk of EOGBSD?

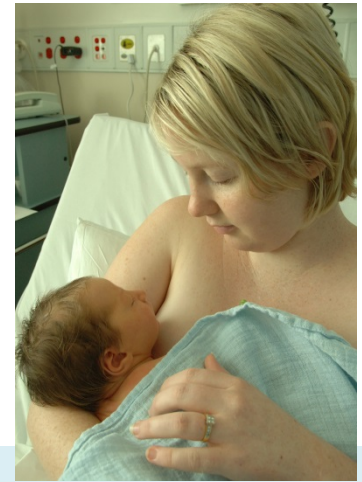
All newborn babies are at risk of infection irrespective of gestation, maternal risk factors or IAP administration.

Clinical signs of sepsis can be non-specific and subtle and a high index of suspicion is required.

Do not delay initiation of treatment

When is investigation indicated?

- Clinical signs of infection are present
- Maternal chorioamnionitis is suspected (maternal temperature is ≥ 38 °C intrapartum or within 24 hours of birth)
- The woman had a previous baby with EOGBSD
- Gestation is less than 37+0 weeks *and* inadequate IAP was given



Clinical presentation

90% of EOGBSD occurs in the first 24 hours of life as:

- Respiratory disease (54%)
- Generalised sepsis (27%)
- Meningitis (15%)

Adequate IAP

For neonatal management, IAP administered two hours prior to birth is considered adequate.

Care after elective CS

Baby Ben is born by elective caesarean section at 39 weeks gestation. He appears well immediately after birth.

What sort of care does Baby Ben need?

- Routine newborn care
- He does not require additional investigation or monitoring regardless of maternal GBS status
- Nor does he need admission to a newborn unit in the absence of other clinical indications

Routine newborn care

All newborns require clinical surveillance for signs of sepsis (e.g. temperature, heart rate and respiratory rate and observation of colour, feeding, output)



Term with maternal risk factors

Baby Lucy is born normally at 40 weeks gestation. Her mother had risk factors for EGBSD and received intrapartum antibiotics (IAP) during labour

Does Baby Lucy need additional care?

It depends on whether Lucy's mother received **adequate** IAP or not.

If **adequate IAP** was given:

- Clinical surveillance for 48 hours
- Discharge at 24 hours if home care suitable

If **inadequate IAP** was given:

- Clinical surveillance for 48 hours
- Collect a full blood count
- Discharge before 48 hours not recommended

Adequate IAP

For neonatal management, IAP administered at least two hours prior to birth is considered adequate

Admission to newborn baby unit

Not usually required if there are no clinical indications



Preterm with maternal risk factors

Baby Ahrn is born prematurely at 32 weeks gestation.

What care is indicated for Baby Ahrn?

If IAP was **adequate**:

- Clinical surveillance for 48 hours
- Collect a full blood count

If IAP was **inadequate**:

- Collect a full blood count
- Collect blood cultures
- Commence antibiotics within 30 minutes
- Perform a lumbar puncture if:
 - Blood cultures positive or
 - Clinical signs of infection
- Other investigations as indicated

Risk factors

Prematurity is a risk factor for EOGBSD
Preterm babies are more susceptible to infection.

Empirical antibiotic therapy

Benzympenicillin 60 mg/kg IV 12 hourly
OR

Amoxicillin/ampicillin 50 mg/kg IV 12 hourly
PLUS gentamicin IV (refer to guideline for dose and monitoring requirements)



Discharge advice

What advice do you give a woman who has had baby with EOGBSD?

- IAP is recommended during next labour
- Her next baby is at increased risk of EOGBSD
- To inform health care providers in the next pregnancy that a previous baby has had EOGBSD
- If GBS was colonised in this pregnancy but without infection in her baby, birth management is not affected in the next pregnancy

Late onset disease (LOD)

- IAP has no effect on occurrence of LOD
- Is more common in babies with low birth weight and early preterm
- Most common presentation of LOD is sepsis followed by meningitis

General advice to parents

- Signs of sepsis
- Importance of seeking medical assistance if baby unwell

