Group B Streptococcal (GBS) Disease/Prelabour Rupture of Membranes (PROM)/Preterm Prelabour Rupture of Membranes (PPROM)/Preterm Labour (PTL)

Objectives

At the end of this session, participants will be able to:

- Describe risk factors for PROM
- Describe antepartum screening for GBS
- Describe antepartum & intrapartum management of GBS infection
- Review intrapartum antibiotic prophylaxis
- Identify risk factors for preterm labour
- Identify antenatal considerations in a patient with a history of preterm labour
- Recognize signs and symptoms of preterm labour
- Formulate an approach to assessing a patient presenting with possible preterm labour
- Identify interventions to minimize neonatal morbidity and mortality with preterm labour
- Identify risk factors for preterm prelabour rupture of membranes
- Recognize the potential neonatal complications of preterm birth
Why is GBS important?

- Gram positive bacterium
- GBS pathogenesis:
  - associated with still birth
  - in pregnancy causes asymptomatic bacteriuria, UTIs, chorioamnionitis
  - early postpartum may cause endometritis and wound infection
  - neonates cause sepsis often characterized by bacteremia, pneumonia or meningitis (89-95% onset within the first 24 hours after birth)
    - 40% of neonates with GBS meningitis have residual moderate-severe neurologic disability
    - overall neonatal mortality with early onset disease is 5-12%
- Incidence:
  - If no IAP (Intrapartum antibiotic prophylaxis), 40-70% neonates colonized, 1-2% develop early-onset GBS infection giving an overall incidence of 1.8/1000 live births
  - With IAP incidence (2014 data) 0.24/1000 live births
How does the infant contract GBS?

- Maternal GI tract reservoir for GBS – source of vaginal colonization.
- Fetus aspirates GBS in amniotic fluid which ascends from vagina after ROM or as fetus passes through birth canal.
- GBS can also ascend and invade through intact membranes.
- Most infants remain well but mucous membranes, GI and Respiratory tracts colonized with GBS.

How is the swab collected?

- Single swab from lower third of vagina and anorectum (pass swab through the anal sphincter).
- Process in 24 hours.
- Self-collection is equivalent.
- Indicate on requisition if high risk penicillin allergy and request sensitivity testing for erythromycin and clindamycin.
- Screening recommended for all women at 35-37 weeks.
- Repeat if > 5 weeks from culture and delivery.
Case #2 – Taliah
Healthy G3P2
Presents to LDR at 36⁶ in early labour.

**What are the indications to recommend treatment for GBS?**

**What are risks factor based recommendations, if GBS status is unknown?**

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**Additional case information:**
- Missed appointment at 36 weeks, due to child care concerns
- No GBS swab done
- Urine was negative earlier in pregnancy
- Previous pregnancy – one GBS positive and one GBS negative, no infant infections

**Indications to start treatment for GBS prophylaxis in labour**

**Prelabour risk factors for early-onset GBS disease are:**
- Previous infant with GBS disease
- GBS bacteriuria – any colony count is a risk factor and these women are regarded as colonized at delivery
  - Treat antepartum for colony counts >10⁶ CFU/ml (10⁸ CFU/L) as heavy colonization associated with pyelonephritis, chorioamnionitis, preterm birth (treating will reduce pyelonephritis and low birth weight)
- GBS positive on screening culture within 5 weeks of labour onset/membrane rupture
Risk factors if GBS status is unknown:

- Preterm labour (< 37 weeks EGA)
- Amniotic membrane rupture ≥ 18 hours
  - Intrapartum temperature of ≥ 38°C
- GBS status in previous pregnancy – recurrence rate 38-53% - can consider an indication for IAP if GBS unknown
Evidence supports this practice as a routine recommendation.

- Support of patient autonomy is important
- GBS swab positive (10-30%)
- How often do you encounter these risks factors in your practice?
- It is important to know GBS status first to effectively guide conversation on intrapartum prophylaxis

No method prevents all GBS disease.

Approach when someone chooses not to be screened?

- Provide evidence of support for screening
- Explore reasons to why she does not want screening
- Recommendations for treatment on risk factors if someone chooses not to be screened

Aim of intrapartum antibiotic prophylaxis (IAP) is:

- to decrease maternal colony counts
- to prevent ascending maternal infection
- to achieve effective concentrations of antibiotics in the fetus during labour
Antibiotic Prophylaxis

IV penicillin G is the drug of choice unless the woman is allergic to penicillin.

For women at low risk of anaphylaxis, cefazolin is indicated.

For women at high risk of anaphylaxis, or cephalosporin allergy (other than specifically to cefazolin) it is now recognized that it is safe to administer cefazolin.

For women with documented cefazolin allergy or non-IgE mediated hypersensitivity reactions to penicillin or cephalosporin, then penicillin and cefazolin should be avoided and sensitivities should be obtained.

If the GBS isolate is resistant to clindamycin OR erythromycin (or sensitivities are unknown), then vancomycin is indicated. (In the case where GBS is resistant to erythromycin but sensitive to clindamycin, can test for inducible resistance to clindamycin and if negative can use clindamycin)
Clindamycin should be used if the GBS isolate is sensitive to both clindamycin and erythromycin. Maternal administration of clindamycin has been shown to reach therapeutic cord blood levels within 1 to 2 hours. Erythromycin is no longer recommended because of its poor transplacental transfer (3% of maternal concentration).

If the GBS isolate is resistant to clindamycin, or erythromycin by antimicrobial susceptibility testing (or the sensitivities are unknown), vancomycin is indicated. GBS remains universally highly sensitive to vancomycin, which also has a satisfactory transplacental passage.

Recommended intrapartum antibiotic prophylaxis

Preferred (narrow spectrum): IV penicillin G 5 million units, followed by 2.5 or 3 million units q4h alternative: IV ampicillin 2 g followed by 1 g q4h

In the presence of a penicillin or cephalosporin (other than cefazolin) allergy

if woman is at low risk for anaphylaxis: administer cefazolin 2 g IV, followed by 1 g every 8 hours until delivery

In the presence of is at high risk for anaphylaxis documented cefazolin allergy or non-IgE mediated hypersensitivity reaction to penicillin or cephalosporins:

If the GBS isolate is sensitive to both clindamycin, and erythromycin, administer clindamycin 900 mg IV, every 8 hours, until delivery.

If the GBS isolate is not sensitive (or unknown) to clindamycin or erythromycin, administer vancomycin 1 g IV, every 12 hours until delivery. However, if GBS isolate was sensitive to clindamycin but resistant to erythromycin by antimicrobial susceptibility testing, clindamycin may be used if testing for inducible resistance to clindamycin is available and negative.

Reminder:

IAP recommended for/offered to all women with:

Previous infant with invasive GBS disease
GBS bacteriuria during current pregnancy
Positive Screening culture at 35-37 weeks during current pregnancy
GBS unknown and any of

Preterm labour (<37 weeks)
ROM > 18 hours
Maternal fever ≥ 38°C (treat for chorioamnionitis with broad spectrum antibiotics)

No method prevents all GBS disease.
Adequate prophylaxis is defined as ≥ 4 hours of IV penicillin, ampicillin or cefazolin before delivery.
Goal to discuss incomplete prophylaxis:

- Timing of doses
- <4 hours
- Declined treatment
- Precipitous delivery

Antibiotic choice: Adequate prophylaxis is defined as ≥ 4 hours of IV penicillin, ampicillin or cefazolin before delivery

Maintaining the dosing schedule is important.
This chart is not meant for detailed consideration about neonatal management. But rather, to recognize that inadequate prophylaxis requires increased neonatal surveillance, and there will be site specific protocols.

These babies are not as high risk as babies of mothers with chorioamnionitis, but require closer neonatal surveillance.
No single test is perfect. Consider the overall clinical situation when making your diagnosis.

Sterile speculum exam – Speculum gently placed at introitus and advanced.
- Can use scant amount of water soluble lubricant.
- Observe for possible cord, glistening mucosa, pooling of fluid in vaginal canal, any fluid from cervix with cough.
- Fluid tested for pH and ferning

- Testing for ferning:
  False negatives – prolonged membrane rupture and minimal residual fluid.
  False positives – antiseptic solution, semen, fingerprints on the slide and cervical mucus. (Blood, meconium and vaginal secretions will not alter this)

- Consider supportive not conclusive.
• pH testing: Nitrazine paper non-specific. Changes from dark yellow to blue if pH >6.5. Amniotic pH is 7.1 to 7.3 while normal pH of vagina is 4.5-6.0.

• Are they using immunoassays for placental alpha macroglobulin -1, which is a protein marker for amniotic fluid?
  • Sterile swab inserted 5-7cm in vagina
  • Sensitivity of 98.9% specificity of 100% PPV of 100%

• GBS status

Avoidance of digital exam whenever possible. If expectant management is anticipated, speculum exam can be used to assess the cervix. If the woman is in active labour, digital cervical exam is indicated.
Amniotic Fluid Ferning
Mag: x10
Case #6 – Lillian

Rupture of membranes is confirmed with speculum examination. She is at 38 weeks 4 days.

**How do you counsel her on the next steps of management?**

**Additional clinical information:**

- No signs of labour
- Have discussion about GBS positive versus GBS negative

Current evidence supports IOL for all women with Term PROM within 24 hours rather than expectant management to reduce rates of maternal infection and NICU admissions without increasing CS rates or AVB (expectant management on the other hand has been shown to increase CS rates and prolong maternal hospitalization).

Options for medical induction include:

- IV Oxytocin
- Oral misoprostol (50 mcg po q4h to a maximum of 4 doses)
- Vaginal PGE₂ (not vaginal misoprostol)

Vaginal prostaglandins are as effective as oxytocin for labour induction, but higher rates of chorioamnionitis can occur.

Overall decreased risk of maternal infection (indicated by clinical
chorioamnionitis, antibiotics during labour or postpartum fever) in those women induced with oxytocin compared to those who were induced with prostaglandin or who received expectant management.

Term PROM trial also found decreased rates of neonatal infection compared with those induced with prostaglandin or expectant management.

If GBS positive:
If GBS positive, indication for induction is more compelling as it reduces neonatal infection.
If GBS positive and Term PROM, it is recommended that labour be induced with oxytocin or oral misoprostol.

If declining induction or induction is not immediately available at your centre:
No digital exam
Report any s/s infection or decreased fetal movement
Evaluate fetal movements and FH every 24 hours as well as maternal vitals
Observe infants born after 24 hours of PROM for the first 12 hours for infection

If GBS positive, indication for induction is more compelling as it reduces neonatal infection.
If GBS positive and Term PROM, it is recommended that labour be induced with oxytocin or oral misoprostol.
Confirmation of rupture of membranes is the same, regardless of gestational age

Confirmation of fetal presentation

Discuss false positive “ferning”

Recommendations for management – focus on antibiotic prophylaxis

- Steroids
- Expectant management – antibiotic prophylaxis
- Transfer to higher level of care

**General risk factors for PPROM:**

- Amniocentesis
- Cervical insufficiency
- Uterine anomaly
- Cervical cerclage
- Prior cervical conization, laser conization, LEEP
- PPROM in previous pregnancy
- Chronic abruptio placentae
• Vaginal bleeding in pregnancy
• Polyhydramnios
• Multiple pregnancy
• Cigarette smoking
• Sexually transmitted infections
• Low socioeconomic status
• Bacterial vaginosis

**Antepartum antibiotics**

Use of an antibiotic following PPROM reduces the risk of chorioamnionitis, prolongs latency period, and reduces markers of neonatal morbidity (neonatal infection, use of surfactant, O\textsubscript{2} therapy, and abnormal cranial U/S)

Mercer protocol – ampicillin 2 g IV Q6h + erythromycin 250 mg IV Q6h for 48 hours then amoxicillin 250 mg po Q8h + erythromycin base 333mg po Q8h for 5 days (Amoxicillin with clavulanic acid – avoid – increased NEC)
Summary recommendations for PROM

**Term PROM — IOL**

Late preterm PROM (34 to 36 6/7 weeks) — optimal management unclear.

Preterm PROM (<34 weeks) — expectant management with antibiotics

Term PROM—IOL (↓maternal infection, ↓NICU admission with no ↑ CS or assisted vaginal birth) with one of IV oxytocin, oral misoprostol or vaginal prostaglandin

Late preterm PROM (34 to 36 6/7 weeks)—optimal management unclear. Expectant management with close surveillance of maternal and fetal well-being

- Need for transfer
- Steroids – up to 34^6
- Role of GBS status

Preterm PROM (<34 weeks)—expectant management with antibiotics (↓chorioamnionitis, ↓neonatal infection, ↓surfactant use, ↓abnormal cranial U/S, and prolongs latent period) and steroid (↓neonatal death, ↓RDS [respiratory distress syndrome], ↓IVH [intraventricular hemorrhage], ↓NEC [necrotizing enterocolitis], ↓respiratory support, ↓NICU admission)
Presenting Complaint: Routine Prenatal Care

Current Pregnancy:
Symptoms: occasional nausea, spotting last week x 1 day (1 pantyliner),
Dating – LMNP certain, cycles regular, no US yet
Weight – 49 kg/108 lb (BMI 19) prior to pregnancy

Obstetrical History
1st pregnancy: age 18 – complication of pyelonephritis with spontaneous rupture of membranes at 33 weeks, delivery 34 weeks (child well)
2nd pregnancy age 29 – contractions @ 32 weeks, sent home from hospital, back 4 hours later with precipitous delivery (baby had IVH, NICU x 5 weeks, has epilepsy and post-partum depression)

Medical History: Crohn’s but no flare in 6 years and on no meds

Medication/Allergies
Meds – none ; Allergies -None
Social History/Exposures
Social – married, receptionist (single at time of 1\textsuperscript{st} pregnancy, married in 2\textsuperscript{nd})
Smoker – 3 per day
Drugs – occasional marijuana (<1 x per week, <1 g)

Vital Signs/Examination
Vitals (normal)
Weight (49 kg/108 lb) BMI 19
Physical exam will be completed later in case

Investigations: Rh+

It is important to have accurate dating in pregnancy especially with 2 prior preterm births.
• For routine screen at 20 weeks, consider adding ultrasound for cervical length

Amelia’s risk factors:
• Prior preterm birth – most significant
• Antepartum bleeding – risk factor when indicative of cervical change
• Low pre-pregnancy weight
• Smoker

Risk factors for preterm birth:
• Reproductive history:
  • Previous spontaneous preterm birth
  • Advanced reproductive technologies
• Antepartum bleeding
• PPROM
• Cervical/uterine factors
  • Cervical insufficiency, uterine malformation, and fibroids
  • Excisional cervical treatment for cervical intraepithelial neoplasia
• Fetal/intrauterine factors
- Multifetal gestation
- Fetal anomaly
- Polyhydramnios

- Infection
  - Chorioamnionitis
  - Bacteriuria
  - Periodontal disease
  - Current bacterial vaginosis with a prior preterm birth
  - Malaria (particularly in developing countries)

- Demographic factors
  - Low socioeconomic status
  - Single women
  - Low level of education
  - Maternal age < 18 and > 35 years

- Lifestyle issues
  - Illicit drugs
  - Smoking (e.g. smoking > 10 cigarettes/day)
  - Physical abuse
  - Inadequate prenatal care
  - Low pre-pregnancy weight (weight < 55 kilograms)
  - Poor weight gain in pregnancy
  - Stress
  - Obesity
Physical exam at this visit given her history:

**Vitals** (normal)
**Weight** (49 kg/108 lb) BMI 19
**General exam** (normal H&N, CVS, RESP, MSK, NEURO)
**Abdominal exam** (normal, uterus is just palpable at the symphysis pubis)
**GU** – Swab for BV

If positive and treated, it does not reduce risk of subsequent PTB but will decrease PPROM risk and LBW.

- Rx with oral metronidazole 500mg BID x 1 week or clindamycin 300mg BID x 1 week.
  - Vaginal not effective in preventing PPROM or LBW but will treat the infection.
- Swab for chlamydia and GC, pap (no blood in the vagina)
- Recommended time for screening swabs is 12-16 weeks
**Bimanual** – uterus feels 12 weeks in size

**FHR** – heard and is 160

**Counsel regarding risk factor reduction**
- Stop smoking marijuana
- Ensure healthy intake with adequate weight gain (should gain (10-15kg) 25-35lb – gain about (0.5-1kg) 2 to 4 lbs during the first 3 months and (0.5kg) 1lb/week during the rest of pregnancy, consider referral to dietician
- Ensure regular prenatal care
- Early recognition and follow up for signs and symptoms of preterm labour (cramping, contractions, low back ache, abdominal or pelvic pressure, vaginal bleeding or discharge)
- Early recognition of signs or symptoms of Crohn’s flare, UTI

**Investigations**
- **Routine bloodwork** – ensuring Rh status given bleeding history
- **Urine** – for C&S with history of prior pyelonephritis
- **Ultrasound** – for dates
  - *It is important for accurate dating in pregnancy especially with 2 prior preterm births.*
  - For routine screen at 20 weeks, consider adding ultrasound for cervical length

**Management Options:**
- **Consider progesterone** – from 16 weeks gestation and continue to 36 weeks (200mg vaginally of micronized progesterone)
  - *Discuss decrease in rate of PTB < 32-34 weeks and BW < 2500g in women with a history of spontaneous singleton PTB at < 34 weeks or a finding of an incidental short cervix < 20mm at < 24 weeks*
  - *No role in twins/triplets if only risk factor*
  - *Not enough evidence as yet to change practice*

**Cervical cerclage?**
Cervical cerclage is most successful in those that have a history of cervical insufficiency – it is not indicated here
If evidence of cervical insufficiency (e.g. loss without labour), cerclage should be considered in singleton pregnancies in women with a history of spontaneous PTB if the cervical length is \( \leq 25\text{mm} \) before 24 weeks of gestation.

No role in incidental finding of short cervix.

Emergency cerclage (also known as rescue or physical examination – indicated cerclage) may be considered in women in whom the cervix has dilated to \(< 4\text{cm}\) without contractions before 24 weeks of gestation.

**What about prophylactic steroids?** – No

The prenatal record should be available and the patient should have a copy with her.

*Amelia is successful at stopping smoking. She started on progesterone at 16 weeks gestation. She has an uncomplicated pregnancy and delivers her third child at 37^{2} weeks.*
Reminder – if she phones you with this information, you cannot adequately assess preterm labour over the phone.

**Preterm labour assessment**

- Vital signs – mom/baby
- Evaluate contractions
- Cervical assessment
  - Speculum exam
    - Rule out PPROM if indicated
    - fFN
    - Cultures if indicated
  - Digital exam

**History**

- Fetal movement (present)
- Vaginal exam bleeding (no)
- Vaginal exam fluid leak (bit damp in her underwear in the last hour but no fluid gush)
Any precipitants of current symptoms (none)
Associated symptoms (infection – UTI symptoms, flare of Crohn’s, etc. (none))

**Vitals**
- T – 37.1
- HR – 88
- RR – 16
- BP – 104/68

**FHR**
- 160 and normal

**Abdomen**
- Uterus soft and not tender
- Vertex by palpation
- Extra uterine abdominal exam is negative

**GU**
- Fetal fibronectin
  - If negative unlikely to deliver in the next 7-14 days even in the fact of contractions.
  - Fetal fibronectin is unreliable and should not be performed if there has been bleeding, lubricant or vaginal penetration in the last 24 hours.

Swab for GBS

Sterile speculum exam (pooling, nitrazine and ferning all negative)

Pelvic exam – remember to consider placental location (cervix 2cm dilated and 50% effaced (2cm), posterior, confirm vertex)

**EFM**
- To see pattern of contractions and fetal well-being (one contraction since her arrival).

**Cervical ultrasound** if immediately available (if available cx is 22mm), center specific

Urinalysis and C&S
Case #8 – Celeste

Your assessment shows:

- No rupture of membranes
- No visible bleeding
- Cervix is 2 cm dilated, and 2 cm long
- fFN is positive
- Baby is cephalic, normal grown and amniotic fluid is normal

What do you want to do now?

- **Admit** her to hospital/consider **transport** if necessary

Indications for transport (communication, assessment of fetus and mother immediately prior to transport, ensuring safe transport (weather, distance, attendant etc.))

Need to be in level 3 vs safety issues

- **Consider neonatology/obstetrics** (if have this resource)

- Steroids: Give at < 34⁶ weeks
  - Betamethasone 12mg IM Q24hr x 2 doses
  - Dexamethasone 6mg IM Q12hr x 4 doses

Contraindications (active Tb, gastric ulcer, chorioamnionitis)

Benefits (decreased RDS, IVH by US, NEC, neonatal infection and death)
• Discuss importance of in-utero transfer if possible

Tocolysis

• Nifedipine IR 10mg q 15-20 minutes until stop contracting or 40mg given in 1st hour
• Maintenance of 10mg q 4-hr with max daily dose of 120mg (most centers stop at 60mg max per day)
• Discuss contraindications to tocolysis (medical indications for delivery, chorioamnionitis, imminent delivery, abnormal fetal surveillance, APH, contraindication to tocolytic agent)
• Discuss tocolytics have not been shown to reduce perinatal mortality but may delay delivery by 48hrs to allow steroid administration
• Discuss use of indomethacin for transfer if needed (100mg pr, not used after 32 weeks because of risk re closure of the ductus arteriosus or >48 hrs due to impact on AFV)
• Upper limit of tocolysis-give until 34 0/7 completed weeks of gestation.
• No evidence – fluid bolus, bedrest, sedation, narcotics, progesterational agents, magnesium sulfate, home uterine monitoring.

Celeste is transferred to the local tertiary site. She delivers five days later. Mom and baby are reported to be doing well.
Accurate dating is important.

- Limits of viability are changing
- Important to consult the referral site
Benefits of steroids
When should steroid therapy be instituted?

Lower gestation limit: 24 weeks (<24 weeks should be assessed on a case-by-case basis)
Upper gestation limit: 34 weeks
Prophylactic administration: Depends on diagnosis and risk
Repeated courses: No

Corticosteroid options:
- Betamethasone 12mg IM every 24 hours x 2 doses
- Dexamethasone 6mg IM every 12 hours x 4 doses

Special considerations with use of corticosteroids:
- Contraindications to the use of corticosteroids: active tuberculosis, gastric ulcers, and chorioamnionitis
- If immediate delivery is indicated, it should not be delayed to wait for corticosteroid treatment effect
- Use of corticosteroids will transiently increase maternal blood sugar; it is recommended to delay testing for gestational diabetes for at least...
1 week after administering of corticosteroid to avoid elevated glucose results

- Use of corticosteroids will also transiently increase the white blood cell count
- Evidence on the long-term academic performance of school-age children calls into question the use of routine steroids for elective Caesarean section from 37 to 39 weeks.
- Due to the benefits and potential harms, corticosteroid use is not recommended for pre-labour Cesarean section at term.
- Use of corticosteroids may decrease fetal movements in the first 3 days following initiation of therapy.
- Corticosteroids should be administered in the same gestational age range and dosage in women with obesity, with twins or higher order multiples, or with a suspected growth restricted fetus.

Rescue dose = 1 x 12mg betamethasone in women <33 weeks having received initial steroids <30 weeks and at least 14 days prior (reduction in composite NN morbidity, RDS, ventilator support, and surfactant use) judged to have recurring threat of preterm delivery in the coming week.

Study criteria were those that had completed a single dose of betamethasone before 30 weeks at least 14 days prior, and were judged to have a recurring threat of preterm delivery in the coming week.

There was a significant reduction in composite neonatal morbidity < 34 weeks in the “rescue steroid” group vs. placebo (42.5 % vs. 63.3 %, RR 0.67, 0.54-0.83, p = 0.0002) as well as significantly decreased RDS, ventilator support, and surfactant use. Perinatal mortality and other morbidities were similar in each group. Administration of a single “rescue course” of ACS before 33 weeks improves neonatal outcome without apparent increased risk.
Fetal monitoring - EFM

Move to labour and delivery –
Plan for delivery with team – nursing, obstetrics, neonatology
Plan for delayed cord clamping

Magnesium sulfate – For neuroprotection, NOT tocolytic
- Indications (active labour ≥ 4cm with progressive change/failure or contraindication to tocolysis, planned preterm delivery, PPROM with active labour)
- Loading dose 4g IV over 30 min with infusion 1g/hr IV
- Discuss upper limit of administration 33 weeks 6 days, sx and mx of MgSO₄ toxicity
- Stop at 24 hours if delivery is no longer imminent

Antibiotics for GBS if her GBS swab was +
Analgesia

Key points for delivery:
• Consult pediatrics/nursing
• Delayed cord clamping
• Follow NRP guidelines for neonatal temperature regulation

Neonatal risks:
• IVH
• NEC
• RDS
• Sepsis
• Seizures
• Neurologic sequelae

Morbidity and mortality of preterm birth
• 75% of perinatal mortality occurs in preterm births
• Short term morbidity
  • RDS
  • IVH
  • NEC
• Long term neonatal/pediatric morbidity
  • Respiratory
  • CNS and neurodevelopmental
• Blindness and deafness
Summary

- Universal GBS screening is recommended
- Penicillin G is the antibiotic of choice for mothers at risk of GBS
- Avoid digital exam with PROM
- For PTL, to minimize neonatal mortality and morbidity:
  - Steroid – antenatal steroid therapy
  - Tocolytics – if indicated
  - Antibiotics – GBS prophylaxis
  - Transport
  - Consider MgSO₄ for neuroprotection