Subject: Group B- Beta Strep Treatment/Prophylaxis Guideline	
REVISION DATE: March 2013, 06/2012, 04/2007, 07/2006 REPLACES: L&D GBS Prophylaxis	WRITTEN: May 1987 REVIEWED: July 2015 SUPERSEDES DATE: June 2012

This guideline is used to assist staff when prophylactically treating patients who are colonized with Group B-Beta Strep (GBS) to prevent (GBS) infection of the infant. This applies to all medical and nursing personnel.

Purpose: The goal of GBS prophylaxis is to prevent GBS infection of the infant.

Summary of Changes: References/content updated to reflect most current standards of practice.

1. References:

1.1. Centers for Disease Control and Prevention (2010). Prevention of perinatal group B streptococcal disease, revised guidelines from CDC, 2010. *Morbidity and Mortality Weekly Report, 59*(RR-10), 1-23. http://www.cdc.gov/mmwr/pdf/rr/rr5910.pdf.

1.2. *Nursing 2010 drug handbook* (2010). Ambler, PA: Lippincott, Williams and Wilkins.

2. Responsibilities:

2.1. Credentialed delivering provider.

21.1. Manages and assumes responsibility for patient care administered.

2.1.2. Reviews medical records and assesses patients requiring GBS prophylaxis.

2.1.3. Orders appropriate medication for patient based on medical records and assessment.

2.2. Nurse.

2.2.1 Provides recognized nursing standard of care to patients in coordination with provider's orders.

2.2.2. Acknowledges and carries out all provider orders that are in the Electronic Health Record (EHR).

3. General

3.1. GBS is the leading cause of early-onset neonatal sepsis in the United States (CDC, 2010).

3.2. Maternal GBS colonization screening at 35-37 weeks gestation and administration of intrapartum antibiotic prophylaxis has resulted in a significant reduction in newborns infected with early-onset GBS (CDC, 2010).

3.3. Neonatal infection occurs primarily from vertical exposure to GBS from the vagina of a colonized mother to the amniotic fluid after onset of labor, rupture of membranes, or to the infants mucus membranes during passage through the birth canal.

3.4. Other factors that increase the risk for early-onset disease include gestational age <37 weeks, membrane rupture ≥18 hours, intra-amniotic infection, young maternal age, black race, low maternal levels of GBS-specific anticapsular antibody, previous delivery of an infant with invasive GBS disease, and maternal GBS bacteriuria at any point during pregnancy (CDC, 2010).

3.5. When a cesarean delivery is performed before onset of labor with intact amniotic membranes antibiotic prophylaxis is not recommended. Should onset of labor or rupture of membranes occur before the planned cesarean delivery, GBS-colonized women should receive intrapartum antibiotic prophylaxis (CDC, 2010).

3.6. At the onset of labor, intrapartum antibiotic prophylaxis should be given to all women who tested positive for GBS colonization. **In instances where GBS results are not available, antibiotics should be given to women who are <37 weeks gestation, have a duration of membrane rupture ≥ 18 hours, or have a temperature of ≥100.4F** (CDC, 2010).

3.7. Penicillin is the antibiotic of choice for intrapartum prophylaxis. Ampicillin is an acceptable alternative. Penicillin-allergic women with a low risk of anaphylaxis should receive Cefazolin. Those with a high risk for anaphylaxis should receive Clindamycin, or Vancomycin if their GBS isolate is resistant to Clindamycin (CDC, 2010).

3.8. The recommended dosing of Penicillin G is 5 million units intravenously, followed by 2.5–3.0 million units intravenously every 4 hours (CDC, 19).

4. Standards of Practice/Guidelines for Care:

4.1. Review the patient's chart for GBS culture results, known drug allergies, and provider's orders regarding GBS prophylaxis.

4.2. If no GBS cultures exist and the patient is not in active labor, a GBS culture should be obtained.

4.2.1. To obtain a GBS culture, swab the lower vagina followed by the rectum (insert swab through the anal sphincter) using the same swab or two different swabs. Place the

swabs into a nonnutritive transport medium provided, label, and send to the lab for processing. If the patient is allergic to penicillin, susceptibility testing for clindamycin and erythromycin should be ordered.

4.3**. If no GBS cultures exist and the patient is in active labor, GBS prophylaxis should be initiated on the basis of risk factors:**

4.3.1. Previous infant with invasive GBS disease.

4.3.2 GBS bacteriuria during any trimester of current pregnancy.

4.3.3. Delivery at <37 weeks gestation

4.3.4. Amniotic membrane rupture ≥ 18 hrs.

4.3.5. Intrapartum temperature ≥ 100.4°F (≥38.0°C).

4.4. When the woman with GBS positive cultures is determined to be in active labor (cervical dilation of ≥ 4cm or rupture of membranes), antibiotic prophylaxis of Penicillin should be initiated.

4.4.1. If the patient has no history of penicillin allergy:

4.4.1.1. Administer a loading dose of Penicillin G potassium 5,000,000 units IV piggyback infused one time over 60 minutes, or per physician's orders.

4.4.1.2. Four hours after loading dose is initiated, infuse Penicillin G potassium 3,000,000 unit(s) IV piggyback over 60 minutes every 4 hours until delivery, or per physician's orders.

4.4.1.3. If Ampicillin is to be used in place of Penicillin, infuse 2g IV initial dose then 1 g IV every 4 hrs until delivery, or per physician's orders.

4.4.2. If the patient has a history of penicillin allergy with a low risk of anaphylaxis, they should receive Cefazolin 2g IV initial dose, then 1 g IV q 8hrs until delivery (CDC, 21).

4.4.3. If the patient has a high risk for anaphylaxis, request the lab to do sensitivity testing. Patients should be treated with Clindamycin 900 mg IV q 8 hrs until delivery, or Vancomycin 1 gm IV q 12 hrs until delivery if their GBS isolate is resistant to Clindamycin.

4.4.4. Erythromycin is not an acceptable alternative for intrapartum GBS prophylaxis for penicillin-allergic women at high risk for anaphylaxis (CDC, 2010).

4.5. Prime the infusion line and confirm the correct medication and infusion rate with provider's orders in the patient's electronic health record (EHR)

4.6. Scan patient's identification band and medication bar code to document medication start time and administration in EHR.

4.7. Monitor patient for pain at IV site or any sign or symptoms of Penicillin allergy.

4.7.1. Immediate reactions usually occur within 20 minutes of administration and range in severity from itching and hives, to edema, laryngospasm, bronchospasm, hypotension, vascular collapse, and death (Nursing 2010 Drug Handbook, 2010).

4.7.2. An accelerated reaction may occur between 20 minutes and 45 hours after administration and may include itching, rash, hives, fever, and occasionally, laryngeal edema (Nursing 2010 Drug Handbook, 2010).

4.7.3. If a severe reaction is observed, stop the infusion immediately and notify the provider.

4.8. **Notify the pediatrician working with the babies on the Mother-Baby Unit of maternal GBS status.** These deliveries do not need to be attended by a NICU nurse or pediatrician unless additional concerns arise.

5. **Attachments:**

5.1. Attachment 1: CDC GBS Algorithm for screening for group B streptococcal (GBS) colonization and use of intrapartum prophylaxis for women with preterm* labor (PTL).

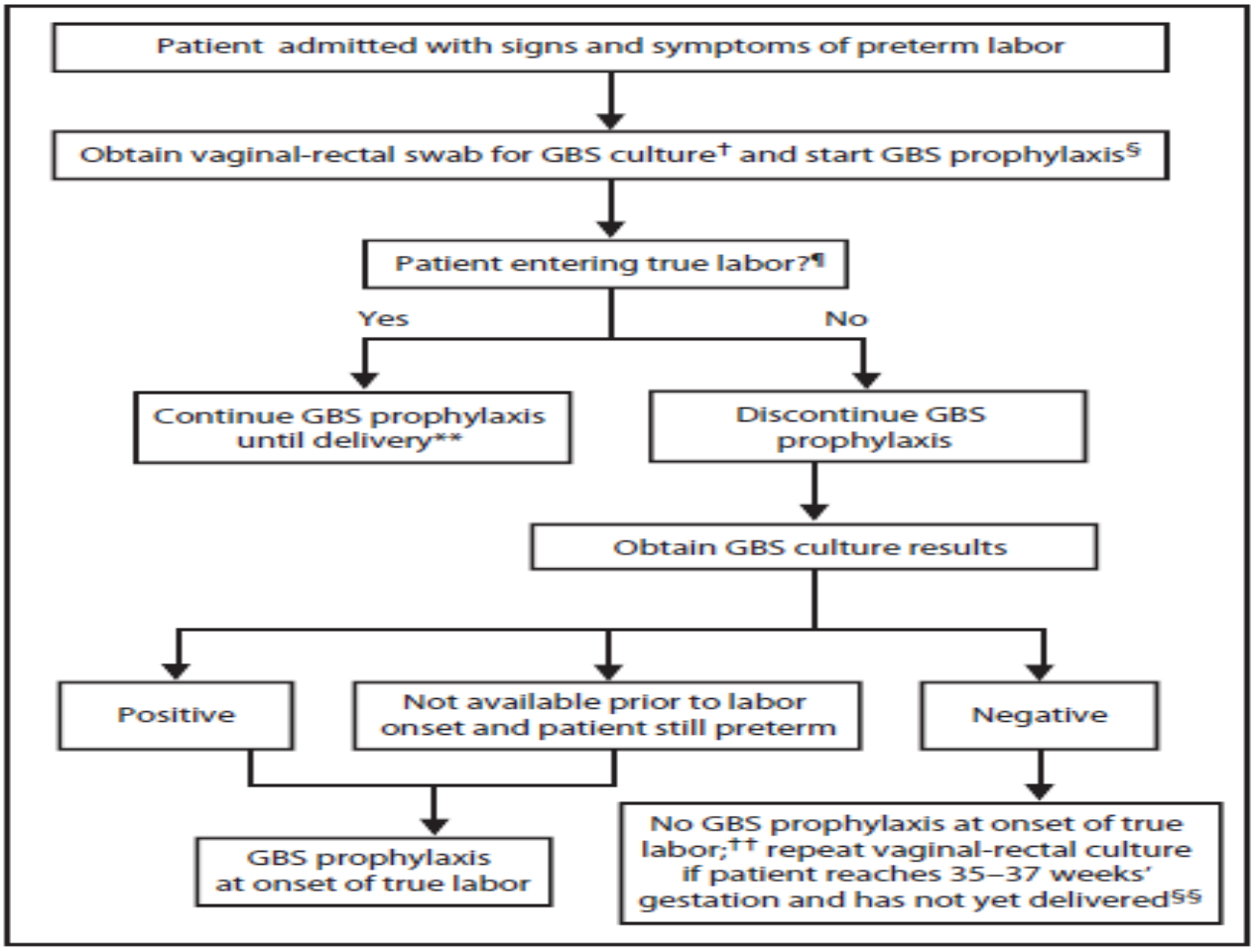
5.2. Attachment 2: CDC (2010) GBS Algorithm for screening for group B streptococcal (GBS) colonization and use of intrapartum prophylaxis for women with preterm* premature rupture of membranes (pPROM).

5.3. Attachment 3: CDC (2010) GBS Algorithm recommended regimens for intrapartum antibiotic prophylaxis for prevention of early-onset group B streptococcal (GBS) disease*

5.4. Attachment 4: CDC (2010) GBS Algorithm for secondary prevention of early-onset group B streptococcal (GBS) disease among newborns

Attachment 1: CDC (2010) GBS Algorithm for screening for group B streptococcal (GBS) colonization and use of intrapartum prophylaxis for women with preterm* labor (PTL).

FIGURE 5. Algorithm for screening for group B streptococcal (GBS) colonization and use of intrapartum prophylaxis for women with preterm* labor (PTL)

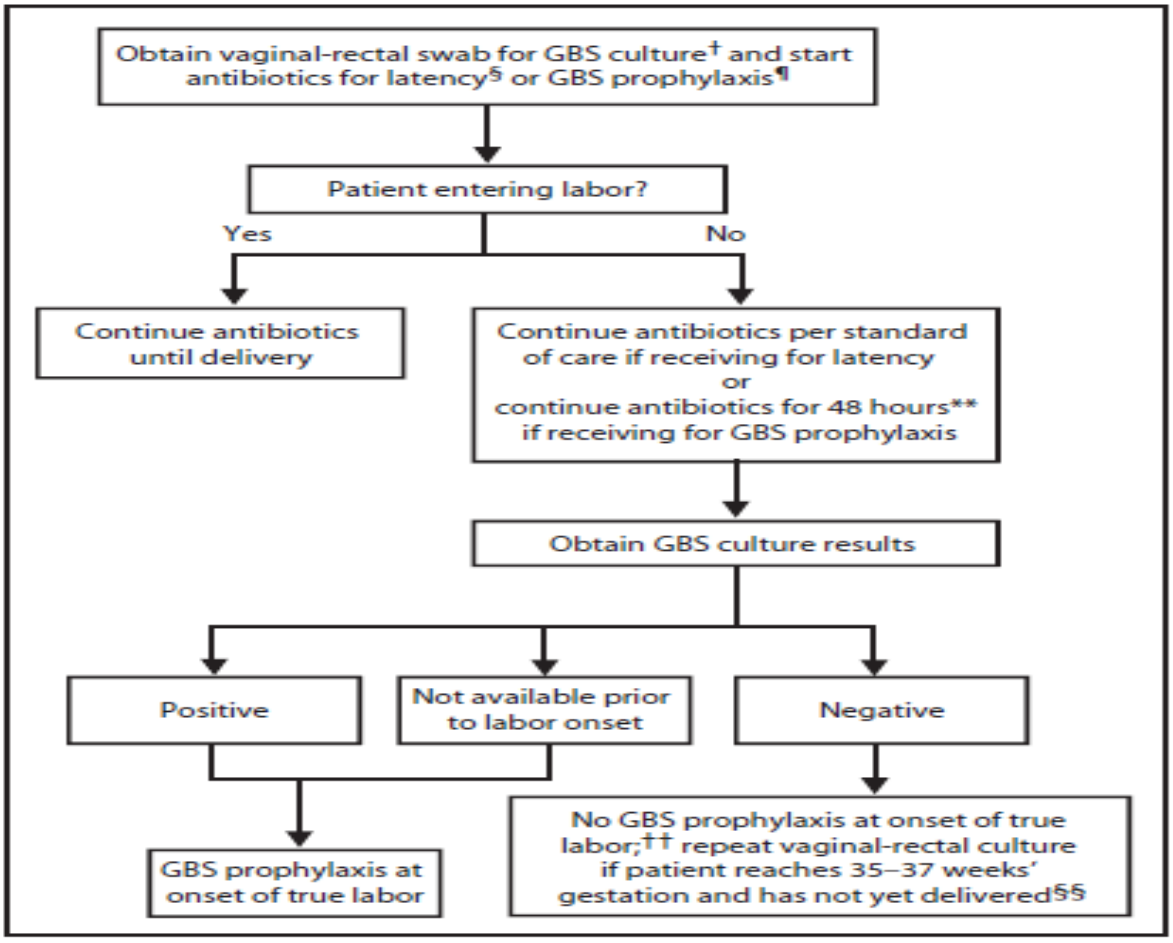


* At <37 weeks and 0 days' gestation.
† If patient has undergone vaginal-rectal GBS culture within the preceding 5 weeks, the results of that culture should guide management. GBS-colonized women should receive intrapartum antibiotic prophylaxis. No antibiotics are indicated for GBS prophylaxis if a vaginal-rectal screen within 5 weeks was negative.
§ See Figure 8 for recommended antibiotic regimens.
¶ Patient should be regularly assessed for progression to true labor; if the patient is considered not to be in true labor, discontinue GBS prophylaxis.
** If GBS culture results become available prior to delivery and are negative, then discontinue GBS prophylaxis.
†† Unless subsequent GBS culture prior to delivery is positive.
§§ A negative GBS screen is considered valid for 5 weeks. If a patient with a history of PTL is re-admitted with signs and symptoms of PTL and had a negative GBS screen >5 weeks prior, she should be rescreened and managed according to this algorithm at that time.

November 2010

Attachment 2: CDC (2010) GBS Algorithm for screening for group B streptococcal (GBS) colonization and use of intrapartum prophylaxis for women with preterm* premature rupture of membranes (pPROM).

FIGURE 6. Algorithm for screening for group B streptococcal (GBS) colonization and use of intrapartum prophylaxis for women with preterm* premature rupture of membranes (pPROM)



* At <37 weeks and 0 days' gestation.

† If patient has undergone vaginal-rectal GBS culture within the preceding 5 weeks, the results of that culture should guide management. GBS-colonized women should receive intrapartum antibiotic prophylaxis. No antibiotics are indicated for GBS prophylaxis if a vaginal-rectal screen within 5 weeks was negative.

§ Antibiotics given for latency in the setting of pPROM that include ampicillin 2 g intravenously (IV) once, followed by 1 g IV every 6 hours for at least 48 hours are adequate for GBS prophylaxis. If other regimens are used, GBS prophylaxis should be initiated in addition.

¶ See Figure 8 for recommended antibiotic regimens.

** GBS prophylaxis should be discontinued at 48 hours for women with pPROM who are not in labor. If results from a GBS screen performed on admission become available during the 48-hour period and are negative, GBS prophylaxis should be discontinued at that time.

†† Unless subsequent GBS culture prior to delivery is positive.

§§ A negative GBS screen is considered valid for 5 weeks. If a patient with pPROM is entering labor and had a negative GBS screen >5 weeks prior, she should be rescreened and managed according to this algorithm at that time.

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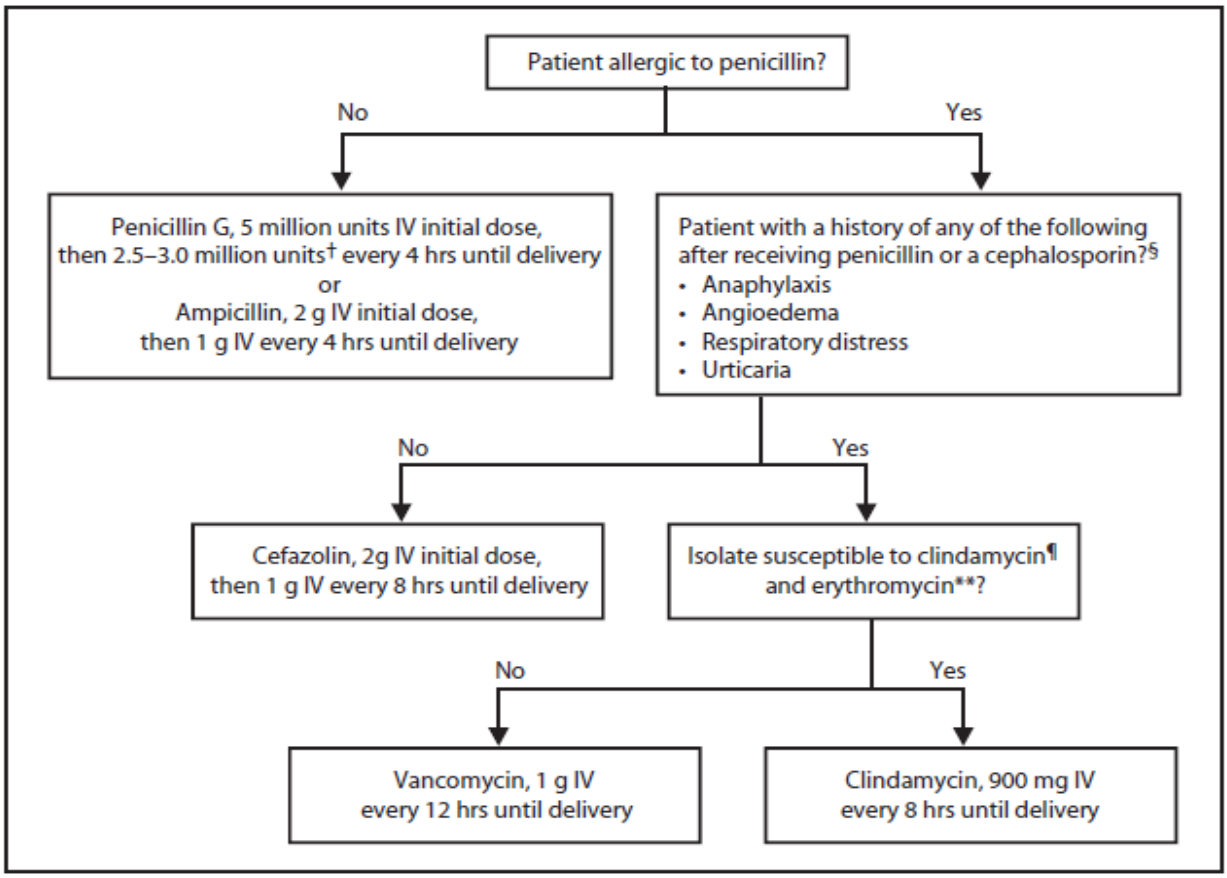
Attachment 3: CDC (2010) GBS Algorithm recommended regimens for intrapartum antibiotic prophylaxis for prevention of early-onset group B streptococcal (GBS) disease*

FIGURE 8. Recommended regimens for intrapartum antibiotic prophylaxis for prevention of early-onset group B streptococcal (GBS) disease*



Abbreviation: IV = intravenously.

* Broader spectrum agents, including an agent active against GBS, might be necessary for treatment of chorioamnionitis.

† Doses ranging from 2.5 to 3.0 million units are acceptable for the doses administered every 4 hours following the initial dose. The choice of dose within that range should be guided by which formulations of penicillin G are readily available to reduce the need for pharmacies to specially prepare doses.

§ Penicillin-allergic patients with a history of anaphylaxis, angioedema, respiratory distress, or urticaria following administration of penicillin or a cephalosporin are considered to be at high risk for anaphylaxis and should not receive penicillin, ampicillin, or cefazolin for GBS intrapartum prophylaxis. For penicillin-allergic patients who do not have a history of those reactions, cefazolin is the preferred agent because pharmacologic data suggest it achieves effective intraamniotic concentrations. Vancomycin and clindamycin should be reserved for penicillin-allergic women at high risk for anaphylaxis.

¶ If laboratory facilities are adequate, clindamycin and erythromycin susceptibility testing (Box 3) should be performed on prenatal GBS isolates from penicillin-allergic women at high risk for anaphylaxis. If no susceptibility testing is performed, or the results are not available at the time of labor, vancomycin is the preferred agent for GBS intrapartum prophylaxis for penicillin-allergic women at high risk for anaphylaxis.

** Resistance to erythromycin is often but not always associated with clindamycin resistance. If an isolate is resistant to erythromycin, it might have inducible resistance to clindamycin, even if it appears susceptible to clindamycin. If a GBS isolate is susceptible to clindamycin, resistant to erythromycin, and testing for inducible clindamycin resistance has been performed and is negative (no inducible resistance) , then clindamycin can be used for GBS intrapartum prophylaxis instead of vancomycin.

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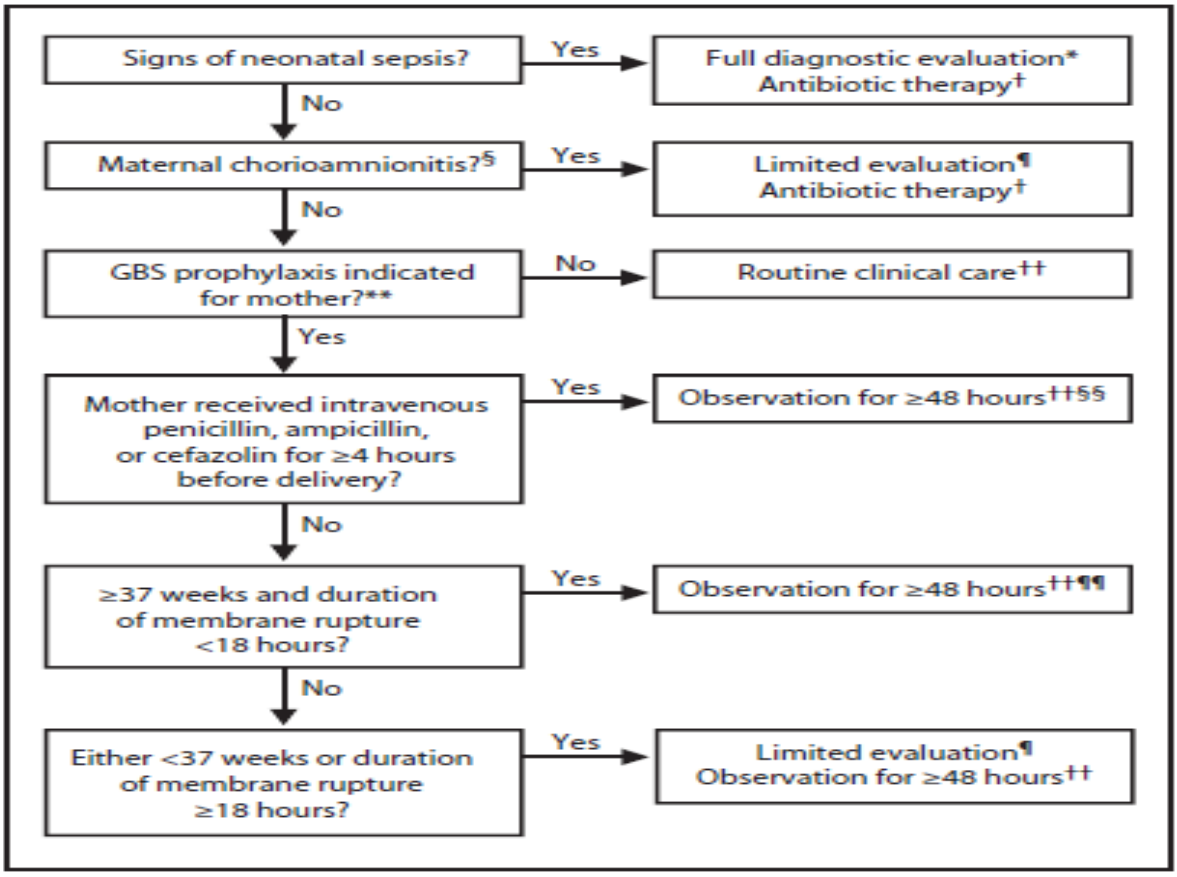
Attachment 4: CDC (2010) GBS Algorithm for secondary prevention of early-onset group B streptococcal (GBS) disease among newborns

FIGURE 9. Algorithm for secondary prevention of early-onset group B streptococcal (GBS) disease among newborns



* Full diagnostic evaluation includes a blood culture, a complete blood count (CBC) including white blood cell differential and platelet counts, chest radiograph (if respiratory abnormalities are present), and lumbar puncture (if patient is stable enough to tolerate procedure and sepsis is suspected).

† Antibiotic therapy should be directed toward the most common causes of neonatal sepsis, including intravenous ampicillin for GBS and coverage for other organisms (including *Escherichia coli* and other gram-negative pathogens) and should take into account local antibiotic resistance patterns.

§ Consultation with obstetric providers is important to determine the level of clinical suspicion for chorioamnionitis. Chorioamnionitis is diagnosed clinically and some of the signs are nonspecific.

¶ Limited evaluation includes blood culture (at birth) and CBC with differential and platelets (at birth and/or at 6–12 hours of life).

** See table 3 for indications for intrapartum GBS prophylaxis.

†† If signs of sepsis develop, a full diagnostic evaluation should be conducted and antibiotic therapy initiated.

§§ If ≥37 weeks' gestation, observation may occur at home after 24 hours if other discharge criteria have been met, access to medical care is readily available, and a person who is able to comply fully with instructions for home observation will be present. If any of these conditions is not met, the infant should be observed in the hospital for at least 48 hours and until discharge criteria are achieved.

¶¶ Some experts recommend a CBC with differential and platelets at age 6–12 hours.

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