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Table 7.1. Procedures for collecting clinical specimens for culture of group B *Streptococcus* (GBS) at 35–37 weeks' gestation

- Swab the lower vagina (vaginal introitus), followed by the rectum (i.e., insert swab through the anal sphincter) using the same swab or two different swabs. Cultures should be collected in the outpatient setting by the health care provider or, with appropriate instruction, by the patient herself. Cervical, perianal, perirectal, or perineal specimens are not acceptable, and a speculum should not be used for culture collection.
- Place the swab(s) into a nonnutritive transport medium. Appropriate transport systems (e.g., Stuart's or Amies with or without charcoal) are commercially available. GBS isolates can remain viable in transport media for several days at room temperature; however, the recovery of isolates declines over one to four days, especially at elevated temperatures, which can lead to false-negative results. When feasible, specimens should be refrigerated before processing.
- Specimen requisitions should indicate clearly that specimens are for group B streptococcal testing. Patients who state that they are allergic to penicillin should be evaluated for risk for anaphylaxis. If a woman is determined to be at high risk for anaphylaxis,* susceptibility testing for clindamycin and erythromycin should be ordered.

*Patients with a history of any of the following after receiving penicillin or a cephalosporin are considered to be at high risk for anaphylaxis: anaphylaxis, angioedema, respiratory distress, or urticaria.

Source: Reproduced from Verani JR, McGee L, Schrag SJ; Division of Bacterial Diseases, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention (CDC). Prevention of perinatal group B streptococcal disease—revised guidelines from CDC, 2010. *MMWR Recomm Rep*. 2010 Nov 19;59(RR-10):1-36.

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Topic in the Guidelines	Key Points Unchanged from 2002	Key Points Changed from 2002
Universal screening for GBS acid amplification tests for intrapartum testing for GBS	Universal screening at 35–37 weeks of gestation remains the sole strategy for IAP.	Permissive statement for limited role of nucleic
Preterm delivery		New and separate algorithms for preterm labor and for PPROM (see Fig. 7.1 and Fig. 7.2)
GBS specimen collection and processing	Rectovaginal swab specimens collected at 35–37 weeks of gestation remains the recommendation.	Transport options clarified Identification options expanded to include use of chromogenic media and nucleic acid amplification tests Laboratories to report GBS in concentrations of greater than or equal to 104 CFU in urine culture specimens (previously, it was GBS "in any concentration")
Intrapartum antibiotic prophylaxis	Penicillin remains drug of choice with ampicillin as an alternative. Cefazolin remains the drug of choice for penicillin allergy without anaphylaxis, angioedema, respiratory distress, or urticaria. GBS isolates from women at high risk of anaphylaxis should be tested for susceptibility to clindamycin and erythromycin. Vancomycin use is recommended if isolate is resistant to either clindamycin or erythromycin.	Definition of high risk for anaphylaxis is clarified Minor change in penicillin dose permitted Erythromycin is no longer recommended under any circumstances D-test recommended to detect inducible resistance in isolates tested for susceptibility to clindamycin and erythromycin

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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 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.

Source: Reproduced from Verani JR, McGee L, Schrag SJ; Division of Bacterial Diseases, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention (CDC). Prevention of perinatal group B streptococcal disease—revised guidelines from CDC, 2010. *MMWR Recomm Rep*. 2010 Nov 19;59(RR-10):1-36.

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Antibiotics

- Mezlocillin 4 g IV q4–6hrs or piperacillin 3–4 g IV q4hrs
- Ticarcillin/clavulanic acid 3.1 g IV q6hrs
- Ampicillin/sulbactam 3 g IV q4–6hrs
- Ampicillin 2 g IV q6hrs and gentamicin 1.5 mg/kg load then 1.0 mg/kg q8hrs (if delivery by cesarean section, add clindamycin 900 mg IV q6hrs)

Comments

- Some clinicians continue antibiotics for 24–48 hours afebrile following delivery.
- Chorioamnionitis is not an indication for cesarean delivery.
- Fetal outcome is improved by maternal antibiotic therapy and ↓ temperature. Give IV fluids and acetaminophen for maternal and fetal resuscitation.
- Always consider other sources of maternal fever (pyelonephritis, pneumonia, appendicitis).
- Watch for postpartum hemorrhage and dystocia secondary to inadequate uterine action.
- Chorioamnionitis may represent a risk factor for cerebral palsy.

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Treatment

- Cefotetan 1–2 g IV q12hrs
- Mezlocillin 4 g IV q4–6hr or piperacillin 3–4 g IV q4hrs
- Ticarcillin/clavulanate 3.1 g IV q6hrs
- Ampicillin/sulbactam 3 g IV q4–6hrs
- Gentamicin 1.5 mg/kg load then 1.0 mg/kg q8hrs (or 5 mg/kg q24hrs) and clindamycin 900 mg IV q6hrs (plus ampicillin 2 g IV q6hrs as needed to cover enterococcus)

Comments

- Continue IV antibiotics until 24–48 hours afebrile and improved physical exam.
- Oral antibiotics following IV antibiotics have not been shown to be of proven value.
- If unresponsive following 48–72 hours of IV antibiotics, reexamine the patient.
  - Consider broadening antibiotic coverage to cover enterococcus if using gentamicin and clindamycin.
  - Consider pelvic abscess.
  - Consider septic pelvic thrombophlebitis.
  - Consider drug fever.

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Drug Regimens

Table 7.5. Drug regimens for the treatment of mastitis

Cephalexin (Keflex) 500 mg orally every 6 hr for 7 days
Amoxicillin/Clavulante potassium (Augmentin) 875 mg orally every 12 hr for 7 days
Azithromycin (Zithromax) 500 mg initially, then 250 mg orally daily for 5–7 days
Dicloxacillin 250–500 mg orally every 8 hr for 7 days
Clindamycin 300 mg orally every 8 hr for 7 days

Source: Reproduced with permission from Hager, W. David. Managing mastitis. *Cont Ob/Gyn*. 2004:Jan;33-47. *Cont Ob/Gyn* is a copyrighted publication of Advanstar Communications Inc. All rights reserved.

Prevention

- Avoid cracked or fissured nipples.
- Use plain water to clean nipple area (No. soap or alcohol).
- Increase duration of nursing gradually to avoid soreness.
- Use breast shield or topical cream to help healing of cracked nipples.
- Place finger in corner of baby's mouth during feeding to break sucking force.
- Treat recurrent mastitis promptly but continue breastfeeding.

Patient Information: What to Do If You Develop Mastitis?

Table 7.6. Patient information: what to do if you develop mastitis

If you have symptoms that suggest you have mastitis, you'll need to heed the following advice:

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Bacterial Vaginosis

Table 7.36. 2015 CDC guidelines for treatment of bacterial vaginosis

Treatment is recommended for all symptomatic pregnant women.
Recommended Regimens
Metronidazole 500 mg orally twice a day for 7 days
Metronidazole gel 0.75%, one full applicator (5 g) intravaginally, once a day for 5 days
Clindamycin cream 2%, one full applicator (5 g) intravaginally at bedtime for 7 days
Alternative Regimens:
Tinidazole 2 g orally once daily for 2 days
Tinidazole 1 g orally once daily for 5 days
Clindamycin 300 mg orally twice daily for 7 days
Clindamycin ovules 100 mg intravaginally once at bedtime for 3 days*

*Clindamycin ovules use an oleaginous base that might weaken latex or rubber products (e.g., condoms and vaginal contraceptive diaphragms). Use of such products within 72 hours following treatment with clindamycin ovules is not recommended.

Source: Reproduced from Workowski KA, Bolan GA. Sexually transmitted diseases treatment guidelines, 2015. *MMWR Recomm Rep*. 2015 Jun 5;64(RR-03):1-137.

Trichomoniasis

Table 7.37. 2015 CDC guidelines for treatment of trichomoniasis

Non-pregnant Patient Recommended Regimens

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Table 7.43. 2015 CDC guidelines for treatment of pelvic inflammatory disease (PID)

Parenteral Regimens
Cefotetan 2 g IV every 12 hours PLUS Doxycycline 100 mg orally or IV every 12 hours
Cefoxitin 2 g IV every 6 hours PLUS Doxycycline 100 mg orally or IV every 12 hours
Clindamycin 900 mg IV every 8 hours PLUS Gentamicin loading dose IV or IM (2 mg/kg), followed by a maintenance dose (1.5 mg/kg) every 8 hours. Single daily dosing (3–5 mg/kg) can be substituted.
Alternative Parenteral Regimen:
Ampicillin/Sulbactam 3 g IV every 6 hours PLUS Doxycycline 100 mg orally or IV every 12 hours
Recommended Intramuscular/Oral Regimens
Ceftriaxone 250 mg IM in a single dose
PLUS
Doxycycline 100 mg orally twice a day for 14 days
WITH* or WITHOUT
Metronidazole 500 mg orally twice a day for 14 days
Cefoxitin 2 g IM in a single dose and Probenecid, 1 g orally administered concurrently in a single dose
PLUS
Doxycycline 100 mg orally twice a day for 14 days
WITH or WITHOUT
Metronidazole 500 mg orally twice a day for 14 days
Other parenteral third-generation cephalosporin (e.g., ceftizoxime or cefotaxime)
PLUS

Table 7.48. Antimicrobial prophylactic regimens by procedure

Procedure	Antibiotic	Dose (Single Dose)
Hysterectomy	Cefazolin[†]	1 g or 2 g[‡] IV
Urogynecology procedures, including those involving mesh	Clindamycin[§] plus	600 mg IV
	gentamicin or	1.5 mg/kg IV
	quinolone[‖] or	400 mg IV
	aztreonam	1 g IV
	Metronidazole[§] plus	500 mg IV
	gentamicin or	1.5 mg/kg IV
	quinolone[‖]	400 mg IV
Laparoscopy	None	
Diagnostic		
Operative		
Tubal		
Sterilization		
Laparotomy	None	
Hysteroscopy	None	
Diagnostic		
Operative		
Endometrial ablation		
Essure		

MRSA INFECTIONS

Table 7.49. Rates of resistance and dosing of oral agents for treatment of community acquired MRSA infections

Antimicrobial Agent	Resistance Rates	Typical Adult Oral Dosing	Comments
Clindamycin	3–24%	300 TID	D-test should be performed. Excellent activity against strep. Increasing resistance a concern.
Doxycycline Minocycline	[1]9–24%	100 mg BID 100 mg BID	Doxycycline and minocycline. probably active against tetracycline resistant strains.
Trimethoprim-sulfamethoxazole	0–10%	1–2 DS (160/800 mg) BID	Low resistance rates in community, reasonable option for empiric therapy.
Rifampin	<1%	600 mg QD	Should not be used alone; potential for significant drug interactions.
Fusidic acid	<5%	500 mg TID	Should not be used alone; limited experience in children.
Linezolid	<1%	600 mg PO BID	Expensive.

[1]Rates shown are for tetracycline and are likely to be <5% or less for doxycycline and minocycline.

Source: Reproduced with permission from DeLeo FR, Otto M, Kreiswirth BN, Chambers HF. Community-associated methicillin-resistant *Staphylococcus aureus*. *Lancet*. 2010 May 1;375(9725):1557-68. Copyright © 2010 Elsevier.