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Revised Guidelines for Perinatal GBS Disease Prevention

Group B streptococcal (GBS) disease emerged as a leading cause of invasive bacterial infection in newborns in the United States in the 1970s. Although the incidence of GBS infection has declined significantly over the past few years, more than 1,700 infections among newborns in the first week of life still occur each year in the U.S.¹ GBS infection among newborns

typically is classified as early-onset (0-6 days of life) or late-onset (7-89 days of life).

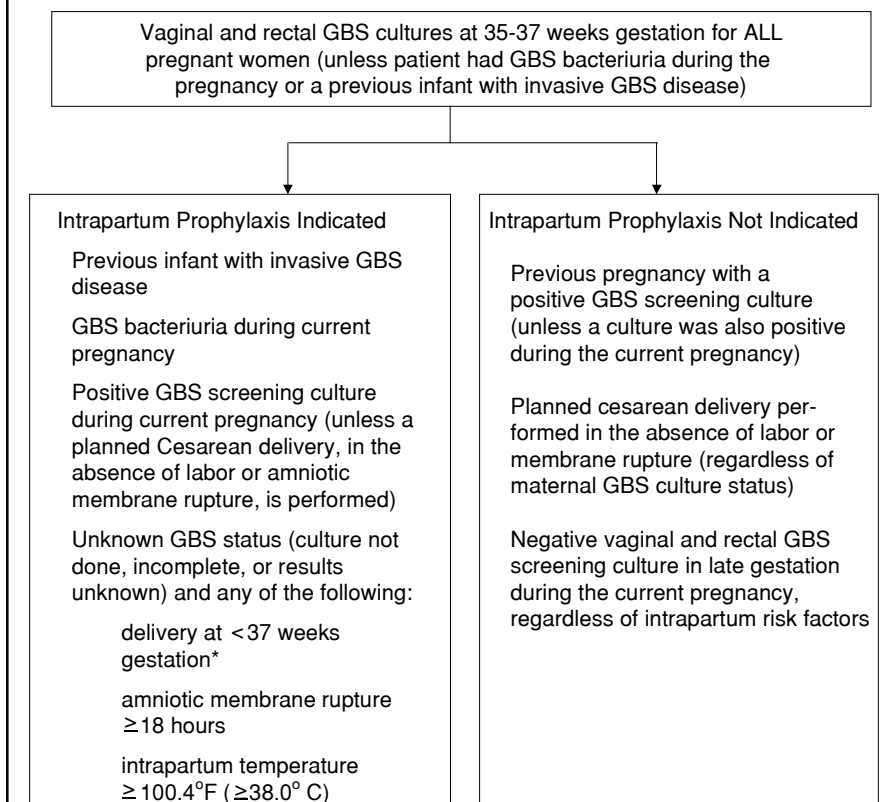
The gastrointestinal tract is the primary reservoir of GBS in pregnant women and the likely source of vaginal colonization. Ten to 30% of pregnant women are colonized with GBS in the vagina or rectum; approximately 50%

of their babies will become colonized, and 1%-2% of colonized babies will develop invasive infection manifested as sepsis, pneumonia, or meningitis. Maternal GBS colonization is a major risk factor among infants who develop GBS disease. Cultures from both vaginal and rectal sources increases the sensitivity of a screening culture. Results of a prenatal screening culture performed within 5 weeks prior to delivery are most likely to predict colonization at delivery. Other risk factors for early-onset disease include premature onset of labor, prolonged rupture of membranes, GBS bacteriuria during the current pregnancy, intrapartum fever, and having had a previous infant with GBS disease.

The risk of perinatal transmission of GBS can be reduced dramatically by prenatal diagnosis of maternal GBS colonization and administration of intrapartum antibiotic prophylaxis (IAP) during labor and delivery.

In 1996, the Centers for Disease Control and Prevention (CDC), the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP) published consensus guidelines on two methods to prevent early-onset GBS disease. In the screening-based approach, cultures from the vagina and rectum are obtained at 35-37 weeks gestation, and GBS-positive women are **continued ...**

Figure 1. Indications for Intrapartum Antibiotic Prophylaxis to Prevent Perinatal GBS Disease Under a Universal Prenatal Screening Strategy Based on Combined Vaginal and Rectal Cultures Collected from Pregnant Women at 35-37 weeks Gestation



* If onset of labor or rupture of amniotic membranes occurs at <37 weeks gestation and there is a significant risk for preterm delivery (as assessed by the clinician), a suggested algorithm for GBS prophylaxis is provided (Figure 3).
If amnionitis is suspected, broad-spectrum antibiotic therapy that includes an agent known to be active against GBS should replace GBS prophylaxis.

Source: reference 4

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offered IAP in labor. In the risk-based approach, women who present with risk factors for GBS are given IAP.

Surveillance data from selected counties in eight states (including Minnesota) found that early-onset GBS

disease decreased from 1.7 cases per 1,000 live births in 1993 to 0.5 cases per 1,000 live births in 1999.² Despite a large decline in incidence during the last several years, GBS disease remains the leading cause of invasive bacterial infection among newborns. A

recent study found that the screening-based approach to prevention is approximately 50% more effective than the risk-based approach in preventing perinatal disease.³

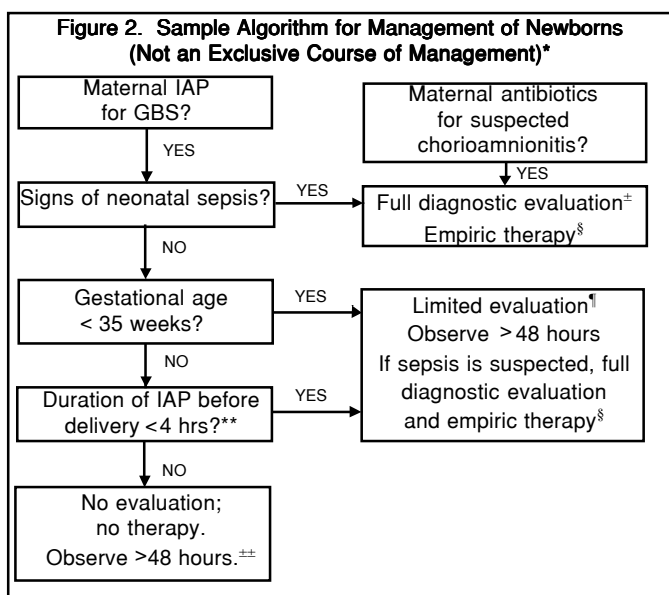
In light of this and other research since 1996, revised guidelines were published in August 2002 by CDC.⁴ Key changes from the 1996 guidelines include:

- recommendation for universal prenatal screening of ALL pregnant women at 35-37 weeks gestation for GBS using vaginal and rectal cultures (Figure 1);
- updated IAP regimens for women with penicillin allergy (Table 1). For those without allergy, penicillin remains the first-line agent for IAP, with ampicillin as an alternate;
- expanded instructions on specimen collection and culture methods for screening emphasizing, as before, the use of selective broth medium in the primary step of isolation of GBS;
- instructions on antimicrobial susceptibility testing for clindamycin and erythromycin for penicillin-allergic patients;
- updated algorithm for management of newborns (Figure 2);
- algorithm for management of patients with threatened preterm delivery (Figure 3); and
- recommendation against routine IAP for GBS-colonized women undergoing planned Cesarean labor or had rupture of membranes.

Table 1. Recommended Regimens for Intrapartum Antibiotic Prophylaxis for Perinatal GBS Disease Prevention *

<i>Recommended</i>	Penicillin G, 5 million units IV initial dose, then 2.5 million units IV every 4 hours until delivery
<i>Alternative</i>	Ampicillin, 2 g IV initial dose, then 1 g IV every 4 hours until delivery
<i>If penicillin allergic[±]</i>	
Patient not at high risk for anaphylaxis	Cefazolin, 2 g IV initial dose, then 1 g IV every 8 hours until delivery
Patient at high risk for anaphylaxis [¶]	
GBS susceptible to clindamycin and erythromycin [§]	Clindamycin, 900 mg IV every 8 hours until delivery OR Erythromycin, 500 mg IV every 6 hours until delivery
GBS resistant to clindamycin or erythromycin or susceptibility unknown	Vancomycin, ** 1 g IV every 12 hours until delivery

* Broader-spectrum agents, including an agent active against GBS, may be necessary for treatment of chorioamnionitis.
[±] History of penicillin allergy should be assessed to determine whether a high risk for anaphylaxis is present. Penicillin-allergic patients at high risk for anaphylaxis are those who have experienced immediate hypersensitivity to penicillin, including a history of penicillin-related anaphylaxis; other high-risk patients are those with asthma or other diseases that would make anaphylaxis more dangerous or difficult to treat, such as persons being treated with beta-adrenergic-blocking agents.
[¶] 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.
[§] Resistance to erythromycin is often but not always associated with clindamycin resistance. If a strain is resistant to erythromycin but appears susceptible to clindamycin, it still may have inducible resistance to clindamycin.
^{**} Cefazolin is preferred over vancomycin for women with a history of penicillin allergy other than immediate hypersensitivity reactions, and pharmacologic data suggest it achieves effective intraamniotic concentrations. Vancomycin should be reserved for penicillin-allergic women at high risk for anaphylaxis. Source: reference 4



* If no maternal intrapartum prophylaxis for GBS was administered despite an indication being present, data are insufficient to recommend a single management strategy.

[±] Includes complete blood cell count and differential, blood culture, and chest radiograph, if respiratory abnormalities are present. When signs of sepsis are present, a lumbar puncture, if feasible, should be performed.

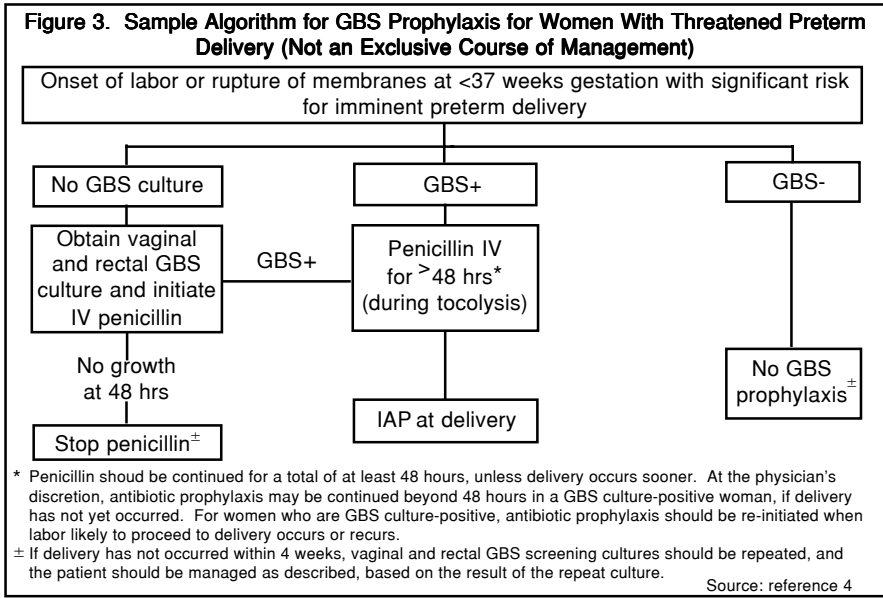
[§] Duration of therapy varies depending on results of blood culture, cerebrospinal fluid findings, if obtained, and the clinical course of the infant. If laboratory results and clinical course do not indicate bacterial infection, duration may be as short as 48 hours.

[¶] CBC with differential and blood cultures.

** Applies only to penicillin, ampicillin, or cefazolin and assumes recommended dosing regimens (Table 1).

^{±±} A healthy-appearing infant who was > 38 weeks gestation at delivery and whose mother received >4 hours of intrapartum prophylaxis before delivery may be discharged to home after 24 hours, if other discharge criteria have been met and a person able to comply fully with instructions for home observation will be present. If any of these conditions are not met, the infant should be observed in the hospital for at least 48 hours and until criteria for discharge are achieved.

Source: reference 4



We encourage prenatal care providers, infection control practitioners, laboratorians, and hospital maternity staff to review and discuss the revised guidelines. To obtain a copy of the new guidelines please refer to CDC's website (<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5111a1.htm>).

References:

- <http://www.cdc.gov/ncidod/dbmd/abcs/survreports.htm>.
- Schrag SJ, Zywicki S, Farley MM, et al. Group B streptococcal disease in the era of intrapartum antibiotic prophylaxis. *NEJM* 2000; 342: 15-20.
- Schrag SJ, Zell ER, Lynfield R, et al. A population-based comparison of strategies to prevent early-onset group B streptococcal disease in neonates. *NEJM* 2002; 347: 233-239.
- Centers for Disease Control and Prevention. Prevention of perinatal group B streptococcal disease: revised guidelines from CDC. *MMWR* 2002; 51(RR11): 1-23.

Smoking Rates in Minnesota, 1990 - 2000

Lung cancer kills as many Minnesotans as breast, prostate, and colorectal cancers combined (Table 2). Smoking causes 90% of lung cancers and the majority of cancers of the throat, mouth, and esophagus, as well as a substantial proportion of cancers of the pancreas, bladder, kidney, stomach, and cervix. An estimated one of every three cancer deaths is due to smoking. Preventing tobacco addiction and promoting cessation of tobacco use are critical cancer control strategies.

Although smoking rates among men in the United States have been declining since the 1960s, lung cancer incidence rates did not decline until the mid-

1980s, due to the delay of 20 years or more between tobacco exposure and lung cancer diagnosis. Since cancer reporting was implemented in Minnesota in 1988, lung cancer rates among males have decreased approximately 5%.

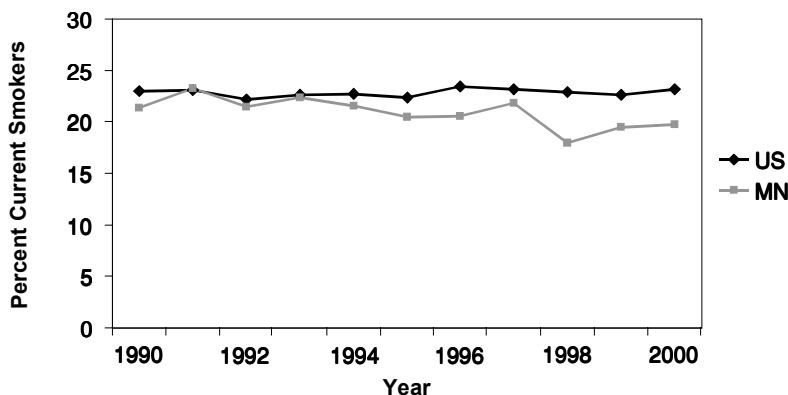
Over the same period, however, the lung cancer incidence rate among women in Minnesota increased by 20%. This likely reflects the facts that smoking became popular among women later than among men, and that women started quitting smoking at a later date.

Minnesota is making great strides in

reducing smoking among adults. However, nearly 20% of adults (approximately 750,000 persons) still report that they smoke (Figure 4).

"The Great American Smokeout" takes place November 21, 2002. This annual national event is an opportunity for smokers, with encouragement from friends, families, and physicians, to take a step towards living tobacco-free by quitting smoking for 1 day. For more information on this event, and smoking cessation advice, call the American Cancer Society at 1-800-ACS-2345, or visit <http://www.cancer.org>.

Figure 4. Smoking Prevalence Among Adults, Minnesota and U.S., 1990-2000



Source: Behavioral Risk Factor Surveillance System (<http://www.cdc.gov/brfss/>). Current smokers are all respondents 18 years of age or older who have ever smoked 100 cigarettes in their lifetime and smoked every day or some days. Minnesota data are based on an average of 3,950 interviews per year.

Table 2. Cancer Deaths in Minnesota, 1999

Smoking Related Cancers	No. Deaths
Lung and bronchus	2,199
Pancreas	500
Bladder	199
Kidney	196
Stomach	180
Esophagus	180
Oral Cavity	93
Cervix	49
Other Common Cancers	No. Deaths
Colorectal	901
Breast	674
Prostate	565

Source: Minnesota Cancer Surveillance System

Last Chance to Register: 8th Annual Emerging Infections in Clinical Practice & Emerging Health Threats Conference - November 15, 2002

We are pleased to co-sponsor this conference again this year. Highlights include:

- Dr. Marci Layton, New York City Department of Health, speaking about the medical and public health response to terrorism in New York;
- Dr. Philip Tarr, University of Washington School of Medicine, on the medical management of diarrhea, *E. coli*

O157:H7, and HUS;

- Dr. Cynthia Whitney, CDC, on pneumococcal disease treatment, antibiotic resistance, and prevention;
- Dr. Scott Fridkin, CDC, on resistant *S. aureus* in the community and in healthcare settings;
- Dr. Michael Osterholm, University of Minnesota, on bioterrorism preparedness from the national perspective;

- local experts discussing judicious antibiotic use; and
- a bioterrorism table-top exercise with a panel of local medical and public health experts.

Complete conference information is available at <http://www.med.umn.edu/cme/brochures2002/emerginginf2002/emergiginf2002.html> or call 1-800-776-8636.

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