

Streptococcus, Group B, Disease of the Newborn

REPORTING INFORMATION

- **Class B2:** Report by the end of the business week in which the case or suspected case presents and/or a positive laboratory result to the local public health department where the patient resides. If patient residence is unknown, report to the local public health department in which the reporting health care provider or laboratory is located.
- Reporting Form(s) and/or Mechanism: [Ohio Confidential Reportable Disease form](#) (HEA 3334, rev. 1/09), [Positive Laboratory Findings for Reportable Disease form](#) (HEA 3333, rev. 8/05), the local health department via the Ohio Disease Reporting System (ODRS) or telephone.
- Additional reporting information, with specifics regarding the key fields for ODRS Reporting can be located in [Section 7](#).

Agent:

- Group B *Streptococcus spp.*

CASE DEFINITION

The Centers for Disease Control and Prevention (CDC) has not established a case definition for *Streptococcus*, group B, disease of the newborn. Reports should be based upon the clinical signs and symptoms and the laboratory criteria described below.

Clinical Description:

Early onset disease (< 7 days old) presents as sepsis.

Late onset disease (≥ 7 days old) presents as sepsis, meningitis, and less commonly bone and joint infections.

Laboratory Criteria for Diagnosis:

- Isolation of Group B *Streptococcus spp.* from blood, CSF or other site of infection in an infant less than three months of age *or*
- Detection of Group B *Streptococcus* antigen in serum, CSF or urine in a symptomatic infant < 3 months of age provides presumptive evidence of infection.

Case Classification

Suspect: A clinically compatible case that is not yet laboratory confirmed and is not epidemiologically linked to a confirmed case in an infant <3 months of age.

Probable: A clinically compatible case that is epidemiologically linked to a confirmed case in an infant <3 months of age.

Confirmed: A case that is laboratory confirmed in an infant <3 months of age.

Not a Case: This status will not generally be used when reporting a case, but may be used to reclassify a report if investigation revealed that it was not a case.

Comment: Confirmation is based on laboratory findings, and clinical illness is not required. **If the child is 3 months of age or older**, the reportable condition should be "**Meningitis, Bacterial (Not *N. meningitidis*)**".

SIGNS AND SYMPTOMS

Group B streptococci are a major cause of perinatal bacterial infections, including bacteremia, endometritis, chorioamnionitis, urinary tract infections in parturient women, and systemic and focal infections in infants from birth until 3 months of age or rarely older.

Invasive disease in young infants is categorized on the basis of chronologic age at onset. Early-onset disease usually occurs within the first 24 hours of life (range, 0-6 days) and is characterized by signs of systemic infection, respiratory distress, apnea, shock, pneumonia, and less often, meningitis (5%-10% of cases). Late-onset disease, which typically occurs at 3 to 4 weeks of age (range, 7 days to 3 months), commonly manifests as occult bacteremia or meningitis; other focal infections, such as osteomyelitis, septic arthritis, adenitis, and cellulitis, can occur. Very late-onset disease has onset beyond 3 months of age in very preterm infants requiring prolonged hospitalization.

In postpartum women, Group B streptococci cause an estimated 15%-25% of cases of postpartum febrile morbidity, or 50,000 cases annually. These infections are most commonly endometritis and wound infection after cesarean section.

Group B streptococci also cause systemic infections in nonpregnant adults with underlying medical conditions.

DIAGNOSIS

Gram-positive cocci in body fluids that typically are sterile (e.g. cerebrospinal [CSF], pleural, joint fluid) provide presumptive evidence of infection. Cultures of blood, other typically sterile body fluids, or a suppurative focus are necessary to establish the diagnosis. Serotype identification is available in reference laboratories. Rapid tests that identify group B streptococcal antigen in body fluids other than CSF are not recommended because of poor specificity. Colonization by Group B streptococci in pregnant women is made by culturing the organism from the vagina or rectum rather than from the cervix.

EPIDEMIOLOGY

Source

Group B streptococci are common inhabitants of the gastrointestinal and genitourinary tracts. Less commonly, they colonize the pharynx. The colonization rate in pregnant women and newborn infants ranges from 15%-40%.

Occurrence

Before recommendations for prevention of early-onset GBS disease by maternal intrapartum antimicrobial prophylaxis were made, the incidence was 1 to 4 cases per 1000 live births; early-onset disease accounted for approximately 75% of infant cases and occurred in approximately 1 infant per 100 to 200 colonized women. Associated with widespread control measures (maternal intrapartum antimicrobial prophylaxis) the incidence of early-onset disease has decreased by approximately 81% to approximately 0.3 cases per 1000 live births in 2003 and now equals that of late-onset disease.

The risk of early-onset disease is increased in preterm infants born at less than 37 weeks of gestation, in infants born after the amniotic membranes have been ruptured 18 hours or more, and in infants born to women with high genital GBS inoculum, intrapartum fever (temperature $\geq 38^{\circ}\text{C}$ [$\geq 100.4^{\circ}\text{F}$]), chorioamnionitis,

GBS bacteriuria during the pregnancy, or a previous infant with invasive GBS disease. Other risk factors are intrauterine fetal monitoring, maternal age younger than 20 years and black or Hispanic ethnic origin.

Mode of Transmission

Mucous membrane colonization of the newborn results from transmission of the organism from the mother, either in utero or at the time of delivery. Although uncommon, GBS can be acquired in the nursery from hospital personnel (probably via hand contamination) or more commonly in the community from healthy colonized people.

PUBLIC HEALTH MANAGEMENT

Case

Treatment

Ampicillin plus aminoglycoside are used to treat infants pending culture results, after which penicillin G is used. Clindamycin or erythromycin is the alternative drug for penicillin-allergic patients. Additional therapy is required when there is endocarditis.

Prevention and Control

Carriage of Group B streptococci in pregnant woman may be detected by vaginal and rectal swabs taken near the time of delivery; one protocol for prevention suggests culturing all pregnant women at 35-37 weeks gestation. If Group B streptococci are detected in a pregnant woman, intravenous antibiotics (generally penicillin) during labor, beginning at least 4 hours prior to delivery, can decrease the risk of infection in the newborn if the mother develops a fever during labor, has ruptured membranes >18 hours before delivery and has premature labor or rupture of membranes before 37 weeks gestation. Intravenous antibiotics are also recommended for women who previously have had a baby with Group B streptococcal disease, who have a urinary tract infection caused by Group B streptococci or who have any of the above named conditions with no result for a Group B streptococci culture (either the culture was not done or results are not available). Treatment with antibiotics prior to labor has not been shown to be beneficial, nor has prophylactic treatment of asymptomatic newborns. Women who have GBS colonization and have a planned cesarean delivery performed before rupture of membranes and onset of labor should *not* routinely receive intrapartum chemoprophylaxis. Results from rapid antigen tests of the mother taken at her presentation in labor are neither timely nor sensitive enough to identify carriers reliably.

Vaccines to prevent Group B streptococcal disease are being developed.

What is GBS?

Group B *Streptococcus* (GBS) is a bacterium that causes illness in newborn babies, pregnant women, the elderly and adults with other illnesses, such as diabetes or liver disease. GBS is the most common cause of life-threatening infections in newborns.

How common is GBS disease?

GBS is the most common cause of sepsis (blood infection) and meningitis (infection of the fluid and lining surrounding the brain) in newborns. GBS is a frequent cause of newborn pneumonia and is more common than other, better known, newborn problems such as rubella, congenital syphilis and spina bifida.

Before prevention methods were widely used, approximately 8,000 babies in the United States would develop GBS disease each year.

Does everyone who has GBS get sick?

Many people carry GBS in their bodies but do not become ill. These people are considered to be "carriers." Adults can carry GBS in the bowel, vagina, bladder or throat. Five to forty percent of pregnant women carry GBS in the rectum or vagina. A fetus may come in contact with GBS before or during birth if the mother carries GBS in the rectum or vagina. People who carry GBS typically do so temporarily; that is, they do not become lifelong carriers of the bacteria.

How does GBS disease affect newborns?

Approximately one of every 100 to 200 babies whose mothers carry GBS develops signs and symptoms of GBS disease. Three-fourths of the cases of GBS disease among newborns occur in the first week of life ("early-onset disease"), and most of these cases are apparent a few hours after birth. Sepsis, pneumonia and meningitis are the most common problems.

Premature babies are more susceptible to GBS infection than full-term babies, but most babies who get GBS disease (75%) are full-term. GBS disease may also develop in infants one week to several months after birth ("late-onset disease"). Meningitis is more common with late-onset GBS disease. Only about half of late-onset GBS disease among newborns comes from a mother who is a GBS carrier; the source of infection for others with late-onset GBS disease is unknown. Late-onset disease is very rare.

What are the symptoms of group B strep in a newborn?

The symptoms for early-onset group B strep can seem like other problems in newborns. Some symptoms are fever, difficulty feeding, irritability, or lethargy (limpness or hard to wake up the baby). If you think your newborn is sick, get medical help right away.

How is GBS disease diagnosed and treated?

GBS disease is diagnosed when the bacterium is grown from cultures of sterile body fluids, such as blood or spinal fluid. Cultures take a few days to complete. GBS infections in both newborns and adults are usually treated with antibiotics (e.g. penicillin or ampicillin) given through a vein.

Can pregnant women be checked for GBS?

GBS carriage can be detected during pregnancy by taking a swab of both the vagina and rectum for special culture. Physicians who culture for GBS carriage during prenatal visits should do so late in pregnancy (35-37 weeks gestation); cultures collected earlier do not accurately predict whether a mother will have GBS at delivery. A positive culture result means that the mother carries GBS, not that she or her baby will definitely become ill. Women who carry GBS should not be given oral antibiotics before labor because antibiotic treatment at this time does not prevent GBS disease in newborns. An exception to this is when GBS is identified in urine during pregnancy. GBS in the urine should be treated at the time it is diagnosed. Carriage of GBS, in either the vagina or rectum, becomes important at the time of labor and delivery, when antibiotics are effective in preventing the spread of GBS from mother to baby.

Can GBS disease among newborns be prevented?

Most GBS disease in newborns can be prevented by giving certain pregnant women antibiotics through the vein during labor. Any pregnant woman who previously had a baby with GBS disease or who has a urinary tract infection caused by GBS should receive antibiotics during labor. Pregnant women who carry GBS should be offered antibiotics at the time of labor or membrane rupture. GBS carriers at highest risk are those with any of the following conditions:

- Fever during labor,
- Rupture of membranes (water breaking) 18 hours or more before delivery,
- Labor or rupture of membranes before 37 weeks gestation.

Because women who carry GBS but do not develop any of these three complications have a relatively low risk of delivering an infant with GBS disease, the decision to use antibiotics during labor should balance risks and benefits. Penicillin is very effective at preventing GBS disease in the newborn and is generally safe. A GBS carrier with none of the conditions above has the following risks:

- 1 in 200 chance of delivering a baby with GBS disease if antibiotics are not given;
- 1 in 4000 chance of delivering a baby with GBS disease if antibiotics are given;
- 1 in 10 chance, or lower, of experiencing a mild allergic reaction to penicillin (such as rash); and
- 1 in 10,000 chance of developing a severe allergic reaction (i.e. anaphylaxis) to penicillin. Anaphylaxis requires emergency treatment and can be life-threatening.

If a prenatal culture for GBS was not done or the results are not available, physicians may give antibiotics to women with one or more of the risk conditions listed above.

Who is at higher risk for GBS disease?

Pregnant women with the following conditions are at higher risk of having a baby with GBS disease:

- Previous baby with GBS disease,
- Urinary tract infection due to GBS,
- GBS carriage late in pregnancy,
- Fever during labor or rupture of membranes 18 hours or more before delivery,
- Labor or rupture of membranes before 37 weeks gestation.

How will I know if I need antibiotics to prevent passing group B strep to my baby?

You should get a screening test late in pregnancy to see if you carry group B strep. If your test comes back positive, you should get antibiotics through the vein (IV) during labor.

Is there a vaccine for group B strep?

There is not a vaccine right now to prevent group B strep. The federal government is supporting research on a vaccine for the prevention of group B strep disease.