

STREPTOCOCCUS, GROUP B, DISEASE OF THE NEWBORN

REPORTING INFORMATION

- **Class B:** Report by the end of the next business day after 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:
 - The Ohio Disease Reporting System (ODRS) should be used to report lab findings to the Ohio Department of Health (ODH). For healthcare providers without access to ODRS, you may use the [Ohio Confidential Reportable Disease form](#) (HEA 3334).
- Key fields for ODRS reporting include the following: onset date and date of birth.

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 month of age provides presumptive evidence of infection.

Case Classification

Suspected: 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 *Streptococcus* (group B strep) is a type of bacteria that causes illness in people of all ages. Among infants, there are two main types of group B strep disease: early-onset disease that occurs during the first week of life and late-onset disease that occurs from the first week through three months of life. Early-onset disease used to be the most common type of disease in babies. Today, because of effective early-onset disease prevention, early and late-onset disease occur at similar low rates.

For early-onset disease, group B strep most commonly causes sepsis, pneumonia, and sometimes meningitis. Similar illnesses are associated with late-onset group B strep disease. Meningitis is more common with late-onset group B strep disease than with early-onset group B strep disease.

The symptoms of group B strep disease can seem like other health problems in newborns and infants. Most newborns with early-onset disease have symptoms on the day of birth. Babies who develop late-onset disease may appear healthy at birth and develop symptoms of group B strep disease after the first week of life. Some symptoms are fever, difficulty feeding, irritability or lethargy, difficulty breathing, and blue-ish color to the skin.

For both early and late-onset group B strep disease, and particularly for babies who had meningitis, there may be long-term consequences of the group B strep infection such as deafness and developmental disabilities. Care for ill babies has improved in the U.S., However, 4-6% of infants who develop group B strep disease will die.

On average, about 1,000 babies in the United States get [early-onset group B strep disease](#) each year with rates higher among prematurely born babies (born before 37 weeks) and African Americans. Group B strep bacteria may also cause some miscarriages, stillbirths, and preterm deliveries. However, there are many different factors that lead to stillbirth, pre-term delivery, or miscarriage and, most of the time, the cause is not known.

The most common problems caused by group B strep in adults are bloodstream infections, pneumonia, skin and soft-tissue infections, and bone and joint infections.

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 determined 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. About 25% of pregnant women carry group B strep in the rectum or vagina.

Occurrence

On average, about 1,000 babies in the U.S. less than one week old get early-onset group B strep (GBS) disease each year. 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 testing positive for group B strep late in pregnancy (35-37 weeks), who have an intrapartum fever (temperature $\geq 38^{\circ}\text{C}$ [$\geq 100.4^{\circ}\text{F}$]), who have GBS bacteriuria during the pregnancy, or who had a previous infant with invasive GBS disease. In addition, rates of group B strep are higher among blacks.

Late-onset disease is more common among babies who are born prematurely (<37 weeks). This is the strongest risk. Babies whose mothers tested group B strep positive also have a higher risk of late onset disease. The risk factors for late onset disease are not as well understood as for early-onset disease.

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

Group B strep infections in newborns and older babies are treated with antibiotics (e.g. penicillin or ampicillin) given intravenously. For babies with severe illness, other procedures in addition to antibiotics may be needed.

Prevention and Control

CDC has published guidelines for the prevention of perinatal group B streptococcal disease. The most recent guidelines are the "2010 Guidelines for the Prevention of Perinatal Group B Streptococcal [GBS] Disease". The foundations of prevention in the 2010 guidelines remain unchanged from the 2002 guidelines:

- Pregnant women should undergo vaginal-rectal screening for GBS colonization at 35-37 weeks
- Intrapartum antibiotic prophylaxis is recommended for:
 - Women who delivered a previous infant with GBS disease
 - Women with GBS bacteriuria in the current pregnancy
 - Women with a GBS-positive screening result in the current pregnancy and
 - Women with unknown GBS status who deliver at less than 37 weeks' gestation, have an intrapartum temperature of 100.4°F or greater, or have rupture of membranes for 18 hours or longer
- Penicillin remains the preferred agent with ampicillin an acceptable alternative

There is no group B strep vaccine currently available to help mothers protect their newborns from group B strep disease. Researchers are working on developing a vaccine, which may become available one day in the future.

What is GBS?

Group B *Streptococcus* (group B strep) is a type of bacteria that causes illness in people of all ages. Also known as GBS or baby strep, group B strep disease in newborns most commonly causes sepsis (infection of the blood), pneumonia (infection in the lungs), and sometimes meningitis (infection of the fluid and lining around the brain). The most common problems caused by group B strep in adults are bloodstream infections, pneumonia, skin and soft-tissue infections, and bone and joint infections.

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 "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?

CDC's guidelines recommend that a pregnant woman be tested, or screened, for group B strep in her vagina and rectum when she is 35 to 37 weeks pregnant. The test is simple and does not hurt. A sterile swab ("Q-tip") is used to collect a sample from the vagina and the rectum. This is sent to a laboratory for testing.

About 25% of pregnant women carry group B strep in the rectum or vagina. Those women are considered group B strep positive. A woman may test positive at certain times and not at others. That's why it's important for all pregnant women to be tested for group B strep between 35 to 37 weeks of every pregnancy. A woman who has the bacteria in her body usually does not feel sick or have any symptoms. However, she is at higher risk for passing group B strep to her baby during birth. Women should talk to their doctor about their group B strep status.

Can GBS disease among newborns be prevented?

A pregnant woman who tests positive for group B strep and gets antibiotics during labor can feel confident knowing that she has only a 1 in 4,000 chance of delivering a baby with group B strep disease. If a pregnant woman who tests positive for group B strep does not get antibiotics at the time of labor, her baby has a 1 in 200 chance of developing group B strep disease. This means that those infants whose mothers are group B strep positive and do not get antibiotics have over 20 times the risk of developing disease than those who do receive preventive antibiotics.

Unfortunately, the method recommended to prevent early-onset disease (giving women who are group B strep positive antibiotics through the vein (IV) during labor) does not prevent late-onset disease. Although rates of early-onset disease have declined, rates of late-onset disease have remained fairly stable since 1990. At this time, a strategy has not yet been identified for preventing late-onset group B strep disease.

Who is at higher risk for GBS disease?

Some pregnant women are at higher risk of having a baby with early-onset disease. The factors that increase risk include:

- Testing positive for group B strep late in the current pregnancy (35-37 weeks gestation)
- Detecting group B strep in urine during the current pregnancy
- Delivering early (before 37 weeks gestation)
- Developing fever during labor
- Having a long period between water breaking and delivering
- Having a previous infant with early-onset disease

These risk factors guided the early-onset disease prevention strategy used today.

Late-onset disease is more common among babies who are born prematurely (< 37 weeks). This is the strongest risk. Babies whose mothers tested group B strep positive also have a higher risk of late onset disease. The risk factors for late onset disease are not as well understood as for early-onset disease.

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

To help protect their babies from infection, pregnant women who test positive for group B strep in the current pregnancy should receive antibiotics (medicine) through the vein (IV) during labor. Also, pregnant women who have group B strep detected in their urine during the current pregnancy or who had a previous infant with group B strep disease should receive antibiotics during labor; they do not need to be screened at 35-37 weeks because they should receive antibiotics regardless of the screening result. Pregnant women who do not know whether they are group B strep positive when labor starts should be given antibiotics if they have:

- Labor starting at less than 37 weeks (preterm labor)
- Prolonged membrane rupture (water breaking 18 or more hours before delivery) or
- Fever during labor

Antibiotics help to kill some of the group B strep bacteria that are dangerous to the baby during birth. The antibiotics help **during labor only** — they can't be taken before labor, because the bacteria can grow back quickly. Penicillin is the most common antibiotic that is given. For women who are severely allergic to penicillin, there are other antibiotics that can be given. Women should tell their doctor or nurse about any allergies during a checkup and try to plan for delivery. When women get to the hospital, they should remind their doctor if they are allergic to any medicines.

Penicillin is very safe and effective at preventing group B strep disease in newborns. There can be side effects from penicillin for the woman, including a mild reaction to penicillin (about a 10% chance). There is a rare chance (about 1 in 10,000) of the mother having a severe allergic reaction that requires emergency treatment.

Is there a vaccine for group B strep?

There is no group B strep vaccine currently available to help mothers protect their newborns from group B strep disease. Researchers are working on developing a vaccine, which may become available one day in the future.