

Sepsis, Diagnosis, Pediatric

Sepsis is a serious bodily reaction to an infection. The infection that triggers sepsis may be from a bacteria, virus, or fungus. Sepsis can result from an infection in any part of the body. Infections that commonly lead to sepsis include blood, skin, lung, and urinary tract infections.

Sepsis is a medical emergency that must be treated right away in the hospital. In severe cases, it can lead to septic shock. Shock can weaken the heart and cause blood pressure to drop. This can make the body's central nervous system and organs stop working.

What are the causes?

This condition is caused by a severe reaction to infections from bacteria, viruses, or fungus. The germs that most often lead to sepsis include:

- *Escherichia coli* (*E. coli*) bacteria.
- *Staphylococcus aureus* (*staph*) bacteria.
- Some types of *streptococcus* bacteria.

The most common infections affect these organs:

- The lung (*pneumonia*).
- The kidneys (*urinary tract infection*).
- The skin (*cellulitis*).
- The bowel, gallbladder, or pancreas.

What increases the risk?

This condition is more likely to develop in children who:

- Have a low birth weight of less than 5.5 lb (2500 g).
- Are born too early (*prematurely*).
- Have a weak disease-fighting system (*immune system*).
- Are younger than 1 year old.
- Are born to a mother who has sepsis or is infected with:
 - Group B streptococcus bacteria.
 - *E. coli*.
- Are born more than 18 hours after mother's water broke (*amniotic sac ruptured*).
- Have had surgery.
- Are hospitalized, especially in the intensive care unit (ICU).
- Have these devices inserted into the body:
 - A small, thin tube (*catheter*).
 - IV line.
 - Breathing tube.
 - Drainage tube.
- Have other long-term (*chronic*) diseases, such as diabetes.

What are the signs or symptoms?

Symptoms of this condition may include:

- Fever.

- Chills or feeling very cold.
- Fast heart rate (*tachycardia*).
- Rapid breathing (*hyperventilation*).
- Shortness of breath.
- Confusion or light-headedness.
- Changes in skin color. Your child's skin may look blotchy, pale, blue, or yellow.
- Cool, clammy, or sweaty skin.
- Skin rash.
- Nausea and vomiting.
- Urinating much less than usual.
- Floppy appearance (*poor muscle tone*) or lack of energy.
- Poor feeding or eating.

Other symptoms depend on the source of your child's infection.

How is this diagnosed?

This condition is diagnosed based on:

- Your child's symptoms.
- Your child's medical history.
- A physical exam.

Your child may also have tests to find out the cause of the infection and how severe the sepsis is. These tests may include:

- Blood tests.
- Urine tests.
- Swabs from other areas of the body that may have an infection. These samples may be tested (*cultured*) to find out what type of bacteria is causing the infection.
- Chest X-ray to check for pneumonia. Other imaging tests, such as a CT scan, may also be done.
- Lumbar puncture. This is a procedure to remove a small amount of the fluid that surrounds the brain and spinal cord. The fluid is then examined for infection.



How is this treated?

This condition must be treated in a hospital. Based on the cause of your child's infection, he or she may be given an antibiotic, antiviral, or antifungal medicine.

Your child may also receive:

- Fluids through an IV.
- Oxygen and breathing assistance.
- Kidney dialysis. This process cleans the blood if the kidneys have failed.
- Surgery to remove infected tissue.
- Medicines to increase blood pressure.
- Blood transfusion if needed.
- Medicine to prevent blood clots.
- Nutrients to correct imbalances in basic body function (*metabolism*). Your child may:
 - Receive important salts and minerals (*electrolytes*) through an IV.
 - Have his or her blood sugar level adjusted.

Follow these instructions at home:

Medicines

- Give your child over-the-counter and prescription medicines only as told by your child's health care provider.
- Give your child antibiotic, antiviral, or antifungal medicine as told by your child's health care provider. **Do not** stop giving the medicine even if your child starts to feel better.
- **Do not** give your child aspirin because of the association with Reye's syndrome.



General instructions

- If your child has a catheter or other indwelling device, ask to have it removed as soon as possible.
- Keep all follow-up visits as told by your child's health care provider. This is important.

Contact a health care provider if:

- Your child does not appear to be getting better or regaining strength.
- Your child is tired all the time.
- Your child does not seem to get better after surgery.
- You think your child has an infection after surgery.

Get help right away if:

- Your child has any symptoms of sepsis.
- Your child is 3 months to 3 years old and has a temperature of 102.2°F (39°C) or higher.
- Your child is younger than 3 months and has a temperature of 100.4°F (38°C) or higher.
- Your child has difficulty breathing.
- Your child has a rapid or skipping heartbeat.
- Your child becomes very confused, limp, or unresponsive.
- Your child's skin becomes blotchy, pale, or blue.
- Your child has an infection that is getting worse or not getting better.

These symptoms may represent a serious problem that is an emergency. Do not wait to see if the symptoms will go away. Get medical help for your child right away. Call your local emergency services (911 in the U.S.).

Summary

- Sepsis is a medical emergency that requires immediate treatment in a hospital.
- This condition is caused by a severe reaction to a bacterial, viral, or fungal infection.
- Based on the cause of your child's infection, he or she may be given an antibiotic, antiviral, or antifungal medicine.
- Treatment may also include IV fluids, breathing assistance, and kidney dialysis.

This information is not intended to replace advice given to you by your health care provider. Make sure you discuss any questions you have with your health care provider.