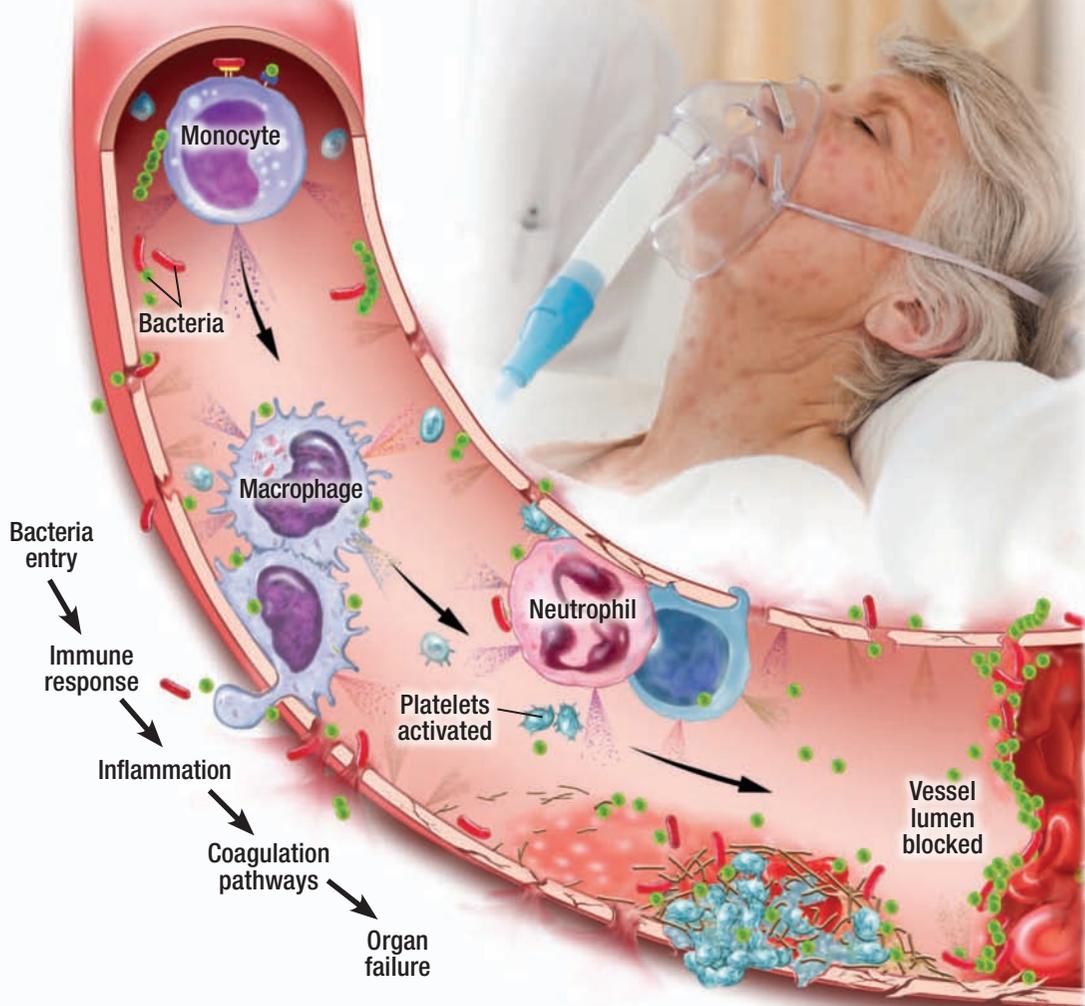


# Sepsis



## A Serious Bacterial Infection

Sepsis is a complication that can develop from any serious infection. Bacterial infections of the bloodstream, bone, kidneys, skin, or lungs can cause the release of infection-fighting chemicals into the bloodstream, leading to an intense inflammatory response. Instead of helping the body fight the infection, this response has harmful effects on the body and major organs. The result is the formation of tiny clots that block blood from reaching the kidneys, lungs, liver, and other organs, along with a dangerous drop in blood pressure. If the infection is not treated quickly, and blood pressure and breathing are not supported, sepsis can rapidly progress to septic shock and result in death.

Signs and symptoms of sepsis include fast, shallow breathing; a drop in blood pressure; dizziness and confusion; fast heartbeat; fever or low body temperature; and shaking chills. If sepsis is suspected, treatment must be started quickly, usually in the intensive care unit of a hospital.

Sepsis is potentially fatal, so the infection must be treated immediately. Broad-spectrum antibiotics are used until the location and cause of the infection can be determined. After the results of blood, urine, and imaging tests are known, the initial antibiotic therapy can be changed to fight the specific organism causing the infection. Oxygen may be administered, if necessary, to support breathing, and dialysis may be needed if the kidneys are not removing toxins by producing urine efficiently. A variety of drugs are used to help raise blood pressure, manage inflammation, and avoid fluctuations in blood glucose levels.

## Broad-Spectrum Antibiotics Are Used Initially to Fight Infection



*Oxygen may be administered to support breathing in a patient with sepsis.*

Sepsis is a potentially fatal complication of a serious infection caused by bacteria or other microorganisms. It affects hundreds of thousands of patients each year, often those who are hospitalized or have recently been discharged from the hospital. It is more common in the very young, the very old, diabetics, and those with immune-system suppression from certain medications, cancers, or HIV/AIDS. As people continue to live longer and more bacteria become resistant to antibiotics, sepsis is becoming a bigger problem.

### What Causes Sepsis?

Although sepsis is a complication of an infection, it is actually caused by the body's response to the infection. The infections most likely to lead to sepsis are those in the bloodstream, kidneys (urinary tract infections), lungs (pneumonia), bone (osteomyelitis), abdomen (appendicitis), or brain (meningitis). The body defends itself by releasing chemical substances designed to fight the infection. The chemicals trigger an inflammatory response to the infectious agent, and the inflammation reaction causes this life-threatening condition.

Signs and symptoms of sepsis include fever ( $>101^{\circ}\text{F}$ ) or low body temperature ( $<95^{\circ}\text{F}$ ), shaking chills, fast heartbeat, fast breathing, and confusion. As sepsis worsens, it can lead to septic shock. Blood pressure drops to dangerously low levels. Major organs can stop working properly, as many small blood clots stop the blood circulation to the tissues. When the kidneys begin to fail, urination slows. As sepsis worsens, breathing becomes more difficult, the heartbeat becomes irregular, blood pressure drops, and platelet counts fall.

Early diagnosis of sepsis depends on evaluation of physical signs, as well as results from blood test, urine tests, and imaging studies. It is critical that the source and cause of infection be rapidly identified in order to guide treatment. X-rays, ultrasound, MRI, and CT scans are all used to find the source of infection in patients suffering from sepsis.

### How Is Sepsis Treated?

Early treatment of a patient with sepsis includes supportive therapy to maintain blood pressure, proper breathing, kidney function, electrolyte balance, and blood sugar. IV fluids are administered to keep blood pressure strong and the kidneys working. Broad-spectrum antibiotics that work in a wide variety of infections are used initially until the exact cause of the infection is known. Once the cause is identified, the antibiotics can be changed to one that works specifically on the microorganism causing the infection. Surgery to remove infected tissue (abscesses) may be necessary.

Oxygen may be administered, if necessary, and dialysis may be needed if the kidneys are not removing toxins by producing urine efficiently. A variety of drugs help raise blood pressure, manage inflammation, balance electrolytes, and avoid fluctuations in blood sugar.

If sepsis is recognized and treated early, recovery is more likely. Once sepsis becomes severe or progresses to septic shock, only about one-half of patients survive. Patients who recover can have permanent damage to organs such as the kidneys.