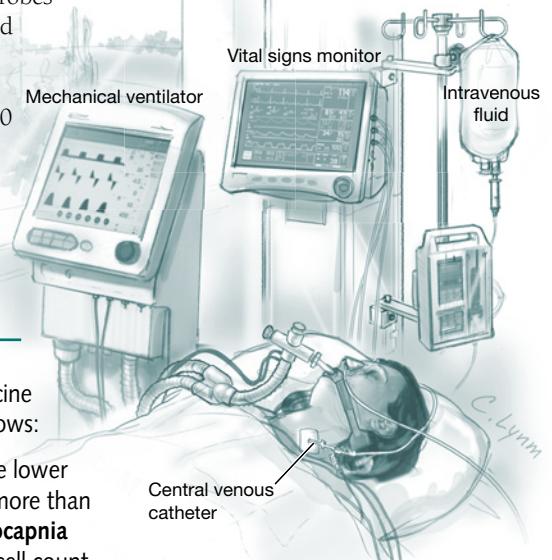


Sepsis

Sepsis is a medical condition in which the immune system goes into overdrive, releasing chemicals into the blood to combat **infection** (microbes in the blood, urine, lungs, skin, or other tissues) that trigger widespread **inflammation** (cellular injury in body tissues). If the body is not able to regulate this immune response, it then overwhelms normal blood processes. The first mention of the word sepsis in a medical context was more than 2700 years ago in the poems of Homer. The word derives from the Greek word *sepein*, meaning “to rot.” Sepsis occurs in 1% to 2% of all hospitalizations in the United States, affecting at least 750000 persons and costing \$17 billion per year to treat. A term sometimes used for sepsis is “blood poisoning,” but there is no poison involved in sepsis. The February 24, 2010, issue of *JAMA* includes an article about possible treatments for early sepsis.

Patient With Sepsis in Intensive Care Unit (ICU)



SYMPTOMS AND CLASSIFICATION

The American College of Chest Physicians and the Society of Critical Care Medicine have established 4 different levels of sepsis. The levels and symptoms are as follows:

1. **Systemic inflammatory response syndrome (SIRS):** **hypothermia** (temperature lower than 36°C/97°F) or **fever** (higher than 38°C/100°F); **tachycardia** (heart rate more than 100 beats per minute); **tachypnea** (more than 20 breaths per minute) or **hypocapnia** (arterial CO₂ less than 32 mm Hg); **leukopenia** or **leukocytosis** (white blood cell count that is either too low or too high). There is no confirmed infectious process in SIRS.
2. **Sepsis:** SIRS in response to a confirmed infectious process
3. **Severe sepsis:** sepsis plus organ dysfunction, **hypotension** (low blood pressure), or **hypoperfusion** (insufficient blood flow) to 1 or more organs
4. **Septic shock:** sepsis with persisting arterial hypotension or hypoperfusion despite adequate fluid resuscitation

DIAGNOSIS, TREATMENT, AND PROGNOSIS

The diagnosis of sepsis is usually confirmed with cultures of body fluids.

Sepsis is more common and more dangerous in elderly persons, individuals with a compromised immune system, and persons who are already critically ill. Patients with sepsis require prompt medical attention and are usually treated in the intensive care unit with intravenous fluids and antibiotics. Due to complications of sepsis, patients may need specific medications to maintain blood pressure, and artificial ventilation or dialysis may be needed to support function of the lungs or kidneys. Central venous **catheters** (tubes) and arterial catheters may be needed to help guide therapy. Patients with sepsis require preventive measures for deep vein thrombosis, stress ulcers, and pressure ulcers. Mortality rates are high, with 20% for sepsis, 40% for severe sepsis, and more than 60% for septic shock. Those who recover may have some permanent organ damage. Recently, physicians have been using **activated protein C** (a natural protein that inhibits inflammation) to treat some cases of severe sepsis and septic shock. Overall, it reduces risk of dying of severe sepsis slightly, but it increases the risk of bleeding, is expensive, and many patients do not benefit from it.

FOR MORE INFORMATION

- National Institutes of Health
www.nlm.nih.gov/medlineplus/sepsis.html
- National Institutes of Health
www.nigms.nih.gov/publications/factsheet_sepsis.htm
- Society of Critical Care Medicine
www.mycucare.org/support_brochures/pages/sepsis.aspx
- Surviving Sepsis Campaign
www.survivingsepsis.org

INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page link on JAMA's Web site at www.jama.com. Many are available in English and Spanish. A previous Patient Page on sepsis was published in the June 17, 2009, issue.

Sources: National Institutes of Health, American College of Chest Physicians, Society of Critical Care Medicine

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