

Influenza and sepsis: Mayo expert describes warning signs of severe sepsis, septic shock

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Sepsis can be a dangerous complication of almost any type of infection, including influenza, pneumonia and food poisoning; urinary tract infections; bloodstream infections from wounds; and abdominal infections. Steve Peters, M.D., a pulmonary and critical care physician at Mayo Clinic and senior author of a recent sepsis overview in the medical journal *Mayo Clinic Proceedings*, explains sepsis symptoms and risk

factors, the difference between severe sepsis and septic shock, and how sepsis is typically treated:

What is [sepsis](#)? Sepsis occurs when chemicals released into the bloodstream to fight an infection trigger inflammatory responses throughout the body. This inflammation can trigger a cascade of changes that can damage multiple organ systems, causing them to fail.

"Many infections can cause it," Dr. Peters says. "It is most common with bacterial infections, but you can get sepsis from other types of bugs also."

What are symptoms to watch for? A high fever; inability to keep [fluids](#) down; rapid heartbeat; rapid, shallow breathing; lethargy and confusion are among the signs. If sepsis is suspected, seek emergency care, Dr. Peters advises. Rapid intervention is critical.

"Let's say one feels some nasal congestion, and achy, like a cold or upper respiratory illness they'd had many times before, or a low-grade temperature of 99 or 100 F, and otherwise they're up and around and able to drink fluids: That would not call for going to the emergency department," he says. "But, if one was not able to take fluids, became more sleepy and lethargic and was lying down all day, and starting to look quite ill or appearing confused, for example—that person should definitely be seen by a doctor."

How is sepsis treated? The first step is diagnosis: Cultures are taken from the blood and any other relevant parts of the body. Intravenous fluids are given, and antibiotics are usually started right away.

"Probably the single most important thing is to try to maintain fluids," Dr. Peters says. "The damage of sepsis probably begins with loss of fluids."

If sepsis is severe, with [rapid heart rate](#), rapid breathing and shortness of breath, and the initial fluid given doesn't prompt rapid improvement, patients are usually hospitalized.

What are the differences among sepsis, severe sepsis and [septic shock](#)? Sepsis refers to signs of inflammation in the presence of a presumed infection, Dr. Peters says.

"Severe sepsis means you've got that and signs of organ damage: lung injury, impaired kidney function, impaired liver function," Dr. Peters explains. "Septic shock means you have all of those findings of [severe sepsis](#), but now you've been given fluids, and there's still poor blood pressure, poor urine output, breathing troubles, and there are still ongoing signs of sepsis."

Septic shock can be fatal. Among hospitalized patients, septic shock is associated with a 20 to 30 percent risk of death, Dr. Peters says.

Sepsis is such a concern in hospital critical care units that Mayo Clinic has developed a sepsis "sniffer" to help detect it in patients and spot who is at higher risk. Recent improvements to the sniffer are outlined in a new article in *Mayo Clinic Proceedings*.

Who's at risk? Anyone can develop sepsis. People on chemotherapy or other immune-suppressing drugs are at higher risk, as are the elderly and people with open wounds that could lead to infection. Often, immune-suppressed patients are given antibiotics preventively.

Is there anything you can do to prevent sepsis if you catch the flu or another illness?

"Taking your temperature is important, because it gives a good assessment of how severe this might be," Dr. Peters says. "Probably the

single most important thing is to try to continue taking in fluids. Watch for signs and symptoms, and seek urgent medical care if you suspect sepsis."

Provided by Mayo Clinic

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