
Advanced Sepsis Detection And Management System Created

Martin, who is a fellow in allergy, pulmonary and critical care medicine, is part of an interdisciplinary team at Vanderbilt University that has come up with a high-tech approach to combat this deadly illness, which is one of the top 10 causes of death in the United States and kills more than half a million people worldwide every year.

The team is made up of clinicians and informatics experts from the Vanderbilt University Medical Center and computer scientists from Vanderbilt's Institute for Software Integrated Systems (ISIS). They have developed and begun testing what they believe is the first real-time system for sepsis detection. In May, the system was deployed in the hospital's intensive care unit to test its effectiveness. This summer, they will add an automated decision support system designed to guide attending physicians through the complex process of sepsis treatment.

"This is an effort to use the power of informatics to move from reactive to proactive medical treatment by creating tools to support the use of evidence-based clinical guidelines," said Peter Miller, director of the Vanderbilt HealthTech Laboratory, who oversees the project.

Sepsis, or systemic inflammatory response syndrome (SIRS), causes the body to attack itself. It is triggered when bacteria invade the body from outside through wounds or IV lines. The bacterial infection overstimulates the body's immune system, setting off a cascade of inflammatory and abnormal clotting responses that can lead to organ failure and death. Infections that cause sepsis can be acquired outside the hospital, but those acquired in the hospital are more difficult to manage because many patients are already weak and the invading bacteria are more likely to be drug-resistant strains.

According to a study conducted by the Emory University School of Medicine and the Centers for Disease Control in 2003, the incidence of sepsis increased by an average of 8.7 percent a year over the prior 22 years. Today, sepsis treatment accounts for 40 percent of all ICU costs

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