


TECHNOLOGY HELPS FIGHT A DEADLY DISEASE

by Jenny Mangelsdorf

The numbers are staggering. At least 1.8 million people die from sepsis each year, and some say that the bloodstream infection really kills closer to 18 million worldwide. What's worse is that those numbers are growing, fueled by an aging population and antibiotic-resistant infection.

"Sepsis is going to be the dominant feature in the medical landscape," says Steven Simpson, professor of medicine, Division of Pulmonary and Critical Care Medicine at The University of Kansas Hospital and co-director of the hospital's sepsis team. "There's no escaping sepsis unless we do something about it."

Since Simpson's team began working to cut sepsis mortality rates in 2005, the hospital has seen its rates drop from 49% to 22% and savings increase by \$18 million annually. However, for Simpson and the hospital, that is not good enough.

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Client: The University of Kansas Hospital

Challenge:

- Lower patient mortality rates from bloodstream infection
- Speed detection of sepsis, a leading cause of death in hospitals
- Leverage electronic health record data aggregation and integration

Solution:

- CSC's CareVeillance Clinical Surveillance tool

Results:

- Fewer readmissions and reduction of critical care length of stay
- Decreased costs
- Reduced mortality rates

A key challenge with sepsis, which is a treatable condition when caught early, is how quickly it becomes fatal. The chance of death rises about 1.5% every five minutes treatment is delayed, with the mortality rate jumping to 50% if treatment for septic shock is delayed more than four hours.

"Fortunately, quickly catching sepsis is something our tool excels at," says Bryan Eckert, CSC Health Delivery Group senior principal.

A pioneering software tool

CSC developed a tool called CareVeillance™ Clinical Surveillance, while working with the hospital, which is the region's premier academic medical center and one of the first participants in the international Surviving Sepsis campaign.

CSC drew on its legacy of software development, data integration and data aggregation skills to create the tool, which integrates patient data from disparate systems, analyzes and connects this information, displays consolidated clinical data focused on the condition and alerts clinicians that a patient is showing early signs of sepsis.

"In a pilot project we are finding that CareVeillance is a very useful tool and is almost always correct," says Simpson, who adds that they have found that CareVeillance is more than 99% sensitive in its ability to find sepsis when it's present and highly accurate in diagnosing the disease. "CareVeillance is helping us identify an extra two or three patients a day," says Simpson.

Saving lives with technology

Unlike existing electronic health record (EHR) and data warehouse systems, CareVeillance leverages new EHR data about a patient and compares it, using complex clinical algorithms, to existing data to identify conditions requiring investigation or intervention. This gives caregivers the earliest possible opportunity to assess and treat at-risk patients and to ensure that best practice measures are delivered during critical time frames. The solution also acts as a predictive tool to identify patients at risk for re-admission.

In addition to saving lives, the tool promises to save in other ways, too. Since its development, CSC's tool has been certified as an inpatient EHR module for quality reporting. By 2015, U.S. hospitals that do not demonstrate meaningful EHR use will be subject to reductions in Medicare fee reimbursements. ■

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