

Study shows decrease in sepsis mortality rates

November 13 2013

A recent study from Boston University School of Medicine (BUSM) and Boston Medical Center (BMC) shows a significant decrease in severe sepsis mortality rates over the past 20 years. Looking at data from patients with severe sepsis enrolled in clinical trials, researchers found that in-hospital mortality rates decreased from 47 percent between 1991 and 1995 to 29 percent between 2006 and 2009, a time period when no new pharmacological treatments were developed for severe sepsis. The results suggest that substantial improvements in patient outcomes can be accomplished by improving processes of care and working with existing treatments in a novel way.

The study, which is published online in *Critical Care Medicine*, was led by senior author Allan J. Walkey, MD, MSc, assistant professor of medicine, BUSM, and attending physician, pulmonary, [critical care](#) and allergy medicine, BMC.

Severe sepsis, which affects approximately one million Americans each year, occurs when a local infection causes other organs in the body to fail. For example, a patient with severe sepsis could have an infection that starts as pneumonia, but a counterproductive immune response results in damage to distant organs, such as new onset kidney failure, altered mental status and/or dangerously low blood pressure (shock). It can be imminently life threatening - approximately one out of three patients die from severe sepsis during their hospitalization.

Because prior studies suggesting a decrease in severe sepsis [mortality](#)

[rates](#) used only billing codes from administrative data, it was thought that billing code changes may be responsible for the mortality decline. To avoid administrative data issues and determine trends in patients prospectively identified as having severe sepsis, this study looked at data from patients with severe sepsis enrolled in 36 multicenter clinical trials from 1991-2009.

The results showed that despite no change over time in the severity of illness of the patients with severe sepsis enrolled in the [clinical trials](#), mortality rates declined significantly over 20 years, and the decline occurred without the development of new pharmacological therapies targeted to treat severe sepsis.

Previous studies have suggested that having more critical care physicians providing care, earlier initiation of antibiotics, more targeted delivery of intravenous fluids and more gentle mechanical ventilation may improve outcomes of patients with severe sepsis. However, whether findings from these past studies were implemented into routine practice and were associated with improved severe sepsis patient outcomes in the real world was previously unclear.

"Even without new drugs or technologies to treat severe sepsis, our study suggests that improving the ways in which we recognize and deliver care to patients with severe [sepsis](#) could decrease mortality rates by a magnitude similar to new effective drug," said Walkey.

Additional studies are needed to determine what specific changes in care have had the most impact on decreasing the mortality rates of [patients](#) with [severe sepsis](#).

Provided by Boston University

Citation: Study shows decrease in sepsis mortality rates (2013, November 13) retrieved 26 April 2024 from <https://medicalxpress.com/news/2013-11-decrease-sepsis-mortality.html>

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