

## Study Finds Sepsis Mortality Rates Declining



Findings of a study recently conducted by the Boston University School of Medicine (BUSM) and the Boston Medical Center (BMC) document a considerable decrease in mortality rates caused by severe sepsis over the period of the past two decades.

Evaluating severe sepsis patient data gathered in clinical trials, the research team established that in-hospital mortality rates had gone down by 47% between the years 1991 and 1995, and by 29% between 2006 and 2009.

This period of time did not see any new developments for pharmacological treatments to use against severe sepsis, suggesting that major improvements in patient outcomes can be achieved by enhancing care processes and utilising treatments in an innovative way.

The study has been published in 'Critical Care Medicine' online, where senior author Allan J. Walkey, MD, MSc, assistant professor of medicine, BUSM, and attending physician, pulmonary, critical care and allergy medicine, BMC, shares the research team's findings.

Severe sepsis is a potentially life-threatening condition (mortality rate of one in three) in which a local infection causes other organs in the body to fail, and about one million Americans are affected each year. As an example a case of pneumonia could result in damage to distant organs, such as new onset kidney failure, altered mental status and/or dangerously low blood pressure (shock), due to a counterproductive immune response.

Pervious studies using only billing codes from administrative data have suggesting a decline in severe sepsis mortality rates, hence it was assumed that changes in billing code could be responsible for the mortality decline.

Aiming to avoid administrative data issues and determine trends in patients likely to be diagnosed with severe sepsis, this research evaluated data from severe sepsis patients that had been recruited in 36 multicenter clinical trials over eight years between 1991-2009.

Despite the fact that severe sepsis patients enrolled in the clinical trials showed no change over time in the severity of their illness, mortality rates declined considerably over 20 years, with the decrease occurring without the development of any new pharmacological therapies targeted to treat severe sepsis.

Studies conducted in the past have found that outcomes of patients with severe sepsis may improve when there is earlier initiation of antibiotics, more gentle mechanical ventilation, more targeted delivery of intravenous fluids and when there are generally more critical care providing physicians present.

It was inconclusive however, whether these findings were adopted into routine practice, and subsequently associated with improved severe sepsis patient outcomes in the real world.

Dr Walkey confirms that enhancing the recognition and delivery of care to severe sepsis patients could lower mortality rates as significantly as a new effective drug, even in the absence of any new treatment methods or tools.

In order to specifically determine which changes in care impacted the decrease in the mortality rate of patients with severe sepsis the most, further research is needed.

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