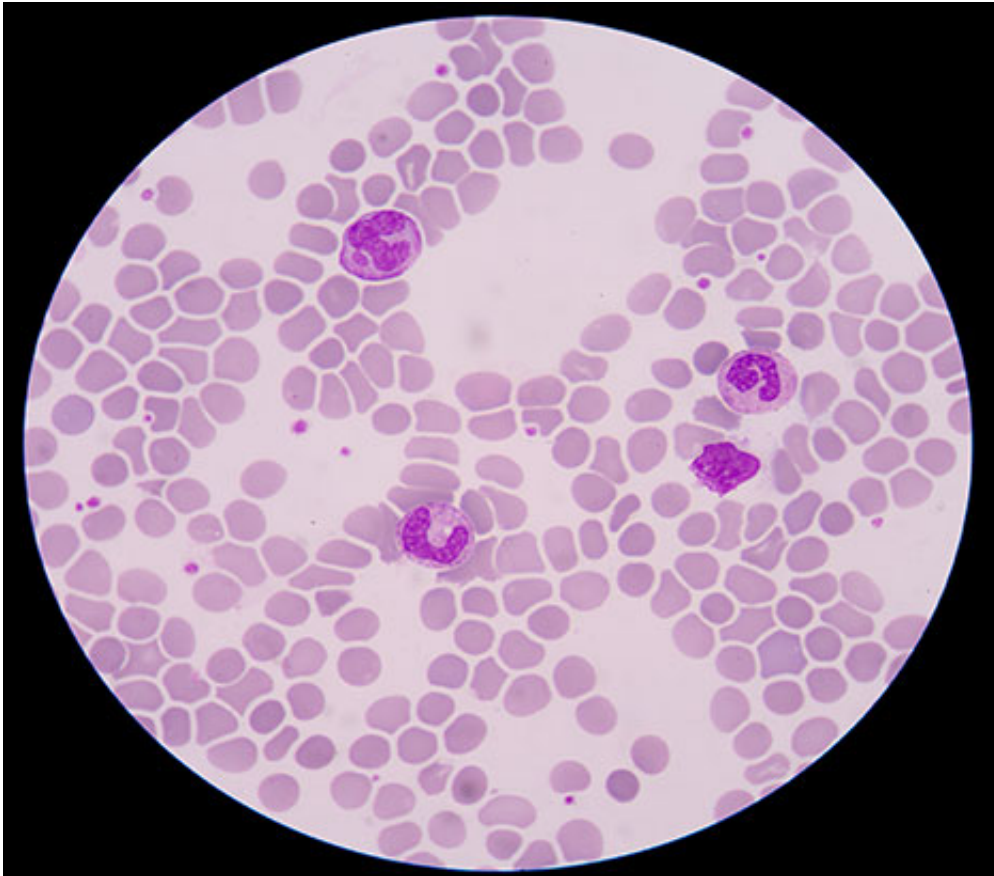


Study highlights risks of sepsis

March 21 2017, by Bob Shepard



Pneumonia is the most common cause of sepsis. Credit: University of Alabama at Birmingham

A new study from researchers at the University of Alabama at Birmingham analyzing three different methods for characterizing sepsis has helped to illustrate the risk of death or severe illness attributable to the condition. The study, published online in March in *The Lancet*

Infectious Diseases, is one the most comprehensive studies of the burden of sepsis in the United States.

Sepsis is a life-threatening condition that occurs when an infection spreads through the bloodstream and injures the body's own tissues and organs. It can lead to organ failure, shock and death. The worldwide incidence of [sepsis](#) is estimated to be 18 million cases per year, and it is the most common cause of death in people who have been hospitalized. National statistics estimate that approximately 20 to 35 percent of people with [severe sepsis](#) die, and that number climbs to as high as 70 percent of those with sepsis shock.

"This paper draws attention to the very real risks of sepsis and its impacts upon the health of the community," said Henry Wang, M.D., professor and vice chair for Research in the UAB Department of Emergency Medicine and the study's senior author. "These results suggest that our efforts to prevent sepsis need to be enhanced. Sepsis is a 'ninja' disease—it quietly sneaks up on unsuspecting victims and rapidly causes overwhelming illness and death. It's one of the biggest draws on [national health care](#) resources. Yet few people are aware that sepsis kills more people each year than heart attacks and cancer. Many people have never even heard of sepsis."

To examine the effectiveness of three classifications for identifying high-risk infection patients, the research team needed data from many patients affected by sepsis. They employed the large-scale, ongoing REGARDS study—[Reasons for Geographic and Racial Differences in Stroke](#)—to develop a suitable sample size of potential subjects. REGARDS is a nationwide study, funded by the National Institutes of Health and led by investigators at the UAB School of Public Health.

Analyzing more than 30,000 participants in REGARDS led to a cohort of 3,400 who had been diagnosed with a serious infection. The

investigators looked at the incidence of sepsis using three different classification systems: systemic inflammatory response syndrome, or SIRS; elevated sepsis-related organ failure assessment score, or SOFA; and an elevated quick SOFA score, known as qSOFA. They also examined death rates for these three categories of sepsis.

The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) task force presented revised classifications in February 2016, adding SOFA and qSOFA among concerns that SIRS was inadequate for identifying patients with severe sepsis. The UAB study is the first to confirm that the newer classifications, SOFA and qSOFA, are more predictive of serious outcomes in patients with infection, indicating a higher incidence of patients admitted to an intensive care unit and a higher overall mortality rate.

"These findings support the use of SOFA and qSOFA as screening tools, as our results indicate that these classifications are able to identify which patients with infection are at high risk of death," Wang said. "We have also demonstrated that, in addition to serving as an in-hospital screening tool, the revised classifications may also be useful for characterizing and identifying patients with infection at increased risk of poor outcomes after discharge."

The authors say most previous studies of the incidence of sepsis used smaller populations and used hospital data rather than information on community-dwelling adults.

"Our effort was to link the incidence of community-acquired sepsis with outcomes of the disease," said John Donnelly, MSPH, a doctoral candidate and pre-doctoral fellow in the Department of Epidemiology in the UAB School of Public Health and the study's first author. "We wanted to characterize the entire spectrum of the disease, such as incidence, short- and long-term mortality, prognosis, and ultimate

outcome."

Wang likens current awareness of sepsis to how stroke and [heart attack](#) were considered 20 years ago

"We used to think we couldn't prevent heart attacks or strokes," he said. "Through public awareness campaigns, now most Americans know that healthy behaviors—like avoiding cigarettes and lowering cholesterol—can go a long way toward preventing heart disease. Our work suggests that the same strategy of prevention may work for sepsis."

The authors estimate there are more than 1 million cases of sepsis each year in the United States, compared to around 700,000 heart attacks per year and close to 800,000 strokes.

Health care agencies such as the Centers for Medicare and Medicaid Services have recognized that sepsis is a major [public health](#) issue, Donnelly says. And many hospitals nationally are launching sepsis campaigns to educate patients and families, and to make sepsis recognition a priority.

"Patients need to be aware of the risks of sepsis when they go into a hospital, and most certainly should be aware of the risks following discharge," Donnelly said.

Recognizing sepsis is a key to successful treatment, Donnelly says. Survival rates are much higher in cases where sepsis is identified early. For every hour of delay in providing treatment, there is a more than 7 percent decrease in survival.

Early signs of sepsis are fever, weakness, confusion, rapid heart rate, low blood pressure and decreased urination. Antibiotics and IV fluids are the usual treatments for sepsis.

More information: John P Donnelly et al. Application of the Third International Consensus Definitions for Sepsis (Sepsis-3) Classification: a retrospective population-based cohort study, *The Lancet Infectious Diseases* (2017). [DOI: 10.1016/S1473-3099\(17\)30117-2](https://doi.org/10.1016/S1473-3099(17)30117-2)

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