

Feinstein Institute researcher presents new definitions for sepsis and septic shock

23 February 2016

Clifford S. Deutschman, MS, MD, vice chair of research in the Department of Pediatrics at Cohen Children's Medical Center and an investigator at The Feinstein Institute for Medical Research, presented new definitions and clinical criteria for sepsis and septic shock at the Society of Critical Care Medicine's (SCCM) 45th Critical Care Congress in Orlando, FL. He was also corresponding author for an article outlining the findings that was published February 23 in *The Journal of the American Medical Association (JAMA)*.

According to the *JAMA* article, definitions of sepsis were last revised in 2001 and since that time, "considerable advances have since been made" into the pathobiology, management and epidemiology of sepsis, which prompted the need for reexamination. The recommendation, which was developed by Dr. Deutschman and 18 other experts in sepsis pathobiology, clinical trials and epidemiology, notes that sepsis should be, "defined as life-threatening [organ dysfunction](#) caused by a dysregulated host response to infection," and that [septic shock](#) should be "defined as a subset of sepsis in which particularly profound circulatory, cellular, and metabolic abnormalities are associated with a greater risk of mortality than with sepsis alone."

Sepsis occurs when molecules released into the bloodstream to fight an injury or infection trigger inflammation throughout the body. Inflammation is necessary for maintaining good health - without inflammation, wounds and infections would never be controlled or heal. However, persistent and constant inflammation often results in organ dysfunction or damage, leading to patient death - 28 to 50 percent of people who suffer from [severe sepsis](#) die from the condition.

Dr. Deutschman and the committee provide additional, detailed measurements for identifying sepsis in adults. They recommend using the

Sequential [Sepsis-related] Organ Failure Assessment (SOFA) score of 2 points or more to identify organ dysfunction in a clinical or hospital setting. In out-of-hospital settings, if there is suspicion of infection and a concern sepsis will follow, they recommend using the quickSOFA (qSOFA); at least two of the following clinical criteria: respiratory rate of 22/min or greater, altered mentation, or systolic blood pressure of 100 mm Hg or less. Patients with septic shock can be clinically identified by a vasopressor requirement to maintain a mean arterial pressure of 65 mm Hg or greater and serum lactate level greater than 2 mmol/L (>18 mg/dL) in the absence of hypovolemia.

Dr. Deutschman has been a sepsis investigator for more than 30 years and has conducted National Institutes of Health-funded, translational studies on molecular and cellular mechanisms in sepsis, with a focus on cell signal transduction pathways and mitochondrial dysfunction. He is a co-author of the recent *Choosing Wisely in the ICU*, one of a series of recommendations supported by the American Board of Internal Medicine Foundation designed to aid patients with their healthcare decisions. He is the author of more than 100 peer-reviewed papers and the co-editor of the textbook *Evidence-Based Practice of Critical Care*, the second edition of which was released in 2015.

The new sepsis definitions, and pervasive awareness of the definitions, are critical due to the fact that more American lives are lost due to sepsis than those lost to most cancers, strokes, and heart attacks. And yet, sepsis remains largely unnoticed by patients and healthcare professionals alike, making the condition even deadlier.

A number of Feinstein Institute researchers study sepsis. They study the causes of sepsis and how to create improved treatments. Some researchers develop methods of preventing sepsis occurrence and investigate the mechanisms underlying the cognitive and physical impairment that occurs in up

to 25 percent of sepsis survivors. Others study critical proteins implicated in sepsis and their role in organ damage associated with sepsis, including lung and heart injury and anemia caused by severe sepsis. Efforts are also focused on developing novel compounds derived from Chinese herbal therapies to prevent progression of organ damage associated with [sepsis](#).

Provided by Northwell Health

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