

# New criteria for sepsis in children based on organ dysfunction

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Clinician-scientists from Ann & Robert H. Lurie Children's Hospital of Chicago were among a diverse, international group of experts tasked by the Society of Critical Care Medicine (SCCM) with developing and

validating new data-based criteria for sepsis in children.

Sepsis is a major public health burden, claiming the lives of over 3.3 million children worldwide every year. The new pediatric [sepsis](#) criteria—called the Phoenix criteria—follow the [paradigm shift](#) in the recent adult criteria that define sepsis as a severe response to infection involving organ dysfunction instead of an earlier focus on systemic inflammation.

The new pediatric sepsis criteria and their development are presented in two papers [published](#) in *JAMA* on January 21, 2024, and concurrently announced at the SCCM Critical Care Congress in Phoenix, Arizona.

"The last pediatric sepsis criteria were developed nearly 20 years ago and were based on expert opinion, whereas the new criteria we derived are based on data from [electronic health records](#) and analysis of more than 3 million pediatric health care encounters from 10 hospitals around the world, including in [low-resource settings](#)," said lead author of one of the papers L. Nelson Sanchez-Pinto, MD, MBI who co-led the data group of the SCCM task force with Tellen D. Bennett, MD, MS, at the University of Colorado.

"We used a machine learning approach to narrow down elements that were most effective in identifying children at high risk of dying from organ dysfunction in the setting of an infection. The criteria we developed rely on four systems—cardiovascular, respiratory, neurological, and coagulation. These criteria are better than the old ones at identifying children with infections at higher risk of poor outcomes and are globally applicable, including in low-resource settings."

Dr. Sanchez-Pinto is an Associate Professor of Pediatrics and Preventive Medicine at Northwestern University Feinberg School of Medicine, as well as Warren and Eloise Batts Research Scholar at Lurie Children's.

The SCCM leadership team that assembled the task force on pediatric sepsis included Lauren Sorce, Ph.D., RN, CPNP-AC/PC, FCCM, FAAN, Founders' Board Nurse Scientist and Associate Director of Nursing Research at Lurie Children's, as well as Assistant Professor of Pediatrics at Northwestern University Feinberg School of Medicine.

The pediatric sepsis task force also included Elizabeth Alpern, MD, MSCE, Division Head of Emergency Medicine at Lurie Children's and Professor of Pediatrics at Northwestern University Feinberg School of Medicine.

**More information:** L. Nelson Sanchez-Pinto et al., Development and Validation of the Phoenix Criteria for Pediatric Sepsis and Septic Shock *JAMA* (2024). DOI: 10.1001/jama.2024.0196

Provided by Ann & Robert H. Lurie Children's Hospital of Chicago

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