
New Protocol Improves Sepsis Detection in Children



Sepsis, a life-threatening condition, is difficult to identify accurately in children. Researchers in the U.S. have developed a two-stage electronic sepsis alert (ESA) to improve detection of paediatric severe sepsis in the emergency department. Using a combination of vital signs, risk factors and physician judgment, the ESA reduces missed sepsis diagnoses by 76 percent in this patient population, according to a study published in *Annals of Emergency Medicine*.

"Identifying the rare child with severe sepsis or septic shock among the many non-septic children with fever and tachycardia in a paediatric ER is truly akin to finding the proverbial 'needle in a haystack,'" said lead study author Fran Balamuth, MD, PhD, MSCE, of Children's Hospital of Philadelphia, in Philadelphia, Pa. "This alert, especially with the inclusion of physician judgment, gets us much closer to catching most of those very sick children and treating them quickly."

The ESA tool is integrated into the hospital's electronic health record (EHR). The first-stage alert is triggered when an age-based elevated heart rate or hypotensive blood pressure is documented in the EHR at any time during the emergency visit. If the patient also has a fever or risk of infection, the alert triggers a series of questions about underlying high risk conditions, perfusion and mental status. The second-stage alert triggers if there is an affirmative answer to any of these questions. When patients have positive first- and second- stage alerts, a "sepsis huddle" is triggered, which is a brief, focused patient evaluation and discussion with the treatment team, including the emergency physician.

Dr. Balamuth points out that "clinical identification remains critically important to making this protocol successful in identifying and treating these sick children."

Of the 1.2 percent of the patients with positive ESAs, 23.8 percent had positive huddles and were placed on the sepsis protocol. The protocol missed 4 percent of patients who later went on to develop severe sepsis, which researchers attribute to "patient complexity," especially among patients with developmental delays.

In an editorial published together with Dr. Balamuth's findings, Andrea Cruz, MD, MPH of the Baylor College of Medicine in Houston, Texas writes, "This ESA advances the field of sepsis recognition by integrating vital sign anomalies, comorbidities that increase a child's risk for sepsis, and clinical judgment into a tool that is both more sensitive and specific than prior alerts as well as less prone to alert fatigue."

Source: [American College of Emergency Physicians](#)
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