Background:
Based in Fort Worth, Texas, Cook Children’s is a not-for-profit, non-academic pediatric health care organization. Cook Children’s Medical Center contains a 70 bed pediatric Emergency Department (ED) that sees over 120,000 patients each year.

Clinical Problem:
Severe sepsis and septic shock are leading causes of pediatric morbidity and mortality, resulting in prolonged hospitalization and increased healthcare costs. Annually, almost 100,000 pediatric patients present to the ED with signs of severe sepsis. Barriers within a pediatric ED include:
• delays in recognition of sepsis, vascular access, and administration of fluids and antibiotics
• difficulties recognizing very early signs of sepsis that are predictive of negative outcomes

Desired Outcomes:
• Improve patient mortality rates, shorter hospital stays and decreased hospital costs.
• Decrease in triage-to-bolus and triage-to-antibiotic times.

Method:
Using the concept of “PIRO” (predisposition, infection, response, and organ dysfunction), the sepsis tool was adapted to identify pediatric patients at risk for sepsis with signs of infection, age-related abnormal vital signs, and signs of organ dysfunction. An ED sepsis committee was formed to audit charts and educate staff on the sepsis tool.

Implementation:
With a 5 or greater score (maximum score of 16), a “sepsis alert” was paged. This includes:
• A multidisciplinary team was mobilized:
  ➢ ED nurse
  ➢ ED paramedic
  ➢ Physician
  ➢ Respiratory Therapist
  ➢ ED pharmacist
  ➢ Child Life Specialist
• Using a nurse-initiated pathway:
  ➢ Patient placed on cardiac apnea monitor
  ➢ Patient placed on pulse oximeter and oxygen
  ➢ Vital sign monitoring every ten minutes
  ➢ Intravenous (IV) line insertion, lab work obtained, weight based IV fluid bolus initiated and antibiotics anticipated.

Outcomes:
• From January 2014 through Dec 2015, median times for triage-to-IV fluid bolus times improved from 65 to 31 minutes and triage-to-antibiotic times improved from 137 to 59 minutes
• With early recognition and treatment of sepsis, ED experienced improved patient mortality rates, shorter hospital stays, and decreased hospital costs
• The successes of multidisciplinary interventions, effective communication, increased awareness, and staff compliance have led to decreases to triage-to-bolus and triage-to-antibiotic times.
• The tool was accurate in identifying severe sepsis: the admission rate for positive sepsis alerts was 60%.

Conclusion and Implications:
• Early identification of septic children using a sepsis scoring tool in the ED allows for early treatment and improved outcomes. Further use of this tool will involve tracking patient outcomes such as length of stay and estimated lives saved.