

# Screening for Sepsis in the Pediatric Urgent Care Center

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## INTRODUCTION

### Background

- Sepsis is the leading cause of death in hospitalized children in the U.S.
- The Centers for Disease Control and Prevention (CDC) defines sepsis as “the body’s extreme response to an infection.”
- Infections can start anywhere in the body and may spread throughout the if not treated promptly and appropriately.
- Nearly 80,000 children receive inpatient care for sepsis every year in the United States.
- Almost 5,000 children succumb to sepsis annually, and 25% to 40% of survivors endure long-term health issues.
- Hospital treatment of sepsis in the United States (U.S) cost \$24 billion in 2013, becoming the most expensive disease treated in this country.

### Problem

- Sepsis is a medical emergency in which delayed detection can impact adverse outcomes. Early screening and identification of this disease are crucial to decreasing tissue damage, organ failure, and death.
- The current practice of screening for sepsis at Cook Children’s Health System (CCHS) for patients transferred with fever or other infectious symptoms to Cook Children’s Medical Center (CCMC) from the UCC does not happen until the patients arrive at the Emergency Department (ED).
- CCHS is not performing a sepsis screening in pre-hospital settings such as clinics, pediatrician offices, or urgent care centers (UCCs).

### Team Members

- Project Leader:** Gabriela L Chavez, MSN, RN, CPN
- Team Member:** Stephanie Lavin, MSN, RN-Quality Improvement Coordinator-Cook Children’s Medical Center.
- Project Champions:**  
Javier Gelvez, MD, Intensivist, Cook Children’s Medical Center  
Kara Starnes, DO, Medical Director, Cook Children’s Urgent Care Centers.  
Bethany Hooper, RN, Director of Nursing, Cook Children’s Urgent Care Centers.  
Natalie Mangels, RN, Fort Worth Urgent Care Center Clinical Coordinator.

### Objectives

- To analyze the implementation of the Cook Children’s Medical Center Sepsis Screening Scoring Tool (CCMC SSST) on at-risk patients presenting to the Cook Children’s Fort Worth Urgent Care Center with fever or other symptoms of infection.
- Identify the benefit of implementing the CCMC SSST at the Cook Children’s UCCs.

## METHODS

### Project Design

- This is a retrospective study of patients who presented to the Cook Children’s Fort Worth Urgent Care Center from June 1st, 2020, to June 1st, 2021. These patients were transferred to Cook Children’s Medical Center Emergency Department (CCMC ED) for a higher level of care. These patients had the following reasons for visits (RFV):  
Abscess, cough, abdominal pain, fever, animal bite, joint swelling, blue spells and cellulitis.

### Setting

- Cook Children’s Fort Worth Urgent Care Center-Part of the Cook Children’s Health Care System (CCHS).
- Location: Fort Worth-Dallas metropolitan area.

### Data Collection Tool

- The Cook Children’s Medical Center Sepsis Screening Scoring Tool (CCMC SSST) was applied to 369 EMRs. CCMC SSST is based on the framework of PIRO.

P=Predisposition to Sepsis (If the answer is yes, the patient receives two points for this section).  
I =Infectious Symptoms (if the answer is yes, the patient receives two points for this section).  
R=Response to Infection (if the answer is yes, the patient receives two points for this section).  
O=Organ Dysfunction ( if the answer is yes, the patient receives four points for this section).

- The patient is at risk for sepsis if the score is greater than four.

## RESULTS

- 349 (94.5%) patients screened negative for sepsis (score <5).
- 19 (5.1%) patients screened positive for sepsis (score 5 or greater).
- 10 (2.7%) of those patients who screened positive for sepsis were admitted to inpatient from the ED.
- 9 (2.4%) of those who screened positive for sepsis were treated in the ED and discharged home from the ED.

## IMPLICATIONS FOR PRACTICE

- The CCMC SST showed that there is a benefit for clinicians to use it as a supportive tool to identify pediatric patients at risk for sepsis who present to the Urgent Care Center with fever or other infectious symptoms.
- Consider screening for sepsis at the Fort Worth UCC, then expand it to the rest of the CCHS UCCs to expedite interventions to decrease tissue damage or even death.

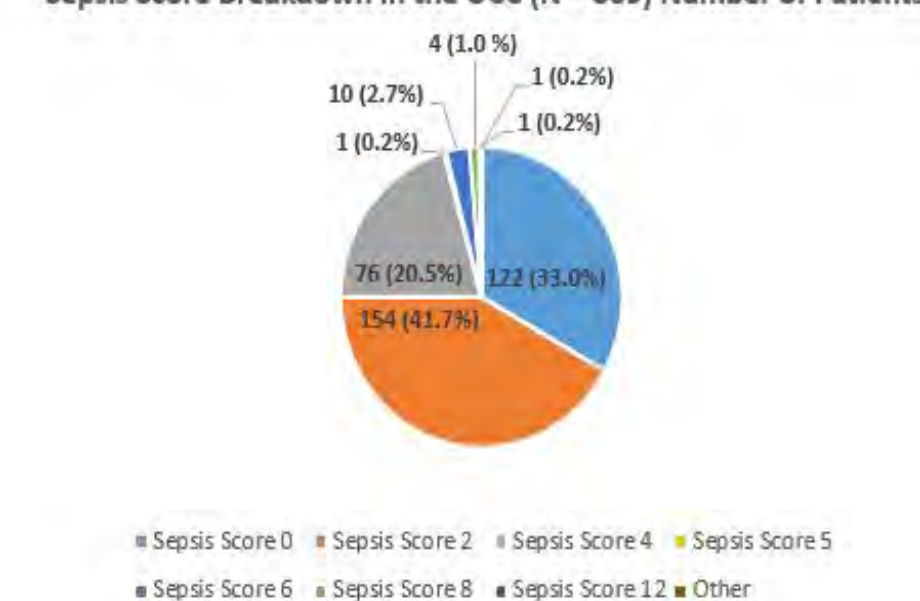
## CALL TO ACTION

- More studies involving prehospital sepsis screening are needed to raise awareness of sepsis in pediatric clinics, pediatrician’s offices, and pediatric urgent care settings, to improve early detection and recognition of sepsis in children.

## REFERENCES

- Cook Children’s Health Care System (2021).  
Cook Children’s Sepsis Screening Scoring Tool (2021).  
Gavins, Felicity N.E.; Stokes, Karen Y. (2015). Sepsis. In *Vascular responses to pathogens*(2nd ed., p. 1). Elsevier S & T.  
Killien, E. Y., Farris, R. D., Watson, R., Dervan, L. A., & Zimmerman, J. J. (2019). Health-related quality of life among survivors of pediatric sepsis\*. *Pediatric Critical Care Medicine*, 20(6), 501–509. <https://doi.org/10.1097/pcc.0000000000001886>.  
McClelland H, M. A. (2014). Early Identification and Treatment of Sepsis. *Nursing Times*, 110(4), 14-17. Retrieved October 21, 2021, from <https://www.nursingtimes.net/clinical-archive/infection-control/early-identification-and-treatment-of-sepsi-17-01-2014/>  
Sepsis. (n.d.). Centers for Disease Control and Prevention. Retrieved October 2, 2021, from <https://www.cdc.gov/sepsis/what-is-sepsis.html>  
Sepsis Alliance. Retrieved October 28, 2021, from <https://www.sepsis.org/sepsisand/children/>  
Sepsis Collaborative. (n.d.). Children’s Hospital Association. Retrieved October 2, 2021, from <https://www.childrenshospitals.org/programs-and-services/quality-improvement-and-measurement/collaboratives/sepsis>.  
Rudd, K. E., Delaney, A., & Finfer, S. (2017). Counting sepsis, an imprecise but improving science. *JAMA*, 318(13), 1228. <https://doi.org/10.1001/jama.2017.13697>  
The American Academy of Pediatrics (2020).

Sepsis Score Breakdown in the UCC (N = 369) Number of Patients



Analysis of UCC Patients Screened for Sepsis (N=369)

