

## **Title**

Pediatric Severe Sepsis Checklist Improves Timeliness of Treatment

## **Authors**

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## **Purpose**

The 2017 American College of Critical Care Medicine recommends a first-hour resuscitation and stabilization bundle for the treatment of pediatric severe sepsis or septic shock. Priorities of care include rapid establishment of vascular access, initiation of fluid resuscitation within 30 minutes, and initiation of empiric antimicrobial therapy within 60 minutes of severe sepsis recognition. The utilization of a protocolized treatment in the Pediatric Emergency Department (ED) is associated with improved timeliness of care and reduced morbidity related to organ dysfunction. The purpose of this evidence-based practice (EBP) project is to improve timeliness of antibiotic administration and intravenous fluid bolus administration for children presenting to the ED with severe sepsis or septic shock through the implementation of a cognitive aid or checklist.

## **Design**

The established pediatric first-hour resuscitation and stabilization bundle was first implemented in both Pediatric EDs in 2018 by implementing a standardized order set; however, based on chart review the order set was found to be underutilized in the Pediatric ED. To integrate and sustain the EBP practice change, the team utilized the Plan-Do-Study-Act (PDSA) model of process improvement to implement a checklist for the first-hour treatment of pediatric severe sepsis or septic shock.

## **Setting**

A multi-site hospital health system with two dedicated Pediatric EDs implemented this evidence-based project. Both Pediatric EDs treat approximately 50,000 children and are located within adult level I trauma centers in urban settings.

## **Participants/Subjects**

Process measures were collected on children less than 18 years of age excluding neonates with an intention to treat for severe sepsis in the Pediatric ED. Intention to treat was defined as documented physician concern for severe sepsis following a huddle with subsequent treatment including obtaining a blood culture and administration of intravenous antibiotics and fluid bolus.

## **Methods**

An interprofessional team, including direct care nurses, was recruited with the goal of creating a checklist to assist in the resuscitation of a pediatric severe sepsis patient. The team members represented diverse clinical settings including the pediatric EDs, community EDs, pediatric inpatient units, and oncology clinic. This team developed a nurse-driven checklist outlining the essential treatment elements in the first hour of care for patients with severe sepsis. Prior to implementation, all ED care providers completed a computerized-based training module highlighting the use of the checklist.

in the clinical setting. Completed checklists together with the medical record were utilized to collect process improvement measures.

### **Results/Outcomes**

Over the last seven months following implementation of the Pediatric Severe Sepsis Checklist, average time to antibiotic delivery decreased from 42 minutes to 36 minutes representing a 14 percent decrease. Average time to fluid bolus delivery decreased from 37 minutes to 18 minutes representing a 51 percent decrease.

### **Implications**

The use of a checklist by an interprofessional team can improve timeliness of care when resuscitating a child with severe sepsis or septic shock. Additionally, improving nurses' knowledge on EBP of pediatric severe sepsis or septic shock facilitated improved team care.

### **Keywords:**

Pediatric severe sepsis, septic shock, sepsis checklist

### **References:**

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