Electronic Medical Record (EMR) Screening Tool Improves Recognition and Resuscitation of Septic Shock in the PICU

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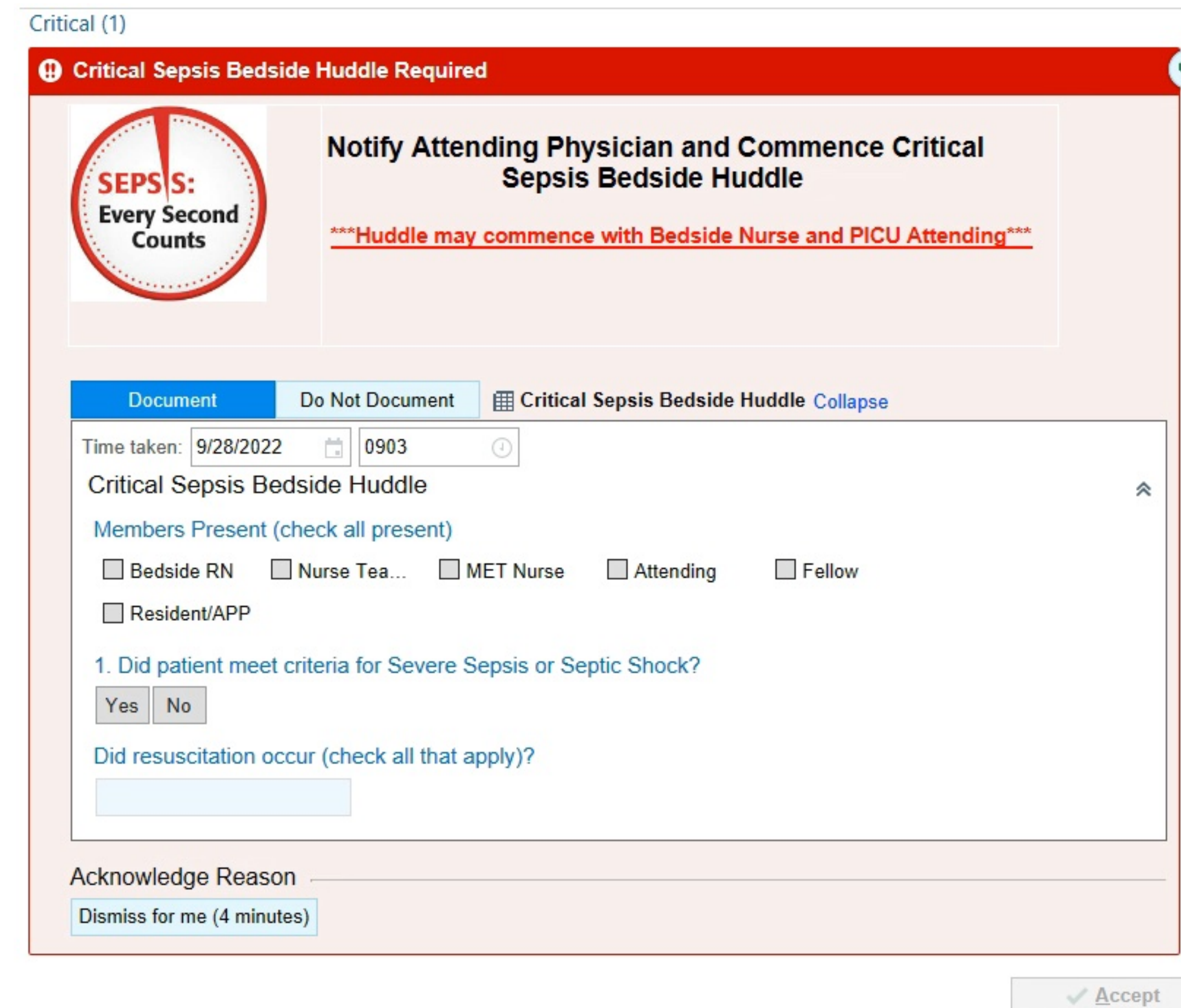
Purpose/Objectives:

- Sepsis is a major health issue in pediatrics. 80,000 children are admitted to hospitals yearly, with an estimated 5,000 deaths. Early recognition and resuscitation improve clinical outcomes. As part of the Children's Hospital Association's Improving Pediatric Sepsis Outcomes (IPSO) Collaborative an EMR screening tool was established as part of a quality improvement (QI) initiative in the PICU to improve the delivery of care for septic shock and sepsis-associated organ dysfunction. We hypothesized that standardized screening for PICU patients would improve recognition and resuscitation of septic shock and sepsis-associated organ dysfunction.

Design/Methods:

- A critical sepsis screening tool was constructed to identify PICU patients at risk for septic shock and sepsis-associated organ dysfunction. The screening tool is completed on each patient every shift and triggered by the EMR.
- Following EMR activation a huddle is commenced with key team members to determine clinical status and need for resuscitation. Two SMART goals have been completed: commencement of huddle following EMR activation and >90% presence of PICU attending at huddle.
- Future SMART goals are timely administration of antibiotics and time to IV fluid boluses.

Results:

- 6,563 screenings were performed from February 2020 through March 2022. EMR activation occurred 1,962 times, leading to 363 bedside huddles. 231 (11.7%) met clinical screening criteria. Screening criteria included acutely altered mental status (18.6%), capillary refill >3 seconds (63.6%), hypotension (32.0%) and lactate >2mmol/L (26.4%).
- Of the 1,962 EMR activations, 214 (10.9%) met laboratory screening criteria which included abnormal WBC (68.2%), urine output < 1ml/kg (40.7%), platelet count < 100,000 (58.4%), unexplained metabolic acidosis (5.6%), procalcitonin >2 (21.5%), abnormal coags or LFTs (29.9%) and creatinine >2x normal (13.6%).
- Following the 363 bedside huddles, resuscitation occurred in 21.6% of patients with 34.2% receiving fluid boluses. In addition 56.3% had new labs ordered, 57.8% had new cultures obtained, and 25.6% had new antibiotics ordered. 23.1% had a new diagnosis of severe sepsis or septic shock entered into the EMR. 4.48% of total PICU admissions (N=3,102) from February 2020-March 2022 were diagnosed with septic shock verses 1.52% of admissions (N=3096) from October 2016-September 2018 [2.96%diff (2.12%-3.83% 95%CI); p< 0.0001].

Conclusion:

- Early recognition and resuscitation are key to improving outcomes in pediatric septic shock and sepsis-associated organ dysfunction. Screening PICU patients using the EMR may aid in recognition and earlier resuscitation of critically ill patients with severe sepsis and sepsis-associated organ dysfunction.

Disclosures

- Authors have no financial relationships to disclose