Implementation of SEP-1 Early Management Bundle, Severe Sepsis / Septic Shock:

A Healthcare Quality Improvement Project

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Abstract

Sepsis is a potentially life-threatening medical emergency and is currently ranked the 11th leading cause of death in the United States (US) (Centers for Disease Control and Prevention, 2015). Sepsis mortality ranges from 28% to 50% and the occurrence of sepsis is rising (Turi & Ah, 2013; Palleschi et al., 2014). Sepsis is difficult to diagnose as clinical signs related to sepsis are non-specific. Effective medical management is dependent upon rapid identification of the clinical signs as well as appropriate and timely medical intervention. The purpose of this project was to compare the CMS Severe Sepsis and Septic Shock: Management Bundle using the systemic inflammatory response syndrome (SIRS) criteria to current provider choice for managing sepsis in order to improve patient outcomes: morbidity, mortality, readmission rates and hospital length of stay (LOS). The population included adult patients (18 years and older) presenting to the Emergency Department (ED) with evidence of SIRS and source of infection (identified or presumed). Project data obtained by retrospective chart review was evaluated in three phases: (1) baseline prior to project implementation (time 1); (2) after focused ED nursing staff education related to early recognition, diagnosis and treatment of sepsis (time 2); (3) following implementation of the Severe Sepsis and Septic Shock: Management Bundle (time 3). Findings included an increase in bundle compliance post project implementation; improved bundle compliance leading to statistically significant improvement in hospital LOS, 30-day
readmissions and acute kidney injury (AKI); statistically significant improvement was not observed in acute respiratory failure (ARF); and mortality showed a slight linear increase post project implementation. Notable limitations for the study include small sample size and large variance in sample size between the pre-sample and post sample leading to limitations in the statistical analysis. Additionally, the study was completed over a short study time. Future larger studies over a longer period of time should be undertaken to more accurately determine the benefits of implementing the CMS Severe Sepsis and Septic Shock: Management bundle on patient outcomes: morbidity, mortality, readmission rates, and LOS.

**Keywords:** sepsis, severe sepsis, septic shock, SIRS, morbidity, mortality, readmission, LOS, CMS, management bundle