

Improving Sepsis Bundle Compliance on an Inpatient Medicine Service by Implementing a Sepsis Rapid Response Team

Kathleen Abalos MD, Tunay Kuru MD, Kate Reicher RN, Alisa Olson RN, Hanan Foley RN, Elizabeth Freedman MPH

Background

Sepsis is an uncontrolled inflammatory response to infection associated with a high risk of morbidity and mortality, which is a common condition in hospitalized patients. Mortality due to sepsis increases with every hour that care is delayed. Hospital-wide compliance with the sepsis bundles was only 36% in FY17 and the sepsis mortality index was high

Clinical decision support systems are available to provide continuous electronic surveillance of patients to support early recognition of signs of clinical deterioration. Rapid response teams are a quality measure commonly utilized in hospital settings for early detection of clinical deterioration, which have been proven to reduce the overall rates of non-ICU cardiac arrests and deaths. We deployed a multidisciplinary rapid response team to respond to an electronic sepsis alert to facilitate early recognition and timely intervention for patients with sepsis.

Aims

Perform bedside evaluation of all patients within 10 minutes of Sepsis alert firing 100% of the time

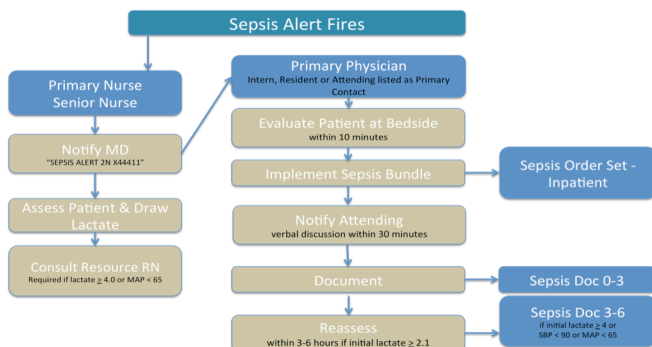
Improve total compliance with the sepsis bundle

Reduce the time from recognition of sepsis to completion of the sepsis bundle

Intervention Period (January 2018 – April 2018)

We implemented a new clinical workflow on a medical/surgical intermediate care unit in order to facilitate bedside evaluation of decompensating patients and completion of the sepsis protocol as outlined below:

1. Electronic alert notification is delivered to the primary nurse
2. Primary nurse notifies primary physician via standardized text page
3. Primary nurse, senior nurse, and primary physician evaluate the patient at the bedside and formulate a plan of care together
4. Primary physician completes protocol-based care using order set and standardized documentation, and discusses the plan of care with a supervising attending physician



Results

During the pilot period, 73 electronic sepsis alerts fired on 39 unique patients. Bedside assessment occurred 100% of the time during the intervention period, range: 0-31 minutes of the alert being recognized. The comparison period was the 4 month period immediately preceding the pilot, October – December 2017.

Compared with the pre-intervention period, compliance with obtaining the first lactate within 0-3 hours increased from 60.8% to 89.1%. Compliance with obtaining the second lactate within 3-6 hours increased from 48.3% to 82.8% (Figure 1).

Time to completion of each component of the sepsis bundle decreased (Figure 2).

Figure 1

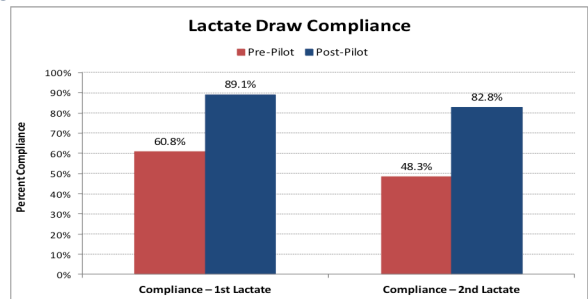
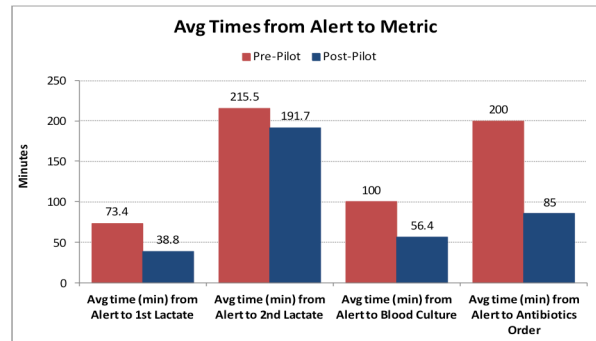


Figure 2



Lessons Learned

Multidisciplinary engagement increases the successful and timely completion of the sepsis bundle.

Multiple sepsis alerts fired on patients who are already known to be septic, or because of a condition other than severe sepsis, such as liver disease or advanced malignancy, leading to alert fatigue.

Ongoing efforts

We are establishing a dedicated team with a full time nurse practitioner to respond to patients with sepsis, and roll this initiative out to the entire hospital.

We plan to evaluate the sensitivity and specificity of the electronic sepsis alert tool we are using at our institution. We are also examining the repeat alerts to determine alternative causes for the sepsis alert firing, and determining whether subsequent alerts meaningfully change management.