

# Saving Septic Patients Using Small Tests of Change

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## Intro/Objectives:

- Severe sepsis and septic shock accounts for more than 500,000 emergency department visits per year and carries a mortality rate of 20-30%.
- Early recognition and aggressive treatment of severe sepsis and septic shock has been shown to improve survival.
- Beginning in 2015, CMS' SEP-1 measure has assessed compliance with recommended treatment of severe sepsis and septic shock.
- An interdisciplinary team was convened to plan and implement several improvement efforts to address the early recognition and appropriate treatment of sepsis states with the additional aim of improving compliance with the CMS SEP-1 measure

## Improvements/Tests of Change:

### Suspected Sepsis and Severe Sepsis Electronic Detection/Alert System:

- An automated screening tool to detect patients at risk for sepsis states was implemented in 2015 with the goal to prompt assessment of infection severity.
- A specific alert to detect potential severe sepsis or septic shock was created in 2017
- These alert providers of potential severe sepsis or septic shock and connects providers to the Severe Sepsis Treatment order set for ordering labs, IV fluid bolus and antibiotics.

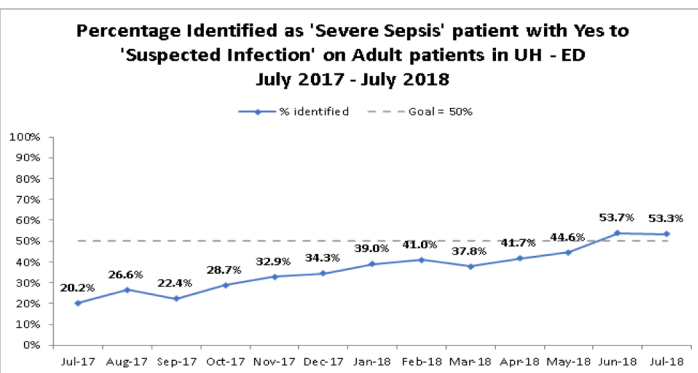
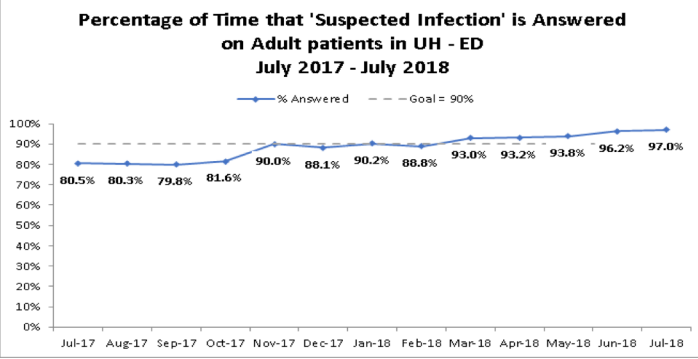
#### Suspected Sepsis Alert: Triage Screening Criteria

- Chart review of the **suspected sepsis alert** demonstrated:
  - A sensitivity of 87% for the presence of sepsis
  - A specificity of 96% for the presence of sepsis
- Chart review of the **severe sepsis alert** showed that 295/301 encounters were determined to have suspected severe sepsis or septic shock at the time that the alert fired yielding a positive predictive value of 98%
- This also demonstrated a sensitivity of 98.59% (CI 92.4-99.96%) for cases ultimately receiving an ICD-10 code for severe sepsis/septic shock with the single case not caught by our BPA logic was due to antibiotics not administered in the ED.

#### Severe Sepsis Alert: Screening Criteria

## ED RN Screening:

- Two years after implementation, noticed that RN screening completion and accuracy rates were below goal
- Widespread education/clarified verbiage

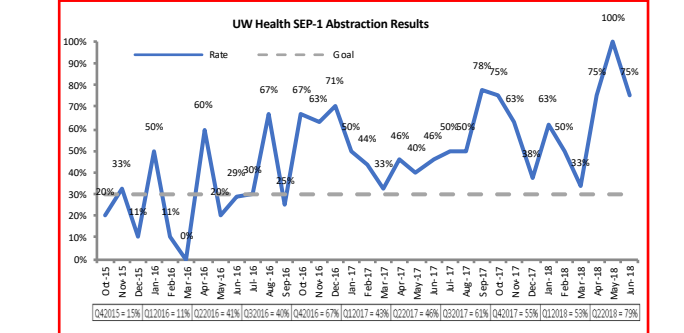


## Automated Repeat Lactate:

- With goal of improving rate of appropriate repeat lactates, went live with order panel in 2016
- Required several adjustments to process to reach goal (80%)

Month	% Appropriate Repeat Lactates	Goal
Oct-15	41%	80%
Nov-15	48%	80%
Dec-15	46%	80%
Jan-16	44%	80%
Feb-16	42%	80%
Mar-16	43%	80%
Apr-16	39%	80%
May-16	45%	80%
Jun-16	40%	80%
Jul-16	43%	80%
Aug-16	58%	80%
Sep-16	61%	80%
Oct-16	66%	80%
Nov-16	68%	80%
Dec-16	65%	80%
Jan-17	67%	80%
Feb-17	74%	80%
Mar-17	73%	80%
Apr-17	72%	80%
May-17	63%	80%
Jun-17	79%	80%
Jul-17	86%	80%
Aug-17	78%	80%
Sep-17	77%	80%
Oct-17	83%	80%
Nov-17	81%	80%
Dec-17	83%	80%
Jan-18	81%	80%
Feb-18	73%	80%

## SEP-1 Compliance to Date



## Next Steps

#### Updated Sepsis Early Detection & Treatment Timeline

**Pilot Process on B6/6, F6/5, F4/4**

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Make iterative updates to the workflow and goals based on feedback.

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