

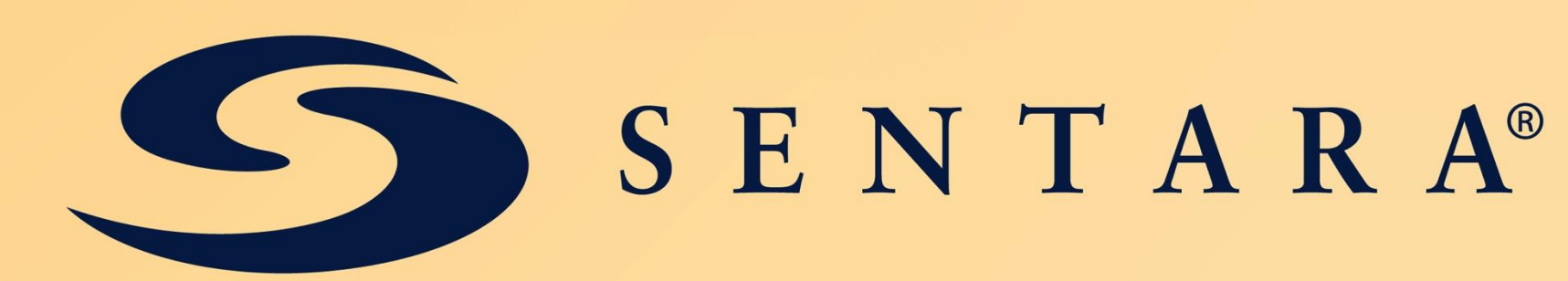


A Multidisciplinary Code Sepsis Team to Improve Sepsis Bundle Compliance in the Emergency Department

Jill Delawder MSN, RN, APRN, ACCNS-AG, CCRN-CSC
Sentara RMH Medical Center
James Madison University DNP Student



sentara nurse



Project /Purpose

- ❖ The purpose of this quality improvement project is to develop and implement a multidisciplinary team to address early initiation of evidence-based sepsis bundles in the emergency department (ED)
- ❖ The aim of the project is to determine the effect of a multidisciplinary team on outcome measures and sepsis bundle compliance compared to use of an electronic alert system, nurse-initiated protocols (NIPs) and standardized order sets alone
- ❖ A review of internal data suggests 90% of septic patients requiring hospitalization present to the ED

Background/Available Knowledge

- ❖ Sepsis is one of the leading causes of mortality, with over 700,000 hospitalizations and 200,000 deaths annually.
- ❖ The Society of Critical Care Medicine (SCCM) released the Surviving sepsis campaign (SCCM) which outlines 3 and 6 hour bundles to guide identification and early goal-directed therapy (EGDT).
- ❖ Although various tools exist to aid in sepsis bundle compliance, mortality for severe sepsis and septic shock is near 50% (Schub & Schub, 2013)
- ❖ In 3 studies utilizing a specialty trained team activated by a sepsis alert , sepsis bundle compliance was significantly higher (p<.01) in the post-intervention groups (Hayden et al., 2015; LaRosa et al., 2012; Umscheid et al., 2015)

Sepsis Bundle Components	
3 Hour	6 Hour
<input type="checkbox"/> Lactate Level	<input type="checkbox"/> 2nd lactate if initial >2mmol/L
<input type="checkbox"/> Blood cultures prior to antibiotics (24hrs. Prior or 3 hrs. after)	<input type="checkbox"/> Volume/tissue perfusion assessment if hypotension persists after IV fluids
<input type="checkbox"/> 30ml/kg crystalloid for hypotension or lactate >4mmol/L	<input type="checkbox"/> Vasopressors if hypotension persists within the hour following completion of fluids

- ❖ In 2012: National Quality Forum began endorsing sepsis measures
- ❖ In 2015: CMS initiated reporting requirements on sepsis metrics.
- ❖ Sepsis bundle metrics are not yet tied to reimbursement

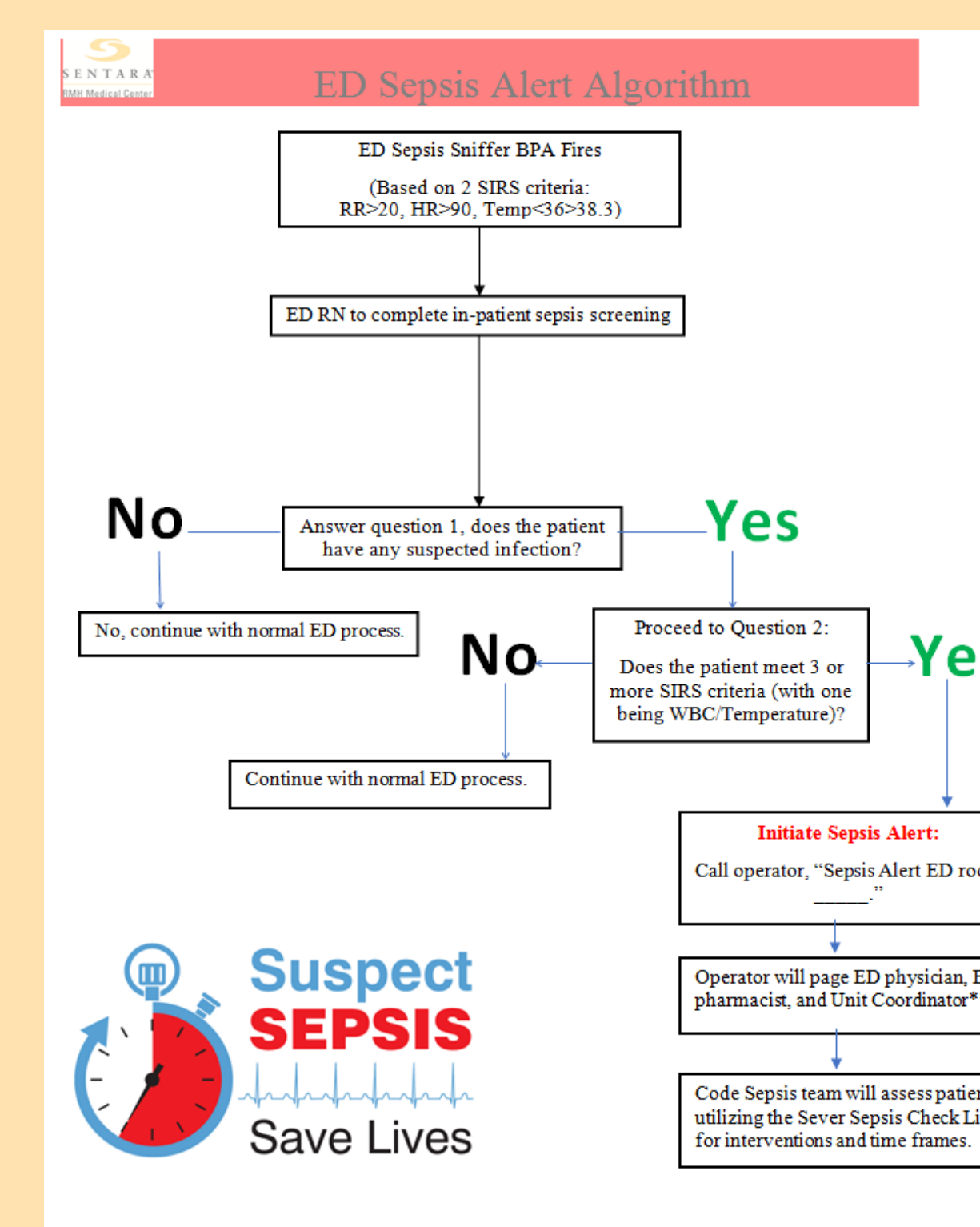
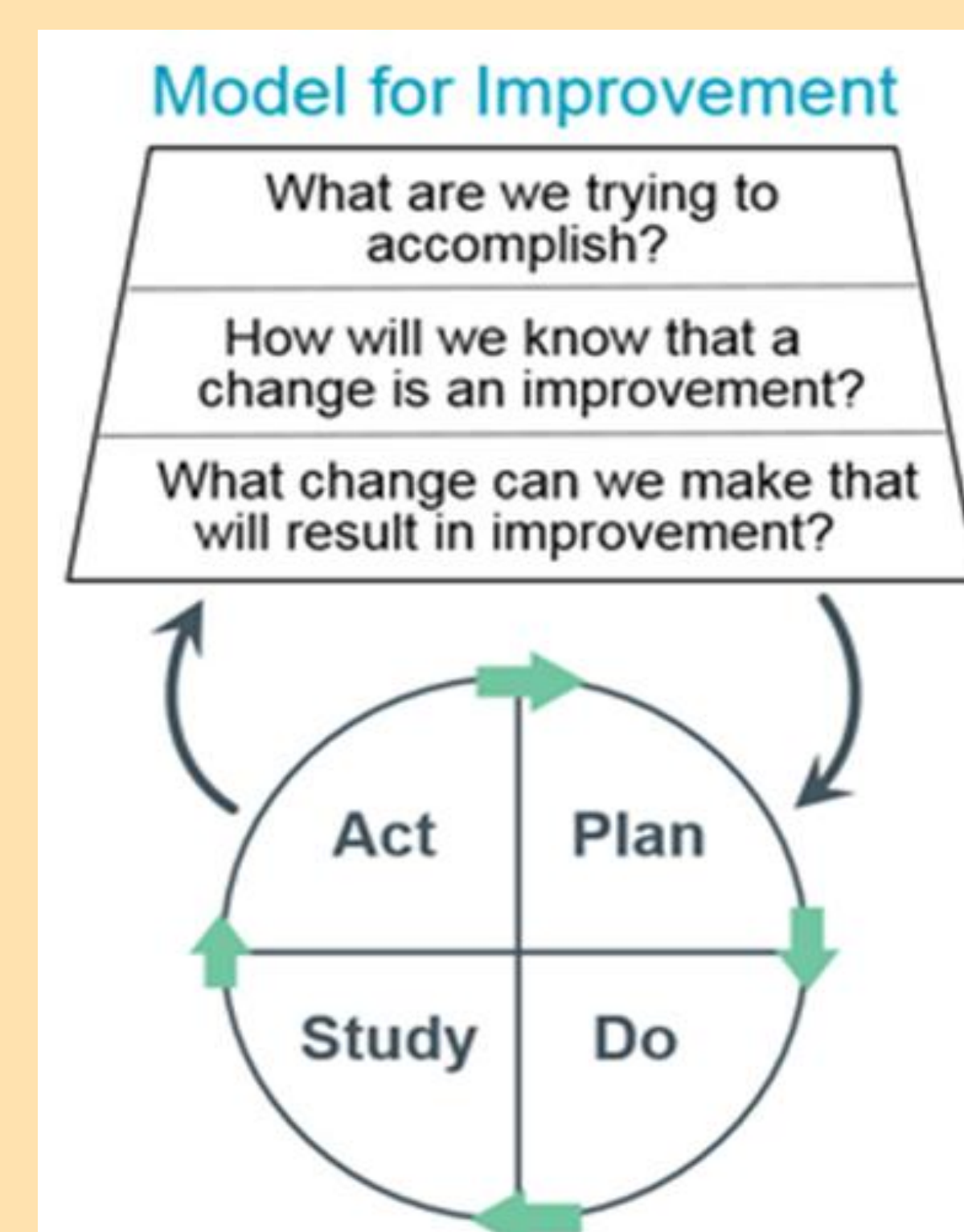
Methods

- ❖ Framework: Rapid cycle quality improvement model. This model will be used in the first two months after implementation.
- ❖ Definitions:
 - *Sepsis*: Suspected or confirmed infection plus two or more symptoms of systemic inflammatory response syndrome (SIRS).
 - *Severe sepsis*: Sepsis with organ dysfunction or hypo-perfusion
 - *Septic Shock*: Severe sepsis with refractory hypotension or lactate \geq 4mmol/L
- ❖ This project will be conducted in a 52-bed ED at Sentara RMH Medical Center, a 238 bed not-for-profit organization
- ❖ All patients over 18 years of age presenting to the emergency department with clinical indications of sepsis, severe sepsis, or septic shock will be included in the study.
- ❖ Hospice patients will be excluded
- ❖ 3 months baseline data/3 months post intervention data will be collected and compared

Implementation

4 Phases:

- 1) *Project Team Development*: Sepsis Project Lead, ED CNS, ED Pharmacist, ED Nurse Director, ED Nurse Champion, ICU Medical Director, Sepsis Quality Coordinator, Switchboard, Respiratory Therapy Manager, Laboratory Lead, Satellite Lab Representative
- 2) *Process Mapping*
- 3) *Education*
- 4) *Implementation* September 4, 2017



Data Collection/Analysis

- ❖ This study was approved by the Institutional Review Board (IRB)
- ❖ Sepsis bundle data and demographics will be collected through manual chart abstraction
- ❖ Code sepsis paging information collected from switchboard reports
- ❖ Mortality data collected from Crimson, a billing and coding database
- ❖ All retrospective data will be stored in a spreadsheet on a private computer drive
- ❖ All data will be entered into SPSS and analyzed using a chi-square or independent sample *t*-test.

Primary Data	
Yes/No	Demographics: Age, Gender
To be collected within 720 minutes from time sepsis criteria met	Code Sepsis Initiated
	Time to Antibiotics
	Time to Initial Lactate
To be collected within 720 minutes from initial hypotension or lactate \geq 4mmol/L	Time to Blood Cultures
	Fluid Resuscitation 30ml/kg
To be collected within 6 hours from time sepsis criteria met	2 nd Lactate (If initial lactate >2mmol/L)
Mortality	

Evaluation/Implications

- ❖ Post intervention data collection December 5-April 5, 2018
- ❖ Success of the project will be considered an overall improvement in sepsis bundle compliance and primary outcomes
- ❖ If a sepsis response team in the ED improves outcome measures, this process could be applied to other similar facilities



References

References available upon request.