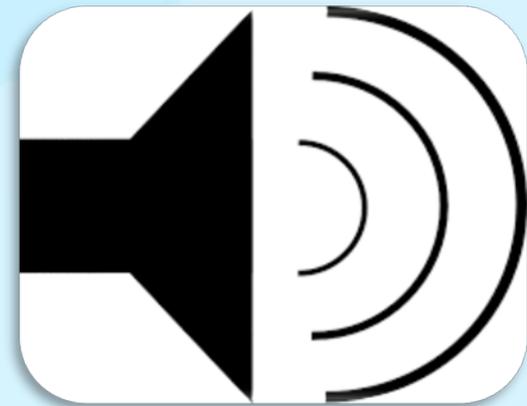
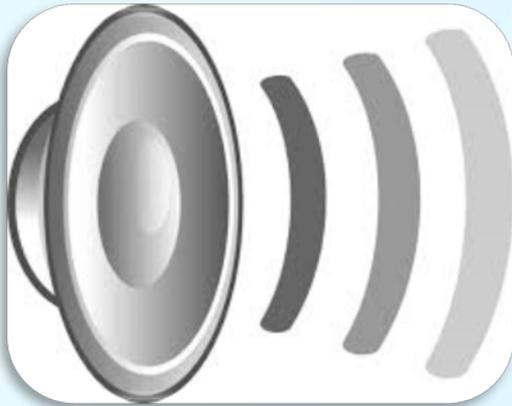


## **Welcome to *Empowering Nurses for Early Sepsis Recognition***

**The audio for today's webinar will be coming through your computer speakers. Please ensure your speakers are turned on and the volume up.**

**Thank you!**



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## ACCREDITATION STATEMENTS:

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# Continuing Education Information

## ACTIVITY DESCRIPTION:

- This webinar features an overview of CDC's Sepsis Vital Signs report, a discussion on expanding sepsis early recognition and lessons learned from engagement of nurses, a pilot of sepsis early recognition in Sutter Health, and lessons learned from sepsis on wards collaborative: implement sepsis screening on hospital wards. It will conclude with a Question and Answer Session with all speakers.

## OBJECTIVES:

- Describe infection control techniques that reduce the risk and spread of healthcare-associated infections (HAI).
- Identify unsafe practices that place patients at risk for HAIs.
- Describe best practices for infection control and prevention in daily practice in healthcare settings.
- Apply standards, guidelines, best practices, and established processes related to safe and effective medication use.



Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives, Protecting People™

Society of  
Critical Care Medicine  
The Intensive Care Professionals



# Empowering Nurses for Early Sepsis Recognition

Abbigail Tumpey, MPH, CHES  
Associate Director for Communications Science,  
Division of Healthcare Quality Promotion

September 22, 2016



# Featured Speakers

## Ernest Grant, PhD, RN, FAAN

President, American Nurses Association

- Welcome



## Anthony Fiore, MD, MPH

Chief, Epidemiology Research And Innovations  
Branch, CDC's Division of Healthcare Quality  
Promotion

- Overview of CDC's sepsis *Vital Signs* report



*The findings and conclusions in this report are those of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention.*

# Featured Speakers

## Sean Townsend, MD

Vice President of Quality & Safety at California Pacific Medical Center

- Expanding sepsis early recognition and lessons learned from engagement of nurses



## Mary Ann Barnes-Daly, RN, MS, CCRN, DC

Clinical Performance Improvement Specialist

- Pilot of sepsis early recognition in Sutter Health



*The findings and conclusions in this report are those of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention.*

## Featured Speakers

### **Christa Schorr, RN, MSN, NEA-BC, FCCM**

**Associate Professor of Medicine, Cooper  
University Hospital**

- **Lessons learned from sepsis on wards collaborative:  
Implementing sepsis screening on hospital wards**



*The findings and conclusions in this report are those of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention.*

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- Use the “Chat” window, located on the lower left-hand side of the webinar screen.
- Questions will be addressed at the end of the webinar, as time allows.

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- Please press the “Raise Hand” button, located on the top left-hand side of the screen.

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**The speakers’ slides will be provided to participants in a follow-up e-mail.**

# The American Nurses Association

Represents the interests of the nation's 3.6 million registered nurses

Is at the forefront of improving the quality of care for all



**Dr. Ernest Grant**  
ANA Vice President

## RNs: Uniquely Qualified to Recognize and Prevent Sepsis

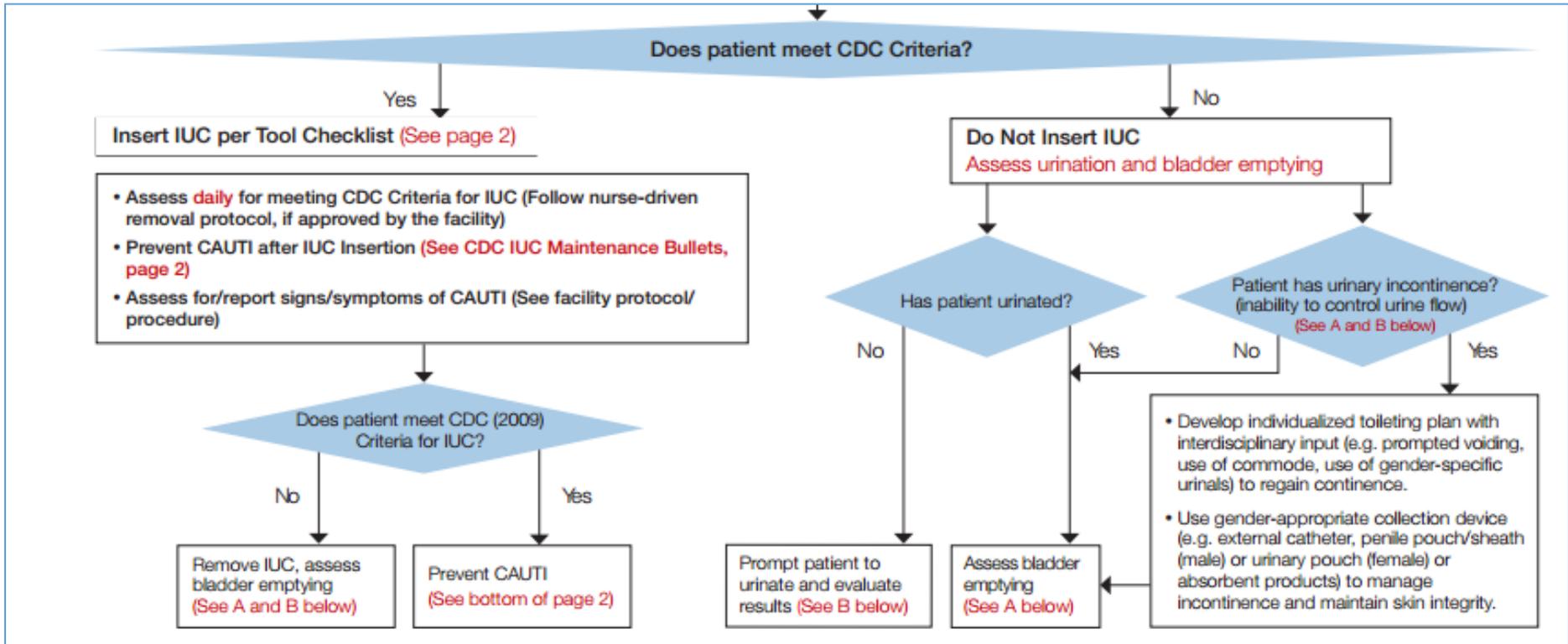
- ✓ **MOST TRUSTED PROFESSION** in America 14 years in a row



- ✓ The **LARGEST** health profession
- ✓ Spend **THE MOST TIME** with patients & their families

# Preventing CAUTI—A Leading Cause of Sepsis

## NursingWorld.org/ANA-CAUTI-Prevention-Tool



# Nurses on the Frontlines of Infection Prevention

## NursingWorld.org/ANA-APIC



[My ANA](#) | [Staff Nurses](#) | [Advanced Practice Nurses](#) | [Nurse Managers](#) | [Nursing Research](#) | [Student Nurses](#) | [Educators](#) | [What is Nursing?](#)



Hospital-  
Acquired  
Infections



Personal  
Protective  
Equipment



Emerging  
Infections



Hand  
Hygiene



# Making Health Care Safer

Think sepsis. Time matters.

**Vital**<sup>CDC</sup>signs™

## Anthony Fiore, MD MPH

Chief, Epidemiology Research And Innovations Branch  
Division of Healthcare Quality Promotion

# CDC *Vital Signs* Report

- ***Vital Signs* report found that:**
  - Sepsis begins outside of the hospital for nearly 80% of patients.
  - 7 in 10 patients with sepsis had recently interacted with healthcare providers or had chronic diseases requiring frequent medical care.
- ***Vital Signs* report demonstrates that there are opportunities to better prevent infections and recognize sepsis early to save lives.**
  - Providers should talk to their patients about infections and sepsis, how infections that can lead to sepsis can be prevented or recognized early, and what to do when an infection is not getting better.

# Epidemiology of Sepsis

- Sepsis **most often occurs** in people:
  - Over the age of 65, or infants less than one year of age.
  - With chronic diseases (such as diabetes) or weakened immune systems.
- Sepsis is most often associated with **infections of the lung, urinary tract, skin, or gut.**
- Common germs that cause sepsis are ***Staphylococcus aureus*, *E. coli*, and some types of *Streptococcus*.**
- Even **healthy people can develop sepsis** from an infection, especially if it is not treated properly.

# What Can Healthcare Providers do?

## Sepsis Prevention

Healthcare providers are key to preventing infections and illnesses that can lead to sepsis.

**EDUCATE** patients and their families about the early symptoms of severe infection and sepsis, and when to seek care for an infection, especially those at higher risk.

**REMIND** patients that taking care of chronic illnesses helps prevent infections.

**ENCOURAGE** infection prevention measures, such as hand hygiene and vaccination against infections.

## Sepsis Recognition and Treatment

- **Think sepsis** by knowing sepsis signs and symptoms to identify and treat patients early.
- **Act fast** if sepsis is suspected.
- **Reassess** patient management and antibiotic therapy.

Know the signs and symptoms of sepsis.

Shivering, fever, or very cold

Extreme pain or discomfort

Clammy or sweaty skin

Confusion or disorientation

Short of breath

High heart rate

If suspected, get medical care immediately.

SOURCE: CDC Vital Signs, August 2016 #VitalSigns

**VitalSigns**<sup>™</sup>

<http://www.cdc.gov/vitalsigns/sepsis>



# Thank You

## Contact Information

### **Anthony Fiore, MD, MPH**

Branch Chief, Epidemiology Research and Innovations Branch

Division of Healthcare Quality Promotion

Email: [abf4@cdc.gov](mailto:abf4@cdc.gov)

**For more information, please contact Centers for Disease Control and Prevention**

1600 Clifton Road NE, Atlanta, GA 30333

Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

Visit: [www.cdc.gov](http://www.cdc.gov) | Contact CDC at: 1-800-CDC-INFO or [www.cdc.gov/info](http://www.cdc.gov/info)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

# EMPOWERING NURSES FOR EARLY SEPSIS RECOGNITION

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Sean Townsend M.D.

Vice President of Quality & Safety at CPMC  
Sutter Health



# Objectives



How did we  
get here?



Pilot Program  
& SSC Phase IV



Inspiration &  
Lessons Learned





 **TODAY EXCLUSIVE**

**PARENTS OF BOY WHO DIED AFTER SCRAPING HIS ARM**

8:16 83°

COM  

EE YESTERDAY  

SYRIAN STATE TELEVISION REPORTS



# The New York Times

## Cuomo Plans New Rules in Fight Against Sepsis

By JIM DWYER

Published: January 7, 2013

Gov. Andrew M. Cuomo will announce in his State of the State Message this week that every hospital in New York must adopt aggressive procedures for identifying sepsis in patients, including the use of a countdown clock to begin treatment within an hour of spotting it, a state official said.

---

The new steps could save 5,000 to 8,000 lives annually, state health officials say, and reduce the long-term costs of the condition.

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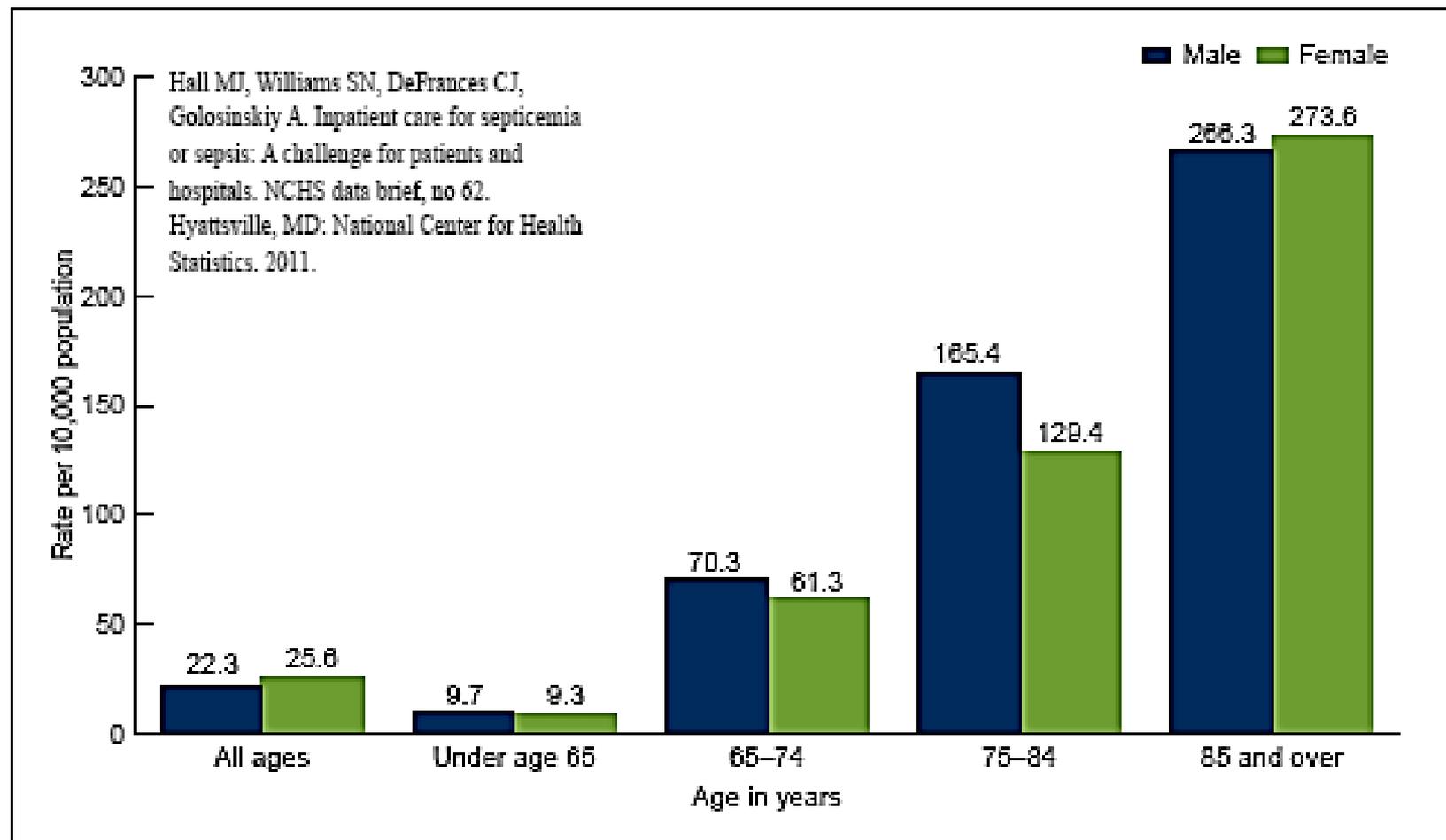
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## Hospitalization rates for sepsis or septicemia were similar for males and females and increased with age.

Figure 2. Rates of hospitalization for septicemia or sepsis, by sex and age, 2008



NOTES: Rates are significantly higher for males and females in each successive age group.

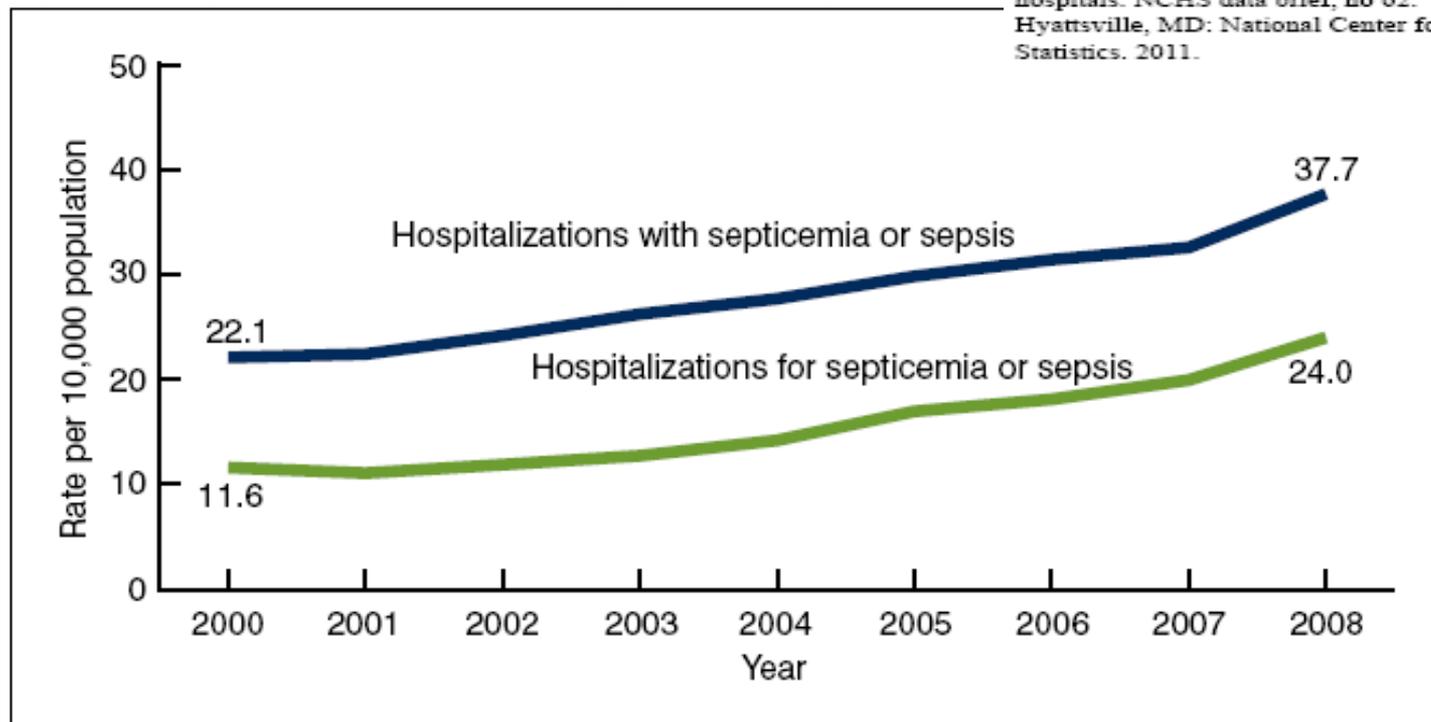
SOURCE: CDC/NCHS, National Hospital Discharge Survey, 2008.

# National Hospital Discharge Database

**Hospitalization rates for septicemia or sepsis more than doubled from 2000 through 2008.**

Figure 1. Hospitalizations for and with septicemia or sepsis

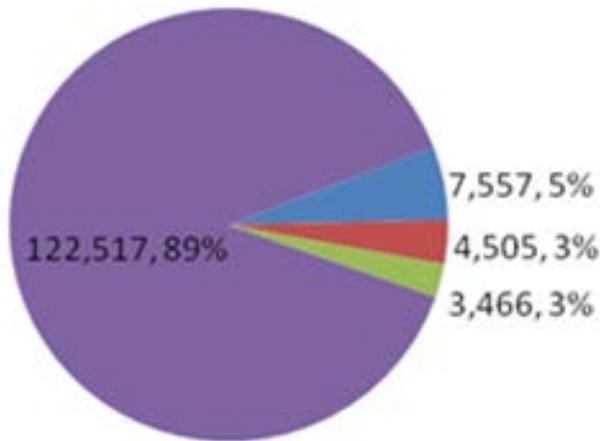
Hall MJ, Williams SN, DeFrances CJ, Golosinskiy A. Inpatient care for septicemia or sepsis: A challenge for patients and hospitals. NCHS data brief, no 62. Hyattsville, MD: National Center for Health Statistics. 2011.



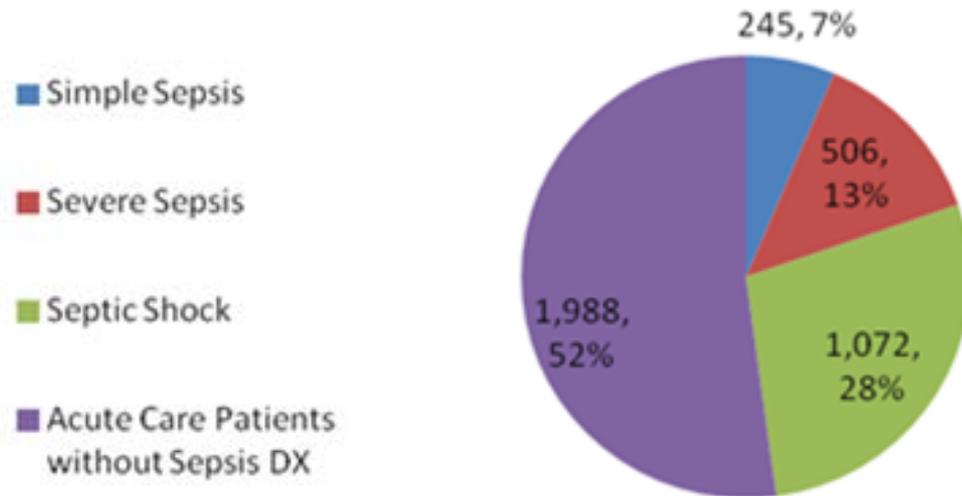
NOTE: Significant linear trend from 2000 through 2008 for both categories.  
SOURCE: CDC/NCHS, National Hospital Discharge Survey, 2000–2008.

# Sepsis is the #1 Cause of Inpatient Deaths

2014 Acute Care Discharges  
11% of Pts Have Sepsis DX



2014 Acute Care Deaths  
48% of Pts have Sepsis DX



# Medical/Surgical Floor Patients Die Disproportionately

## Special Article

---

### The Surviving Sepsis Campaign: Results of an international guideline-based performance improvement program targeting severe sepsis\*

Mitchell M. Levy, MD; R. Phillip Dellinger, MD; Sean R. Townsend, MD; Walter T. Linde-Zwirble; John C. Marshall, MD; Julian Bion, MD; Christa Schorr, RN, MSN; Antonio Artigas, MD; Graham Ramsay, MD; Richard Beale, MD; Margaret M. Parker, MD; Herwig Gerlach, MD, PhD; Konrad Reinhart, MD; Eliezer Silva, MD; Maurene Harvey, RN, MPH; Susan Regan, PhD; Derek C. Angus, MD, MPH; on behalf of the Surviving Sepsis Campaign

Crit Care Med 2010 Vol. 38, No. 2

Table 2. Cohort characteristics

Patient Characteristics	Subjects, %	Hospital Mortality, %
All	100	34.8
Source		
ED	52.4	27.6
ICU	12.8	41.3
Ward	34.8	46.8

# Risk Adjusted Odds Ratio of Death 1.87% for Medical/Surgical Floor Patients

Table 4. Multivariable mortality prediction model<sup>a</sup>

Variable	OR	95% CI	<i>p</i>
Admission source Ward compared to ED	1.87	1.73, 2.02	≤.0001

Levy M, Dellinger RP, Townsend SR et al. The Surviving Sepsis Campaign: Results of an international guideline-based performance improvement program targeting severe sepsis. Crit Care Med 2010 Vol. 38; No. 2.

# SUTTER HEALTH: SEPSIS ON THE WARDS - PILOT

---

Mary Ann Barnes-Daly MS RN CCRN DC  
Centers for Disease Control and Prevention  
September 22<sup>nd</sup> 2016





- Sutter Amador Hospital
- Sutter Auburn Faith Hospital
- Sutter Davis Hospital
- Sutter Medical Center, Sacramento
- Sutter Solano Medical Center
- Sutter Roseville Medical Center



# 7 Community Hospitals – 2010-2011



# Sepsis Mortality Reduction

- ED& ICU – continue improvements
- Emphasis placed on a new patient population

**MOST**



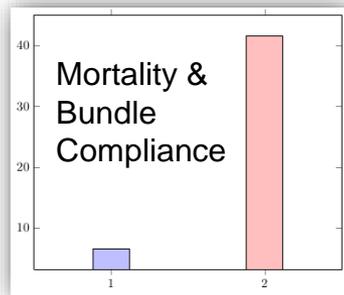
**M**edical  
**O**ncology  
**S**urgical  
**T**elemetry

# Mortality and Bundle Compliance

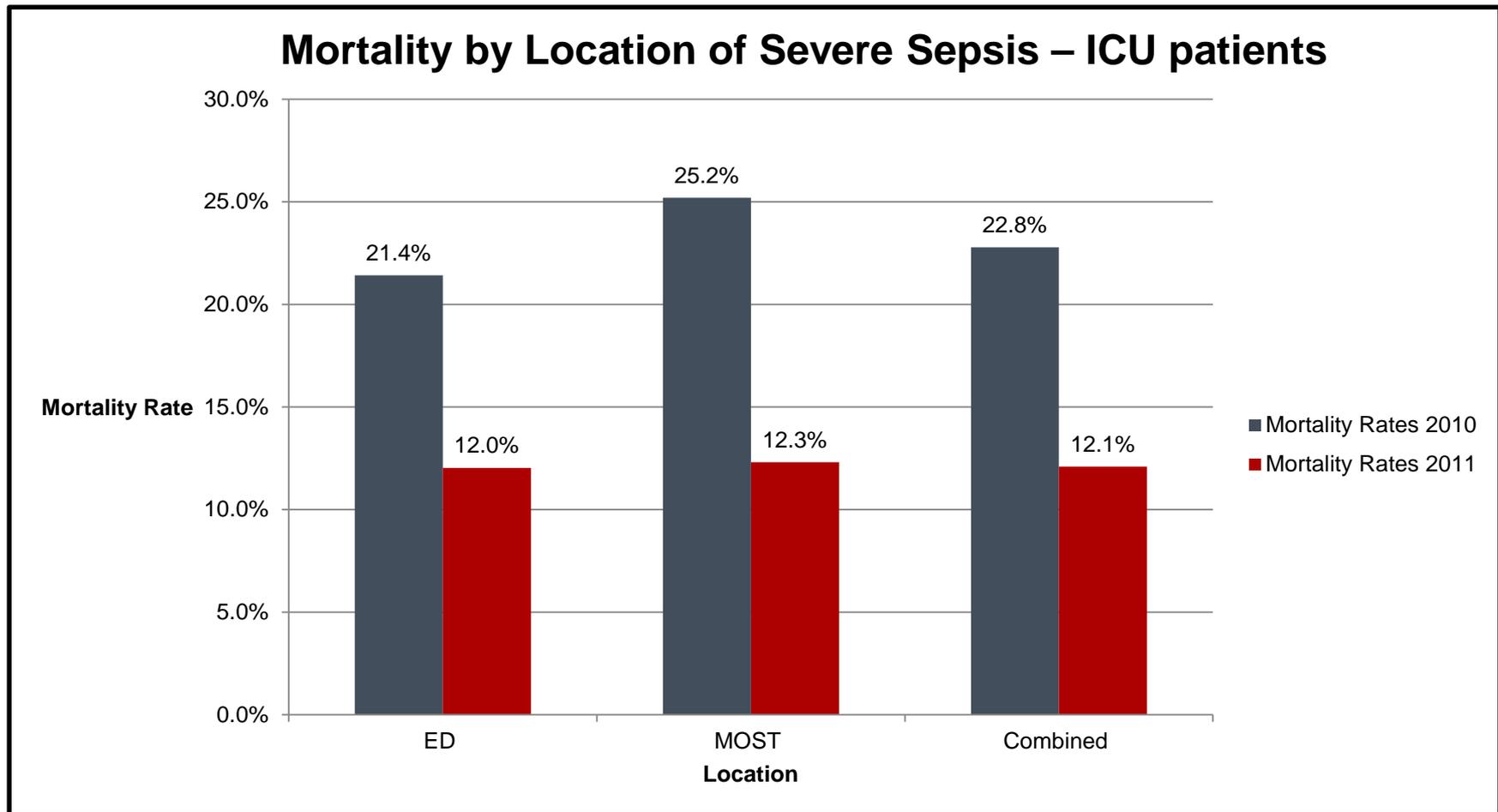
## Purpose:

Study the outcomes for patients who are admitted to the Intensive Care Unit:

1. Mortality and bundle compliance data
2. Analyzed by location at sepsis presentation
3. Continuous Quality Improvement



# 2010 Baseline and 2011 Outcomes Data



# OVERVIEW SSC PHASE IV: SEPSIS ON THE WARDS COLLABORATIVE

---

Christa A. Schorr RN, MSN, NEA-BC, FCCM  
Associate Professor of Medicine  
Nurse Scientist, Cooper Research Institute-  
Critical Care



# Phase IV Collaborative Timeline



# 3 Hour Bundle



Blood cultures



Lactate



**Early** antibiotics

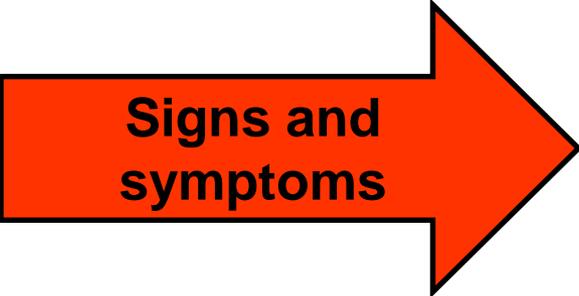
**Early** Identification



**Early** fluid resuscitation



Infection



Signs and symptoms



Organ Dysfunction

## Evaluation for Severe Sepsis Screening Tool

**Instructions:** Use this optional tool to screen patients for severe sepsis in the emergency department, on the medical/surgical floors, or in the ICU.

**1. Is the patient's history suggestive of a new infection?**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Pneumonia, empyema         | <input type="checkbox"/> Bone/joint infection            | <input type="checkbox"/> Implantable device infection |
| <input type="checkbox"/> Urinary tract infection    | <input type="checkbox"/> Wound infection                 | <input type="checkbox"/> Other infection _____        |
| <input type="checkbox"/> Acute abdominal infection  | <input type="checkbox"/> Blood stream catheter infection |   |
| <input type="checkbox"/> Meningitis                 | <input type="checkbox"/> Endocarditis                    |   |
| <input type="checkbox"/> Skin/soft tissue infection |  |   |

\_\_\_ Yes \_\_\_ No

**2. Are any two of following signs & symptoms of infection both present and new to the patient? Note: laboratory values may have been obtained for inpatients but may not be available for outpatients.**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Hyperthermia > 38.3 °C (101.0 °F) | <input type="checkbox"/> Tachypnea > 20 bpm                                      | <input type="checkbox"/> Hyperglycemia (plasma glucose >140 mg/dL) or > 7.7 mmol/L in the absence of diabetes |
| <input type="checkbox"/> Hypothermia < 36 °C (96.8°F)      | <input type="checkbox"/> Leukocytosis (WBC count >12,000 $\mu$ L <sup>-1</sup> ) |   |
| <input type="checkbox"/> Altered mental status             | <input type="checkbox"/> Leukopenia (WBC count < 4000 $\mu$ L <sup>-1</sup> )    |   |
| <input type="checkbox"/> Tachycardia > 90 bpm              |  |   |

\_\_\_ Yes \_\_\_ No

If the answer is yes, to both questions 1 and 2, *suspicion of infection* is present:

- ✓ Obtain: lactic acid, blood cultures, CBC with differential, basic chemistry labs, bilirubin.
- ✓ At the physician's discretion obtain: UA, chest x-ray, amylase, lipase, ABG, CRP, CT scan.

**3. Are any of the following organ dysfunction criteria present at a site remote from the site of the infection that are NOT considered to be chronic conditions? Note: in the case of bilateral pulmonary infiltrates the remote site stipulation is waived.**

- SBP < 90 mmHg or MAP <65 mmHg
- SBP decrease > 40 mm Hg from baseline
- Creatinine > 2.0 mg/dl (176.8 mmol/L) or urine output < 0.5 ml/kg/hour for 2 hours
- Bilirubin > 2 mg/dl (34.2 mmol/L)
- Platelet count < 100,000  $\mu$ L
- Lactate > 2 mmol/L (18.0 mg/dl)
- Coagulopathy (INR >1.5 or aPTT >60 secs)
- Acute lung injury with PaO<sub>2</sub>/FIO<sub>2</sub> <250 in the absence of pneumonia as infection source
- Acute lung injury with PaO<sub>2</sub>/FIO<sub>2</sub> <200 in the presence of pneumonia as infection source

\_\_\_ Yes \_\_\_ No

If *suspicion of infection* is present AND *organ dysfunction* is present, the patient meets the criteria for SEVERE SEPSIS and should be entered into the severe sepsis protocol.

Date: \_\_\_/\_\_\_/\_\_\_ (circle: dd/mm/yy or mm/dd/yy)

Time: \_\_\_:\_\_\_ (24 hr. clock)

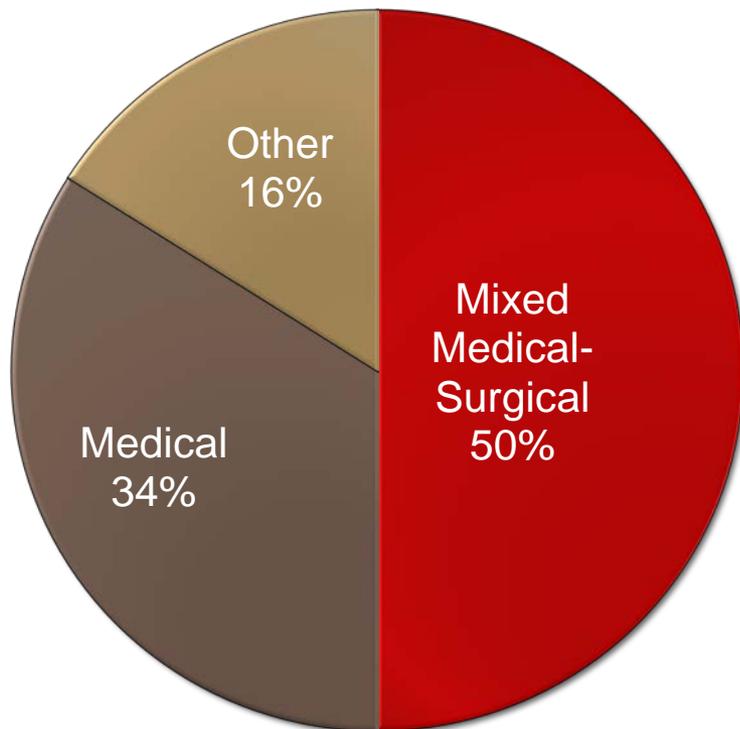
Version 7.2.13



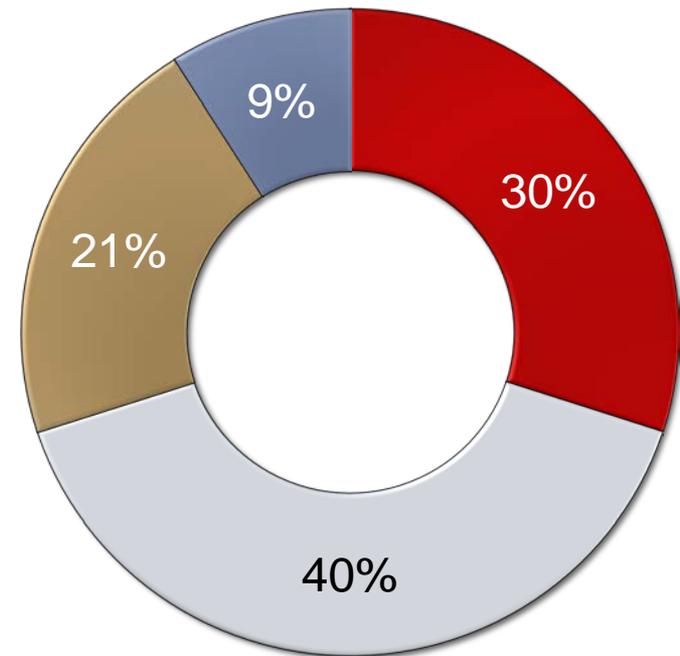
**Screen every patient,  
every shift, every day**

# Pilot Unit Description

## Unit Type



## Nurse: Patient Ratio

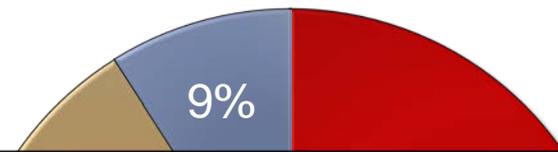


# Pilot Unit Description

## Unit Type



## Nurse: Patient Ratio



**75% of Sites Achieved  
≥80% Screening Compliance in  
Every Patient, Every Day,  
Every Shift**

■ 1:4  
 ■ 1:5  
 ■ 1:6  
 ■ 1:≥8

A close-up photograph of a person's hand in a light blue shirt, holding a black pen. The hand is positioned over the word "impossible" written in black cursive on a white surface. A red 'X' is drawn over the word, indicating it is being crossed out or negated.

~~impossible~~



# NURSING ENGAGEMENT

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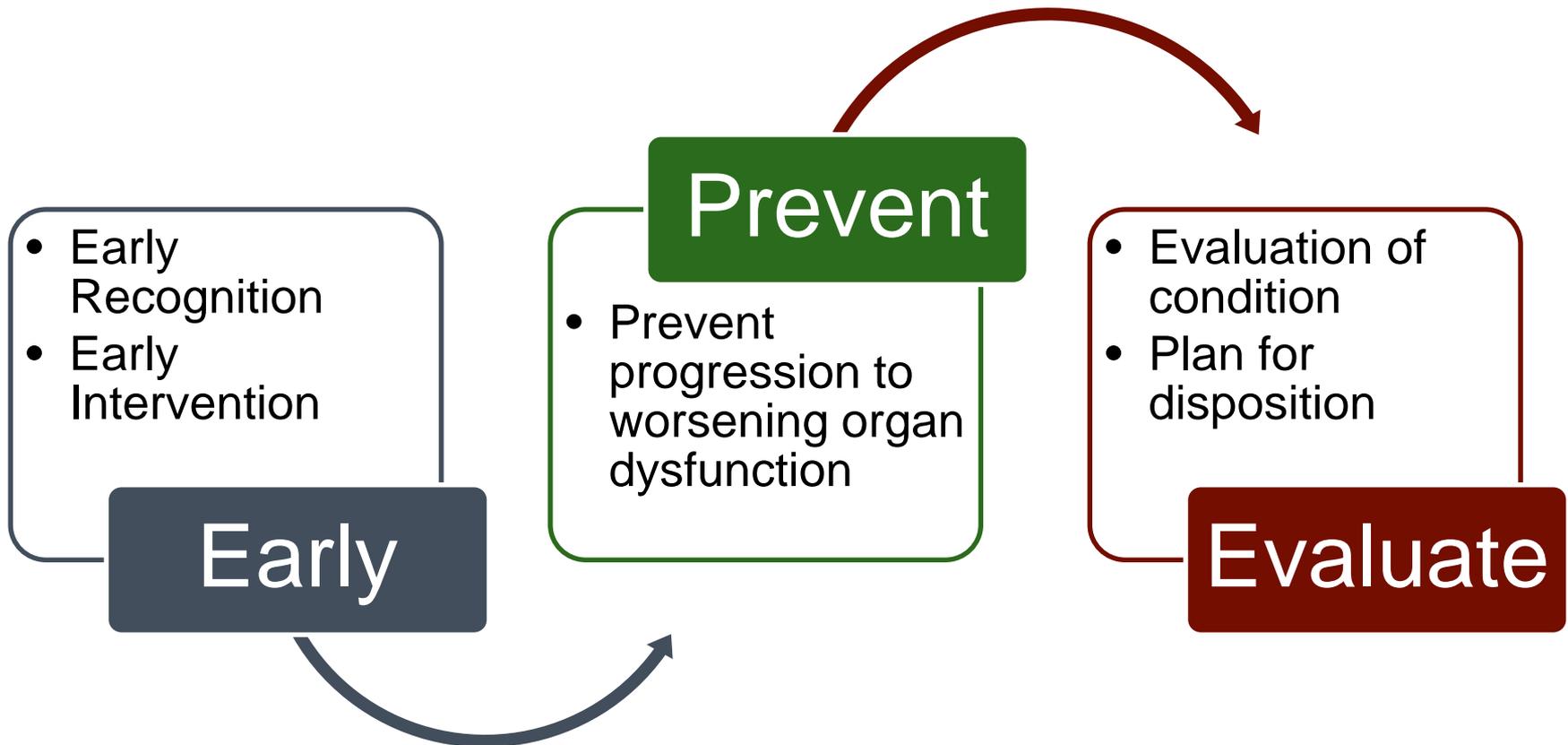
*How to inspire nurses to do routine screening*

# Why are nurses in the best position to make a difference?

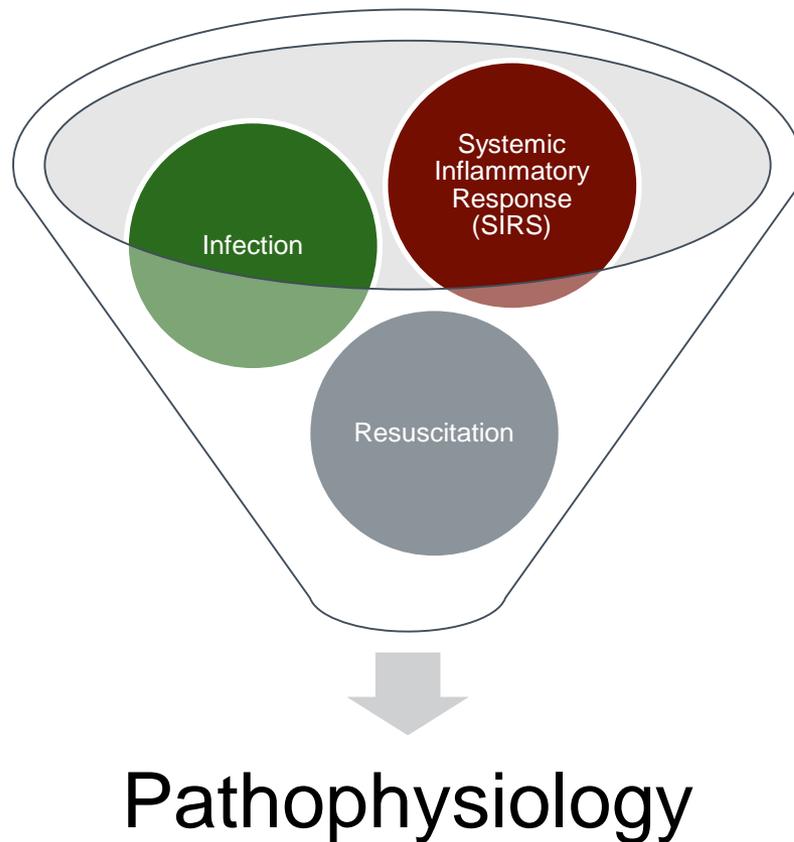


- Main caregivers in the hospital setting
- Able to recognize changes in patient's clinical condition
- Partners with providers
- Coordinates of care

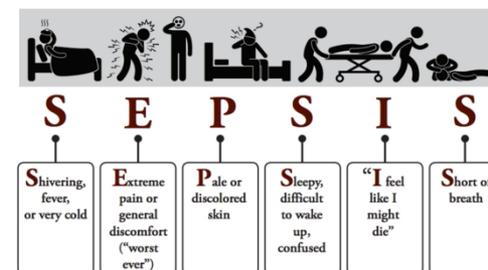
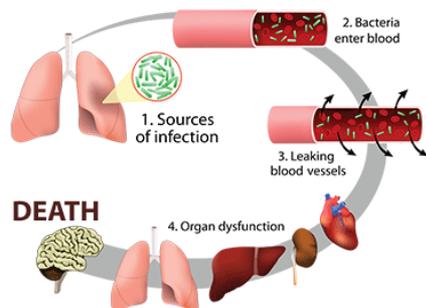
# What is the purpose of nurse screening for sepsis?



# Understanding *Why*: Sepsis screening: *Not just another 'task'.*



# Education



Sepsis Bundle Implementation



**TO BE COMPLETED  
WITHIN 3 HOURS:**

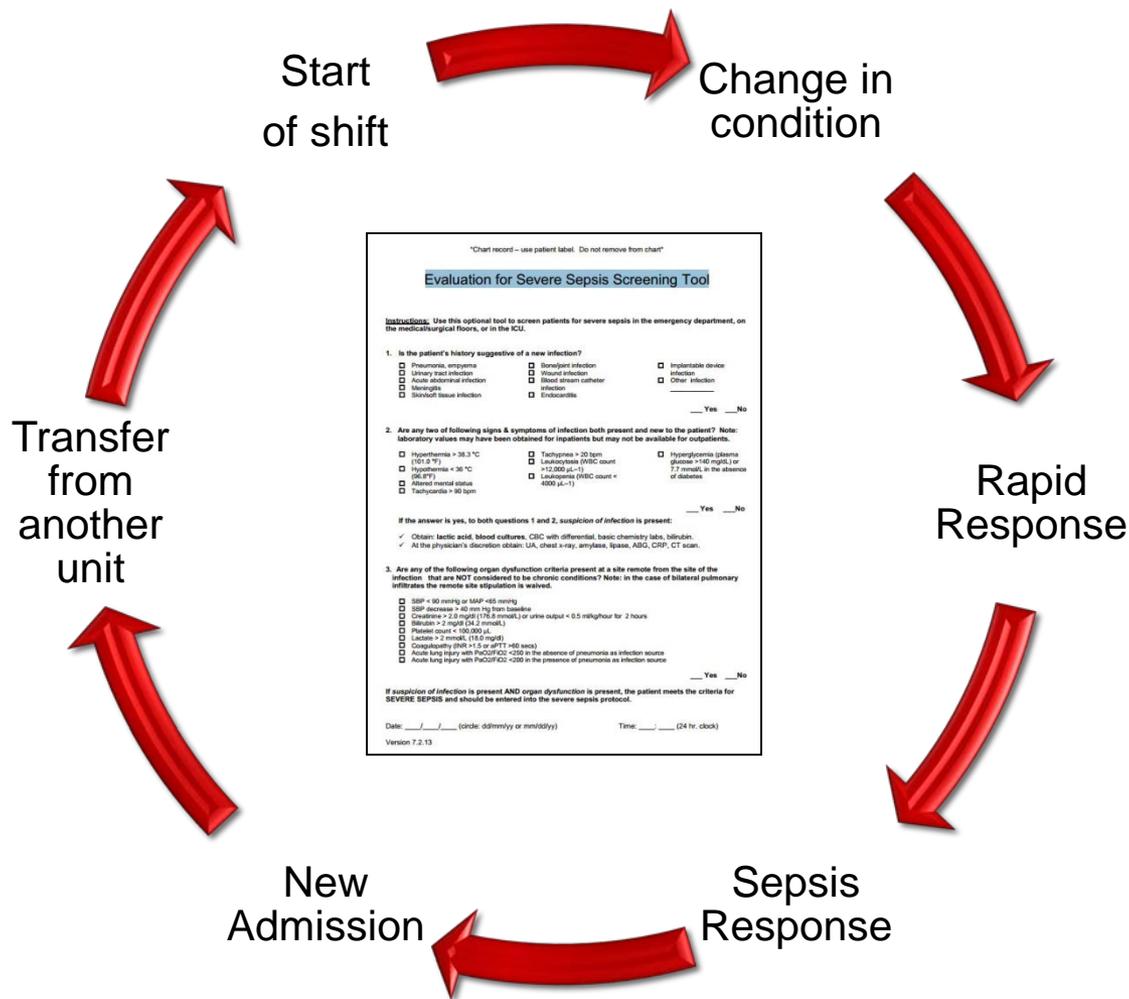
- 1) Measure lactate level.
- 2) Obtain blood cultures prior to administration of antibiotics.
- 3) Administer broad spectrum antibiotics.
- 4) Administer 30 ml/kg crystalloid for hypotension or lactate  $\geq 4$  mmol/L.

“Time of presentation” is defined as the time of triage in the emergency department or, if presenting from another care venue, from the earliest chart annotation consistent with all elements of severe sepsis or septic shock ascertained through chart review.

**TO BE COMPLETED  
WITHIN 6 HOURS:**

- 5) Apply vasopressors (for hypotension that does not respond to initial fluid resuscitation) to maintain a mean arterial pressure (MAP)  $\geq 65$  mm Hg.
- 6) In the event of persistent hypotension after initial fluid administration (MAP  $< 65$  mm Hg) or if initial lactate was  $\geq 4$  mmol/L, re-assess volume status and tissue perfusion and document findings according to Table 1.
7. Re-measure lactate if initial lactate elevated.

# Screening Workflow



# Effective Communication

## Using SBAR for effective communication of severe sepsis

For effective communication with the patient's physician or nurse practitioner, make sure the information you convey is clear and concise. In the script below, the nurse communicates findings for a patient with signs and symptoms of severe sepsis using the Situation, Background, Assessment and Recommendation (SBAR) technique.

"Hello, Dr. Brown. This is Mary Jones. I am the primary nurse caring for James Smith."

**Situation:** "Mr. Smith was admitted early this morning with cellulitis of his left lower extremity. He states that the pain in his leg has increased and the redness has extended since admission."

**Background:** "Mr. Smith is an 82-year-old man with a history of heart failure and diabetes. He reported a wound on his left lower leg, present for about 2 weeks. He arrived in the emergency department yesterday afternoon complaining of increased pain, warmth, redness, and blistering."

**Assessment:** "Mr. Smith's vital signs this morning were temperature, 101.4° F; heart rate, 95; and respiratory rate, 24. His current blood pressure is 92/40. His most recent laboratory values are from 4 pm yesterday. At that time, his WBC count was 16.2. Blood cultures were obtained in the ED and results are pending. He hasn't had any laboratory orders since his ED admission."

**Recommendation:** "I would like to request an order for a chemistry panel, CBC with differential, and lactic acid level."

The physician should repeat and confirm the information provided by Nurse Jones. He or she may agree with the recommendations and place the requested orders, or may determine the patient should be monitored at a higher level of care.

Situation

Background

Assessment

Recommendation

# Piloting the Program

Choose a single unit for the pilot:

- Positive environment
- Engaged, supportive leadership
- Good teamwork and coordination
- Supportive and responsive providers

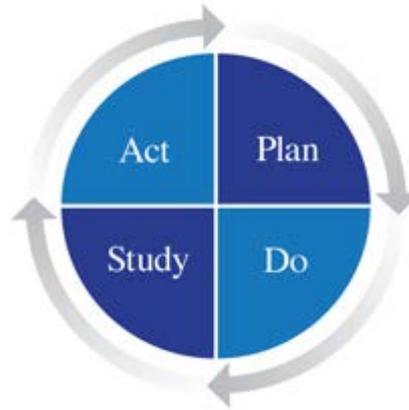


# Feedback – Progress - Change



Staff Feedback

Timely Response



Rapid Cycle  
Improvements



Reward Innovation

# Summary

- Hospitalization for **sepsis is common**, costly and ward patients have a disproportionately high mortality.
- **Nurse engagement in a sepsis screening** program may be accomplished through inclusion of leaders and staff.
- It is important to establish an **understanding “why” sepsis** screening is important through education and support.
- Introduce the program on a pilot unit will allow for test on a small scale allowing for **staff feedback and modification** to the program prior to spreading out to other units within the facility.



THANK YOU  
FOR  
YOUR TIME



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- **Question and Answer Session**
- **Continuing Education**
  - Detailed instructions for taking the post-test and evaluation will appear on your screen as soon as today's webinar concludes.
    - [www.cdc.gov/tceonline](http://www.cdc.gov/tceonline); Access Code: **WC0922**
  - If you exit out of the webinar prior to taking the post-test and evaluation, you can access the continuing education information in an email we will send to you following today's webinar.

**THANK YOU**