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.

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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.
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

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Before We Get Started…

To submit a question:
• Use the “Chat” window, located on the lower left-hand side of the webinar 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

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Preventing CAUTI—A Leading Cause of Sepsis

NursingWorld.org/ANA-CAUTI-Prevention-Tool

Does patient meet CDC Criteria?

- Insert IUC per Tool Checklist (See page 2)
  - Assess daily for meeting CDC Criteria for IUC (Follow nurse-driven removal protocol, if approved by the facility)
  - Prevent CAUTI after IUC Insertion (See CDC IUC Maintenance Bullets, page 2)
  - Assess for/report signs/symptoms of CAUTI (See facility protocol/procedure)

- Do Not Insert IUC
  - Assess urination and bladder emptying

- Has patient urinated?
  - No
  - Yes

- Patient has urinary incontinence? (inability to control urine flow) (See A and B below)

- Does patient meet CDC (2009) Criteria for IUC?
  - No
  - Remove IUC, assess bladder emptying (See A and B below)
  - Prevent CAUTI (See bottom of page 2)
  - Prompt patient to urinate and evaluate results (See B below)
  - Assess bladder emptying (See A below)

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Nurses on the Frontlines of Infection Prevention

NursingWorld.org/ANA-APIC

Hospital-Acquired Infections
Personal Protective Equipment
Emerging Infections
Hand Hygiene
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
- Confusion or disorientation
- Short of breath
- High heart rate

If suspected, get medical care immediately.

SOURCE: CDC Vital Signs, August 2016

http://www.cdc.gov/vitalsigns/sepsis
Thank You

Contact Information

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Branch Chief, Epidemiology Research and Innovations Branch
Division of Healthcare Quality Promotion
Email: abf4@cdc.gov

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

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Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or 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

Sean Townsend M.D.
Vice President of Quality & Safety at CPMC
Sutter Health
Objectives

Sepsis

How did we get here?

Pilot Program & SSC Phase IV

Inspiration & Lessons Learned
PARENTS OF BOY WHO DIED AFTER SCRAPING HIS ARM
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.
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.
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

NOTE: Significant linear trend from 2000 through 2008 for both categories.
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

- Simple Sepsis: 7,557, 5%
- Severe Sepsis: 4,505, 3%
- Septic Shock: 3,466, 3%
- Acute Care Patients without Sepsis DX: 122,517, 89%
- Acute Care Deaths: 245, 7%
- Simple Sepsis Deaths: 506, 13%
- Severe Sepsis Deaths: 1,988, 52%
- Septic Shock Deaths: 1,072, 28%
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; Maureen 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

<table>
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<tr>
<th>Patient Characteristics</th>
<th>Subjects, %</th>
<th>Hospital Mortality, %</th>
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<tr>
<td>All</td>
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<td>Source</td>
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<td>ED</td>
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<td>12.8</td>
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<tr>
<td>Ward</td>
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Risk Adjusted Odds Ratio of Death 1.87% for Medical/Surgical Floor Patients

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<th>Variable</th>
<th>OR</th>
<th>95% CI</th>
<th>p</th>
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<tr>
<td>Admission source</td>
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<tr>
<td>Ward compared to ED</td>
<td>1.87</td>
<td>1.73, 2.02</td>
<td>≤.0001</td>
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</tbody>
</table>

SUTTER HEALTH:
SEPSIS ON THE WARDS - PILOT

Mary Ann Barnes-Daly MS RN CCRN DC
Centers for Disease Control and Prevention
September 22\textsuperscript{nd} 2016
Sutter Health Sacramento Sierra Region

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
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

Mortality by Location of Severe Sepsis – ICU patients

- **ED**:
  - 2010: 21.4%
  - 2011: 12.0%

- **MOST**:
  - 2010: 25.2%
  - 2011: 12.3%

- **Combined**:
  - 2010: 22.8%
  - 2011: 12.1%
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

- PROJECT START - INTRODUCTORY WEBINAR
- LEARNING SESSION I - FACE TO FACE MEETING
  - WEBINAR #1
  - WEBINAR #2
  - WEBINAR #3
- LEARNING SESSION II - FACE TO FACE MEETING
  - WEBINAR #4
  - WEBINAR #5
  - CONFERENCE CALL #5
- LEARNING SESSION III - FACE TO FACE MEETING
  - WEBINAR #6
  - CONFERENCE CALL #6
- PROJECT END - CONFERENCE CALL #7

Initiated 60 sites in 4 regions
Early fluid resuscitation

Early antibiotics

Blood cultures

Lactate

3 Hour Bundle

Early Identification
**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?
   - Pneumonia, empyema
   - Urinary tract infection
   - Acute abdominal infection
   - Meningitis
   - Skin/soft tissue infection
   - Bacterial infection
   - Wound infection
   - Blood stream catheter infection
   - Endocarditis
   - Implantable device infection
   - Other infection

   ___ Yes ___ No

2. Are any two of the 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.
   - Hyperthermia > 38.3 °C (101.3 °F)
   - Hypothermia < 36 °C (96.8 °F)
   - Altered mental status
   - Tachycardia > 90 bpm
   - Tachypnea > 20 bpm
   - Leukocytosis (WBC count >12,000 µL⁻¹)
   - Leukopenia (WBC count < 4000 µL⁻¹)
   - Hyperglycemia (plasma glucose >140 mg/dL or 7.7 mmol/L, in the absence of diabetes)

   ___ 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 mm-Hg
   - SBP decrease > 40 mm Hg from baseline
   - Creatinine ≥ 2.9 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 µL
   - Lactate > 2 mmol/L (18.0 mg/dL)
   - Coagulopathy (INR >1.5 or aPTT >60 secs)
   - Acute lung injury with PaO2/FIO2 <250 in the absence of pneumonia as infection source
   - Acute lung injury with PaO2/FIO2 <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

www.survivingsepsis.org
Screen every patient, every shift, every day
Pilot Unit Description

**Unit Type**
- Mixed Medical-Surgical: 50%
- Medical: 34%
- Other: 16%

**Nurse: Patient Ratio**
- 1:4: 30%
- 1:5: 40%
- 1:6: 21%
- 1:≥8: 9%
Pilot Unit Description

Unit Type

Nurse: Patient Ratio

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

<table>
<thead>
<tr>
<th>Nurse: Patient Ratio</th>
<th>1:4</th>
<th>1:5</th>
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<tr>
<td>9%</td>
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<td>50%</td>
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<tr>
<td>Other</td>
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impossible
NURSING ENGAGEMENT

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?

- Early Recognition
- Early Intervention

Prevent
- Prevent progression to worsening organ dysfunction

Evaluate
- Evaluation of condition
- Plan for disposition
Understanding Why: Sepsis screening: *Not just another ‘task’.*
Education

Sepsis Bundle Implementation
Surviving Sepsis Campaign

Bundle Badge Cards

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 ≥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) ≥65 mm Hg.

6) In the event of persistent hypotension after initial fluid administration (MAP < 65 mm Hg) or if initial lactate was ≥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

Start of shift

Change in condition

Transfer from another unit

Rapid Response

New Admission

Sepsis Response
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.

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
Before We End Today’s Webinar...

- **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**
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**THANK YOU**