The chat tool is available to ask questions or comments at anytime during this event.
RAISE YOUR HAND

- If you wish to speak telephonically, please “raise your hand”. We will call your name, when your phone line is unmuted.
AGENDA

• Introduction

• Reducing Sepsis, Saving Lives
  » The Rory Staunton Foundation
  » Ventura County Medical Center
  » Kern Medical Center

• Q&A

• Upcoming events
SPEAKERS

Orlaith and Ciaran Staunton
Parents and Co-Founders,
The Rory Staunton Foundation

Jessica Wonderly, RN
DSRIP Sepsis/CLABSI Facilitator
Kern Medical Center

Dianne McConnehey, RN
Quality Clinical Director
Kern Medical Center

Richard Rutherford, MD
Quality Medical Director
Ventura County Medical Center
• Rory died on April 1\textsuperscript{st}, 2012, from undiagnosed, untreated sepsis. He was 12 years old.
• Rory’s death was entirely preventable.
• The Rory Staunton Foundation was founded to spread awareness of sepsis and ensure that no other person dies because no one asked, “Could this be sepsis?”
• In 2013, NY State was the first in the nation to implement sepsis protocols, called Rory Regulations, in every medical institution.
HOSPITALS IN ACTION

• Kern Medical Center

• Ventura County Medical Center
KERN MEDICAL CENTER (KMC)

- County owned/operated since 1934
- 222 Bed Acute Care, Safety Net Hospital
- Level 2 Trauma Center
- Level 3 NICU
- Academic Teaching Facility (113 Residents)
  - Affiliated with UCLA specializing in:
    - Emergency Medicine
    - Internal Medicine
    - Surgery
    - Family Practice
    - Obstetrics and Gynecology
    - Psychiatry/Child/Adolescent/Addiction
- Serving an area of over 750,000 square miles
  - 11,889 Inpatient Admissions
  - 3,180 Deliveries
  - 43,361 Emergency Visits
  - 2,422 Trauma Activations
  - 166,321 Outpatient Visits
THE ISSUE

- Severe sepsis/septic shock claims a life every 3 seconds
- 215,000 deaths annually in the US alone

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>US Incidence</th>
<th># of Deaths</th>
<th>Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMI</td>
<td>895,000</td>
<td>171,000</td>
<td>19%</td>
</tr>
<tr>
<td>Stroke</td>
<td>700,000</td>
<td>157,800</td>
<td>23%</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>1,329,000</td>
<td>72,000</td>
<td>5.4%</td>
</tr>
<tr>
<td>Severe Sepsis</td>
<td>751,000</td>
<td>215,000</td>
<td>29%</td>
</tr>
</tbody>
</table>

- Treatment Cost: 17 Billion/Yr
- Mortality: 8x Higher
- Length of Stay: 75% Longer
- Post-Hospital Care: 3x More Likely Long Term Care

THE ISSUE

• 2009 Study in Critical Care Medicine
• Surveyed 6,021 people in the US and Europe (1,000 in the US)
• 88% had never heard the word “Sepsis”

An international survey: Public awareness and perception of sepsis.
Rubulotta FM, Ramsey G, Parker MM, Dellinger RF, Levy MM, Poeze M; Surviving Sepsis Campaign Steering Committee; European Society of Intensive Care Medicine; Society of Critical Care Medicine.

Abstract
BACKGROUND: Sepsis is a common cause of death throughout the world. Early treatment improves outcome; however, treatment may be delayed if the patient does not present himself/herself for medical care until late in the disease process. Lack of knowledge about the syndrome may contribute to delay in presenting for medical care. However, we need to acknowledge the complexity of sepsis. General awareness of sepsis by the public may increase political pressure for research funding. Increased public awareness of acute myocardial infarction has contributed to reduced mortality over the last 50 yrs. This example provides a rationale for future efforts to increase the public awareness of sepsis.

OBJECTIVE: The survey was designed to gain insight into public perceptions and attitudes regarding sepsis.

DESIGN: Prospective, international survey performed using structured telephone interviews.

SUBJECTS: A total of 6021 interviewees, 5021 in Europe and 1000 in the United States.

MEASUREMENTS AND MAIN RESULTS: In Italy, Spain, the United Kingdom, France and the United States, a mean of 88% of interviewees had never heard of the term "sepsis". In Germany 53% of people knew the word sepsis. In Italy, Spain, United Kingdom, France, and United States, of people who recognized the term sepsis, 58% did not recognize that sepsis is a leading cause of death.

CONCLUSIONS: There is poor public awareness about the existence of a syndrome known as sepsis. Results of this questionnaire underscore the challenges in early management and treatment of infected patients at risk for developing sepsis syndrome.
Baseline 2010

Mortality: 26.3%
Compliance: 31.7%

Project Overview

Problem: Mortality rate 26.3% unacceptably high

Objectives:
- Implement Evidence-Based Practices
- Increase Compliance with Sepsis Bundle
- Decreased Sepsis Mortality by 10%

Benefits:
- Improved Detection & Earlier Intervention
- Reduced Sepsis Mortality

Scope:
- All In-Patients 18 years and Older
- ED/ICU/DOU/Medsurg/PACU/L&D/Post Partum

Metrics:
- Sepsis Mortality (Screening and Coding)
- Bundle Compliance (Screening and Coding)
- Ad Hoc Quality Improvement Data
- Reporting Requirements: DSRIP Category IV

<table>
<thead>
<tr>
<th>Participant</th>
<th>Lic.</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amie Sevier</td>
<td>RN</td>
<td>Quality</td>
</tr>
<tr>
<td>Arash Heidari</td>
<td>RN</td>
<td>Infectious Disease</td>
</tr>
<tr>
<td>Cindy Norville</td>
<td>RN</td>
<td>Critical Care Director</td>
</tr>
<tr>
<td>David Aguirre</td>
<td>MD</td>
<td>Resident Physician</td>
</tr>
<tr>
<td>Dianne McConneheyt</td>
<td>RN</td>
<td>Quality Director</td>
</tr>
<tr>
<td>Edward Molina</td>
<td></td>
<td>Materials Management</td>
</tr>
<tr>
<td>Eric Santerre</td>
<td></td>
<td>Lab Director</td>
</tr>
<tr>
<td>Jeff Joliff</td>
<td>PharmD</td>
<td>Clinical Pharmacist</td>
</tr>
<tr>
<td>Jennifer McAlmond</td>
<td>RD</td>
<td>Nutrition</td>
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<tr>
<td>Jennifer Wold</td>
<td>RN</td>
<td>ICU Charge Nurse</td>
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<tr>
<td>Jessica Wonderly</td>
<td>RN</td>
<td>Project Facilitator</td>
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<tr>
<td>Kristi Wood</td>
<td>RN</td>
<td>Infection Control Coordinator</td>
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<tr>
<td>Mark Heimburger</td>
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<td>Michael Friesen</td>
<td>NP</td>
<td>Quality</td>
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<tr>
<td>Royce Johnson</td>
<td>MD</td>
<td>Chief of Infectious Disease</td>
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<tr>
<td>Susie Marderosian</td>
<td>RN</td>
<td>ED Supervisor</td>
</tr>
<tr>
<td>Toni Smith</td>
<td>RN</td>
<td>Chief Nursing Officer</td>
</tr>
<tr>
<td>Toni Won-Hamlet</td>
<td>RN</td>
<td>Quality</td>
</tr>
<tr>
<td>Kern Medical Center Staff Nurses/Physicians</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OUR 5 YEAR JOURNEY

- Education & Sepsis Screening/Protocol Rollout
- ABX Added to Pyxis Par & Lactate Critical Value
- Positive Reinforcement Program & Unit Dashboards
- Standardized Procedure, Clinical Excellence Program, Resident Champions & Routine ACGME Education Added
- Order Sets
- Sim Lab, Sepsis Clocks and MD Mortality Review
- EMR Order Sets
- NA Education & Tool Revision
- ABX Dosing Cards/Web Resource
- All Fallouts to Department/Specialty Supervisors
- Recognized Failure and Began to Revise Process
- ED Code Sepsis, Electronic Screen & Sepsis Video Debut

Graph showing monthly data from July 2011 to May 2015 with percentages ranging from 0% to 100%.
SEPSY BACK: A MEDICAL PARODY

• Sepsis education/awareness video
• Started as a joke between residents and facilitator
  – Group dubbed “Sepsis Crew”
• Fundraised to cover cost of production
• Debuted May 2015 during ED Skill lab to reinforce:
  – Concept of Code Sepsis
  – SIRS Criteria
  – Bundle Elements
• Steep increase in May bundle compliance due to:
  – Electronic Screening Implementation
  – ED Code Sepsis
  – Sepsy Back Video

HTTPS://WWW.YOUTUBE.COM/WATCH?V=2WPNP1YBCD8
## Failures

### ED Rapid Triage
- ED triage process was changed (RME) and Sepsis team unaware
- No mechanism for screening
- Drastic decrease in screening compliance

### Initial Screening Tool
- Extremely complex, required two signatures at change of shift
- Staff focused on mechanics of form vs. focusing on identifying sepsis

## Highlights

### OB Tool
- One of the first US hospitals to screen OB
- One quarter OB had more sepsis cases than our largest Med/Surg Unit

### Positive Reinforcement
- After program implemented saw 19 consecutive months > target compliance

### Order Sets/Protocol
- Allowed nursing to order septic workup upon positive screen - earlier intervention
- Prevented deviation from bundle and rapid ordering

### Electronic Screening Tool
- Integrated screen into workflow
- Improved compliance and staff satisfaction
- Allowed for reflex ordering based on positive screens

### Sepsy Back
- Renewed/generated staff engagement/enthusiasm

## Outcomes (Project To Date)

**Mortality Rate:** 16%
- Decreased 40%

**Bundle Compliance:** 74%
- Increased 40%

Actually saw decrease of about 40% in cases of severe sepsis/shock due to early intervention
RECOMMENDATIONS

• Administrative Support!!! – Committed Resources
• Multidisciplinary Team-Involve the right members and focus on areas of concern first
• Dedicated RN Facilitator
• Rapid cycle improvement - Fail Fast
  - Make small tests of change from data and solicited feedback
  - Audit after changes made to determine effectiveness of change
• Physician champions from affected areas - Resident and Attending
• Screening Tool/Protocol/Order Sets
• Education:
  - Annual
  - Orientation for New Employees
  - ACGME for MD’s during July Orientation
  - Skills Labs
• Engage and involve front line staff in project from the beginning (Think Outside the Box)
• Utilize Positive Reinforcement and Unit Dashboards to communicate with Staff
• Automate as much of the process as possible
• Be aware of unit/organization process changes that may impact your project
TOOL KIT

- Screening Tools
- Protocol
- Order Sets
- Sepsis Clock
- Flashcards
- Positive Reinforcement Logos
- Staff Feedback Form
- Unit Dash Boards
- Video Link/T-Shirts
**Sepsis not suspected**

**Systemic Inflammatory Response Syndrome (SIRS)**
- Any 2 of:
  - Altered Mental Status
  - Temp $\geq 100.6^\circ F$ OR $\leq 96.8^\circ F$
  - HR $\geq 90$
  - RR $\geq 20$
  - WBC $\geq 12$ OR $\leq 4$
  - Bands $\geq 10$

**Simple sepsis**
- 2 SIRS + Index of Suspicion

**Severe sepsis**
- 2 SIRS + Index of Suspicion + Organ Dysfunction

**Septic shock**
- 2 SIRS + Index of Suspicion + Organ Dysfunction + Refractory Hypotension (after 30ml/kg challenge)

**Intervention:**
- Continue to Monitor
- Re-screen Q 12 hours and PRN

**Intervention:**
- Determine index of suspicion
  - Yes: Meets Simple Sepsis Criteria
  - No: Continue to monitor, screening q 12/PRN

**Intervention:**
- Notify Charge
- Call “Code Sepsis” or Rapid Response Sepsis
- Notify MD
- Protocol “Initial Septic Workup” from Sepsis Menu

**Intervention:**
- Notify Charge
- Call “Code Sepsis” or Rapid Response Sepsis
- Notify MD
- Draw Stat “Initial Septic Workup” if not done
- Implement Severe Sepsis Bundle (Orders required)

**Intervention:**
- Notify MD fluid challenge complete/remains hypotensive
- Request orders to start vasopressor
- Follow chain of command
SEPSIS TIME CLOCK

Definition of Time Zero:
Positive Severe Sepsis Screen
(Confirmed by RRT or ICU/ED Charge RN)

Time Zero

Fluids, Antibiotics

Central Line
CVP ≥ 8

Huddle

Hydrodynamic Targets

- Repeat Lactate
- Targets met
AND maintained:
MAP ≥ 85
PaO2 ≥ 60%
Sepsis Management Program

Ventura County Medical Center
and Santa Paula Hospital
**Sepsis Screening**

### STEP #1

**Question #1:** Are there two or more of the following signs and symptoms of infection present?
- Hyperthermia $T > 100.4$
- Hypothermia $T < 96.8$
- Tachycardia HR $> 90$
- **Hypotension SBP $< 90$**
- Tachypnea RR $> 20$
- Acutely altered mental status
- WBC $< 4,000$ or $> 12,000$ or $> 10\%$ bands (WBC may not be available in triage)

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

**Question #2:** Is the patient's history suggestive of a new infection?
- Pneumonia (cough, dyspnea)
- UTI (dysuria, flank pain)
- Abdominal infection (recent surgery or pain)
- Meningitis (headache, altered mental status, stiff neck)
- Skin/soft tissue/wound infection
- Bone/joint infection
- Catheter infection
- Influenza like illness
- Other: ____________________

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

If the answer is yes to both questions 1 and 2 proceed to step #2

**Time patient screens positive:** ____________________
**Date:** ____________________

Signature RN ____________________

***If patient screens positive and has SBP $< 90$, PAGE CODE SEPSIS***

### STEP #2

**Draw Lactate:**
**Labs drawn date:** ____________________  **Time:** ____________________

Signature RN ____________________
**Code Sepsis**

- Nurse triggered
- All adult ED patients
- All adult inpatients
- OB, Pediatrics excluded

- Silent Page
- Multidisciplinary response
- ICU support
- Data team alerted
- Sepsis toolbox

**SBP<90mmHg**

**Lactate>4mmol/L**
EMR Tools

- Staff faster than computers
- Unreliable alerting
- Data collection not amenable to automation
Maintenance

• Education
• Report Cards
• Case Review
• Walk Rounds
• Compli Modules
• Nursing Unit Meetings
• ER Sepsis Report
Data Drives Behavior

[Bar graph showing Septic Shock Mortality for the United States from 2010 to 2014.]

[Bar graph showing Severe Sepsis Mortality for the United States from 2012 to 2015.]
Data Drives Behavior

Bundle Compliance

2013 Mortality

Jan  Feb  Mar  Apr  May  Jun

100%  <100%
Data Drives Behavior

Trauma vs Sepsis

Activations

- Trauma
- Sepsis

June-Aug 2013

Death Rates

- Trauma
- Sepsis

Jun-Aug 2013
Outcome Data: Severe Sepsis and Septic Shock

<table>
<thead>
<tr>
<th>Year</th>
<th>Bundle Compliance</th>
<th>Mortality</th>
</tr>
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<tbody>
<tr>
<td>Baseline</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>2011</td>
<td>49</td>
<td>16</td>
</tr>
<tr>
<td>2012</td>
<td>55</td>
<td>11</td>
</tr>
<tr>
<td>2013</td>
<td>62</td>
<td>8</td>
</tr>
<tr>
<td>2014</td>
<td>70</td>
<td>9</td>
</tr>
</tbody>
</table>
Patient and Family Engagement
Q & A

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Richard Rutherford, MD
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CMS WEBINAR SERIES

The Clinician Perspective on Sepsis Care:
The Early Management Bundle for Severe Sepsis/Septic Shock
A CMS Educational Series

Thursday September 10, 2015 at 2 p.m. ET
Tuesday October 6, 2015 at 2 p.m. ET
Tuesday October 20, 2015 at 2 p.m. ET

This supplementary three-part series on Early Management Bundle, Severe Sepsis/Septic Shock will provide insight into the clinical perspective on the Severe Sepsis/Septic Shock Bundle and will help Physicians, Medical Directors, Clinicians, Nurses, Clinical Documentation Teams, and Pharmacists better understand this crucial clinical quality measure.

Speakers for All Three Events:
Sam Robert Townsend, MD
Vice President of Quality and Safety at California Pacific Medical Center
Lemuel Tetera, MD, MSc
Medical Officer at Centers for Medicare & Medicaid Services (CMS)

Do not miss these additional opportunities to listen to Subject Matter Experts discuss the Early Management Bundle, Severe Sepsis/Septic Shock measure. Additional details regarding the individual events will be provided two weeks in advance of each session. Find Frequently Asked Questions about Sepsis on QualityNet.

Click Here to Register Event 1

UPCOMING DISTANCE LEARNING OPPORTUNITIES

Register today at http://essentialhospitals.org/webinar
THANK YOU FOR ATTENDING

**Evaluation**: When you close out of WebEx following the webinar, an evaluation will open in your browser. Please take a moment to complete. We greatly appreciate your feedback!