

## Screen and Intervene: Improved Outcomes From a Nurse-Initiated Sepsis Protocol C935

2015 ANCC National Magnet Conference®  
October 9, 2015  
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## William S. Middleton Memorial Veterans Hospital, Madison, WI



- ✧ 131 bed facility
  - ✧ 87 acute care beds
  - ✧ 26 bed Community Living Center (Post-acute, Rehab, & Hospice)
  - ✧ 18 bed residential treatment program
- ✧ National Center for Heart, Lung, & Liver Transplants
- ✧ Epilepsy Center for Excellence
- ✧ Magnet Designation in 2010  
Redesignated in 2014



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## Objectives



- ✧ Review the background of our sepsis programming
- ✧ Outline the purpose and goals of the program
- ✧ Discuss the methods, program, and practice changes implemented
- ✧ Evaluate the pre & post programming outcome data

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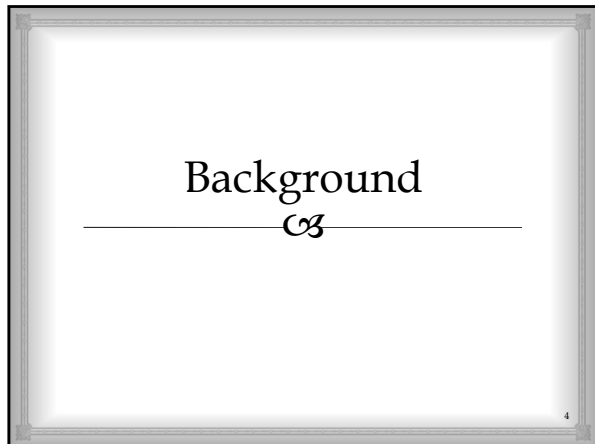
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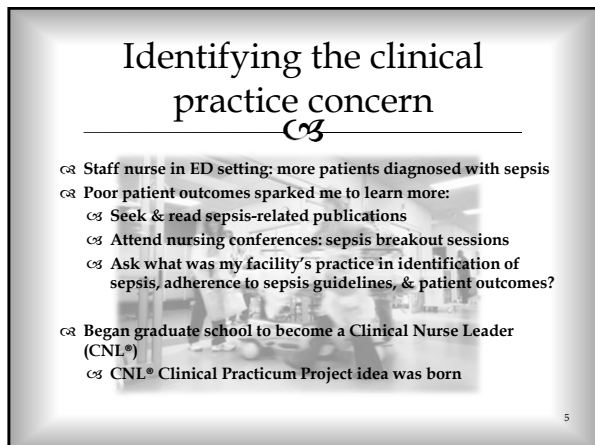
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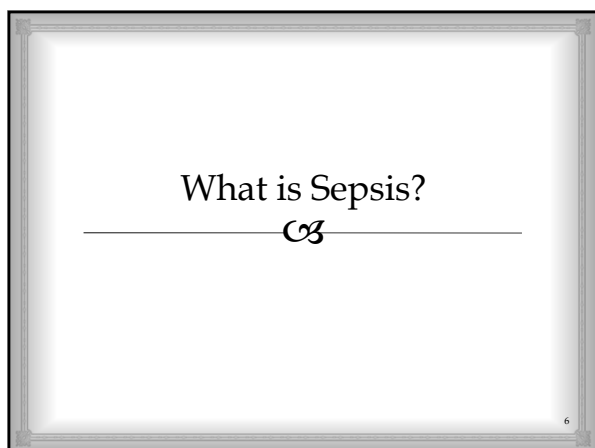
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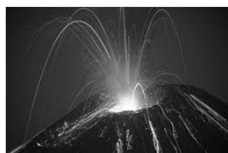
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## What is Sepsis?



- ❧ Not caused by the infection itself.
- ❧ A complex process resulting from the body's systemic inflammatory response to an infection
- ❧ This response leads to a cascade of events that is progressive in nature



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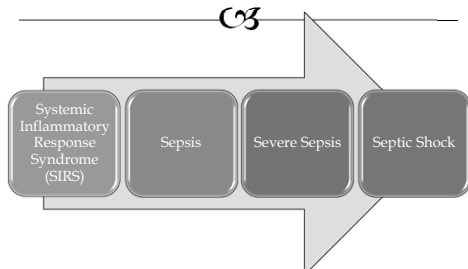
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## The Progressive Stages of Sepsis



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## Performing a literature search



- ❧ >750,000 new cases of severe sepsis in N. America per year<sup>1</sup>
- ❧ Overall mortality rate from severe sepsis or septic shock ranges from 30-60%, 10<sup>th</sup> leading cause of death in US, with total costs est. \$17 Billion/year<sup>2</sup>
- ❧ 2004 *Surviving Sepsis Campaign* developed a sepsis CPG called "Early Goal Directed Therapy (EGDT)". Updated in 2008 & 2012.
- ❧ Evidence indicates a clear survival benefit if EGDT was initiated at or near the time of sepsis recognition<sup>3</sup>

<sup>1</sup>Chesnut, R., & Zamora, M. (2009). Blood cultures for febrile patients in the acute care setting: Too quick on the draw? *Journal of the Academy of Nurse Practitioners*, 20, 558-564.  
<sup>2</sup>Morrell, M.R., Mosk, S.T., & Kellum, M.H. (2009). The management of severe sepsis and septic shock. *Infectious Disease Clinics of North America*, 23, 485-501.  
<sup>3</sup>Pearson, D.J. (2011). Severe sepsis and septic shock in 2012: What have we learned? *APAC Media*, 19(9). Retrieved from <http://www.ahcmedia.com/public/>

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## Performing a literature search



### Nursing-Specific Sepsis Studies:

- ☞ 2010 before & after interventional study from *Critical Care Medicine*<sup>3</sup>:
  - ☞ Examined the impact of the Surviving Sepsis Campaign protocols on hospital LOS in Septic Shock patients
  - ☞ Significant limitation to this study was the decreased level of illness severity of the interventional group compared to the historical group → *likely due to improved education of ED staff* leading to earlier sepsis recognition & preventing delays in treatment

<sup>3</sup>Iwanicki, J. (2010). Impact of the surviving sepsis campaign protocols on hospital length of stay and mortality in septic shock patients: Results of a three-year follow-up quasi-experimental study. *Critical Care Medicine*, 38, 3209-3215.

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## Performing a literature search



### Nursing-Specific Sepsis Studies:

- ☞ 2010 study from the *International Journal of Nursing Studies*<sup>4</sup>:
  - ☞ Evaluated the role of the ED nurse in the recognition and treatment of sepsis
  - ☞ Findings: The use of a nurse-driven sepsis protocol combined with training & performance feedback can significantly improve the recognition & tx of patients with sepsis in the ED.

<sup>4</sup>Troop, M., Hulsehor, M., Blesken-Rovers, C., Peters, L., Van den Berg, D., et al. (2010). The role of nurses in the recognition of patients with sepsis in the emergency department: A prospective before-and-after intervention study. *International Journal of Nursing Studies*, 47(12) p. 1464-1473.

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## Lighting the spark



- ☞ Prior to 2012, MVAH did not utilize a Sepsis Protocol
- ☞ ED is a significant portal of entry for Septic patients
- ☞ ED RNs are in a position to be at the forefront in the early recognition and care of this cohort of pts.

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## Asking the research question:



**In Emergency Department patients that meet severe sepsis and septic shock criteria, will a nursing education program and implementation of an evidence-based sepsis protocol, compared to usual care, improve patient outcomes and reduce hospital costs and resource utilization?**

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## Getting the ball rolling...



☞ Buy-in from VA Leadership

☞ IRB and VA Research & Development Committee Approval



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## Purpose & Goals of the Project



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## Purpose of the Project



1. Promote early recognition of patients meeting sepsis criteria
2. Once sepsis is recognized, deliver time-sensitive, EB sepsis interventions

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## Overarching Goals:



1. Improve patient outcomes  
Halting the progression of sepsis
2. Reduce Hospital Costs and Resource Utilization  
Reduction in Bed-Days-of-Care (BDOC)

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## Methods



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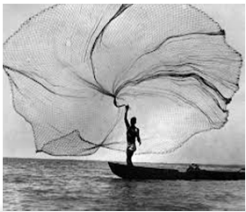
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## Analysis of Pre-Sepsis Programming Data



**IRB approval: Two-year retrospective medical-record review of hospitalized patients with sepsis-related medical diagnoses (2009-2011)**

- ☞ 120 charts reviewed (22 excluded), 98 met sepsis criteria. Of these, 43 pts met severe sepsis or septic shock criteria in the ED.
- ☞ "Cast a wide-net": Pt demographics, location sepsis was first identified, ED data, inpatient data, BDOC, sepsis progression, mortality rates
- ☞ Findings led to sepsis program development



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## Sepsis Programming



Emergency Department

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## Creation of ED Sepsis Committee



Nurse-Led Interdisciplinary		
ED NM Chief of Emergency Medicine Pharmacy	ED Staff Nurses became <i>Sepsis Champions</i> <div style="font-size: small; text-align: center;">                     40% nurses volunteered                      Received additional sepsis education                 </div>	Ad Hoc: EBP/Magnet Coordinator Nurse Scientist Organizational Improvement

Buy-in & advocacy was a key factor in implementing successful change in ED

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## Clinical Project Design: ED



Program objectives included:

- œ **Facilitate early recognition of sepsis**  
Strategy → Development of a sepsis nursing education program
- œ **Once sepsis is recognized, initiate EB interventions aimed at halting the progression of sepsis**  
Strategy → Formulation of an evidence-based sepsis protocol

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## ED Nursing Education Program



2-hour Sepsis In-service

- œ Didactic: pathophysiology of sepsis, stages of sepsis, sepsis protocol overview, & case study using sepsis protocol
- œ Simulation using computerized manikin in Sim Lab
  - œ Sepsis Champions modeled implementation of protocol
  - œ RN Attendees viewed the simulation
  - œ Debriefing to follow
- œ Competency Test: >80% to successfully pass

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## Nurse-Initiated Sepsis Protocol



- œ Sepsis Screening performed by RN in triage
- œ Evidence-based care-bundle
- œ Aligns with sepsis CPG: "Early-Goal-Directed-Therapy"

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## Nurse-Initiated Sepsis Protocol



**If a patient meets sepsis criteria:**

- ☞ Nursing can initiate diagnostic testing & implement specific EB sepsis interventions
- ☞ Collaboration with the Provider
- ☞ Some interventions require an MD order (medications, IVF, invasive monitoring)

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## Bedside Algorithm



- ☞ Quick & easy to follow
- ☞ Portable
- ☞ Reviewed numerous pictorial sepsis algorithms
  - ☞ Lots of RN input on design

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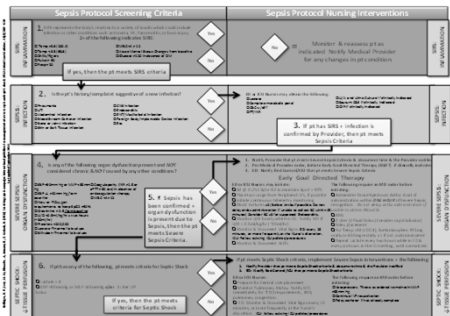
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## Bedside Algorithm



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## Nurse-Initiated Sepsis Protocol



- ☞ "Went-Live" in ED in June 2012
- ☞ Sepsis Champions provide real-time mentoring to staff (RNs & MDs) & ongoing education to new ED staff
- ☞ Sepsis committee meetings:
  - ☞ Evaluate protocol/programming → modify prn based on evidence; review sepsis cases, identify/eliminate barriers
- ☞ Post-programming, ED sepsis chart review:
  - ☞ Feedback to staff
    - ☞ Aggregate data
    - ☞ Individual RN feedback regarding compliance of performance measures

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## Sepsis Programming



Expansion to ICU

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## Clinical Project Design: ICU



Goal: standardize sepsis care to the other critical care areas of hospital

1. ICU staff respond to rapid response calls throughout the hospital
2. Receive direct admissions from outside hospitals

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## Clinical Project Design: ICU



- œ Gain buy-in & approval
- œ Modified ED Sepsis Protocol to include ICU staff
- œ Education to ICU nursing staff:
  - œ Face to Face/In-services
  - œ Annual Education: Poster/competency test

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## Sepsis Programming



Expansion to Acute Care Units

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## Clinical Project Design: Acute Care



Inpatient Acute Care Nurses  
(Medical, Surgical, Cardiac Care, Transplant, Neurology, Orthopedic)

- œ Buy-In & Approval
- œ RN representatives from each unit
- œ Nursing Education/In-Services

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## A Need for Something Different



- ☞ Did not want to encourage use of Sepsis Protocol in this setting
  - ☞ Time/resource-intensive
  - ☞ Critically-ill patients, potential to deteriorate quickly
- ☞ Nursing Education aimed at:
  - ☞ Patho & Stages of sepsis
  - ☞ Early recognition of sepsis
  - ☞ Prompt transfer to ICU setting

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## Communication to the Provider



Pre-sepsis programming chart review indicated a need to address inpatient communication issues

- ☞ In hospitalized patients whose sepsis progressively worsened:
  - ☞ Avg. 14.5 hrs. before pt was transferred to ICU
  - ☞ Review of "Provider Contact Notes" in these patients indicated the following issues:
    - ☞ General lack of sepsis recognition by nurses & providers
    - ☞ Inconsistencies among nurses in their communication when relaying concerns to provider

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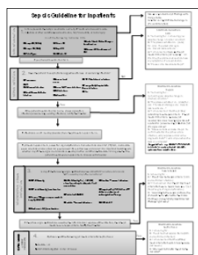
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## Inpatient Sepsis Guideline



- ☞ Outlines stages of sepsis/criteria for each
- ☞ SBAR scripting to communicate to provider
- ☞ Highlights sepsis terminology (Use the right words to communicate concerns)
- ☞ Facilitates standardization of care & promotes patient advocacy

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## Ongoing Nursing Sepsis Education



☞ All new RN Hires participate in 1 hour Sepsis education during nursing orientation:

☞ Includes an overview of epidemiology, pathophysiology, stages of sepsis, nursing interventions, & case study

☞ Provided own copy of Inpatient Sepsis Guideline

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## ED Sepsis Data Outcomes



Pre-Sepsis Protocol Analysis: 2009-2011  
Post-ED Sepsis Protocol Analysis x 2 years  
June 2012-2013  
June 2013-2014

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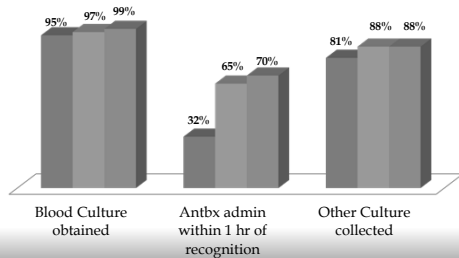
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## ED Compliance with Sepsis Protocol



■ Pre-sepsis protocol ■ Year 1 post-sepsis protocol ■ Year 2 post sepsis protocol



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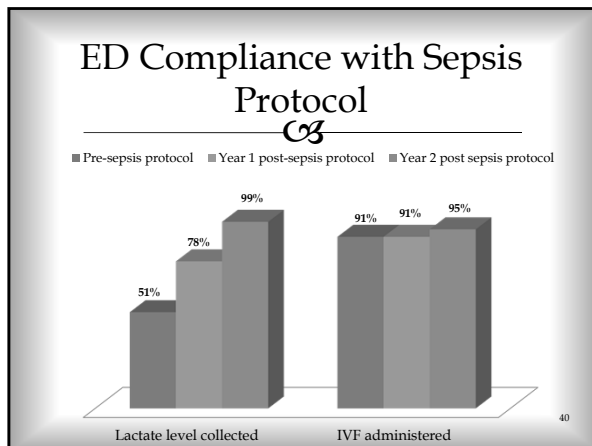
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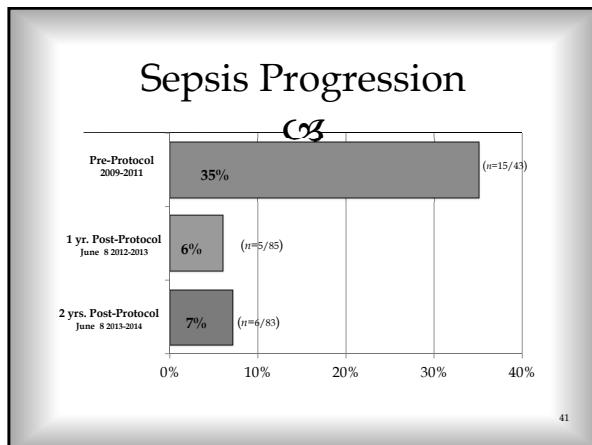
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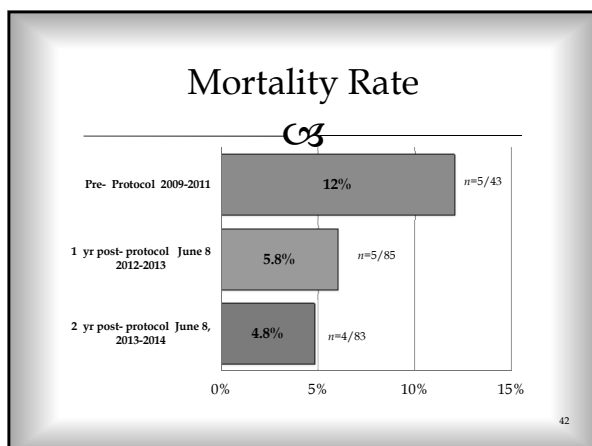
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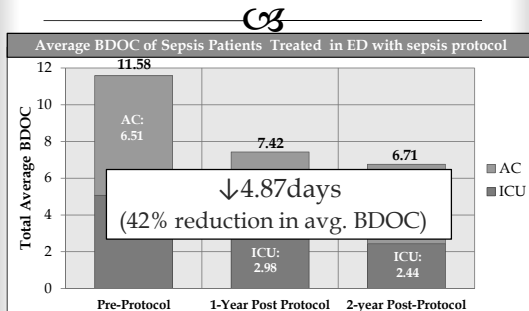
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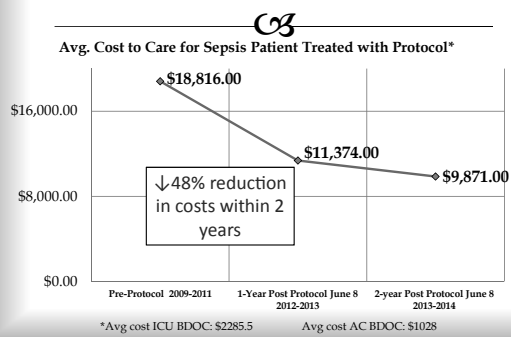
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## Hospital Resource Utilization



## Hospital Costs



## Questions??



## Contact Information

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