FR19- Sepsis in LTC: Recognition and Appropriate Response

Friday, March 23
3:30 PM- 5:00 PM

Session Description
This session will address the presentation of sepsis in older adults, early recognition of sepsis in PA/LTC residents and realistic expectations for managing sepsis based on the staff, training, and resources available in most PA/LTC settings.

Learning Objectives
Describe the clinical presentation of sepsis in older adult.
Discuss initial assessment and management of an older adult with possible sepsis.
Recognize the risks and benefits of attempting to manage sepsis in the PA/LTC setting.

Presenter(s): Swati Gaur, MD, MBA, CMD; Philip Sloane, MD, MPH; Theresa Rowe, DO, MS; Sheila McLean, MBA, LNHA

Presenter(s) Disclosures: All speakers have reported they have no relevant financial relationships to disclose.
Sepsis in LTC: Recognition and Appropriate Response
So you have Sepsis on your hands - Gaur

So you have Sepsis on your hands
Swati Gaur MD MBA CMD
Vice President of Medical Affairs CHSGA

Learning Objectives
By the end of the session, participants will be able to:
• Objective 1: Know principles of sepsis clinical management
• Objective 2: Understand the role of communication cascade
• Objective 3: Discern whether to treat in LTC or transfer
• Objective 4: Know the organizational role of Medical Director/practitioner in sepsis treatment

TREATMENT OF ACUTE SEPSIS

3 HR BUNDLE
• Measure lactate level
• Obtain blood cultures prior to administration of antibiotics
• Administer broad spectrum antibiotics
• Administer 30ml/kg crystalloid for hypotension or lactate ≥4mmol/L

Speaker Disclosures
Dr. Gaur has no financial relationships.

6 HOUR BUNDLE

- Apply vasopressors (for hypotension that does not respond to initial fluid resuscitation) to maintain a mean arterial pressure (MAP) ≥65mmHg
- In the event of persistent hypotension after initial fluid administration (MAP<65mmHg) or if initial lactate was ≥4mmol/L, re-assess volume status and tissue perfusion.
- Re-measure lactate if initial lactate elevated.

Antibiotic Choice

- Early – within 1 hour
- Appropriate –
  - Choice of antibiotic
  - Route of administration
  - Dose of antibiotic

<table>
<thead>
<tr>
<th>Source</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curr Infect Dis Rep. 2015 Jul; 17(7): 493,</td>
<td></td>
</tr>
<tr>
<td>Clin Infect Dis 2009;48:503</td>
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</table>

Effectiveness of the Bundles

- 263 patients –
- 6 hour bundle vs traditional treatment
- In hospital mortality 30.5 vs 46.5 with P=0.009

Summary 1: Broad Goals

- Decrease microbial load
- Limit tissue injury by maintaining perfusion pressure

Outcomes of the Surviving Sepsis Campaign in intensive care units in the USA and Europe: a prospective cohort study

<table>
<thead>
<tr>
<th>Hospital mortality if origin is emergency</th>
<th>3108 (34%)</th>
<th>735 (34%)</th>
<th>&lt;0.0001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital mortality if origin is ward</td>
<td>1661 (34%)</td>
<td>1481 (43%)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Hospital mortality if origin is ICU</td>
<td>544 (35%)</td>
<td>502 (48%)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Lancet. 2012

SEPSIS

Acute change in condition

1. I think of you constantly...
2. I have a floating unknown infection

Lancet. 2012
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Communication flow Cascade

STOP AND WATCH
100-100-100
Algorithm
Active surveillance

CNA
SBAR for sepsis
Advance care plan

NURSE
Diagnosis
Treatment plan and start

PHYSICIAN/PROVIDERS
Decision

FAMILY

Summary 2: Communication
The single biggest problem in communication is the illusion that it has taken place.
George Bernard Shaw

Let’s not make our patients do this!

Sepsis SBAR
Goals of care

Do not transfer
Order labs, fluids, abx, call family
Treat in LTC
Palliation

Order labs, fluids, abx, call family
Call 911

Stop and Watch
Early Warning Tool

S
T
P
R
F
D
W
A
T
C
H

Weight change
Age/illness increase more than usual
Tired, weak, confused, or sleepy
Change in skin color or condition
Help with walking, urinating, walking more than usual

Communication original
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Treat
- 30ml/kg X 60 KG=1800 ml in 3 hrs. i.e. 600 ml in 1 hr. for 3 hrs.
- Sepsis is NOT a crisis of Clysis!
- Keep MAP >65 [(diastolic X 2)+systolic]/3
- Keep that VS machine in the room- Like Really!
- Follow up the lactate if the first level was high-
- What color tube is that anyway?

Treat
- Send all Cultures before the first dose of antibiotics which should be within 1 hour-
- Do we even have culture bottles?
- Start with broad spectrum antibiotics (2 with shock) and narrow a.s.a.p. –
- Its 2 am, how long do I have to hold to get the ebox list?
- Duration 7-10 days (typical)
- Will be tailored to the organ of origin

Monitor
- Close monitoring of vital signs
- Watch for system failure with O2 monitoring, labs (glucose, creatinine, platelet)
- Watch for response (CBC, lactate level)
- Follow up Cultures

Watch out for complications
- Pressure ulcers
- DVT/ stress ulcer
- Deconditioning
- Nutrition
- Delirium

Communicate
- Call family to discuss prognosis and goals of care.

Summary 3: Treatment in LTC
- Treat
- Monitor
- Communicate
Sepsis in LTC: Recognition and Appropriate Response
So you have Sepsis on your hands - Gaur

Mindful approach to treatment of Infections

Role of Medical Director
- Nurture the Antimicrobial Stewardship Committee
- Actively participate in QAPI
- Know the LTC capabilities checklist*
- Help develop capabilities – blood culture bottles, stat labs, IV fluids, E box antibiotics
- Standardization of Advanced Care Planning

Role of Practitioners
- Know the capabilities
- High level of suspicion
- Education of nursing staff
- Proactive discussion of goals of care

Summary 4

Questions:
Sepsis in LTC: Recognition and Appropriate Response - Stopping Sepsis in Long Term Care: Strategies for Early Recognition - McLean

Speaker Disclosure

Sheila McLean has no financial relationship(s)

Learning Objectives

By the end of the session, participants will be able to:

a. Understand how nursing facilities have adopted a system approach to recognizing the early warning signs of infection and/or sepsis
b. Develop knowledge of tools and resources available to assist with early recognition of infection and/or sepsis
c. Create components of a sustainable sepsis prevention and treatment program

Stopping Sepsis in Long-Term Care

Objective: Improve early identification of sepsis in long-term care to reduce sepsis hospitalizations, readmissions, and mortality.

Maryland project:
• 32 nursing homes
• September 2015 - January 2018

Virginia project:
• 36 nursing homes
• 32 hospitals
• September 2016 – August 2018

Interventions

Process change to identify and act on early signs of infection and sepsis:
• Aides look for changes, alert nurse
• Nurse promptly assesses resident
• Physician promptly notified, with clear communication (SBAR), to initiate action

Resources, training for aides, nurses, residents/families
• Sepsis pocket cards, posters
• Sepsis Risk Assessment Evaluation Tool
• SBAR tools and information, customized to sepsis
• Resident/family education brochure

Assessment, feedback on facility infection prevention programs

Regional sepsis forums to foster dialogue between hospitals, nursing homes for better coordinated sepsis care
Put your Pocket Guide in your pocket

- Temperature above 100?
- Blood pressure below 100?
- Pulse rate above 100?
- Person not “themselves”?
  - Drowsy?
  - No appetite?
  - Stumbling, falling?
  - Confused/increased confusion?
- STOP! Find the nurse and ask him/her to assess the resident for possible sepsis

Seeing Sepsis: Act Fast Poster

Skilled Nursing Facility Algorithm

- History of sepsis
- System assessment
  - Respiratory
  - Gastrointestinal
  - Skin
- Medication review
- Chronic disease
- Medical device utilization

Resident and Family Education

INTERACT Tools
Components of a Sustainable Program

**Process change**
- Sepsis risk assessment on admission
- Ongoing assessment for changes that could mean sepsis
- Standards for communicating with providers (SBAR)

**Simple, effective tools and resources**
- Seeing Sepsis
- INTERACT
- AMDA

**Ongoing education and reinforcement**
- New employee orientation
- Annual competency for all caregivers
- Q-Sofa and/or SIRS criteria
- Residents and families

This material was prepared by Health Quality Innovators (HQI), the Medicare Quality Innovation Network-Quality Improvement Organization for Maryland and Virginia, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. HAI-45701055342506
Sepsis in LTC: Recognition and Appropriate Response - Rowe

Society for Post-Acute and Long-Term Care Medicine 2018
Theresa Rowe, DO, MS

Speaker Disclosures
• Dr. Rowe has no conflicts of interest related to this presentation.

Learning Objectives
• Review definition of sepsis
• Describe the clinical presentation of sepsis in older adults in the long-term care setting
• Discuss screening tools for detection of sepsis
• Review diagnostic approach to sepsis in long-term care

What is Sepsis?
• Sepsis is life threatening organ dysfunction caused by a dysregulated host response to infection
• Septic shock is a subset of sepsis with circulatory and cellular/metabolic dysfunction associated with higher risk of mortality
• Definitions are not diagnostic of sepsis


Defining Sepsis*

<table>
<thead>
<tr>
<th>Definition</th>
<th>SIRS</th>
<th>Sepsis</th>
<th>Septic Shock</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001 ACCP/SCCM* Consensus Statement</td>
<td>T &lt; 36°C or &gt; 38°C</td>
<td>Pulse = &gt; 90</td>
<td>PacO2 &lt; 32</td>
</tr>
<tr>
<td>2013 CMS Core Measure</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>2015 SIRS criteria</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>2016 SIRS 2</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>2017 qSOFA*</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
</tbody>
</table>

* Adapted from slide provided by Dr. Nace
Sepsis in LTC: Recognition and Appropriate Response - Rowe

Sepsis in Older Adults

- Over 1.5 million people get sepsis each year in the U.S.
- 250,000 Americans die from sepsis each year
- One in three patients who die in a hospital have sepsis
- Older patients aged ≥ 65 years account for the majority (>60%) of sepsis cases
- This will likely increase
- Nursing home residents → 7 fold increase in mortality compared to community dwelling adults (14% vs 1.9%)
- Prevalence of sepsis is increase, mortality is decreasing

Sepsis – Early Identification Challenges

<table>
<thead>
<tr>
<th>Fever Definition</th>
<th>Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCP/SCCM</td>
<td>$T = &gt; 38^\circ C (100.4^\circ F)$</td>
</tr>
<tr>
<td>IDSA LTC</td>
<td>$T = &gt; 37.8^\circ C (100^\circ F)$ or repeated $T = &gt; 37.2^\circ C (99^\circ F)$ or $&gt; 1.1^\circ C (2^\circ F)$ over baseline</td>
</tr>
</tbody>
</table>

Sepsis – Early Identification Challenges

- Phone based triage
- There are no evidenced based tools to assist clinicians with early identification of sepsis
- Most were intended for the ED and/or acute care
  - qSOFA
- Variables for tools may not be available and/or staff may not be trained

Tools - SIRS Criteria

Systemic Inflammatory Response System

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
</tr>
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<tbody>
<tr>
<td>$T = &lt; 36^\circ C$ or $&gt; 38^\circ C (96.8^\circ F$ or $100.4^\circ F)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse = &gt; 90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR = &gt; 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{PaCO}_2 = &lt; 32$</td>
<td></td>
<td></td>
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<tr>
<td>$\text{WBC} = &lt; 4$ K or $&gt; 12$K. Diff. = &gt; 10% bands</td>
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</tbody>
</table>

- Sensitivity = Good; Specificity = Very Poor; PPV = Poor
- 90% of ICU patients and 50% of general ward patients meet criteria
- Too many false positives

<table>
<thead>
<tr>
<th>Neurologie coma scale</th>
<th>Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Opening Response</td>
<td>Spontaneously</td>
<td>4</td>
</tr>
<tr>
<td>To Speech</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>To Pain</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Best Verbal Response</td>
<td>Oriented to time, place, person</td>
<td>5</td>
</tr>
<tr>
<td>Confused</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Inappropriate Words</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Incomprehensible Sounds</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Best Motor Response</td>
<td>Obey Commands</td>
<td>6</td>
</tr>
<tr>
<td>Moves to Localized Pain</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Flexion Withdrawal from Pain</td>
<td>4</td>
<td></td>
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Minnesota Hospital Association
Seeing Sepsis Campaign


Summary
- Screening tools are limited
  - Mostly help with identifying those at most risk for complications
  - Still need to use clinical judgement
  - What about antibiotic stewardship?

Antibiotic Stewardship
- Do not treat with antibiotics
- Start Antibiotics
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Antibiotic Stewardship

- Do not treat with antibiotics
- Start Antibiotics
- Active monitoring
- Supportive Care
- Diagnostic Tests
- Keep Thinking!!

Principles of Antibiotic Stewardship

Treatment for Sepsis

Antibiotic Use Protocols

Questions?

Thank You
theresa.rowe@northwestern.edu or
nnq1@cdc.gov