Sepsis Matters! Early Recognition and Management for Nursing Homes and Home Health Providers

Mountain-Pacific Quality Health
January 24th, 2018
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Leading infection prevention education across the Rocky Mountain Region

No conflicts of interest to disclose

Learning Objectives
- Discuss Surviving Sepsis Campaign (SSC)
- Describe sepsis screening in LTC residents
- Identify potential LTC sepsis screening tools
- Review keys to survival
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Why Sepsis?

Sepsis is the leading cause of death in non-coronary care intensive care units, with a mortality rate between 20 - 50%.

From 2007 - 2009, over 2,047,038 patients were admitted with a sepsis-related illness.

- 52.4% of sepsis patients are diagnosed in the ED
- 28.4% are diagnosed on a non-ICU ward
- 12.8% are diagnosed in the ICU


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What is Sepsis?

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#1 Killer of hospital patients

http://jamanetwork.com/journals/jama/article-abstract/2598785
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Most Expensive Condition

[Image of The Top Five Most Expensive Conditions Study by J. S. Hospital]

- [Image description]

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Mortality

Patients hospitalized for sepsis or sepsis were more than eight times as likely to die during their hospitalization.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Septic or septic</th>
<th>Other Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sepsis/Septic</td>
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<td>20</td>
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<tr>
<td>Septic</td>
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<tr>
<td>Other Diagnosis</td>
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<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>25</td>
</tr>
</tbody>
</table>

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Are you working on sepsis?

[Image of a questionnaire on sepsis]

- Questionnaire description

[Image description]
The Surviving Sepsis Campaign
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What is the Surviving Sepsis Campaign?
The Surviving Sepsis Campaign (SSC) is a joint collaboration of the Society of Critical Care Medicine (SCCM) and the European Society of Intensive Care Medicine (ESICM) committed to reducing mortality from severe sepsis and septic shock worldwide.

Surviving Sepsis Campaign 3 Hour Bundle
TO BE COMPLETED WITHIN 3 HOURS TIME OF PRESENTATION:

1. Monitor vital signs
2. Start broad spectrum antibiotics
3. Administer broad-spectrum antibiotics
4. Administer fluid resuscitation

http://www.sccm.org/Research/Quality/Pages/Sepsis-Definitions.aspx
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What is sepsis?
Sepsis is a complication caused by the body’s overwhelming and life-threatening response to infection which can lead to:
- Tissue damage
- Organ failure
- Death
It is difficult to predict, difficult to diagnose, and difficult to treat.
Patients who develop sepsis have an increased risk of complications and death and face higher healthcare costs and longer treatment.

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The Sepsis Continuum

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Systemic Inflammatory Response Syndrome

SIRS is an inflammatory state affecting the whole body, frequently a response of the immune system to infection but not always.

SIRS Criteria
- Temp:  <36 °C (96.8 °F) or >38 °C (100.4 °F)
- HR:  >90/min
- RR:  >20/min
- WBC:  <4000/mm³ or >12,000/mm³
*A patient has SIRS with any 2 of the above*
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**Sepsis**

Sepsis = 2 or more of the SIRS criteria AND a known or HIGHLY suspected infection

Pneumonia (50%) is the number one infection source, followed by UTI and abdominal infections.

http://www.sccm.org/Research/Quality/Pages/Sepsis-Definitions.aspx

Not always obvious!

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**Septic Shock**

Based on the Society of Critical Care Medicine (SCCM) 2016 Guidelines

- Persistent hypotension requiring vasopressors to maintain MAP ≥ 65 mm Hg
- Initial lactate >4 or a lactate >2 after adequate volume resuscitation

http://www.sccm.org/Research/Quality/Pages/Sepsis-Definitions.aspx

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**Organ Dysfunction related to Sepsis**

- Respiratory
  - Increasing O2 requirements
  - SPO2 >92%
  - Mechanical Ventilation

- Neuronal
  - Change in LOC GCS < 12

- Renal
  - SBP <90 mmHg
  - MAP < 65 mmHg
  - Need for Vasopressors

- Metabolic/Hepatic
  - Lactic Acid > 4
  - Serum Bilirubin > 4

- Hematologic
  - Platelets <100,000
  - INR > 1.5

- Cardiovascular
  - UO <30 ml/hr
  - Creat. >0.5 from baseline

- Renal
  - Creat >0.5

- Hematologic
  - Platelets <100,000
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Sepsis is a medical emergency

Stroke
AMI
Time is tissue!
Oxygen won’t go where blood doesn’t flow
Early goal directed therapy (EGDT) is to prevent organ dysfunction

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First steps......

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Early Identification

Understanding Systemic Inflammatory Response Syndrome (SIRS)
- Fever of more than 38°C (100.4°F) or less than 36°C (96.8°F)
- Heart rate of more than 90 beats per minute
- Respiratory rate of more than 20 breaths per minute
- White blood cell count (>12,000/µL or < 4,000/µL)

Any 2 of the above criteria along with a history suggestive of a new infection meets the Sepsis Criteria = start the SSC 3 hour bundle
Seconds Count!

Sepsis is a medical emergency. Time is tissue—seconds count.

Sepsis Screening Tools

Severe Sepsis Screening Tool

http://www.survivingsepsis.org/SiteCollectionDocuments/ScreeningTool.pdf
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Transferring Tool

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Wesley Healthcare, Wichita, KS

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Comprehensive Sepsis Treatment

- Labs
  - Lactic acid/lactate
  - Blood cultures
- Antibiotic administration
  - Broad spectrum within 1 hour
- Circulatory assessment and support
  - Fluids, inotropic agents, vasopressors
- Supportive treatment with oxygenation and ventilation

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IHIs Putting the pieces together

- Early Recognition
- Empower/educate bedside staff
- Change the Culture
  - Assessments and Alerts
- Drive Treatment with Definition
  - Clear standard
- Make Early Treatment Easy
  - Automatic
  - LTC Bundle
- Make Early Recognition Easy
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CDC Tools for Education

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file:///C:/Users/MT/AppData/Local/Microsoft/Windows/INetCache/IE/E8M0I23G/2016-08-vitalsigns.pdf

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CDC Tools for Education

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https://www.cdc.gov/sepsis/pdfs/HCP_factsheet_be_vigilant_protect_residents-from-sepsis_508.pdf

https://www.cdc.gov/sepsis/pdfs/HCP_infographic_protect-your-patients-from-sepsis_508.pdf

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Sepsis and Aging

"People over 65 years old, particularly those who have health issues, are even more susceptible to sepsis than any other group. According to a study a few years ago, while people aged 65 years and older make up about 12% of the American population, they make up 65% of all sepsis cases in the hospitals."
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**Misdiagnosis**

Nicole’s death was wholly preventable and completely unnecessary. We are hopeful that this family may find some closure now that the jury has rendered a verdict that holds the wrongdoers accountable.


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**Sepsis Take Homes**

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**Targets**

- Save Lives by Reducing Sepsis Mortality
- Prevent Sepsis and Septic Shock Through *Early Recognition and Standardized Treatment Protocols*
- Reduce Sepsis Mortality Rates in CO

An estimated 482 lives could be saved in CO with a 20% reduction in sepsis and septic shock
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**Sepsis: Getting it right**

- Develop multidisciplinary team
- Define Time Zero
- Early Identification: Screening Tools
  - Sepsis Bundle < 3 hours
  - Labs/Antibiotics/Fluids

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**Keys to Survival**

- Early identification – Staff education
  - Staff education is key.
  - Subtle signs and symptoms
- Timely treat infections with appropriate antibiotics
  - For every hour antibiotics are delayed in septic shock, the patient’s risk of death increases by 7.6%.
  - The single most important intervention in treating sepsis
- Source control
  - Antibiotics
  - Surgery
- Resuscitation with IV fluids and vasopressors if necessary (hemodynamic bundle)
- Emergency supportive care for acute organ dysfunction
  - Ventilator; Continuous Renal Replacement Therapy (CRRT); Prone Positioning

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**Summary**

- Septicemia is the 3rd leading cause of death behind heart disease and cancer
- Septicemia was the most expensive diagnosis in 2011 ($20.3 billion)
- Septicemia burden - 4,600 new patients per day treated in the US
- 500 - 1000 patient’s per day die
- 2009 In-patient mortality rate - 16%; > 8X higher than for all other diagnoses (2%)

Opportunity exits to save lives
Resources

▪ What is qSOFA?  http://qsofa.org/what.php
▪ The Top Five Most Expensive Conditions Treated in U.S. Hospitals HCUP Statistical Brief PB0
  http://www.hcup-us.ahrq.gov/reports/statbriefs/statbriefs.jsp
▪ Wesly Healthcare Transfer Trigger Tool
▪ CDC Evaluation for Severe Sepsis Screening Tool
▪ Protect Your Patients From Sepsis
  https://www.cdc.gov/sepsis/pdfs/HCP_infographic_protect-your-patients-from-sepsis_508.pdf
▪ Proportion and Cost of Unplanned 30-day Readmissions After Sepsis Compared with Other Medical Conditions
  http://jamanetwork.com/journals/jama/fullarticle/2598785?alert=1
▪ Surviving Sepsis Campaign
  http://www.survivingsepsis.org/Guidelines/Pages/default.aspx
▪ Minnesota Hospital Association Sepsis Website
▪ Institute for Healthcare Improvement (IHI) Sepsis: Putting the Pieces Together
  http://www.ihi.org/resources/Pages/ImprovementStories/SepsisPuttingThePiecesTogether.aspx
▪ Centers for Disease Control and Prevention: Sepsis Clinical Resources
  https://www.cdc.gov/sepsis/clinicaltools/index.html
▪ Sepsis Alliance Website: Sepsis and Aging
  https://www.sepsis.org/Leading infection prevention education across the Rocky Mountain Region

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Sepsis Awareness

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