Earlier Identification of Sepsis in the Pre-hospital Setting

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Objectives

• By the end of this presentation the participant will be able to identify and discuss sepsis criteria.
• By the end of this presentation the participant will be able to navigate sepsis screening tool(s).
• By the end of this presentation the participant will be able to utilize strategies to identify sepsis in the pre-hospital setting.
Sepsis is a life-threatening emergency where each year at least 1.7 million adults in America develop and close to 270,000 die (CDC, 2019).

Sepsis is a chain reaction in the body in response to infection.

Sepsis requires timely identification and prompt intervention to reduce mortality.

The staggering number of adults in America who die from sepsis warrant the need for modalities to target early recognition and intervention.

Current projects: “Get Ahead of Sepsis”; ”Surviving Sepsis Campaign”
Literature Review

- Literature review to identify current methods in place for pre-hospital sepsis screening by first responders
  - Articles selected from 2010 through 2018 via CINAHL database
  - Keywords: sepsis, pre-hospital sepsis screening, early sepsis identification, qSOFA, SIRS
- There is not a valid tool for pre-hospital screening of sepsis
- One study applied the qSOFA score to pre-hospital patients with a 66.67% positive predictive value
  - The qSOFA is a score that could be further studied in the pre-hospital setting
• Retrospective chart analysis
• 300 charts were selected from January 1, 2017-June 30, 2018
  – Patients who had an ER diagnosis of sepsis (ICD10); Adults (18 years of age or older); Arrived by ambulance
• Exclusion Criteria
  – Patients transferred from other hospitals for higher level of care; Pediatrics (less than 18 years of age); Non-septic; Pregnancy; HIV/AIDS; Normal lactic acid level
• Data collected
  – ER arrival time; disposition; LOS; age; sex; mode of arrival; time of alert; prehospital intervention; chief complaint; primary diagnosis; vitals; fluids; antibiotics
• A SIRS and qSOFA score assigned to each of the the cases to determine how many patients may have screened positive for sepsis in the pre-hospital setting
  – A rechecked score with SIRS + mental status and SIRS + blood pressure
## Data Analysis & Results

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>PERCENTAGE OF CORRECT SEPSIS DIAGNOSIS</th>
<th>NOT DIAGNOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODIFIED SIRS</td>
<td>50.6%</td>
<td>49.4%</td>
</tr>
<tr>
<td>MODIFIED SIRS + BLOOD PRESSURE</td>
<td>63.3%</td>
<td>36.7%</td>
</tr>
<tr>
<td>MODIFIED SIRS + MENTAL STATUS</td>
<td>64.7%</td>
<td>35.3%</td>
</tr>
<tr>
<td>QSOFA</td>
<td>33.4%</td>
<td>66.5%</td>
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</tbody>
</table>
There is a minimal literature evaluating pre-hospital sepsis screening by first responders.

Prehospital sepsis screening is currently presumptive and based on clinical assessment.

Both the SIRS and qSOFA scores were used to retrospectively screen 300 patients transferred to the emergency room by first responders.

- Utilizing the SIRS with modification in the pre-hospital setting could allow for earlier recognition and treatment of sepsis.
Further studies evaluating the use of sepsis screening tools in the pre-hospital setting
  – Modified SIRS
• Determine why patients are septic (comorbidities)
• Identifying the knowledge gap in the pre-hospital setting among first responders
• Providing a formal Sepsis Education Program for first responders
  – Education would also need to include emergency room nursing and providers
• Implementing the qSOFA or SIRS with modification in the pre-hospital setting
• Evaluating the impact of sepsis screening in the prehospital setting


