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# 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.

# Background & Significance of Sepsis

- 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

# Methods

- 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

| MEASURES | PERCENTAGE OF CORRECT SEPSIS DIAGNOSIS | NOT DIAGNOSED |
|---|---|---|
| MODIFIED SIRS | 50.6% | 49.4% |
| MODIFIED SIRS + BLOOD PRESSURE | 63.3% | 36.7% |
| MODIFIED SIRS + MENTAL STATUS | 64.7% | 35.3% |
| QSOFA | 33.4% | 66.5% |

# Conclusion

- 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

# Recommendations

- 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

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