

IDENTIFYING SEPSIS IN THE PRIMARY CARE SETTING

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By

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## CHAPTER 1: INTRODUCTION

According to the National Institute of General Medical Sciences (2018), each year more than 1 million people are affected by sepsis. Sepsis is a serious medical condition that is caused by the body's "life threatening response to an infection, which can lead to tissue damage, organ failure, and death (Sepsis Alliance, n.d., para. 1). Anyone with an infection can develop sepsis. Signs and symptoms of sepsis include: tachycardia, tachypnea, altered level of consciousness, hyperthermia/hypothermia, and difficulty breathing (Centers for Disease Control and Prevention [CDC], 2018). According to an article by WorldSepsisDay.org (2015), some of the best medical centers in industrialized countries have doubled patients' chances of survival from sepsis. However, only 10-30% of patients diagnosed with sepsis receive the care they need.

Sepsis affects people regardless of race or socioeconomic status. However, people in certain groups have a higher incidence of sepsis. People most commonly affected by sepsis are those greater than 65 years of age or less than 1 year, people who have a chronic condition, or those with a weakened immune system. Between 28% and 50% of those diagnosed with sepsis expire (Karnatovskaia & Festic, 2012). Many people who are diagnosed with sepsis and treated aggressively and appropriately recover completely with almost no resultant deficits. However, other people may experience permanent organ dysfunction. People are more likely to experience permanent effects if they have preexisting chronic conditions (National Institute of General Medical Sciences, 2018).

According to the National Institute of General Medical Sciences (2018), sepsis is the most expensive condition treated in hospitals in the United States. More than \$20 billion was spent on treatment for sepsis in 2011. Patients with sepsis have longer hospital and intensive care

unit stays. Patients with sepsis are also two to three times more likely to be readmitted to the hospital. Readmissions for sepsis cost hospitals an average of two to three times what readmissions from other conditions cost.

Because more and more patients are being diagnosed with sepsis and the cost of treating these patients is also rising, researchers are exploring tools and methods for earlier recognition and treatment of the condition. Many acute care settings have implemented sepsis screening tools in an attempt to promptly identify patients who are septic. Once patients meet criteria, they receive aggressive treatment with fluid resuscitation and antibiotics. If identified soon enough, the positive outcomes for the patient are significantly higher and the cost to the hospital is significantly lower (National Institute of General Medical Sciences, 2018).

As the incidence of sepsis increases, primary prevention is vital. There has been a large push for early recognition and treatment in the acute care setting. Much research has been conducted regarding sepsis in the acute care setting; however, little to no research has examined the early identification of sepsis in the primary care setting. Further research needs to be conducted on this topic in the primary care setting (CDC, 2018). Research that has been conducted in the acute care setting shows that early recognition and treatment lead to more positive outcomes.

Research needs to be conducted in the primary care setting to see if sepsis can be identified and treated in this type of setting and what the outcomes would be. Therefore, this scholarly project was initiated in the primary care setting to determine whether primary care providers can recognize and identify the signs and symptoms of sepsis. The research was accomplished through a systematic literature review as well as a survey of healthcare providers in the primary care setting on their knowledge of sepsis.

## CHAPTER 2: REVIEW OF THE LITERATURE

The researcher conducted a systematic literature review to identify current research regarding patients presenting with sepsis in the acute care setting. Specifically, the researcher examined literature describing the effects of rapid identification and treatment. The goal of the literature review was to establish whether early identification and treatment led to improved patient outcomes.

### Literature Review Strategy

The literature review search was completed utilizing multiple online databases. Databases that were searched were CINAHL, EBSCO, UpToDate, and NCBI. Peer-reviewed evidence-based research was the primary search criterion. Studies searched included both quantitative and qualitative analyses. Search terms were: *sepsis in acute care*, *sepsis*, *sepsis in primary care*, and *sepsis in the emergency room*. Although much research has been done on sepsis in the acute care setting, there is a gap in the research concerning identifying and treating sepsis in the primary care area.

### The Literature

Finding articles related to identifying sepsis in the acute care setting was not difficult. However, the researcher was unable to find research on identifying sepsis in the primary care setting. The researcher found four studies that are applicable to the current research study. They are described below and their important features are summarized in the literature review matrix (Table 1) at the end of this chapter.

**Shock Index and Early Recognition of Sepsis in the Emergency Department: Pilot Study**

Berger et al. (2013) studied the relationship between a shock index and severe sepsis and clinical outcome. They conducted a retrospective analysis of a cohort of adult patients admitted through the emergency department with a suspected infection and screened for sepsis. A total of 2,524 patients were included in this study. The researchers used a standardized order set (shock index) to screen patients for sepsis. They found that when sepsis was identified early in the emergency room and treated aggressively, patient outcomes improved significantly. Shock index is a tool that can be used not only as a tool for recognizing sepsis in the emergency room, but also as a bedside assessment tool.

This research article is useful for the current research project because it shows that the implementation of a sepsis screening tool/shock index is beneficial in the acute care setting. Because of its demonstrated effectiveness, the researchers believe that the use of this tool in the primary care setting would also produce positive outcomes.

**Triage Sepsis Alert and Sepsis Protocol Lower Times to Fluids and Antibiotics in the Emergency Department**

According to Hayden et al. (2015), sepsis remains a significant cause of mortality and morbidity throughout the United States. Over 1 million people are affected by sepsis each year. Hayden et al. implemented a sepsis work-up and treatment (SWAT) protocol that emphasized standardized order sets, fluid resuscitation, and antibiotic administration. The researchers hypothesized that use of a SWAT protocol would lead to significant reductions in treatment administration times as well as decrease overall mortality. This was a retrospective, quasi-experimental study of 238 patients before and after the SWAT protocol was implemented. All patients were

suspected of having an infection. The researchers found that those treated using the SWAT protocol had earlier intervention and better outcomes than those in the pre-SWAT group (Hayden et al., 2015).

This study demonstrated a significant reduction in time intervention, once patients were identified with sepsis. Therefore, the researcher believes this research is also applicable in the primary care setting.

### **Mortality Risk Factors for Patients with Septic Shock after Implementation of the Surviving Sepsis Campaign Bundles**

Despite advances within critical care management, septic shock remains the leading cause of death in non-coronary critical care hospital units. Song et al. (2016) conducted a retrospective study of 436 patients in the emergency room who received treatment for septic shock following the Surviving Sepsis Campaign bundles. They evaluated the patients for risk of mortality after treatment. The researchers found that patients who received treatment with the bundles had lower 7-day and 28-day mortality rates.

### **Identification of Adults with Sepsis in the Prehospital Environment: A Systematic Review**

The early identification of sepsis has the potential of decreasing intervention times, which could lead to improvement of patient outcomes. Smyth, Brace-McDonnell, and Perkins (2016) compared use of a screening tool to identify sepsis with use of clinician judgment alone. The data from their literature review showed that accuracy of sepsis recognition varied considerably among clinicians. Thus, the researchers reported, sepsis recognition in emergency medical systems is highly variable. The researcher for the current study believes that use of a standardized screening tool throughout emergency medical systems would lead to more positive outcomes and less variance among clinicians. The Smyth et al. study was included in this review because it was

one of the few studies that collected data on the identification of sepsis outside the acute care setting. For this reason, the researcher believes this to be a valuable article.

### **Synthesis of Results**

The findings from the research studies reviewed demonstrate that a large amount of research has been conducted on identifying sepsis in the acute care setting. The research also shows that early identification and treatment in patients identified as septic leads to better outcomes than identification at a later time.

Table 1

*Literature Review Matrix*

| <b>Author (year), Country</b>                 | <b>Dependent Variables</b>                       | <b>Independent Variables</b>              | <b>Study Design</b>               | <b>Sample Size</b> | <b>Data Type</b> | <b>Conclusion</b>  | <b>Limitations</b>  |
|---|--|---|-----------------------------------|--------------------|------------------|--|---|
| Berger et al. (2013), USA                     | Recognition of sepsis                            | Shock Index                               | Retrospective cohort study        | 2,524              | Quantitative     | Shock index is an effective and no-cost tool that permits early identification of sepsis   | Data were collected via chart review. The mean age of the cohort was 73.                    |
| Hayden et al. (2016), USA                     | SWAT sepsis protocol                             | Treatment administration times, mortality | Retrospective, quasi-experimental | 238                | Quantitative     | Patients treated with SWAT protocol had earlier interventions and better outcomes  | A single site was used; different methods used to identify pre and post intervention groups |
| Smith, Brace-McDonnell, & Perkins (2016), USA | Recognition of sepsis                            | Tool vs clinician judgment alone          | Systematic review                 | NA                 | Qualitative      | Sepsis screening highly variable; more research needed on value of implementing a sepsis screening tool in the prehospital setting | Systemic Review; not many EMS used sepsis screening tools                                   |
| Song et al. (2016), Korea                     | Treatment with Surviving Sepsis Campaign bundles | Risk of mortality                         | Retrospective cohort study        | 436                | Qualitative      | 7- and 28-day mortality decreased with use of bundles  | Only one hospital was utilized; a retrospective study                                       |

### **CHAPTER 3: METHODOLOGY**

This research addressed the question of whether healthcare providers in the primary care setting could properly identify sepsis and recognize its presentation in patients. The researcher used a survey instrument to assess the knowledge base of clinicians in a primary care setting in regard to sepsis. Participants were asked to identify which patients did or did not meet sepsis criteria according to the Surviving Sepsis Campaign guidelines (SurvivingSepsis.org, 2018).

#### **Setting and Participants**

Convenience sampling was utilized in this study. The researcher attempted to use a social media post via the Facebook group “ShowMeYoursStethoscope.” However, after contacting multiple administrators, none returned the researcher’s request for permission to post the survey in the group. Participants were recruited from the clinical sites at which the researcher precepted. The researcher also sent surveys to former colleagues with whom she had worked with. Participants were recruited on a voluntary basis; the inclusion criterion was working in the primary care setting. The sample size depended on the total number of volunteers. The researcher hoped to achieve a sample size of 45-55 participants. However, only nine individuals voluntarily completed the online survey. Therefore, the sample size was nine.

#### **Ethical Approval and Consent**

The researcher was granted approval to conduct this study by Fresno Pacific University International Review Board (IRB) on July 9, 2018 (Appendix A). Patient recruitment began on July 31, 2018. An informed consent form (Appendix B) was provided to the participants and completed before the survey was administered. All appropriate and ethical precautions were taken in order to keep participants’ information safe, secure, and anonymous.

### **Instrumentation**

The survey instrument contained 23 items. These items were used to assess the participants' overall knowledge base regarding sepsis as well as find out what type of role participants played in the primary care setting. Eight of the items presented scenarios in which a patient presented to a medical facility with specific symptoms; participants were asked to determine whether the patient appeared to have sepsis. Multiple-choice and true/false questions were utilized.

### **Data Collection and Analysis**

Participants completed their surveys via the website [surveymonkey.com](https://www.surveymonkey.com). Recruitment began on July 31, 2018, and ended on November 3, 2018. Demographic information was solicited, including the participant's role in primary care, location inside or outside of the United States, and number of years in practice. The survey also asked participants to properly identify whether a patient met sepsis criteria according to the Surviving Sepsis Campaign Guidelines.

### **Timeline**

The researcher conducted the research on the time table depicted in Table 2. The timeline indicates dates for the various components of this research project: developing the project, conducting the research, and submitting the project to the university. The results are presented in chapter 4.

Table 2

*Research Project Timeline*

| Date (2018)       | Task  |
|-------------------|---|
| May/ June         | <ul style="list-style-type: none"> <li>• Complete Proposal</li> <li>• Meet with Committee</li> </ul>  |
| July/August       | <ul style="list-style-type: none"> <li>• Institutional Review Board Proposal and Application Submission</li> <li>• Patient Recruitment</li> <li>• Patient Consent</li> </ul>  |
| September/October | <ul style="list-style-type: none"> <li>• Patient Recruitment</li> <li>• Patient Consent</li> <li>• Data Collection</li> </ul>   |
| November/December | <ul style="list-style-type: none"> <li>• Submit Data for Statistical Analysis</li> <li>• Complete Analysis of Findings, Discussion and Research</li> <li>• Finalize References/Appendix</li> <li>• Submit to the Editor</li> <li>• SUBMIT THESIS PROJECT</li> </ul> |

## **CHAPTER 4: RESULTS**

This research examined whether participants could properly identify a patient who met sepsis criteria in the primary care setting. This research also examined how often participants came in contact with patients who they would consider met sepsis criteria. This study had nine participants. The participants completed a survey to which they were asked to provide honest answers. All nine participants completed all aspects of the survey.

### **Demographics of Participants**

Although the sample size of this study was small, the participants were diverse in regard to background and geographic location. The sample consisted of one physician (11.11%), four nurse practitioners (44.44%), one registered nurse (11.11%), and three participants who identified as other medical professionals (33.33%). Of the nine participants, seven (77.78%) worked in the primary care setting in the United States and two (22.22%) lived outside of the United States. Four of the participants (44.44%) had practiced in the healthcare field for over 16 years, four had practiced fewer than 5 years (44.44%), and one participant had practiced 5-10 years (11.11%). See Table 3.

### **Knowledge of Sepsis**

The results of this survey indicate that most primary care providers can describe the diagnosis criteria of sepsis (88.89%). However, most of the participants were unable to properly define severe sepsis (22.22%) and septic shock (11.11%). Table 4 exhibits these results.

The goal of this survey was to see if healthcare providers in the primary care setting could properly identify patients who met sepsis criteria according to the Surviving Sepsis Campaign guidelines. Of the nine participants, none was able to correctly identify every patient who met inclusion criteria for sepsis workup. Of the eight scenario questions, only one was answered cor-

rectly by all nine participants. Of the 23 items on the survey, 8 had to do with properly identifying patients who met inclusion criteria for a sepsis workup. Of the nine participants, one participant (11.11%) correctly identified whether the eight patients met or did not meet workup criteria. Three participants (33.33%) were able to appropriately identify six of the eight patients' needs appropriately. One participant (11.11%) appropriately identified five patients correctly. Two participants (22.22%) identified four patients' needs correctly. Two participants (22.22%) appropriately identified only three patients needs correctly (Table 4).

Table 3

*Participants' Job Title and Number of Years Practicing (N=9)*

| Job Title                               | <i>n</i> (%) |
|---|--------------|
| Physician                               | 1 (11.11)    |
| Physician assistant                     | ---          |
| Nurse practitioner                      | 4 (44.44)    |
| Registered nurse                        | 1 (11.11)    |
| Other medical professional              | 3 (33.33)    |
| Nonmedical professional                 | ---          |
| Years practicing as healthcare provider |              |
| Fewer than 5                            | 4 (44.44)    |
| 5-10                                    | 1 (11.11)    |
| 11-15                                   | ---          |
| > 16                                    | 4 (44.44)    |

Table 4

*Participants Able to Properly Define Sepsis, Severe Sepsis, and Septic Shock (N=9)*

| Definition    | <i>n</i> | %     |
|---------------|----------|-------|
| Sepsis        | 8        | 88.89 |
| Severe sepsis | 2        | 22.22 |
| Septic shock  | 1        | 11.11 |

Three of the nine participants worked in a facility that had a screening tool in place for identifying patients with sepsis (Table 5). When asked how often they saw/treated patients meeting sepsis criteria for a workup, one participant reported seeing/treating patients on a monthly basis, three participants reported seeing such patients yearly and four were unsure (Table 6)

Table 5

*Participants Whose Facility Had Sepsis Screening Tool in Place (N=9)*

| Tool in Place | <i>n</i> | %     |
|---------------|----------|-------|
| Yes           | 3        | 33.3  |
| No            | 6        | 66.66 |

Table 6

*Frequency Seeing a Patient Meeting Criteria for Workup (N = 9)*

| Frequency | <i>n</i> | %     |
|-----------|----------|-------|
| Daily     | 0        | 0     |
| Weekly    | 0        | 0     |
| Monthly   | 2        | 22.22 |
| Yearly    | 3        | 33.33 |
| Unsure    | 4        | 44.44 |

## **CHAPTER 5: DISCUSSION**

Although this was a small study, participants were diverse. Physicians, nurse practitioners, registered nurses, and other medical professionals took part in the survey. Of the nine participants, seven worked in the United States and two worked outside of the United States. The research showed that although 88.89% of participants were able to properly define sepsis, only one participant (11.11%) was able to appropriately identify all the patients presenting in the survey scenarios who met inclusion criteria for a sepsis workup.

### **Limitations**

Several factors limited this research study. The largest factor affecting the study was the small sample size. Due to unforeseen issues with social media broadcasting, only nine participants completed the survey. Because of such a small sample size, the researcher cannot definitively conclude that the findings showed any substantial evidence as to whether healthcare providers in the primary care setting can properly identify a patient meeting sepsis criteria. Because the researcher was unable to effectively use social media to its fullest potential, many of the nine participants worked in the same rural healthcare facility. Both the small sample size and the limited number of research sites limit the results from presenting a broad enough picture to identify who can or cannot appropriately identify sepsis in the primary care setting.

### **Implications for Nursing Practice**

Sepsis leads to approximately 6 million deaths per year worldwide (World Health Organization, 2018). Because sepsis is a leading killer today, it is important for advanced practice registered nurses to be able to properly identify and treat sepsis. Early recognition is key to better outcomes. Healthcare providers must be able to identify patients who meet sepsis criteria.

The results of this study showed that participants possessed knowledge about the definition of sepsis (88.89%). However, the vast majority of participants were unable to properly identify which patients met inclusion criteria for a sepsis workup and which did not. Although some participants worked at facilities that have implemented sepsis screening tools (33.33%), they were still unable to properly identify which patients met inclusion criteria.

### **Recommendations for Future Research**

Because sepsis kills has a high mortality rate and early intervention saves lives, more research needs to be conducted that would help healthcare professionals identify the condition in the primary care setting. The results of this study suggest that neither knowledge of sepsis nor access to a sepsis screening tool may be sufficient to ensure recognition of sepsis in the primary care setting. Therefore future researchers should evaluate the effectiveness of provider education and specific screening tools.

Future researchers who may replicate this study would benefit from a larger sample size. It could also be useful to compare the knowledge base of primary care healthcare providers in the United States and those in other countries.

### **Conclusion**

The World Health Organization (2018) estimates that every year more than 30 million people are affected by sepsis. The Surviving Sepsis Campaign has brought greater global awareness to the problem of sepsis and how to treat it in the acute care setting. However, limited research has been conducted on identifying sepsis in the primary care setting. The purpose of this project was to identify whether healthcare workers in the primary care setting could properly identify a patient who met sepsis criteria. Due to the small sample size, this study was unable to determine if healthcare workers in the primary care setting were able to properly identify patients who met inclusion criteria for identifying sepsis.

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**APPENDICES**

**Appendix A**

## Fresno Pacific University IRB Approval

Dear Madalynn,

The IRB has approved your IRB proposal as expedited, numbered 1718.228. Data collection may now begin. Please be advised, however, of the following stipulations of approval: **NONE.**

- FPU IRB approval for proposal 1718.228 expires one year from the date of approval. If data collection should need to take place after [ONE YEAR FROM DATE OF APPROVAL], you will need to submit a “Research Project Continuation” form (available on the FPU website).

- If you decide to make any changes in your study, you must submit those changes to the IRB within three (3) working days and wait for approval by the IRB before you implement them (i.e., changes in the study’s methodology, investigator, consent forms, etc.).

- If any unanticipated risks or new information that may impact the risks and/or benefits to study participants arise, you must report them to the IRB within three (3) working days and wait for their approval by the IRB before continuing with your study.

- If any serious and unexpected adverse event occurs, it must be reported to the IRB within twenty-four (24) hours. Less serious adverse events must be reported to the IRB within three (3) working days.

The IRB maintains the authority to terminate or suspend approval of research that is not being conducted in accordance with the proposal approved by the IRB or that has been associated with unexpected serious harm to subjects.

Please keep a copy of this e-mail for your records. Should you have any questions or concerns, please do not hesitate to contact me. Please note, all IRB requests will now be processed through The Office of Institutional Research, as of 3/1/2016. You can reply directly to [IRB@fresno.edu](mailto:IRB@fresno.edu) or at (559) 453-7161.

-INSTITUTIONAL REVIEW BOARD

**Appendix B**  
Consent Form

**Identifying Sepsis in the Primary Care Setting Consent**

Disclaimer: I am participating in a voluntary research study. By completing this survey, I am giving my permission for the information collected from this survey to be used for the purpose of data collection. I understand that I can withdraw from the study, without repercussions, at any-time, whether before starting the survey or while I am participating. I understand that open, honest answers are being sought in this survey. I understand that my anonymity will be ensured during this research and publication process

Yes

No

## Appendix C Sepsis Questionnaire

### Identifying Sepsis in the Primary Care Setting Quiz

1. What is your current Title
  - a. Physician
  - b. Physician Assistant
  - c. Nurse Practitioner
  - d. Registered Nurse
  - e. Other Medical Professional
  - f. Non medical professional
  
2. How many years have you been working as a health care provider?
  - a. Less than 5 years
  - b. 5-10 years
  - c. 11-15 years
  - d. >16years
  
3. Are you currently practicing within the United States or Outside of the United States?
  - a. Within the United States
  - b. Outside of the United States
  
4. What does SIRS Stand for?
  - a. Suspected infection related to sepsis
  - b. Systemic inflammatory response syndrome
  - c. Surgery is required Stat
  - d. Systemic inflammatory response is starting
  
5. Which of the following is not part of SIRS Criteria
  - a. Temperature >100.4 or <96.8
  - b. Heart Rate >85 beats per minute
  - c. Respiratory Rate > 20 breaths per minute
  - d. White blood cells >12,000 or <4,000
  
6. What is sepsis
  - a. An infection in the blood
  - b. A contagious disease
  - c. The body's toxic response to an infection
  - d. None of the above
  
7. Sepsis plus at least one sign of hypoperfusion or organ dysfunction is known as septic shock?
  - a. True
  - b. False
  
8. Severe sepsis is sepsis associated with hypotension despite adequate fluid resuscitation
  - a. True
  - b. False

9. What age range is at the highest risk for becoming septic?
- Children 3-10 years
  - 18-25 years
  - 26-64 years
  - 65 years or older
10. Which is a risk factor for developing sepsis?
- Cancer
  - Chronic Obstructive Pulmonary Disorder
  - Bacterial Infections
  - All of the above
  - None of the above
11. Sepsis can develop from
- Urinary Tract Infection
  - Insect Bite
  - Cut on the body
  - All of the above
  - None of the above
12. The symptoms of sepsis can present differently between children and adults. Which of the following is a symptom of sepsis in the pediatric population:
- Tachypnea
  - Tachycardia
  - Lethargy
  - All of the above
  - None of the above
13. Which of the following is the correct order of severity for sepsis?
- Sepsis, septic shock, severe sepsis
  - Septic shock, severe sepsis, sepsis
  - Sepsis, Severe sepsis, Septic shock
  - Septic shock, sepsis, severe sepsis

#### Scenario Questions

14. A 65-year-old male is here for follow up on his diabetes and hypertension. The patient states he trimmed his own toe-nails and cut his skin. The patients vitals are: BP: 110/79, Heart Rate: 95, Respiratory Rate: 21, Temperature 98.7 Fahrenheit orally. Based on the Surviving Sepsis Guidelines, does the patient meet criteria for sepsis workup?
- Yes
  - No
15. A 90 year old female is brought in by her daughter for a follow up on her blood pressure. The patient is not normally confused however her daughter states for the past two days she is becoming increasingly more confused. The patients vitals are: Blood Pressure: 90/50, Heart Rate: 95, Respiratory Rate: 21, Temperature: 98.9 Fahrenheit orally. Based on the Surviving Sepsis Guidelines, does the patient meet criteria for a sepsis workup?

- a. Yes
  - b. No
16. A 70 year old female is brought into the clinic by her spouse complaining of a productive cough for two weeks and it is getting worse. Vitals are: Blood Pressure: 110/70, Heart Rate: 100, Respiratory Rate: 22, Temp 98.6 Fahrenheit orally. Based on the Surviving Sepsis Guidelines, does the patient meet criteria for a sepsis workup?
- a. Yes
  - b. No
17. An 18 year old female comes to the clinic complaining of Lower abdominal pain with on and off fever for 3 days. HCG test is negative. Vitals are as follows: Blood Pressure: 90/60, Heart Rate: 91, Respiratory Rate: 21, Temperature: 98.5 Fahrenheit axillary. Based on the Surviving Sepsis Guidelines, does the Patient meet criteria for a sepsis workup?
- a. Yes
  - b. No
18. An infant is brought to the clinic for his 6 month check up. His vitals are as follows: Blood Pressure: 78/60 Heart Rate: 140, Respiratory Rate: 50, Temperature: 98.7 Fahrenheit orally. Based on the Surviving Sepsis Guidelines, does the patient meet criteria for sepsis workup?
- a. Yes
  - b. No
19. A father brings in his 2 year old stating she has had a cough for three days and is sleeping longer than normal. He thinks it could just be teething. Her vitals are as follows: Blood Pressure: 90/58 Heart Rate: 105, Respiratory Rate: 31, Temperature: 100.4 Fahrenheit rectally. Based on the Surviving Sepsis Guidelines, does the patient meet criteria for sepsis workup?
- a. Yes
  - b. No
20. A 12 year old male is in the office for a sports physical. He denies any concerns/issues. His vitals are as follows: Blood Pressure: 110/70 Heart Rate: 57, Respiratory Rate: 22, Temperature: 99.9 Fahrenheit axillary. Based on the Surviving Sepsis Guidelines, does the patient meet criteria for sepsis workup?
- a. Yes
  - b. No
21. Mother brings in her 11 month old daughter for a fever X 2 days. The patient is alert and in no apparent distress. Her vitals are as follows: Blood Pressure: 92/60 Heart Rate: 140, Respiratory Rate: 40, Temperature: 99.5 Fahrenheit rectally. Based on the Surviving Sepsis Guidelines, does the patient meet criteria for sepsis workup?
- a. Yes
  - b. No
22. Does that facility you currently work in have a screening tool for identifying sepsis?

- a. Yes
- b. No

23. How often do you see/treat a patient that meets the criteria for a sepsis workup?

- a. Daily basis
- b. Weekly Basis
- c. Monthly Basis
- d. Yearly Basis
- e. Unsure

# IDENTIFYING SEPSIS IN THE PRIMARY CARE SETTING

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## INTRODUCTION

Each year, sepsis leads to approximately six million deaths worldwide. Because of this, early recognition and treatment is key. It is imperative that medical professionals can appropriately identify patients meeting criteria for a sepsis workup.

There is a small timeframe when treatment needs to be initiated, in order for morbidity and mortality rates to decrease. If healthcare providers do not know how to appropriately identify patients, this critical window of opportunity could be missed.

Vast amounts of research has been conducted on identifying sepsis in the acute care setting. However, little research has been conducted on identifying sepsis in the primary care setting.

The goal of this scholarly project was to gain insight as to whether or not healthcare providers in the primary care setting could properly identify which patients met inclusion criteria and which did not.

## METHODS

In this study, convenience sampling was utilized. IRB approval was obtained on July 9, 2018. The survey was opened on August 19, 2018 and closed on November 9, 2018. Participants were recruited on a voluntary basis.

The survey questionnaire was composed of 23 multiple choice and yes/no questions. Both paper and electronic format were used. The electronic format was created using the website SurveyMonkey.com.

Of the nine participants, all nine completed the survey in its entirety. For the participants who completed a paper survey, their questionnaires were imputed into SurveyMonkey.com for analysis.

There was diversity among participants in regard to geographic location and professional role. Participants were located within and outside of the United States and included: Nurse practitioner's, registered nurse, other medical professionals and a physician



## RESULTS

1. Of the nine participants, 88.89% were able to appropriately define sepsis, 22.22% properly identified Severe sepsis and 11.11% accurately defined septic shock.

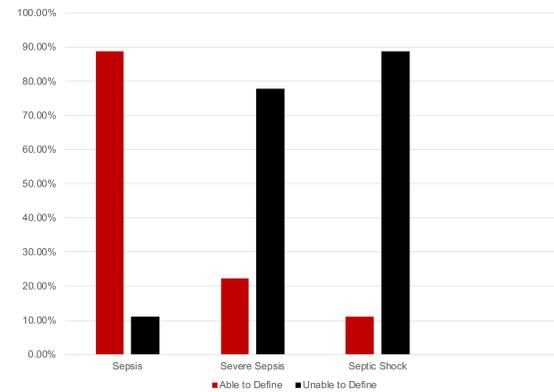
2. 22.22% of participants stated they saw patients who met sepsis criteria on a monthly basis, 33.33% on a yearly basis and 44.44% of participants were unsure how often they saw a septic patient.

3. 33.33% worked in facilities which currently used some type of screening tool for identifying sepsis, 66.67% stated they worked in a facility that had not implemented a screening tool.

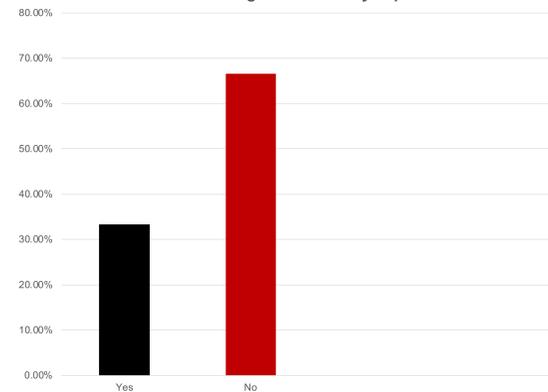
4. Of the nine participants, one was able to appropriately identifying which patients met inclusion criteria and which did not (11.11%). Three participants (33.33%) appropriately identified 6 patients, one participant (11.11%) identified 5 patients correctly, 2 participant's (22.22%) Identified 4 patients correctly and 2 participants (22.22%) identified three patients correctly.



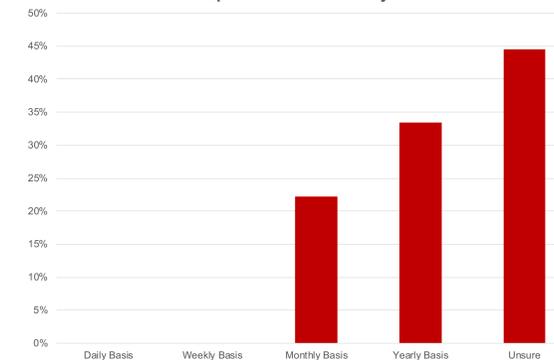
1. Definitions



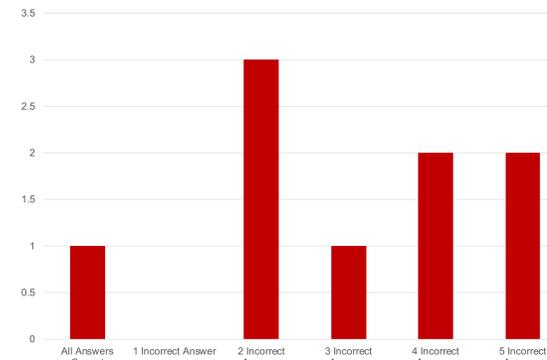
3. Screening Tool to Identify Sepsis



2. Septic Patients in Primary Care



4. Scenario Questions

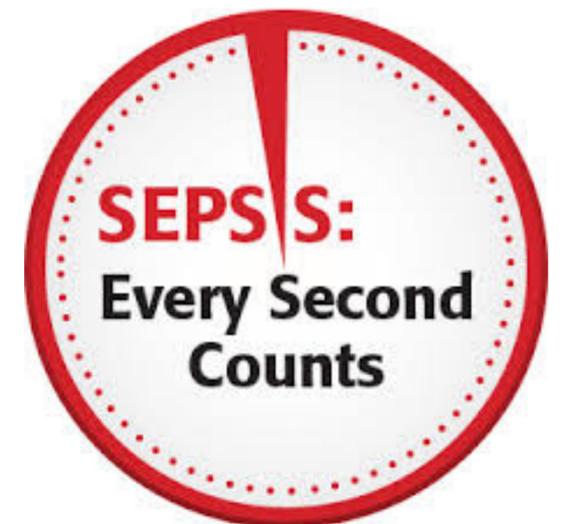


## DISCUSSION

Each year more than 30 million people are affected by sepsis. It is imperative that healthcare providers can appropriately identify and treat patients with sepsis.

This project showed that although providers in the primary care setting could properly define sepsis, the vast majority of them could not appropriately identify patients meeting inclusion criteria based on their physical presentation.

Many of the participants reported they were unsure how often they saw a patient that met sepsis workup criteria. Because of this future research could be aimed at identifying if there is a need



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