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# Educating Emergency Department Nursing Staff: Early Identification of Sepsis

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2025

Abstract

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MA, Phoenix University, 2015

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Project Submitted in Partial Fulfillment

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## Abstract

Sepsis remains a life-threatening health challenge, contributing to significant morbidity and mortality within healthcare systems. This Doctor of Nursing Practice (DNP) project aimed to address knowledge deficits among emergency room nurses regarding the early identification and management of sepsis, mainly through the implementation of the 3-hour sepsis bundle. The practice-focused question guiding this project was whether educating nurses on the 3-hour sepsis bundle would increase their knowledge. This project aimed to educate nurses on how to identify sepsis early and implement the sepsis 3-hour bundle in a timely manner, with the overall goal of improving nursing knowledge. The sources of evidence for this project supported the project. An educational intervention was provided to 30 nurses who voluntarily participated. Pretest and posttest questionnaires were administered to the participants. The analytical strategy used was a paired *t* test to statistically compare the nurses' knowledge scores from the pre- and post-education intervention assessments. The findings discovered substantial gaps in sepsis knowledge. The pretest scores averaged a 20% to 86.7% scoring range. Following the educational intervention, the posttest scores improved significantly, reaching 100% in the majority of knowledge areas. Statistical analysis confirmed the effectiveness of the educational intervention, with a paired *t* test yielding a *t* value of 8.45, *p* value of $< .001$. These results underscore the need for ongoing educational programs to enhance nursing competencies in sepsis management and early identification. Recommendations included establishing regular training sessions and integrating sepsis education into the onboarding process for new nursing staff.

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## Dedication

To my husband and three loving sons, whose unwavering support and encouragement have been my greatest strength throughout this journey, your love and belief in me have made this achievement possible.

Acknowledgments

I would like to take this opportunity to extend my deepest gratitude to my preceptor, Dr. Cassandra Washington, for her continuous support and encouragement in this journey. To Dr. Hubbard, who I will forever be in debt and thankful to, for her encouragement, dedication, and guidance as my chairman in this project. I would like to give a special mention to Dr. Holly as well, for her assistance throughout the completion of this project.

To my husband, who never gave up on me and who was always there to encourage me when I was feeling down and overwhelmed. To my children, who were always willing to help me when I needed help. Thank you all!! I thank God for his guidance and providing me with the strength, wisdom and perseverance needed to complete this work!!

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Section 1: Nature of the Project

## Introduction

There are 1.5 million cases of sepsis and 250,000 associated sepsis deaths every year (Van der Aart et al., 2025). Nearly 30 billion dollars were spent in the U.S. healthcare system treating sepsis in 2013 (Wei, Laing, & Vera, 2021). Van der Aart et al. (2025) termed sepsis as a body's systemic inflammatory response due to a source of infection transported throughout the circulatory system. Sepsis has become increasingly common in most healthcare facilities, and the failure to identify and administer prophylactic antibiotics places patients at increased mortality (Simon et al., 2022). In most instances, the condition is highly fatal but preventable. To prevent the deaths that result from the condition, one needs to diagnose the condition early enough and offer an intervention before complications develop in the patient. However, there has been a continued increase in mortality rates in most healthcare facilities, and it is attributable to a continued knowledge deficit among healthcare providers, including nurses (Rechter et al., 2022). The emergency room (ER) is the primary department of concern since it has the first contact with such patients and can provide intervention early in the cycle. The increased average wait times in the ER for such patients are a common contributor to most deaths resulting from sepsis (McVeigh, 2020). ER nurses are the first contact for patients seeking care and can assist with the early identification of sepsis. This early identification of sepsis by the nurse will trigger faster treatment (Papathanakos et al., 2024).

There is a gap in practice in a rural hospital in an ER located in south Georgia. For several years, the nurses had not received education on the 3-hour sepsis bundle or the latest sepsis protocols. In addition, the nursing administration noted that there had been delays in the identification of sepsis symptomatology and implementation of the 3-hour sepsis bundle. This Doctor of Nursing Practice (DNP) project was for nurses in the ER to use this knowledge to identify sepsis and implement the 3-hour sepsis bundle to improve patient outcomes. Early identification of sepsis by nurses is vital as the patient's condition could deteriorate rapidly, requiring respiratory and hemodynamic support to their vital organs (Vadhan et al., 2024). Nurses are critical in recognizing sepsis patients early and identifying evolving signs and symptoms (Papathanakos et al., 2024)

Through education and awareness campaigns, as well as hands-on experience with implementing the 3-hour bundle protocol, nurses will be able to promote social change within their respective communities by actively engaging local healthcare organizations on the benefits of implementing such protocols. With the education of both medical professionals and nonprofessionals regarding the importance of sepsis recognition and treatment, nurses are empowered to create a culture that values proactive care for individuals who may otherwise have limited access or resources available for treatment.

Additionally, research focused on identifying risk factors associated with sepsis could lead to more effective prevention methods as well as targeted interventions designed to reduce morbidity from this often-deadly medical situation. Working with other healthcare providers, especially nurses, can mean optimal healthcare changes, ensuring everyone can access quality care irrespective of insurance status or financial means. Ultimately, social change related to sepsis can be achieved through increased awareness combined with improved educational opportunities for clinicians across all levels of healthcare practice.

## Problem Statement

Threatt (2020) stated that sepsis affects millions of people worldwide and is the cause of death for many; the Surviving Sepsis Campaign (SSC) guidelines advocate using time-sensitive bundles for each patient. Bleakley and Cole (2020) further defined the 3-hour sepsis bundle as an intervention to be completed within 3 hours from when sepsis is first suspected. The bundle includes (a) obtaining a blood culture before antibiotics, (b) obtaining a lactate level, (c) administering broad-spectrum antibiotics, and (d) administering 30 mL/kg of crystalloid fluid for hypotension or lactate (> 4).

The leaders in a rural hospital in an ER located in south Georgia conducted a review of data, at which time, after analysis, it was determined that there were significant delays in the implementation of the 3-hour sepsis bundle (Bleakley & Cole, 2020). The most common reason for the delay of the 3-hour sepsis bundle was that nurses did not consider sepsis at the initial patient assessment during triage.

There was a gap in practice in a rural hospital in an ER located in south Georgia. For several years, the nurses had not received education on the 3-hour sepsis bundle. The nurses had not received education on the latest sepsis protocols. In addition, the nursing administration had noted that there had been delays in the identification of sepsis symptomatology and implementation of the 3-hour sepsis bundle.

This DNP project focused on nurses in the ER to understand their knowledge to identify sepsis and implement the 3-hour sepsis bundle to improve patient outcomes. Early identification of sepsis by nurses is vital as the patient's condition will deteriorate rapidly, requiring respiratory and hemodynamic support to their vital organs. Nurses are critical to recognizing sepsis patients' early, evolving signs and symptoms (Bleakley & Cole, 2020).

This project held great significance for the field of nursing practice in two ways. First, it enabled nurses to develop better clinical skills that are needed to accurately diagnose and promptly initiate treatment for patients with potential sepsis. Second, it offered a supportive platform to allow nurses to engage and share their learned best practices for the diagnosis and treatment of sepsis. Doing so helped promote evidence-based practice and encourage the development of consensus guidelines for treating this condition, which ultimately led to improved patient outcomes on a larger scale.

## Purpose Statement

There was a gap in practice in a rural hospital in an ER located in south Georgia. For several years, the nurses had not received education on the 3-hour sepsis bundle. The nurses had not received education on the latest sepsis protocols. In addition, the nursing administration had noted that there had been delays in the identification of sepsis symptomatology and implementation of the 3-hour sepsis bundle. Even with evidence that clearly supports early recognition and interventions would decrease severe sepsis mortality and morbidity, patients meeting severe sepsis criteria were missed (Deis et al., 2018). Educating ER nurses in a rural hospital in south Georgia on early sepsis identification supported the timely implementation of the 3-hour sepsis bundle. The timely implementation of the 3-hour sepsis bundle reduces morbidity and mortality in sepsis patients (Bleakley & Cole, 2020)

The practice focus question that guided this DNP project is: Will educating nurses on the 3-hour sepsis bundle increase their knowledge, thereby increasing sepsis patient outcomes? This project seeks to educate nurses on the 3-hour bundle administration in a rural hospital in an ER in south Georgia. Heffernan et al.'s (2024) research demonstrated that a lack of nursing knowledge of the 3-hour sepsis bundle resulted in adverse patient outcomes. This doctoral project had the potential to bridge the gap in practice by helping nurses in the ER to better identify sepsis and implement the 3-hour sepsis bundle to improve patient outcomes. Sepsis is a serious condition, one that requires rapid recognition and appropriate interventions for successful patient outcomes. To that end, this project sought to equip ER nurses with an understanding of how to recognize signs and symptoms of sepsis more accurately, as well as evidence-based approaches they could use when providing care. Through this project, nurses will be able to utilize their knowledge to prompt further assessment and investigation into a patient's condition if they present with any signs or symptoms indicative of sepsis. Furthermore, it enabled nurses to provide timely interventions based on the 3-hour sepsis bundle while simultaneously striving for improved patient outcomes by promoting early identification of patients who have sepsis.

## Nature of the Doctoral Project

The doctoral project is mainly directed at identifying the knowledge gaps in nurses regarding the early diagnosis and treatment of a patient presenting to the ER with sepsis. The project assessed the ER nurses' knowledge gaps and identified the knowledge level of the importance of early identification of sepsis and the importance of the 3-hour sepsis bundle. Conducting the project literature review, I identified relevant databases, including PubMed, CINAHL, and Cochrane Library, and conducted a comprehensive search using keywords such as "sepsis education," "emergency department," and "nursing." I also used snowballing techniques to identify additional relevant articles. I limited the included articles to those published in the last 10 years and in English-language journals. Articles were included if they were specific to sepsis education for ER nurses, and articles not included were those not related to the topic, literature reviews, and editorials. After identifying relevant articles, I undertook a critical appraisal of each article and synthesized the findings.

This project involved several steps, including pretests and posttests, which were used to gauge the impact of education and identify all areas for improvement. The pretests/posttests were conducted by administering a questionnaire to the 30 ER nurses to establish their knowledge regarding sepsis management. The PowerPoint presentation covered essential aspects of sepsis, such as understanding the definition, identifying patients at risk, early recognition, and effective management. The materials were designed to be interactive and easy to understand. These materials were reviewed by subject matter experts in sepsis management to ensure accuracy and effectiveness in meeting the project's objectives. The educational intervention was conducted over a 2-week period, during which the educational materials were presented to the ER nurses. The pre- and post-intervention knowledge scores of the ER nurses were compared using the paired *t* test.

## Significance

The hospital stakeholders for the project on sepsis education to ER nurses were multidisciplinary, including hospital administrators, nursing managers, ER physicians, nurses, patients, and their families. These stakeholders had vested interests in improving the quality of care for sepsis patients in the emergency department.

The potential contributions of the project to nursing practice included increased awareness and knowledge of sepsis among ER nurses, early recognition of sepsis signs and symptoms, prompt initiation of sepsis care bundles, better patient outcomes, and reduction in mortality rates, hospital readmissions, and cost of healthcare services. The project improved nurses' critical thinking, communication, and interprofessional collaboration skills, as they work closely with other healthcare providers to provide optimal sepsis care.

The project's transferability was facilitated by taking a multidimensional approach, including in-person classes, interactive cases, and using checklists.

The education project directed to ER nurses assisted in better patient outcomes for sepsis patients. The project's transferability deepened the impact related to sepsis awareness and made the benefits to other healthcare settings and communities even more accessible.

## Summary

Knowledge deficit among nurses was one factor that resulted in an increased incidence of deaths resulting from sepsis in healthcare facilities. Some areas where there was a deficit entail the knowledge in the early diagnosis of the condition and implementing the 3-hour sepsis bundle to reduce the mortality rate. The project was intended to train the nurse, specifically those in the emergency department, not only on the importance of timely implementation of the 3-hour bundle for sepsis but also on how to identify warning signs that might be suggestive of sepsis.

Most studies indicate that the mortality rate of sepsis is high in most healthcare facilities. According to a report by the Centers for Disease Prevention and Control, the mortality rate of sepsis accounts for up to 14.8 deaths per 100,000 individuals (Heffernan et al., 2024). The mortality rates resulting from sepsis were even higher in cases where there is late identification and early intervention. Such a finding indicated that an early diagnosis of the condition is largely important in reducing the risk of death from sepsis. With this knowledge, it is important that all healthcare providers are adequately trained on the early identification of sepsis signs and symptoms to ensure that they can offer an early intervention and assist the patient. There was a gap in practice in a rural hospital in an ER located in south Georgia. In several years, the nurses had not received education on the 3-hour sepsis bundle. The nurses had not received education on the latest sepsis protocols. In addition, the nursing administration had noted that there were delays in the identification of sepsis symptomatology and implementation of the 3-hour sepsis bundle.

The overall goal of this DNP project was for nurses in the ER to use this knowledge to identify sepsis and implement the 3-hour sepsis bundle to improve patient outcomes. Early identification of sepsis by nurses is vital as the patient's condition will deteriorate rapidly, requiring respiratory and hemodynamic support to their vital organs. Nurses are critical to recognizing sepsis patients' early, evolving signs and symptoms (Jefferson & Burns, 2020).

## Section 2: Background and Context

### Introduction

Most studies indicate that the mortality rate of sepsis is high in most healthcare facilities. According to a report by the Centers for Disease Control and Prevention (CDC), the mortality rate of sepsis accounts for up to 14.8 deaths per 100,000 individuals (Bleakley & Cole, 2020). The mortality rates resulting from sepsis are even higher in cases where there is late identification and early intervention. Such a finding indicates that an early diagnosis of the condition can be largely important in reducing the risk of death from sepsis. With this knowledge, it is important that all healthcare providers are adequately trained on the early identification of the condition to ensure they can offer an early intervention and assist the patient. There was a gap in practice in a rural hospital in an ER located in south Georgia. In several years, the nurses had not received education on the 3-hour sepsis bundle. The nurses had not received education on the latest sepsis protocols. In addition, the nursing administration had noted that there were delays in the identification of sepsis symptomatology and implementation of the 3-hour sepsis bundle.

The overall goal of this DNP project was for nurses in the ER to use this knowledge to identify sepsis and implement the 3-hour sepsis bundle to improve patient outcomes. Early identification of sepsis by nurses is vital as the patient's condition will deteriorate rapidly, requiring respiratory and hemodynamic support to their vital organs. Nurses are critical to recognizing sepsis patients' early, evolving signs and symptoms (Dacanay et al., 2021). In this section, we explored various valuable concepts, models, and theories related to project management. One model is ADDIE, which offers a highly effective five-step approach to training nurses. Another helpful model is the Kurt Lewin change theory three-step model. This model is beneficial when familiarizing individuals with new concepts and ideas.

We also explored the social cognitive behavioral theory, a popular theory for implementing change. We also explore the relevance of these concepts and theories to nursing practice, particularly in the early identification and intervention of sepsis. Throughout this discussion, we considered local background and context as it relates to the facility where the project takes place, as well as the important role of DNP students in this project.

## Concepts, Models, and Theories

The Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model, commonly referred to as ADDIE, is a highly implementable model in the administration of training nurses. This five-step model comprises analysis, design, development, implementation, and the evaluation phase. The analysis step mainly entailed the assessment of knowledge gaps in the nurses regarding some areas where they may need some training. In this case, the need was to assess whether the nurses required the training that was about to be delivered. The next phase entailed assessing the best design to use in training, whereby one assessed the delivery methods, structure, and feedback collection from the group of nurses undergoing the training. The third stage of the model entailed the training, whereby the topic was developed and covered in the education process. The development of the topic covered was guided by the needs of the individuals who were being assessed (International Test Commission, 2017). The next step entailed the implementation phase, whereby the actual implementation of the training among the nurses was carried out through the training process. The evaluation phase entailed assessing the individuals' level of understanding following the training process.

**Kurt Lewin Change Theory Three-Step Model**

The three-step model is a largely implementable model that can be used in the management of change, and it is usually implemented in cases where the individual needs to be educated on some of the new concepts. The model can be used in the learning process among nurses, whereby it can be used to change the knowledge regarding sepsis and equip the individual with new knowledge applicable in various situations. The middle usually comprises three steps: unfreezing, change, and refreezing. Such a model is implementable mainly in the training process to educate the nurses in the emergency department on some strategies that can be used to identify the condition early enough to ensure that they can offer a timely intervention (Spector, 2018).

***Freezing Stage***

The freezing stage mainly entailed the stage that improved the willingness of the individual to learn the change that is being implemented, to learn the new ideas. In this stage, the readiness to learn is usually improved by educating the individual on the need for change that is being implemented. In this case, the nurses needed to have an increased readiness for learning by educating them on the consequences that resulted from the delayed diagnosis and intervention in cases where a diagnosis of sepsis was questioned.

Further, they can be educated on the outcomes that can result in cases where early intervention is offered to manage the condition (Spector, 2018).

### *Change*

The second step of the model is the transition phase. In this phase, the actual change that was expected is implemented. There was effective planning, communication, and building of a strong team to implement the change successfully. In this case, the change implementation entailed carrying out the actual training for the nurses regarding the early identification of the condition. In addition, the nurses were trained in the effective implementation of the 3-hour sepsis bundle among the patients (Spector, 2018).

### *Refreezing*

The third step is where people move from the transition phase to the more stable phase, which is regarded as the state of equilibrium. In this step, the individual emulates change as an important thing, and they fully emulate its implementation. They also reinforce the new behaviors, eventually becoming part of their practice. The refreezing stage of nursing education is when nurses eventually agree to adhere to the change and apply the concepts that they have been taught to reduce the mortality rates among individuals with sepsis (Spector, 2018).

## Social Cognitive Behavioral Theory

The social cognitive theory is one of the theories that is largely implementable in implementing this change. There are many factors that sway an individual’s behavior in every setting, including environmental factors, the actions of others, and individual experiences (Deis et al., 2018). Understanding of such influences of individual action can be extrapolated to the implementation of a change, whereby one can influence the other team member positively towards emulating the change that is being implemented. In this case, the other nurses would be influenced on the importance of changing the practices to ensure that they can identify signs and symptoms of sepsis early enough and offer information for rapid intervention before major complications develop. Further, they needed to be influenced to understand the importance of prioritizing care among the patients who were suffering from sepsis to reduce the risk of mortality among patients (Sisto et al., 2024).

## Relevance to Nursing Practice

Training in the early identification of sepsis was key in medical intervention (Walsh et al., 2020). In that, it reduces the risk of mortality among sepsis patients. The primary underlying pathophysiology through which sepsis results in the death of the patient is when the patient ends up in septic shock and eventually organ failure. The nurse thus assists by being able to identify the signs and symptoms of such events long before they occur and intervene early to save the patient. In that case, the nurses need to properly monitor the patient’s vitals and monitor the patient’s hypotensive state as this can be an early indicator (Borrelli et al., 2019). In addition, they should be keen enough to monitor the lactate levels of the patient since the serum increase is another key indicator. Thus, the training would be effective in reducing the mortality rates of the patients. Sources such as the SSC and the CDC support early implementation of the 3-hour bundle in the care of sepsis patients (CDC, 2021). The initial nursing assessment allowed the ER nurse to initiate timely care for sepsis patients. When nurses knew to identify sepsis early, they would intervene with the initiation of the 3-hour sepsis bundle. Jefferson and Burns's (2020) research revealed that an increase in nursing knowledge on timely sepsis treatment resulted in decreased morbidity and mortality.

## Local Background and Context

This rural acute care facility, located in south Georgia, has a 40-bed ER and treats at least 250 patients daily. This facility is currently staffed with registered nurses (RNs) who were highly trained in providing care to patients experiencing life-threatening injuries and medical emergencies. This project focused on assessing RN knowledge on the timely implementation of the recommended 3-hour sepsis bundle. Per the CDC (2021), sepsis is a commonly diagnosed illness in ERs. Senior leadership at the practicum site was engaged and committed to supporting all efforts to combat sepsis. The overall result was a continued increase in the incidence of sepsis mortality rates among patients presenting to this facility. Sepsis outcomes impact state and federal reimbursement for hospitals. In recent years, there had been a growing focus on sepsis as a quality measure in healthcare, and many state and federal programs had implemented sepsis-related quality measures that can impact reimbursement. The Centers for Medicare and Medicaid Services (CMS) had implemented the Sepsis Bundle, which is a set of evidence-based interventions that hospitals must implement within a specific timeframe for patients with sepsis in order to receive full reimbursement for their care. Failure to meet these quality measures would result in reduced reimbursement or penalties for hospitals. Additionally, some states have implemented sepsis-related quality measures as part of their Medicaid programs, which can also impact reimbursement for hospitals (CMS, 2019). Therefore, hospitals had a financial incentive to improve sepsis outcomes in order to maintain or increase their reimbursement rates (National Quality Forum, 2018).

## Role of the DNP Student

My role as the DNP student was to assess the effectiveness of identifying the best training techniques that were implementable in the healthcare setting to ensure that the ER nurses were acquainted with the necessary knowledge regarding the diagnosis of the condition (Lynn et al., 2018). I was accountable for building and executing new training programs that fit the needs of the ER nurses. Additionally, I was accountable for the program's effectiveness and adjusting when and where needed to guarantee that the ER nurses were satisfactorily prepared to identify those critical early warning signs of sepsis.

## Role of the Project Team

The project team played an irreplaceable role in the project in that they ensured that the implementation of the change process was per the plan. The team was composed of all the stakeholders who were required to make the process a success. The healthcare facility management was willing to accept such a training process. The ER nurse and other department nurses were also important stakeholders in that they could participate in giving feedback regarding the training session. The DNP student was responsible for leading the project, developing the project plan, identifying project goals and objectives, coordinating the activities of the project team, and ensuring that the project was completed on time. The DNP student also collected and analyzed the data related to the project. The DNP student identified trends and patterns in the data and provided insights that were used to improve the project's outcomes.

Facility healthcare professionals involved in the project provided subject matter expertise and helped to ensure that the project was relevant to the healthcare setting. They included physicians, nurses, a sepsis coordinator, quality improvement staff, and other healthcare professionals who had experience with sepsis.

## Summary

The challenge of complications resulting from the late diagnosis of sepsis is a problem at the local and global levels. It was addressed by proper training to ER nurses to increase their knowledge regarding the early identification and treatment of sepsis. In the previous section, we explored project management, covering a range of valuable concepts, models, and theories. One model I examined in-depth was ADDIE, which provided a highly effective five-step approach to train nurses. Additionally, I delved into the Kurt Lewin change theory three-step model, which was particularly useful when introducing new concepts and ideas to individuals. I also examined the social cognitive behavioral theory, a popular theory for implementing change. I carefully considered how these concepts and theories relate to nursing practice, especially with regard to the early identification and intervention of sepsis. This discussion also took into account the local background and context of the facility where the project was taking place and the important role of the DNP students.

In the next section, I discuss the collection and analysis of evidence, which were crucial in the sepsis project at this rural hospital's ER in south Georgia. The nurse's assessment in the emergency department was the primary source of evidence. It helped to determine the level of knowledge the nurses had regarding the identification and intervention of sepsis. The analysis of the collected data used the *t*-test techniques, which provided a level of knowledge overall. The results allowed the development of interventions and training programs that will assist in the successful identification and intervention of sepsis cases in this hospital's ER in the future.

# Section 3: Collection and Analysis of Evidence

## Introduction

The selection of the proper method to collect data and analysis is key in influencing the findings of sepsis research. In that case, one should be keen to select the proper method to collect the data that they use in specific research and analysis using the correct analytical method. The data collection methods were primarily dependent on various factors, and these, in turn, influence the accuracy of the data that were collected. The analytical tools used were key in deriving meaning from the raw data that was collected. The main aim of this section was to review some of the data collection methods and the analytical tools that could be implemented in the project to ensure the success of the change implementation.

## Practice-Focused Question

There is a gap in practice in a rural hospital in an ER located in south Georgia. For several years, the nurses had not received education on the 3-hour sepsis bundle. The nurses had not received education on the latest sepsis protocols. In addition, the nursing administration had noted that there had been delays in the identification of sepsis symptomatology and implementation of the 3-hour sepsis bundle.

This DNP project is for nurses in the ER to use this knowledge to identify sepsis and implement the 3-hour sepsis bundle to improve patient outcomes. Early identification of sepsis by nurses is vital as the patient’s condition will deteriorate rapidly, requiring respiratory and hemodynamic support to their vital organs. Nurses are critical to recognizing sepsis patients’ early, evolving signs and symptoms (Chua et al., 2023)

The practice-focused question that guided the project was based on whether the nurse had adequate knowledge regarding sepsis's early identification among the patients presenting to the emergency department. Were ER nurses knowledgeable on the importance of timely sepsis identification and implementing the 3-hour sepsis bundle? In addition, it aimed to assess whether the nurses had been implementing the 3-hour bundle for sepsis in treating the patients who presented to the department with the condition. The assessment ensured that one can identify some of the areas where the individual might require further training regarding sepsis.

## Sources of Evidence

Purinella et al. (2018) stated that sepsis affects millions of people worldwide and is the cause of death for many; the SSC guidelines advocate using the time-sensitive bundles for each patient. Purinella et al. (2018) further defined the 3-hour sepsis bundle as an intervention to be completed within 3 hours from the time sepsis is first suspected. The bundle includes the following steps: (a) obtain a blood culture before antibiotics, (b) obtain a lactate level, (c) administer broad-spectrum antibiotics, and (d) administer 30 mL/kg of crystalloid fluid in cases of hypotension or lactate (> 4).

McVeigh (2020) stated that sepsis is an acute, lethal condition associated with momentous mortality rates and a factor in high healthcare costs. Fast recognition and treatment were important for improving patient outcomes. Important areas for improvement involve improving the ability for early detection, fast treatment, standardized care protocols, and nursing education.

Nurses are the key in sepsis management, particularly ER nurses; they are important in the speedy identification and timely evaluation of sepsis patients. A comprehensive approach is essential for improving sepsis management in emergency departments. By prioritizing early identification, swift treatment, care standardization, education, and feedback—while fully engaging the nursing workforce—healthcare providers can significantly enhance patient outcomes and reduce the burden of this life-threatening condition (McVeigh, 2020).

Rajan and Rodzevik (2021) conducted a study and found that formal education on sepsis, along with the implementation of policies and screening tools, could reduce the time required for nurses to identify sepsis. Utilizing a quantitative descriptive correlational design, the study compared the performance of nurses who received sepsis education to those who did not. The findings revealed a statistically significant reduction in the time needed to identify sepsis. The study identifies the critical need for ongoing education for nursing staff to improve their abilities to recognize and manage sepsis effectively, thereby ultimately enhancing patient outcomes.

Chua et al. (2023) found gaps in nurses' knowledge of sepsis recognition and management. The study supported the necessity for stronger foundations in education and training programs for nurses. In this case, the primary source of evidence used in the study is the assessment of the nurses in the emergency department to assess their knowledge regarding the identification and intervention for sepsis. The knowledge assessment was performed through the administration of a pretest and posttest, and was vital in identifying areas where the nurses might require some training (Chua et al., 2023).

Rechter et al. (2022) conducted a study investigating the impact of a learning program on nurses' knowledge of sepsis and its potential effects on patient care and outcomes. The research intended to evaluate whether the computer-based learning program could enhance nurses' understanding, identification, and treatment of sepsis. Utilizing an interventional design, the authors conducted pretest and posttest assessments across four program modules, involving over 2,000 nurses within a multi-facility healthcare system. Data were anonymously collected through a database, and comparisons were made between pre- and post-assessment scores to determine knowledge gains (Rechter et al., 2022).

Jefferson and Burns (2020) shared in their professional article "Early Recognition and Intervention of Sepsis Through Nurse Driven Sepsis Screening Protocols Nurses" how nurses played a crucial role in identifying sepsis through specific protocols and screening tools, which should be utilized in various healthcare settings, including medical-surgical units, emergency departments, and intensive-care units.

## Analysis and Synthesis

In this case, data analysis was vital to ensure one can derive meaning from the project. In this case, the data collected can be analyzed through methods, such as the Chi-Square, which can be used to show the population of nurses who were knowledgeable regarding the subject and those who were not. In addition, the *t* test could be used in this case, and it is highly applicable in data analysis.

## Summary

Thus, the choice of the right data collection and analytic technique was vital in this project since such a choice influences the overall outcomes of the study. The proper analysis ensured that the inferences drawn were correct and were implementable in nursing practice.

Section 4: Findings and Recommendations

## Introduction

This DNP project addressed a critical local problem within a rural hospital's ER in south Georgia. The identified gap in practice was a substantial knowledge deficit among ER nurses concerning early sepsis identification and the timely implementation of the sepsis 3-hour bundle, causing identified delays in patient care.

The practice-focused question that guided this project was: Will educating nurses on the 3-hour sepsis bundle increase their knowledge? The purpose of this project was to provide ER nurses with the education to identify sepsis early and implement the sepsis 3-hour bundle in a timely manner, with an aim to improve nursing knowledge.

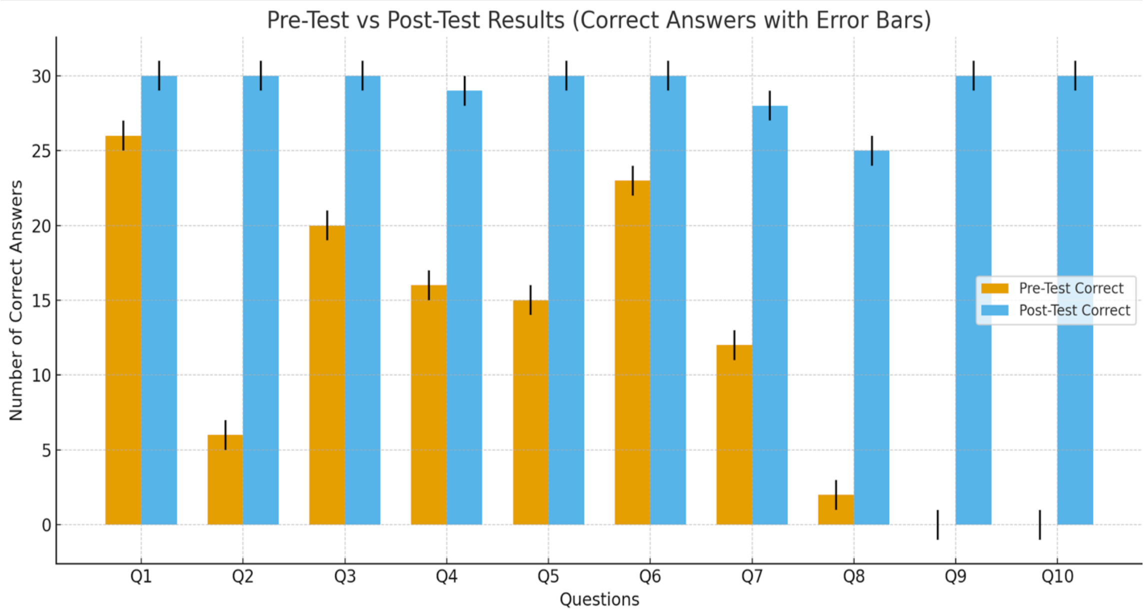
The sources of evidence for this project were pretest and posttest questionnaires administered to 30 ER nurses. Evidence was obtained by having participating nurses complete these questionnaires before and after the sepsis educational intervention. The analytical strategy used was a paired *t* test to statistically compare the nurses' knowledge scores from the pre- and post-education intervention assessments.

## Findings and Implications

The educational intervention administered to ECRNs aimed to enhance sepsis knowledge among participants, which yielded a significant finding.

**Figure 1**

*Pretest and Posttest Results*




The pretest results discovered sizable gaps in sepsis knowledge; the average success rate ranged from 20% to 86.7%. Failed answers to critical questions, related to septic shock, were particularly concerning, with a 6.7% success rate, and the 3-hour sepsis bundle which showed an alarming 0% scoring among participants. These results underscored the urgent need for targeted educational efforts.

Following the intervention, the posttest results demonstrated a substantial improvement, with scores improving from 83.3% to 100% in many areas. Participants showed a comprehensive understanding of the sepsis 3-hour bundle and an impressive increase in knowledge related to septic shock, indicating the effectiveness of the educational sessions.

The statistical analysis further validated these improvements. A paired *t* test yielded a *t* value of 8.45 and a *p* value of $< .001$, indicating that the changes in knowledge were statistically significant, and it reinforced the intervention's impact.

In synthesizing the project's evidence, it was clear that the educational intervention sessions significantly enhanced the participants' understanding of sepsis 3-hour bundle management. The increase from low pretest scores to high posttest scores displayed not only retention of information but also the nurse's growth for improved clinical practice. Knowledge gaps concerning septic shock criteria and sepsis management protocols were effectively addressed, which led to increased confidence among participants.

With the educational intervention's success, it was recommended that these educational interventions be implemented on a regular basis to support ongoing competency in sepsis 3-hour bundle management among the emergency nurses. The successful outcome highlights the critical role of targeted educational initiatives in bridging knowledge gaps.

One limitation included the relatively small sample size (30 nurses), which may limit the generalizability of these findings to larger or a different hospital settings. Additionally, the project's short follow-up period did not allow for assessment of long-term knowledge retention or sustained behavioral change in practice. These limitations suggest that while the immediate educational impact was positive, ongoing reinforcement and evaluation will be important for lasting change.

The implications resulting from these findings were profound, pointing towards positive social change. For nurses, they gained knowledge that led to greater clinical skills, which led to timely patient assessments. At the institutional level, this project's outcomes contributed to improved quality metrics, possibly reducing healthcare costs associated with extended hospital stays and any patient complications. From a systems perspective, the success of this educational model would advocate for standardized sepsis education protocols across other rural or similar healthcare facilities, promoting a culture of proactive, evidence-based care.

## Recommendations

Based on the successful outcomes of this educational intervention, several proposed or recommended solutions were suggested to address the identified gap in practice further and sustain improved early sepsis identification. First, a mandatory sepsis education program for all ER nursing staff, potentially on an annual or bi-annual basis, should be established to ensure continuous knowledge reminders and updates on the latest protocols. Second, sepsis education should be integrated into the nurses' onboarding process for all new ER nurses, ensuring foundational knowledge from day one. Third, implement quick reference guides or digital tools (e.g., laminated cards, badge buddies) that are readily accessible at the point of care to support nurses in real-time decision-making regarding sepsis screening and bundle initiation. Finally, implement ongoing knowledge assessments and feedback mechanisms for the sepsis bundle, providing nurses with constructive feedback and identifying areas for further targeted education. These recommended actions, which would include detailed education and materials, are designed to build upon the project's success, embed best practices, and foster continuous improvement in sepsis identification and 3-hour bundle management in the ER.

## Project Strengths and Limitations

The design and execution of this DNP project demonstrated several strengths. It directly addressed a critical local knowledge gap in early sepsis identification and use of the 3-hour sepsis bundle, providing immediate relevance and potential for impact. The use of a pretest and posttest allowed for a measurable assessment of current state knowledge and knowledge improvement, directly answering the practice-focused question. Furthermore, the project focused on one high-impact clinical area, where RN knowledge improvements related to the 3-hour sepsis bundle were assessed. The application of established educational and change theories (ADDIE, Kurt Lewin) provided a structured and theoretically grounded approach to the intervention.

The project had limitations. The small sample size of 30 ER nurses from a single rural hospital inherently limited the broadness of the findings to a larger population or different healthcare settings. Additionally, the short time span and follow-up period did not allow for the assessment of long-term knowledge retention. While the focus was solely on knowledge, using questionnaires meant that the project measured understanding, but not necessarily the application of that knowledge in the real world with patient encounters.

**Recommendations for Future Projects**

With insights gained, future projects addressing a similar topic and using comparable methods should consider several enhancements. Expanding the sample size and scope by conducting multi-site studies or involving larger cohorts of nurses would improve the generalizability of findings. Implementation of a longer longitudinal follow-up period to assess the sustainability of knowledge retention. To complement knowledge assessments, incorporate direct observational methods of nurses in the work environment, or conduct chart audits to objectively measure actual sepsis bundle compliance.

Future projects should also seek to directly measure patient outcomes (e.g., sepsis mortality rates, length of stay, readmission rates) as a primary endpoint, which would provide more robust evidence of the educational intervention’s impact. Finally, adding qualitative data collection through nurse interviews or the use of focus groups would provide a deeper insight into perceived barriers by the nursing staff.

## Section 5: Dissemination Plan

In effectively disseminating this project within the project site facility after obtaining all IRB approval, I met with all ER leadership and educators to determine the best times to hold the classes. It was agreed that I would conduct six classes at three different times of the day to ensure that different shifts of nurses were captured. A schedule of classes was posted throughout the ER, and volunteers were sought to attend on any of the days or times listed.

At the beginning of each class, all relevant information related to the project, the goal of the project, and the distribution of consent forms was shared with participants. At the top of each class, I administered a pretest to be used to assess the baseline knowledge of the attendees. An educational presentation was performed, and the pre-test was immediately administered.

### **Analysis of Self**

Managing this DNP project offered an impactful experience; it profoundly shaped my identity as both a healthcare practitioner and a project manager. As a practitioner, the project helped solidify my commitment to the use of evidence-based practice and patient advocacy. It reinforced the critical role of the nurse working at the bedside, where early identification and intervention directly impact patient outcomes.

My role in developing sepsis education and delivering that educational content deepened my understanding of adult learning principles and the nuances of translating complex clinical guidelines into actionable knowledge. As the project manager, I acquired essential skills in planning, organization, stakeholder engagement, and problemsolving. Navigating the logistical challenges of scheduling, securing participation, and managing data collection provided an invaluable real-world quality experience. The project directly connects to my professional aspirations of leading quality improvement initiatives. From a long-term perspective, this experience is foundational for pursuing advanced leadership roles where I can drive the much-needed systemic changes to enhance patient safety and optimize nursing practice.

Completing this project brought challenges, particularly scheduling and engaging nurses across different shifts. However, I overcame these barriers by working closely with the ER leadership and being flexible with timing. The insight gained from this scholarly journey was profound; I achieved my goal of involving at least 30 ER nurses and received positive feedback from participants who expressed gratitude for the education and information about sepsis and the 3-hour bundle. Their enthusiasm reinforced the importance of ongoing training and motivated me to continue advocating for educational initiatives in my professional practice.

## Summary

In conclusion, this DNP project proved to be a much-needed endeavor in addressing the critical knowledge deficit among ER nurses regarding early sepsis identification and the timely implementation of the 3-hour sepsis bundle. By demonstrating the efficacy of a targeted educational intervention, this project not only directly improved patient outcomes in this rural setting but also provided a replicable model, fostering positive social change and ultimately saving patient lives. Ultimately, this scholarly project not only addressed a pressing healthcare challenge but also contributed to a culture of proactive patient care, reinforcing the essential role of education in nursing excellence.

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