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An Educational Program for Nursing Home Nurses on Sepsis in Older Adults

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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
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Abstract

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MS, University of Wisconsin-Madison, 1999

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Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Elderly nursing home patients' high rates of hospitalization due to sepsis impact their morbidity and mortality and significantly cost the U.S. healthcare system. Skilled nursing facility (SNF) nurses who have the knowledge to assess older adults for signs and symptoms of sepsis and communicate findings to providers are instrumental in providing improved care for patients. The purpose of this doctoral project was to provide a group evidence-based educational intervention on sepsis care of older adults geared toward nurses working in SNFs. The practice-focused question asked whether an educational intervention focused on the signs and symptoms of sepsis in the elderly population increased the knowledge and confidence of staff nurses working in a SNF to discuss patient condition with providers. Rosswurm and Larrabee's model and the Analyze, Design, Develop, Implement, and Evaluate model guided development and implementation of the educational intervention, which was a 45-minute presentation. The participants were 15 licensed nurses from a single SNF. The approach used pre- and posttests to measure the educational intervention's ability to improve nursing knowledge and confidence. Data were analyzed via a Wilcoxon Signed Ranks test. The results showed a non-statistically significant but clinically improved difference in pretest and posttest scores of knowledge ($z = -1.63$, $p > 0.05$) and a statistical difference in pretest and posttest confidence scores ($z = -2.80$, $p < 0.01$). This project may impact positive social change by providing education to SNF nurses to enhance knowledge and confidence of sepsis care for older adults, thus improving care quality for SNF patients with sepsis, leading to decreased complications and improved outcomes for this vulnerable population.

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Section 1: Nature of the Project

Introduction

Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection (Singer et al., 2016). Every year, more than 1.7 million American adults develop sepsis (Centers for Disease Control and Prevention [CDC], 2020), with over 64% of sepsis cases occurring in individuals aged 65 years and older (Martin et al., 2006). Thus, sepsis is a significant cause of morbidity and mortality for those individuals residing in a long-term care/skilled nursing facility, given that over 84% of residents of these organizations are age 65 years and older (Centers for Medicare & Medicaid Services [CMS], 2015). In 2011, sepsis accounted for 13.4% of the total number of nursing home residents' hospitalizations, with a cost of $3 billion (Department of Health and Human Services [HHS], 2013). Nursing home residence is a primary factor for increased risk of death for older adults with sepsis, and those who do survive often suffer impaired quality of life, with an increased likelihood of cognitive and physical impairments and increased risk of institutionalization (Prescott et al., 2014).

Most of the evidence-based guidelines and interventions for sepsis care in skilled nursing facilities (SNFs) were adapted from acute care sites; however, nursing homes have site-specific challenges that cannot be sufficiently addressed and overcome with acute-care based sepsis-management protocols (Reyes et al., 2018; Sloane et al., 2018). As a result, it is imperative that nursing home nurses have the skill to identify subtle signs and symptoms of impending sepsis in older adults and the ability to report changes in condition to providers in an effective and timely manner. An evidence-based educational program may address this issue. By empowering nursing facility staff nurses to improve the quality of care for their patients, there may be a positive social

change by possibly avoiding the harmful short and long-term consequences of hospitalization of elderly nursing home residents suffering from sepsis.

Problem Statement

Federal law requires Medicare and Medicaid certified nursing homes to have a registered nurse (RN) on duty at least 8 hours a day, 7 days a week, and a licensed nurse, either a RN or licensed practical or vocational nurse (LPN or LVN), must be on duty 24 hours a day. Historically, the RNs working in SNFs have not attained a baccalaureate degree in nursing at rates equal to their acute-care counterparts (National Academies of Science, Engineering, & Medicine, 2016). Moreover, there are no minimum staffing levels for unlicensed certified nursing assistants (CNAs) who provide the majority of patient care in most SNFs. As a result, the nursing staff of most SNFs may have limited education and experience with evidence-based practice (EBP) in general and evidence-based sepsis care specifically.

Compounding this concern, most nursing homes also have limited availability of on-site clinicians, which contributes to the need for the nurses to have the skills necessary to assess older adults for subtle changes in condition that can signal impending sepsis, as well as the ability to communicate those changes in condition to providers (Angelelli, 2016; Reyes et al., 2018). As a result, it is estimated that 25% of all SNF residents are transferred to acute care settings for an emergency department visit or admission, costing the U.S. healthcare system approximately $14.3 billion (HHS, 2013). Thus, preventing transfer and possible hospitalization of these patients is a cause for concern among most SNFs.

Improved assessment of nursing home residents undergoing changes in medical and cognitive status and timely reporting to providers is critical for this vulnerable population (Reyes

et al., 2018; Sloane et al., 2018) and can enhance residents' quality of life while improving value-based care by reducing potentially avoidable hospitalization (Behrendt et al., 2017; Reyes et al., 2018). Provision of an evidence-based educational intervention for nursing home nurses focused on the signs and symptoms of sepsis in older adults may contribute toward addressing this important issue.

Purpose

The purpose of this doctoral project was to develop, implement, and evaluate an evidence-based educational intervention on sepsis care of older adults geared toward nurses working in SNFs. The identified gap in practice was a lack of nursing home staff education and training related to awareness of and assessment skills of impending sepsis in older adults, as well as limited ability to communicate findings in an efficient and timely manner to providers.

The practice-focused question for this project was the following: Does an educational intervention focused on the signs and symptoms of sepsis in the elderly population increase the knowledge and confidence of staff nurses working in a skilled nursing/long-term care facility to discuss patient condition with providers? Implementing this program for the SNF nursing staff may provide education for the nursing staff to better manage the care of the older adult with impending sepsis. The expected outcome of the project was that after the educational intervention, the nursing staff would exhibit increased knowledge of and ability to assess for signs and symptoms of impending sepsis and increased confidence to communicate those findings effectively and efficiently to providers.

Elderly nursing home residents rely on their nurses and providers to ensure they receive quality care, and nurses caring for older adults with suspected sepsis should adeptly observe

them to facilitate early identification, timely treatment, and improved outcomes (Schorr, 2019). Nursing home nurses armed with the knowledge and skills to identify at-risk residents and collaborate with medical providers are central to delivering an optimal level of sepsis care.

Nature of the Doctoral Project

I conducted a literature search of the Walden Library databases, including CINAHL, Ovid, ProQuest, PubMed, and MEDLINE to secure primary sources from peer-reviewed journals. I obtained supplementary sources from experts in sepsis and geriatrics care, including the websites and publications provided by the Interventions to Reduce Acute Care Transfers (INTERACT) program, The Society for Post-Acute and Long-Term Care Medicine (AMDA), the CDC, and the Minnesota Hospital Association (MHA). I used best-practice guidelines from these sources to develop the evidence-based educational program for the SNF nursing staff.

I consulted an expert panel of key stakeholders at the SNF in the development and implementation of the educational program and design of a pretest/posttest. These individuals included the SNF's director of nursing (DON), medical director, director of staff development (DSD), and infection preventionist/antibiotic stewardship director (IP/ASD). I anticipated that an analysis of the evidence-based literature and expert resources would reveal the need for an educational intervention on sepsis care of older adults for SNF nurses.

Significance

An ideal level of sepsis care is contingent upon the knowledge and ability of SNF nurses to identify the signs and symptoms of impending sepsis in elderly residents (Jump et al., 2018; Reyes et al., 2018; Schorr, 2016; Sloane et al., 2018). When SNF nurses are able to assess patients and collaborate with providers to provide timely care, patients and providers may be

assured of the quality and safety of care received. The provision of an educational intervention may equip the SNF nurses with the knowledge and confidence to provide evidence-based care for elderly residents with sepsis, thus possibly avoiding hospitalization. When sepsis is abated or the effects minimized, older adults can have improved quality of life by avoiding the short and long-term consequences of suffering from sepsis. When the short and long-term consequences of sepsis in older adults are reduced, the healthcare system benefits by decreased utilization and associated expenditures. Positive strides toward social change may be expected when SNF nurses are more knowledgeable and confident in providing elderly nursing home residents safe, timely, effective, patient-centered care.

SNF nurses who gain the knowledge and confidence to provide evidence-based sepsis care for elderly patients may carry this ability with them throughout their nursing career and from one practice site to another, which may be especially relevant considering the growing population of older adults. Additionally, other SNFs in the community may want to duplicate the sepsis-care educational program to benefit their nurses and residents. The stakeholders for this project included the SNF nursing staff, elderly residents and their caregivers, the SNF employees and providers, health care payors, and the local health care system.

Summary

Older adults in nursing homes are at increased risk of harm caused by sepsis, which contributes to impaired quality of life, a greater likelihood of hospitalization, and increased utilization of costly healthcare resources. Additionally, the characteristics of SNFs and limitations in the level of knowledge and confidence of SNF nurses to care for elderly patients with sepsis contributes to a gap in practice. I addressed this gap in practice by implementing an

evidence-based educational intervention to increase the knowledge and confidence of SNF nurses to assess elderly residents with sepsis and communicate findings to providers.

Section 2: Background and Context

Introduction

Elderly patients in SNFs are at high risk of morbidity and mortality due to sepsis. There are numerous factors unique to the nursing home setting that contribute to missed signs and symptoms of developing sepsis. One of the challenges is the lack of training and experience SNF nurses have to recognize impending sepsis in their patients. In addition, the minimal availability of on-site providers means SNF nurses must have the ability to evaluate residents and collaborate telephonically with providers to provide needed care. Provision of an educational intervention for SNF RNs and LVNs may increase the ability of the nurses to skillfully evaluate older adults with imminent sepsis and confidently discuss those findings with providers to determine the best course of action. Thus, the purpose of this doctoral project was to develop and implement an evidence-based educational intervention on sepsis care of older adults for nursing home nurses. Section 2 includes the concepts and models used to guide the project, relevance to nursing practice, local background and context, and roles of the DNP student and project stakeholders.

Concepts, Models, and Theories

This project was guided by Rosswurm and Larrabee's (1999) model for change to evidence-based practice and the Analyze, Design, Develop, Implement, and Evaluate (ADDIE) model. Both models provide a framework to organize educational development activities, thus increasing the likelihood of successfully implementing an educational intervention. While there is overlap between the two models, they each have some differences that made it advantageous to use components of both to guide this project.

Model for Change to Evidence-Based Practice

Rosswurm and Larrabee's (1999) model was designed to guide healthcare professionals through a systematic process for improvement of EBP. While there are variations in the definition of EBP, Gray et al. (2017) wrote: "EBP is the conscientious integration of best research evidence with clinical expertise and patient values and needs in the delivery of quality, cost-effective healthcare" (p. 18). EBP is believed to be the best means to improve the quality of patient care; however, there are several known barriers to the use of EBP in care (Gray et al., 2017). Some of these barriers that are especially relevant to the SNF setting are inadequate knowledge on how to implement EBP changes in practice, heavy workload with limited time to make research-based changes in practice, and minimal rewards for providing evidence-based care. I used Rosswurm and Larrabee's model to develop an evidence-based educational intervention on sepsis care of older adults to be implemented into the practice of SNF nurses.

There are six steps of the model for change to EBP. When applied to an educational intervention for SNF nurses on sepsis care of older adults, the steps are as follows:

1. Assess the need for a change in practice: Discuss the clinical problem of sepsis in elderly residents with SNF stakeholders. Collect available internal data regarding the percentage of residents treated for sepsis and compare to external data.
2. Link the problem with interventions and outcomes: Link sepsis in older adults with the standardized definition of sepsis and EBP to recognize and treat patients with signs and symptoms of sepsis.
3. Synthesize the best evidence: Review the literature on best-practices for sepsis care, critically appraise the strength of the evidence, and synthesize the evidence for

development of an evidence-based educational intervention on sepsis care of older adults in the SNF setting.

4. Design a change in practice: Use the synthesized evidence-based literature and expert resources to develop an evidence-based educational intervention on sepsis care of older adults in the SNF setting and identify desired outcomes for the intervention.
5. Implement and evaluate the change in practice: Implement the educational intervention, collect data, and analyze the findings.
6. Integrate and maintain the change in practice: Discuss with nursing leadership recommendations for ongoing monitoring of outcomes.

ADDIE Model

The ADDIE model is an instructional design method used to help organize and streamline the production of course content; ADDIE is an acronym for five stages of a development process (Quigley, 2019). The five stages are as follows: (a) analyze, (b) design, (c) develop, (d) implement, and (e) evaluate. While there is overlap between Rosswurm and Larabee's model and the ADDIE model, the ADDIE model was used primarily for the design and development of the educational intervention, using strategies that incorporate the four components of nursing's metaparadigm: (a) person, (b) health, (c) environment, and (d) nursing (Jeffery et al., 2016, p. 51). Furthermore, I used the ADDIE model to guide the details of the educational intervention format and evaluation.

Relevance to Nursing Practice

Sepsis is a significant cause of morbidity and mortality within the population of U.S. nursing home residents (Jump et al., 2019; Reyes et al., 2018; Sloane et al., 2018). For example,

Ginde et al. (2013) found older adults had a higher incidence of severe sepsis and associated death, and elderly nursing home residents are at even higher risk. Twenty-five percent of all emergency department visits for sepsis were attributed to nursing home residents, and 37% of those patients died in the hospital. Nursing home residence appeared to be the primary determinant of higher mortality among older adults, and compared with non-nursing home residents, their rate of severe sepsis was seven times higher. When most elderly SNF patients with sepsis receive initial treatment in the emergency department, clearly changes need to be made in long-term care settings to prevent sepsis better and identify it earlier (Angelelli, 2016).

History and Past Practices

Sepsis was first described over 2700 years ago in the ancient writings of the Greek poet, Homer (Funk et al., 2009). As time and technology advanced, numerous renowned individuals in the fields of philosophy and medicine have contributed to the clinical syndrome of sepsis as it is understood today. Unfortunately, even though more is known now about the causes, prevention, and treatment of sepsis, the global rate of sepsis and the total number of deaths due to sepsis is increasing (as cited in Yoshikawa et al., 2019, p. 2234). In 2016, the Surviving Sepsis Guideline panel revised the best-practice guidelines for the previously established Surviving Sepsis Campaign. The evidence-based guidelines include recommendations for the screening, diagnosis, and treatment of sepsis (Rhodes et al., 2017). The intention of screening patients with suspected sepsis is to reduce morbidity; consequently, a number of screening tools have been developed. The systematic inflammatory response syndrome (SIRS) criteria was one of the original screening tools used in many hospitals as part of the earlier versions of the Surviving Sepsis

Campaign, but its relatively low sensitivity and specificity led to overdiagnosis of sepsis in the acute care setting (as cited in Sloane et al., 2018, p. 493).

Subsequently, an expert task force convened to provide updated evidence-based guidelines and concluded the Sequential Organ Failure Assessment (SOFA) and the quick SOFA (qSOFA) are more effective sepsis screening and diagnostic tools (Singer et al., 2016). Additionally, a third sepsis screening tool, the 100-100-100 Early Detection Tool, was developed by the MHA (2020). Despite the availability of these sepsis screening tools, there are few studies about their use in the nursing home setting. The majority of studies on nursing home residents with sepsis have been conducted with data from the acute care setting, so little is known about the status of SNF residents with sepsis before hospital transfer (Sloane et al., 2018). Therefore, a gap in practice exists regarding what steps could be taken in the SNF setting by the nursing staff to provide timely identification and treatment of sepsis in older adults.

Sloane et al. (2018) conducted a study to understand better the potential for earlier diagnosis of sepsis in the nursing home setting. The researchers audited the records of 236 nursing home residents who had been hospitalized and subsequently readmitted to a SNF. Their purpose was to determine which of five sepsis screening tools or measures might benefit early identification of elderly nursing home residents with impending sepsis. In the hospital setting, the qSOFA is a commonly used sepsis screening tool. However, the study results revealed limitations in the use of the qSOFA in the nursing homes due to a lack of documentation of the required cognitive assessment scale. Out of all the measures, the 100-100-100 Early Detection Tool showed the best results. Unfortunately, additional findings of concern in the nursing home setting documented by other authors were also noted by Sloane et al. A medical provider had

seen only a small percentage of the included residents in the 12–72 hours before hospital transfer, and documentation of complete vital signs and residents' cognitive status was inconsistent.

Although the capabilities of SNFs vary, most do not have the option of following the complete evidence-based Surviving Sepsis Campaign guidelines for early identification and treatment of sepsis (Reyes et al., 2018). The majority do not have ready availability of an on-site medical provider, rapid laboratory and imaging services, appropriate broad-spectrum antibiotics, or the staffing to monitor residents with sepsis as often as needed. Additional challenges include difficulty reaching the on-call provider by phone and missing or incomplete information about a resident's goals of care (Jump et al., 2019).

Current State of Nursing Practice

One evidence-based program that is available to SNFs to improve the care of residents with possible sepsis is the INTERACT quality improvement program. The INTERACT program is focused on improving the identification, evaluation, and management of acute changes in condition in nursing home residents (Ouslander, et al., 2014). Hospitalization of nursing home residents has been shown to be reduced with effective implementation of the INTERACT program.

INTERACT uses several tools, including decision support tools, called *care paths*. Although the INTERACT program does not have a care path specifically for sepsis, criteria relevant to the early identification of sepsis are embedded in care paths for the most common infections that frequently lead to hospital transfer. The INTERACT developers note that the atypical and complicated nature of nursing home patients contributes to challenges identifying

sepsis; thus, almost any change in condition from baseline can signify developing sepsis (INTERACT, 2017).

In addition to care paths, the INTERACT program includes a Stop and Watch Early Warning Tool. This tool is designed so residents' families and non-licensed nursing home staff have a means for reporting non-clinical changes in condition that might signal early sepsis. There is also a communication form based on the Situation, Background, Assessment, Recommendation (SBAR) method that licensed nurses can use as an organized way to report a resident's change in condition via phone to a medical provider.

Significance of Nursing Practice

As previously noted, nursing homes have limitations in implementing the complete Surviving Sepsis Campaign's guidelines. However, there are components of the guidelines that might be feasible in SNFs. Jump et al. (2019) suggest SNF staff can be considered first responders for elderly residents with suspected sepsis. By employing the evidence-based guidelines for sepsis care in an efficient and timely manner, nursing home staff can improve outcomes for older adults with sepsis. The steps SNF nurses can take include collecting appropriate cultures, administering broad-spectrum antibiotics and intravenous fluids, frequent monitoring of vital signs, and recording and communicating clinical data. Jump et al. (2019) also advised SNFs have a sepsis kit stocked with all the needed supplies for easy access.

It is essential whenever possible to have advance conversations with residents or their surrogate decision-makers regarding their preferences and goals for care and to document those preferences. This is in line with the Surviving Sepsis Campaign's (Rhodes et al., 2017) guidelines as sometimes comfort-focused care might be more appropriate than the aggressive

treatment that sepsis care requires. The INTERACT (2017) program also encourages the consideration of residents' goals of care when deciding how to treat sepsis.

Reyes et al. (2018) suggested combining sepsis screening methods, such as incorporating the Stop and Watch and 100-100-100 Early Warning criteria, might increase the sensitivity and specificity of a tool to identify sepsis earlier in elderly nursing home residents. Also, as an increased number of SNFs acquire electronic health records systems, the analysis of more complete clinical data might allow the means to identify strategies to minimize the progression of sepsis in older adults.

Local Background and Context

Today's value-based health care system demands meeting the Triple Aim goals of improving patients' satisfaction with their care while simultaneously improving the quality of health care for groups of people at a reduced cost (Institute for Healthcare Improvement, 2020). The CMS includes nursing homes in their value-based programs with the intention of meeting these Triple Aim goals. Under the SNF value-based program, SNFs are evaluated by their performance on hospital readmission measures and can see up to a 2% reimbursement reduction in Medicare Part A payments for 30-day readmissions to the hospital. Conversely, SNFs with favorable 30-day readmission rates can receive up to a 1.6% bonus (Castellucci, 2018). SNF 30-day hospital readmission rates are posted on Nursing Home Compare, which is a website provided by CMS for the public to use when choosing a nursing home. With sepsis being a frequent readmission diagnosis, this problem can potentially affect which local SNF people in the community might select to place their elderly loved ones.

Hospital readmissions of elderly nursing home residents due to sepsis are costly and contribute to human suffering (Angelelli, 2016). Sepsis impacts elderly patients' quality of life, morbidity, and mortality. Sepsis also negatively impacts the health care system as a whole and individual SNFs specifically, which makes addressing the problem of sepsis in elderly nursing home residents imperative.

The nursing home in which this DNP project took place is a 138-bed skilled nursing and long-term care facility in an affluent suburb of Los Angeles, California. Like most SNFs, the majority of the front-line nursing care is provided by unlicensed certified nursing assistants and LVNs. With the majority of the nursing staff being CNAs and LVNs, the exposure to evidence-based practice is limited. Additional challenges include those documented in the literature. There is limited availability of fast laboratory and pharmacy services, and providers visit irregularly. The nursing staff is tasked with multiple duties that must be accomplished each shift, with regulatory requirements regarding documentation and the timing of activities adding to the workload. There was no electronic health record implemented, so all patient care documentation was done on paper. Vital signs and advanced directives are not completed consistently, and communication from one nurse to another and one shift to another can be inconsistent.

This SNF does have some strengths. Included in the facility's mission statement and vision are goals of providing high quality, person-centered care. Although not utilized to its full capacity, the INTERACT program is in place. Many of the nurses are eager to learn how to provide better care for their patients. Also, there is strong leadership. It is clear the DON and administrator consider the quality of patient care to be a priority, and they have worked diligently

over the past few years to improve the facility's CMS quality rating. Reducing readmissions of residents to the hospital is meaningful to this SNF.

Role of the DNP Student

I am a gerontological nurse practitioner (GNP). I have been a RN for 27 years and a GNP for 21 years, with the majority of my nursing career spent in SNFs. Over the years, I have observed how the frequent regulatory changes mandated by CMS impact the nursing staff and resident care. While the intentions of regulations are positive, the burden on the staff to maintain compliance can be high. My current employer is a large health maintenance organization (HMO) that is concerned about avoiding hospital readmissions, so the issue of readmissions of older adults from the SNF to the hospital is a significant personal issue and employment issue.

The SNF in which the project took place was my practicum site. I also provide care as a nurse practitioner for the patients in the SNF who belong to the HMO I am employed by, and I visit patients at least three days a week. Since I am at the SNF often, I can assess patients regularly and have been able to catch some early signs and symptoms of possible sepsis and provide interventions. However, there have been times where even I have missed some opportunities for early intervention, so part of the motivation for this project is to increase my knowledge base on sepsis care for elderly nursing home residents. Many of the transfers of residents back to the hospital occur on the evening and night shifts and weekends, and I have noted even the medical director will give orders to transfer patients back to the hospital rather than provide work-up or treatment in the SNF.

I have developed relationships with some of the SNF nurses I work with regularly, and I believe they are comfortable talking with me about patient care and asking questions. It is crucial

to both the SNF team and my employer we help the residents be as healthy as possible and remain out of the hospital when possible, which the nurses understand. I think my bias is sometimes I set my expectations for the nurses' capabilities lower than what they are able to achieve. For my DNP project, I strove to keep an open mind and the belief the SNF nurses have the desire and ability to learn how to provide evidence-based care for our patients.

Role of the Project Team

The project team included the DON, medical director, DSD, and IP/ASD. They were asked to participate because of their clinical expertise in nursing practice and patient care in the SNF setting. Once Institutional Review Board (IRB) approval was received, the team members were asked to provide insight into the educational program as it was developed, thus fostering stakeholder ownership. Furthermore, they reviewed the final education program before implementation. They also consulted in the design of the pre/post-tests and established content validity per Polit and Beck's (2006) methods.

Summary

SNFs have unique challenges that reduce the likelihood of preventing, recognizing, and treating sepsis in older adults. The nursing staff is intrinsic to increasing the quality of care for residents with sepsis, with the goal of avoiding hospitalization when possible. As in Sloane et al.'s (2018) study, many of the characteristics the researchers found are present in this SNF as well. An educational intervention may offer improvement in the knowledge and confidence of the SNF nurses to assess elderly residents with sepsis and collaborate with providers to facilitate evidence-based care.

Section 3: Collection and Analysis of Evidence

Introduction

Elderly nursing home residents affected with sepsis are at increased risk for hospitalization and impaired quality of life and are more likely to experience morbidity and mortality. SNFs are especially challenged with catching the problem of sepsis early enough to intervene to provide the quality of care this vulnerable population needs. Furthermore, nursing home nurses often have limited experience with assessment skills and EBP for sepsis care, and barriers exist in communicating changes in condition with providers. The purpose of this doctoral project was to develop and implement an evidence-based educational intervention on sepsis care of older adults for nursing home nurses. Section 3 includes the sources of evidence used to address the practice-focused question, the strategies used to collect data, the project design, and the data analysis.

Practice-Focused Question

The local nursing practice problem is insufficient knowledge and skills of the SNF nursing staff to recognize changes in condition in residents that might signify sepsis and to report those changes to providers promptly. When early signs and symptoms of sepsis are missed, treatment is delayed, thus increasing potentially avoidable hospitalizations and negatively impacting residents' quality of life. Additionally, health care expenditures are likely to increase. This affects not only the residents, but there is also an impact on the SNF's quality ratings and the health care system in general.

The practice-focused question for this project was the following: Does an educational intervention focused on the signs and symptoms of sepsis in the elderly population increase the

knowledge and confidence of staff nurses working in a skilled nursing/long-term care facility to discuss patient condition with providers? The purpose was to provide a staff education intervention, which will be used to help inform and improve knowledge and skills using current evidence-based practices.

Sources of Evidence

Published Outcomes and Research

I conducted a comprehensive review of the published literature for peer-reviewed primary research articles using databases available in the Walden University Library, including ProQuest, MEDLINE, PubMed, Ovid, and CINAHL. Search terms included *skilled nursing facility* or *nursing home* or *SNF* or *long-term care*, AND *elderly* or *aged* or *older* or *elder* or *geriatric*, AND *sepsis* or *septic* or *severe sepsis* or *septic shock*. I located additional resources using the reference lists from selected articles. Preference was given for articles no more than 5 years old unless the data presented in older articles were still relevant and no updated data were available. Additionally, websites with expert, evidence-based information on sepsis care in older adults were used to address the practice-focused question and develop the educational intervention, including the websites of AMDA, INTERACT, MHA, and the CDC. There is a dearth of primary research on sepsis care in SNFs, but the primary research articles selected were reviewed for quality using the Health Evidence Quality Assessment Tool developed by McMaster University.

Evidence Generated for the Doctoral Project

Project Team

The SNF's DON, medical director, DSD, and IP/ASD are key stakeholders who were included in the development of the educational intervention. They were selected because they are experts on the provision of care for the population of nursing home residents and are responsible for the quality of care provided as well as the education and oversight of the nursing staff. I also consulted with these individuals in the design of the pretest/posttest and asked them to establish the content validity using the methods created by Polit and Beck (2006).

Participants

The participants of the educational program were the LVNs and RNs who are currently employed at the SNF. I invited all the licensed nurses to participate, but participation was voluntary.

Procedures

Using the published literature and expert resources as a basis, as well as the specific needs of the SNF, I developed an evidence-based educational intervention as part of the DNP project. The educational intervention was formatted as a PowerPoint presentation, which was selected due to the ability to provide information in a relatively short timeframe to a large group of nurses with an auditory learning style (Jefferey et al. (2016). I asked the project team to provide insight about the presentation material via formative review as it was developed. I applied their feedback and made recommended program revisions, and the project team members verbalized agreement that the presentation was appropriate to enhance the knowledge of the intended participants.

The next step was to develop a pretest and posttest based on the content in the presentation to determine if there was an increase in knowledge and confidence among the nurses who attended the educational intervention. The pretest included five demographic questions, 10 knowledge questions, and one confidence question (Appendix A). Knowledge was measured using the validated pretest and identical posttest. Participants were asked to identify each pretest and posttest with a unique identifier known only to them in order to match the pretest with the posttest. Confidence was measured with the question: On a scale of 1 to 7, with 1 being *not at all* and 7 being *most confident,* how confident are you discussing patient signs and symptoms of sepsis with providers? Following the intervention, the participants were asked to complete the posttest, using their unique identifier. An additional question was added to the posttest to evaluate the benefit of the educational intervention (Appendix B).

I provided the project team members with a copy of the finalized PowerPoint educational program, a copy of the pre- and posttests, and a copy of a sepsis assessment tool relevance rating scale (Appendix C). The relevance rating scale was used to establish content validity of the pretest and posttest via methods described by Polit and Beck (2006). A 4-point scale included *not relevant, somewhat relevant, quite relevant,* and *highly relevant*. The rating scale was completed anonymously by three of the four project team members. One of the team members declined to complete the scale due to lack of time in his schedule.

I implemented the final part of the project by presenting the PowerPoint to the nurses at the SNF project site. The DON assisted with recruiting the participants by scheduling a meeting at a specified date and time in between first and second shifts, with the intention of gathering as many of the nurses as possible. I proposed a second presentation session, but the DON did not

believe this to be a feasible option. Fifteen nurses attended the single presentation session. The 15 nurses were given a copy of Walden University's Consent Form for Anonymous Questionnaires, a copy of the pretest and posttest, and handouts of the PowerPoint presentation slides. Instructions were given to complete the pretest before the PowerPoint presentation and to complete the posttest after the presentation. The tests were administered in a pencil-and-paper format, and a small gift card was distributed to each participant upon return of the forms. The pre- and posttest completion and presentation session took approximately 1 hour.

Protections

I have a working relationship with participants, which has been ongoing and developing throughout daily interactions regarding mutual patients' care. Participation was voluntary, but a small gift card was offered to facilitate participation. I gave the Consent Form for Anonymous Questionnaires to the project team and participants. Participants identified their responses using a unique identifier known only to them. The pretest and posttest data were matched using the unique identifier. Protection was provided for human subjects, and only preapproved data were collected. The name of the partner organization and location are non-identifiable. No data from patients were collected. The Site Approval Form for Staff Education Doctoral Project was completed and approval obtained from Walden University's IRB, # 04-24-20-0975686, before the implementation of this project.

Analysis and Synthesis

Data were collected via the pretest and posttest and transcribed verbatim into Excel and then transferred into SPSS. Descriptive statistics were used to describe the sample. Inferential statistics were used to determine if there was a difference in pretest and posttest scores to verify

if learning took place, if there was an increase in confidence, and if the educational program was beneficial. A nonparametric test, specifically a Wilcoxon Signed Ranks Test, was used due to the small sample size. Once the data were transcribed into an electronic database, the paper pretest and posttest were destroyed.

Summary

In Section 3, I described the plan for the development, implementation, and evaluation of an evidence-based educational intervention for nursing home nurses to improve their knowledge and confidence in caring for older adults with sepsis. Additionally, the methods to establish usefulness of the intervention and validity of the evaluation tools was described. Section 4 includes the project findings and recommendations.

Section 4: Findings and Recommendations

Introduction

Many SNF nurses may have limited education and experience with evidence-based care of older adults with sepsis, thus contributing to missed signs and symptoms of sepsis in nursing home patients and untimely communication with providers. The identified gap in practice is a lack of nursing home staff education and training related to awareness of and assessment skills of impending sepsis in older adults, as well as limited ability to communicate findings in an efficient and timely manner to providers. The purpose of this doctoral project was to develop, implement, and evaluate an evidence-based educational intervention on sepsis care of older adults geared toward nurses working in SNFs. The practice-focused question for this project was the following: Does an educational intervention focused on the signs and symptoms of sepsis in the elderly population increase the knowledge and confidence of staff nurses working in a skilled nursing/long-term care facility to discuss patient condition with providers?

The sources of evidence used to develop this educational intervention included published literature and online expert resources, which were evaluated for the quality of their evidence base. Four SNF experts made up the project team, who assisted with review of the educational program for content and usefulness and provided content validity for the pre- and posttests. I then implemented the project with 15 participant nurses, who completed the pre- and posttests, and data were analyzed for results using a nonparametric Wilcoxon Signed Rank test.

Findings and Implications

Findings

Project Team Findings

Three of the project team members helped to establish content validity of the pre-and posttests using methods described by Polit and Beck (2006). An analysis of the responses revealed the pre- and posttests to be relevant, with an item-level content validity index (I-CVI) of 1.00. Data are presented in Table 1. The findings of a strong content validity index for this project's tools are limited to this educational intervention alone. Due to the small panel size, they are not generalizable to a larger expert panel.

Table 1

Expert Panel Findings

Item	Expert 1	Expert 2	Expert 3	#Agreement	I-CVI
1	4	3	4	3	1.00
2	4	4	4	3	1.00
3	4	4	4	3	1.00
4	4	4	4	3	1.00
5	4	3	3	3	1.00
6	3	4	3	3	1.00
7	3	4	3	3	1.00
8	4	4	4	3	1.00
9	3	4	3	3	1.00
10	3	4	4	3	1.00

Participant Findings

Fifteen nurses participated in the educational intervention. One of the participants did not respond to the demographic question; thus, demographics reflect only 98% (n = 14) of the sample. The majority of the sample were LVNs (n = 12), with 80% (n = 12) reported having between 1 and 10 years of nursing experience. Seven of the nurses (46.7%) reported not having

acute care experience, with the majority of the sample (53.3%; *n* = 8) having between 1 to 5 years of skilled nursing experience. Only two of the reporting nurses (13.3%) reported having previous education on sepsis.

Table 2

Demographic Data

	n	**Frequency (%)**
License		
RN	2	13.3
LVN	12	80.0
Missing	1	6.7
Total	15	100.0
Years as a Nurse		
1-5	6	40.0
6-10	6	40.0
11-15	0	0
16 or more	2	13.3
Missing	1	6.7
Total	15	100.0
Acute Care Practice		
Yes	6	40.0
No	7	46.7
Missing	2	13.3
Total	15	100.0
Years as a SNF Nurse		
1-5	8	53.3
6-10	4	26.7
11-15	1	6.7
16 or more	1	6.7
Missing	1	6.7
Total	15	100.0
Previous Sepsis Education		
Yes	2	13.3
No	10	66.7
Missing	3	20.0
Total	15	100.0

Findings of the educational intervention regarding increased knowledge and confidence of SNF nurses in the care of older adults with sepsis. All 15 participants responded to the pretest and posttest questions. The mean pretest score was 7.53 (SD = 1.50) with a range of 4 points to 10 points, with the mean posttest score being 8.06 (SD = 1.27) with a range of 5 points to 10 points. Using a Wilcoxon Signed Ranks test to determine if there was a difference in pretest and posttest scores, there was no statistical difference in pretest and posttest scores (z = -1.63, p > 0.05) (Table 3). Confidence was also measured among the sample (n = 13), using a single question of: How confident are you in discussing patient signs and symptoms with providers? ranked on a Likert-scale of 1–7 with 1 = *Not confident* and 7 = *Most confident*. The average pretest confidence score was 4.69 (SD = 1.31) with a range of 4 to 7 points. The average posttest confidence score was 5.61 (SD = 0.86) with a range of 4 to 7 points. Using a Wilcoxon Signed Ranks test to determine if there was a difference in pretest and posttest confidence scores, there was a statistical difference in pretest and posttest confidence scores (z = -2.80, p < 0.01). Last, the sample was asked to rate the benefit of the educational intervention on nursing practice using a Likert-scale of 1 to 7 with 1 = *Not beneficial* and 7 = *Most beneficial.* On average, the participants (n = 13) rated the benefit of the educational intervention as 6.15 (SD = 1.34) (Table 4)

Table 3

Descriptive Statistics with Pretest and Posttest Scores

	n	Minimum	Maximum	Mean	SD
Pretest score	15	4.00	10.00	7.53	1.50
Posttest score	15	5.00	10.00	8.06	1.27
Pre-confidence	13	2.00	7.00	4.69	1.31
Post-confidence	13	4.00	7.00	5.61	.869
Benefit	13	4.00	7.00	6.15	1.34

Table 4

Wilcoxon Signed Ranks Test

	Posttest – Pretest	Post-confidence – Pre-confidence
Z	-1.634	-2.807
Asymp. Sig. (2-tailed)	.102	.005

Although the results from the participants' pre- and posttest scores reveal a lack of statistical significance to support a difference between pretest and posttest knowledge, there is a clinical difference as the posttest average score is higher than the average score of the pretest, indicating that learning took place. Thus, from a clinical perspective, patient care and outcomes may potentially be improved. The statistically significant difference in pretest and posttest confidence scores indicated the educational intervention achieved its purpose to increase the confidence of SNF nurses to discuss patient signs and symptoms of sepsis with providers. Additionally, the average score of 6.15 on the educational benefit scale indicated the participants were satisfied with the educational intervention to enhance their nursing practice of the care of older adults with sepsis.

Unanticipated Limitations or Outcomes

I anticipated there would be a significant difference in knowledge and confidence between the pre- and posttests; however, the findings did not support this expectation. I gave consideration to potential causes that impacted the findings. First and foremost, the COVID-19 pandemic began to affect the local community and SNF project site in March 2020. The pandemic has been ongoing for nearly a year, challenging the SNF staff and project development and implementation. The SNF nurses had competing demands and responsibilities due to the

pandemic, which were in addition to their usual activities. A key member of the project team was away from work for over 3 weeks, which contributed to a decrease in support from this individual. Additionally, the original IP/ASD resigned earlier in the project and was replaced by an externally hired individual, which impacted continuity within the project team. The new IP/ASD quickly became occupied with the need to address infection control and mitigation.

Furthermore, although the overall sample size was small, the group was too large to provide the level of interaction that would be ideal to present the volume of information more effectively. Additionally, the physical space available at the time the educational presentation was offered was not conducive to a comfortable learning environment. Some of the nurses had already worked a full shift before the presentation, while others needed to start their shift after the presentation. My perception is that some of the nurses were rushed and may not have been able to provide full concentration to the presentation and posttest. The concurrent COVID-19 pandemic and initiation of a new electronic health record system within a couple of weeks before the educational presentation contributed to the need for the SNF nurses to absorb large and rapidly changing amounts of information, thus likely impacting knowledge retention of the sepsis presentation material.

Implications

Although the educational intervention findings did not support a statistically significant change in SNF nurses' knowledge based on this single presentation, there was a clinical difference to support that learning took place. Social change can be promoted by developing and implementing evidence-based programs for SNF nurses. The quality of life of older adults in nursing homes and the cost to the health care system are negatively impacted by hospitalization

due to sepsis, some of which may be avoided by more timely assessment and intervention. SNF nurses can be empowered by having the ability to provide evidence-based, quality care for their patients. Additionally, SNFs benefit from an improved reputation within the community and higher quality ratings awarded by CMS for avoiding unnecessary hospitalizations. Individuals within the community can then be assured their elderly loved ones receive the best care within the nursing home.

Recommendations

The information I provided in the PowerPoint presentation was a synthesis of the best evidence-based information to guide SNF nurses in caring for older adults with sepsis. There was clinical improvement between the pre- and posttest scores, and some nurses verbalized their knowledge base was improved. However, I would recommend making some changes to the presentation format for future educational purposes. I would divide the information into smaller segments that could be presented in online modules or shorter 15-minute small group presentations. Online modules have the advantage of self-paced learning that can be completed around the work schedule, while small groups allow for case studies and role-play (Jeffery et al., 2016). These learning activity formats could incorporate realistic scenarios to encourage critical thinking skills and build confidence. I recommend adding the educational modules for new SNF nurses during orientation to provide them with a foundation on which to build as they provide daily care for residents. Furthermore, I would recommend that the educational program be updated annually with current evidence-based information and be offered as part of yearly competency for experienced SNF nurses to refresh their knowledge base.

Contribution of the Doctoral Project Team

I asked a group of four experts from the SNF project site to participate in formative review of the PowerPoint presentation. The experts provided verbal feedback regarding the content of the presentation, and after I made minor revisions, they verbalized satisfaction with the presentation to meet the learning objectives and the needs of the SNF nurses. The project team was then asked to assist with establishing content validity of the pretest and posttest I developed. Three of the four team members anonymously completed a 4-point relevance rating scale to establish content validity based on methods described by Polit and Beck (2006), and a strong I-CVI was confirmed. The DON assisted with scheduling the date and time to present to the nurses, and one of the team members helped set up the meeting room and provided copies of the handouts. I believe that had the COVID-19 pandemic not been coinciding with the development of my educational intervention, the project team members would have been more available to contribute to successful implementation, such as facilitating a more comfortable room and availability of more presentation dates and times. The DON and IP's time was especially limited due to pandemic-related duties.

I plan to make the sepsis educational program available to the DON and DSD at the SNF project site, but, as previously discussed, I would first make some revisions to the format. Ideally, I would like to see this information provided for new nurses during orientation and annually for all nurses as a refresher, with relevant information updated as the evidence is updated.

Strengths and Limitations of the Project

This doctoral project's strengths include the comprehensiveness of the information provided in the PowerPoint presentation and the relationship I have with the stakeholders. Using Rosswurm and Larrabee's (1999) model as a guide, evidence-based information on the topic of sepsis care of older adults was synthesized to provide a thorough presentation designed to enhance SNF nurses' knowledge and confidence. The presentation stimulated conversation on the topic, and some of the nurses verbalized interest in learning more about sepsis. The opportunity to work on this project enhanced the development of stronger relationships with individual team members and nurses, who are vital stakeholders in facilitating quality patient care. The PowerPoint presentation is a lecture-style format, which has the advantage of presenting information in a relatively short timeframe to a large group of learners (Jeffery et al., 2016).

Despite some of the advantages of a lecture format, there are some limitations. The lecture format does not allow for much interaction between teacher and learners because there is one-way communication, with learners in a passive role. A 1-hour time frame between work shifts to provide the presentation and administer the pre- and posttests created a limited opportunity for the participants to ask questions. The small sample size and the fact the educational intervention took place in one SNF may limit applicability to other SNFs.

Recommendations

Recommendations for future projects on education about sepsis care of older adults for SNF nurses would include the increased application of step four of Rosswurm and Larrabee's (1999) model for change to evidence-based practice, which involves designing a change in

practice. Nurse leaders from the staff should be included to provide recommendations about the educational format, which would foster stakeholder ownership. These nurse leaders could then be mentors for other nurses. Considering the limited time available for educational intervention and the likelihood most SNF nurses are LVNs/LPNs with less formal nursing education, additional recommendations would be to duplicate the education provided in the project in shorter segments.

Learning is the second level of evaluation defined by Kirkpatrick, which assesses knowledge, skills, or attitudes (as cited in Jefferey et al., 2016, p. 125). Learning is the evaluation level measured in this doctoral project. However, longer-term projects on sepsis education for SNF nurses would help assess longer-term outcomes, particularly changes in behavior and results. The evaluation of behavior would determine if nurses' job performance changed as a result of the project. Evaluating results would determine if nursing home residents' care improved due to the project, as evidenced by a decrease in hospital admissions due to sepsis.

Section 5: Dissemination Plan

Dissemination of scholarly nursing research and project findings benefits the discipline of nursing by contributing to the foundation of evidence-based nursing practice. Neglecting to disseminate findings represents a loss of valuable knowledge because the synthesis of evidence-based findings facilitates improved care for patients, which benefits individuals, communities, and the health care system (Gray et al., 2017). I plan to present the project findings to the project team and licensed nurses at the SNF project site. Although there was not a statistically significant difference in knowledge, a clinical difference in learning was demonstrated. The licensed nurses show an ongoing eagerness to learn how to provide quality care for the SNF patients, and presenting the findings will ensure learning continues to happen. I will summarize the project and present the results as a PowerPoint presentation at the first available clinical staff meeting when physical distancing is no longer mandated. Ideally, I will present my project at the Gerontological Advanced Practice Nurses Association (GAPNA) annual conference, either as a poster presentation or as a podium presentation during a breakout session on student projects. However, before disseminating the project to a broader audience, I would like the opportunity to repeat it using some of the recommendations.

Analysis of Self

Provider

I have been a nurse for almost 3 decades and an advanced practice nurse for over 20 of those years. The majority of my nursing practice has been in post-acute/long-term care, providing care for older adults. I feel passionate about improving the quality of care for this vulnerable population. Still, I became apathetic about my current role, which is exclusively as a

provider for an HMO. The Institute of Medicine (2010) advises nurses to achieve higher education levels to respond to patients' increasingly complex needs and the demands of the healthcare system. Over the years, I have witnessed the requirements placed on SNFs to meet the needs of the growing aging population, which includes more individuals with numerous health problems. However, I did not feel I had the credentials or the voice to contribute to policy and practice changes that must be made to improve the quality of care for older adults in SNFs. DNP-prepared nurses have enhanced abilities as scholars, practitioners, and project leaders. I chose to go back to school to be challenged out of my sense of lassitude and increase my opportunities to earn a seat at the table to lead much-needed change in this setting.

Practitioner

As a practitioner, my abilities have grown over the past 20 years throughout my experiences as an advanced practice provider. One of the Essentials of Doctoral Education presented by the American Association of Colleges of Nursing (2006) is advancement of clinical judgement and systems thinking skills. Working on this DNP project has helped me continue improving as a practitioner by advancing those particular skills while designing, implementing, and evaluating an evidence-based educational intervention. Furthermore, working with project team members, especially the site’s DON, facilitated the development of therapeutic relationships with other professionals to improve patient care. Additionally, mentorship can positively influence evidence-based changes within an organization (Sherrod & Goda, 2016). Although my project's findings were not as robust as expected, I have had more opportunities to mentor and support SNF nurses to improve their own nursing practice through the development and implementation of the project and post-implementation conversations.

Scholar

Since earning my master of nursing degree in 1999, I have had respect for EBP. I read peer-reviewed nursing journals often and attempt to apply what I have learned to my practice. However, while working toward my DNP degree, my ability to evaluate and apply EBP has expanded. The need to search the literature and additional resources for this project and other courses and evaluate the quality has helped me gain a greater understanding of the breadth of information available to improve nursing practice and patient care. Throughout this project's development, I have learned a great deal about the translation and application of research information to guide evidence-based solutions. I had previously avoided applying nursing theory and frameworks to guide my nursing practice, thinking them to be cumbersome and unnecessary. However, I found Rosswurm and Larrabee's (1999) model relevant and useful, and I now appreciate the scholarship of such a model to facilitate translation of evidence into practice. I intend to use Rosswurm and Larrabee's model to guide future projects, and I will explore others as well.

Project Manager

My ability to improve my skills as a project manager was the most frustrating. There are numerous identified barriers to project implementation, some of which I experienced. In particular, not being an employee of the SNF project site was a barrier. Moran et al. (2017) described the barrier of *not invented here*, which means DNP students who do not have an established relationship with the organization where the project takes place have more challenges with successful implementation (p. 337). Although I have a relationship with the SNF project site, it is as a provider who sees patients for an outside medical group. I had difficulty

maintaining the project team members' interest in my project. Additionally, the stakeholders were busy with their responsibilities, so the investment of their time in my project was limited.

Other barriers that limited my ability to be a strong project manager were out of anyone's control. First and foremost, no one could have predicted the COVID-19 pandemic, which began during my project and is still ongoing. The pandemic has immensely impacted the SNF setting, which meant my project team's focus shifted dramatically to mitigating the pandemic's effects within the building. However, I was able to incorporate some relevant, timely information about COVID-19 into my project presentation.

Despite the typical challenges to project management, plus a significant challenge in the form of a pandemic, I believe the foundation has been laid for me to build project management skills. I have improved my communication skills and fostered interprofessional relationships during the development of this project. One LVN at the SNF project site said she thinks I would be an excellent DON. I believe I could impact the translation of evidence into SNF practice as a leader embedded within a facility. That could manifest as a DON position, but I would like to look into the possibility of a role as an assistant medical director. Ultimately, my long-term professional goal is to have a position within a SNF organization that would combine opportunities for patient care, policy and program development, leadership, and nursing staff education.

Summary

Sepsis is a significant cause of poor outcomes for older adults receiving care in the post-acute/long-term care setting. Older adults in SNFs who develop sepsis are at high risk of hospitalization and increased morbidity and mortality, contributing to impaired quality of life for

these patients and burdening the healthcare system. SNF nurses, being front-line licensed caregivers, need to have the knowledge, skills, and confidence to recognize the signs and symptoms of impending sepsis and communicate accurately and efficiently with providers. By having such skills, nurses are instrumental in improving outcomes for elderly nursing home patients with sepsis.

Many SNF nurses have limited formal education and experience with EBP in general and specifically regarding older adults with sepsis. Therefore, I developed and implemented this DNP project to increase SNF nurses' knowledge and confidence to provide evidence-based care of elderly nursing home patients with sepsis. The project outcomes showed a clinical improvement in the participant nurses' knowledge; an improvement in confidence was also shown. Ongoing, updated education on sepsis care of the older adult, based at the learners' level, is likely to empower SNF nurses to provide quality care for nursing home patients, thus improving outcomes for this vulnerable population.

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Appendix A: Sepsis Education Pre-Assessment

Sepsis Education Pre-Assessment (Please complete BEFORE the presentation based on your current knowledge)

Demographic information:

1. How long have you been a nurse?
   - □ 1-5 years
   - □ 6-10 years
   - □ 11-15 years
   - □ 16 or more years

2. What is your license?
   - □ RN
   - □ LVN

3. Have you practiced as a nurse in an acute care setting?
   - □ Yes
   - □ No

4. How long have you practiced in the skilled nursing facility setting?
   - □ 1-5 years
   - □ 6-10 years
   - □ 11-15 years
   - □ 16 or more years

5. Have you received education on sepsis previously?
   - □ Yes
   - □ No

Pretest

1. Two early signs and/or symptoms of sepsis are:
   - a. Hypotension and difficulty swallowing
   - b. SOB and cough
   - c. Confusion and change in function
   - d. Fever and nausea

2. Which two forms of treatment for sepsis should be given immediately:
   - a. Pain medication and fluids
   - b. Fever reducer and antibiotic
   - c. Antibiotic and fluids
   - d. Pain medication and fever reducer

3. The most common sources of infection leading to sepsis in older adults are:
   - a. Wound and respiratory
   - b. Respiratory and urinary tract
   - c. GI and wound
   - d. GI and urinary tract

4. How quickly should the Surviving Sepsis Campaign "sepsis bundle" be initiated:
   - a. 1 hour
   - b. 3 hours
   - c. 6 hours
   - d. 12 hours

5. There is an accurate tool to identify sepsis that can be used in SNFs:
   - a. True
   - b. False

6. All the following are recommended for sepsis care in SNFs **EXCEPT**:
   - a. Sepsis kit
   - b. Sepsis event flow sheet
   - c. Documented advanced directives
   - d. Monitoring VS every shift

7. If not treated quickly, sepsis can result in:
   - a. Pneumonia
   - b. Death
   - c. Urinary tract infection

- d. Confusion

8. Effective communication regarding a resident/patient with sepsis includes all the following **EXCEPT**:
   - a. Active surveillance
   - b. Discussion about goals of care
   - c. Sepsis SBAR
   - d. Family history

9. Which of the following correctly depicts two of the four SIRS criteria:
   - a. Nausea and vomiting
   - b. Increased temperature and diarrhea
   - c. Headache and fever
   - d. Increased pulse and respiratory rate

10. Older adults with sepsis will always have a temperature of 100 degrees F or more:
    - a. True
    - b. False

11. On a scale of **1** to **7**, with **1** being *not at all* and **7** being *most confident*, how confident are you discussing patient signs and symptoms with providers? **(Circle one)**

1-----2-----3-----4-----5-----6-----7

Not at all Confident	Somewhat Confident	Most Confident

Appendix B: Sepsis Education Post-Assessment

Sepsis Education Post-Assessment (Please do NOT complete until after the presentation)

1. Two early signs and/or symptoms of sepsis are:
   - a. Hypotension and difficulty swallowing
   - b. SOB and cough
   - c. Confusion and change in function
   - d. Fever and nausea

2. Which two forms of treatment for sepsis should be given immediately:
   - a. Pain medication and fluids
   - b. Fever reducer and antibiotic
   - c. Antibiotic and fluids
   - d. Pain medication and fever reducer

3. The most common sources of infection leading to sepsis in older adults are:
   - a. Wound and respiratory
   - b. Respiratory and urinary tract
   - c. GI and wound
   - d. GI and urinary tract

4. How quickly should the Surviving Sepsis Campaign “sepsis bundle” be initiated:
   - a. 1 hour
   - b. 3 hours
   - c. 6 hours
   - d. 12 hours

5. There is an accurate tool to identify sepsis that can be used in SNFs:
   - a. True
   - b. False

6. All the following are recommended for sepsis care in SNFs **EXCEPT**:
   - a. Sepsis kit
   - b. Sepsis event flow sheet
   - c. Documented advanced directives
   - d. Monitoring VS every shift

7. If not treated quickly, sepsis can result in:
   - a. Pneumonia
   - b. Death

- c. Urinary tract infection
- d. Confusion

8. Effective communication regarding a resident/patient with sepsis includes all the following **EXCEPT**:

- a. Active surveillance
- b. Discussion about goals of care
- c. Sepsis SBAR
- d. Family history

9. Which of the following correctly depicts two of the four SIRS criteria:

- a. Nausea and vomiting
- b. Increased temperature and diarrhea
- c. Headache and fever
- d. Increased pulse and respiratory rate

10. Older adults with sepsis will always have a temperature of 100 degrees F or more:

- a. True
- b. False

11. On a scale of **1** to **7**, with **1** being *not at all* and **7** being *most confident*, how confident are you discussing patient signs and symptoms with providers? **(Circle one)**

1-----2-----3-----4-----5-----6-----7

Not at all Confident	Somewhat Confident	Most Confident

12. On a scale of **1** to **7**, with **1** being *not at all* and **7** being *most beneficial*, how beneficial how would you say this educational presentation was for your nursing practice? **(Circle one)**

1-----2-----3-----4-----5-----6-----7

Not at all Beneficial	Somewhat Beneficial	Most Beneficial

Appendix C: Sepsis Assessment Tool Relevance Rating Scale

Item 1:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 2:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 3:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 4:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 5:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 6:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 7:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 8:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 9:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant

Item 10:

- 1. Not relevant
- 2. Somewhat relevant
- 3. Quite relevant
- 4. Highly relevant