Bridging the Gap: Educating Medical-Surgical Unit Nurses in a Large Hospital Organization on Sepsis Bundle Elements

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Bridging the Gap: Educating Medical-Surgical Unit Nurses in a Large Hospital Organization on Sepsis Bundle Elements

Meara Matthews

School of Nursing and Health Professions, University of San Francisco

NURS 653-04: Internship

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April 26, 2023
Abstract

**Problem:** Sepsis is a life-threatening response to infection that remains one of the leading causes of death worldwide. Based off results obtained from a pre-education survey of nurses on a medical-surgical unit in a large hospital organization, there is an opportunity to increase knowledge and confidence level regarding sepsis and care of septic patients so that nurses are prepared to detect sepsis early and intervention can begin.

**Context:** The project is being conducted in a medical-surgical unit at a large hospital organization in Northern California. The data from the survey includes 17 nurses on the unit who completed the pre-education survey on February 15, 2023, by Dr. Theresa Mostasisa.

**Interventions:** Nurses on the unit will be educated on sepsis through a handout presented at the monthly staff meeting. This handout will also be distributed on the unit in order to increase nurse awareness regarding sepsis along with the facility’s protocol surrounding the timed sepsis bundle requirements.

**Measures:** The anonymous pre-education survey was distributed to nurses on the medical-surgical unit to gain an understanding of the nurses’ knowledge and confidence in recognizing and managing patients diagnosed with sepsis. The survey includes five quantitative data-based questions to assess individual knowledge and confidence level and one qualitative data-based question which attempts to recognize the respondent’s familiarity with the facility’s sepsis bundle requirements. After education has taken place, the same survey questions will be given as a post-education survey in order to determine if the intervention was successful.

**Results:** Due to time constraints, the post-education survey results were not obtained. Based off evidence-based practice, this intervention will be successful. A study conducted by Chua et al. (2022) found that education and sepsis training results in higher knowledge and confidence
scores when surveyed. A study conducted by Choy et al. (2022) found educational programs to be effective and provide a positive effect on knowledge outcomes which leads to improvements in patient outcomes. A study by Yousefi et al. (2012) concluded that an educational workshop improved knowledge, attitude and practice of nurses in the study.

**Conclusions:** Nurses are placed in a unique position at the bedside to respond quickly and efficiently if a patient is showing warning signs for developing sepsis. Through educational initiatives, the hospital can support nurses by ensuring they have a high knowledge and confidence level in recognizing and caring for patients with sepsis to ensure high-quality, safe care is provided.

**Keywords:** nurse education, sepsis, acute care, education, knowledge, confidence, survey, severe sepsis, septic shock, sepsis management
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Educating Medical-Surgical Unit Nurses in a Large Hospital Organization on Sepsis

Bundle Elements

Sepsis, a life-threatening organ dysfunction caused by an extreme response to infection, continues to be a leading cause of death in hospitalized patients worldwide. Around 50 million patients are diagnosed with sepsis annually resulting in nearly 20% of deaths globally (Chua et al., 2022). Sepsis most commonly originates in the lung, urinary tract, skin or gastrointestinal system (CDC, 2022). Severe sepsis and septic shock are both subsets of sepsis that may result from progression of the infection. Severe sepsis can be distinguished after one or more organ systems have been damaged (Sepsis Alliance, 2022). Septic shock results in metabolic, circulatory, and cellular abnormalities with a drop in blood pressure and brings a higher chance of death than sepsis alone (Sepsis Alliance, 2022). When patients diagnosed with sepsis are admitted to critical care units, statistics show that one in three will not survive 30 days after admission (van der Poll, 2021). Current treatment for sepsis remains largely supportive, including antibiotic administration, fluid resuscitation, source control and supportive care for organ dysfunction (van der Poll, 2021). Sepsis also imposes a large financial burden on the healthcare system with the estimated annual cost on hospital care exceeding $24 billion, including the nearly 14 million sepsis survivors who require readmission to hospital units after recovering from sepsis (Chua et al., 2022).

Problem Description

With sepsis having such a major impact on patient care, it is imperative that healthcare professionals are familiar with the most up-to-date treatments in order to provide high quality, safe patient care. By providing an educational handout to nurses on the unit, their knowledge and
confidence regarding care of septic patients will increase and in turn, will improve patient outcomes. Currently, diagnostic techniques and strategies to individually manage sepsis care are being researched, but education of nursing staff and quality improvement programs are imperative to improve patient outcomes (Cecconi et al., 2018). In a recent study conducted in Singapore, sepsis education and training programs can be implemented in order to increase nurses’ knowledge and confidence in care of patients diagnosed with sepsis (Chua et al., 2022).

Data from the pre-education survey (Appendix E) conducted by Dr. Theresa Mostasisa on February 15, 2023 was returned and analyzed to determine a baseline knowledge and confidence level of nurses on the unit. The survey used the Likert-scale questions to determine a baseline level of understanding the nurses had before the intervention. After the results of the pre-education survey were analyzed, it was revealed that 23% of nurses felt they had expert knowledge in their ability to explain sepsis, 18% felt they had expert knowledge in their ability to recognize the difference between severe sepsis and septic shock, 35% felt they have expert knowledge in their ability to care for septic patients, 12% felt they have expert knowledge in their ability to teach about sepsis, and 5% felt they have expert knowledge in their familiarity with the “Inpatient Handoff Sepsis Bundle Checklist” (Mostasisa, 2023).

Available Knowledge and Literature Review

In order to understand best practice in improving patient outcomes through nurse education, the team began with a literature review to find evidence-based practice to support the education project. Research regarding best practice in improving nurse knowledge and confidence in care of sepsis patients began by searching databases with keywords such as nurse education, sepsis, acute care, confidence, education, knowledge, management, nursing,
recognition, registered nurse, survey, severe sepsis, septic shock, and sepsis management. This search yielded many results from which the most relevant articles were filtered and chosen.

One study conducted by Chua et al. (2022) was found in which an online survey was developed and distributed to nurses in inpatient and emergency departments of three hospitals within a single healthcare cluster (2022). A total of 709 nurses returned surveys revealing moderate levels of knowledge and confidence about recognizing and responding to patients with sepsis. It was found that by providing a stronger foundation in sepsis education and training programs along with the implementation of sepsis screening tools and care bundles, knowledge and confidence of nurses was enhanced which led to earlier recognition and response to a patient with a diagnosis of sepsis (Chua et al., 2022).

Another study conducted by Edwards & Jones (2021) surveyed nurses from 16 acute medical and surgical units in order to explore the effects of sepsis training on knowledge, skills, and attitudes of nurses. This study concluded that nurses with sepsis training had better knowledge of early warning signs for sepsis screening and SIRS criteria, had a more positive attitude towards sepsis screening and management and were more confident in managing patients with sepsis, showing that sepsis education has a positive impact on patient care (Edwards & Jones, 2021).

This project is directed by researching if nurses on the medical-surgical unit at a hospital within a large organization will have improved knowledge and confidence regarding care of patients diagnosed with sepsis after receiving an educational handout compared to no educational materials being provided. This literature review along with other relevant articles are summarized in Appendix A.

**Rationale**
This quality improvement project was conducted surrounding Kurt Lewin’s Theory of Planned Change. This framework includes the unfreezing, change and refreezing stages in order to bring about a change in the microsystem. In the first stage, unfreezing, the team prepared the microsystem for the upcoming change. During this stage, the microsystem assessment was conducted to better understand the current practices on the unit. Also, during this stage, the team analyzed pre-education survey data, conducted a literature review to reveal best evidence-based practice and presented information as to why the change was necessary. It was found that the necessary change was to increase nurses’ knowledge and confidence regarding care of septic patients through an educational handout. The second stage of Lewin’s theory is the change phase. During this stage, the team addressed the knowledge gaps currently present by creating an educational handout focused on the areas of improvement. This handout (Appendix D) was presented at the unit staff meeting on April 20, 2022. In the final stage of Lewin’s theory, refreezing, the change must be integrated into practice on the unit. The team will ensure that education regarding sepsis continues to take place by providing the educational handout to the unit’s nurse manager so that it may be utilized by staff in the future.

**Specific Project Aim**

The aim of this project is to increase the knowledge and confidence regarding sepsis with nursing staff on the medical-surgical unit by 25%. By developing an educational handout, the team will accomplish this goal at the end of three months with continued education of staff with post-education surveys reflecting improvement.

**Methods**

**Context**
This education project will be implemented in a medical-surgical unit within a large hospital organization in Northern California. Patients are either admitted to the unit with a diagnosis of sepsis or may develop sepsis during hospitalization. Nurses must be prepared to care for a septic patient or notice early signs that a patient is becoming septic so that the healthcare team can intervene. The purpose of the education project is to increase the knowledge and confidence level of nurses in caring for patients with sepsis through an educational handout. This study was started with a pre-education survey in order to understand the current knowledge and confidence level of nurses on the unit. This survey (Appendix E) was written and distributed by Dr. Theresa Mostasisa on February 15, 2023 and 17 nurses on the unit responded. The pre-education survey revealed that the majority of nurses did not have an expert level of knowledge and confidence regarding care of septic patients. Given these results, the team agreed that there is an opportunity present to increase the knowledge and confidence level of nurses on the unit regarding sepsis and care for patients with sepsis.

A current strength of the unit is that the majority of nurses feel that they are able to explain the definition, risk factors and cause of sepsis as 82% of nurses rate themselves a level four out of five or higher. Also, the “Inpatient Handoff Sepsis Bundle Checklist” is already and established resource on the unit and approved to use in practice (Kaiser Permanente, 2022). Current weaknesses on the unit include the fact that only 53% of nurses feel they can confidently teach sepsis, only 5% of nurses feel they have expert knowledge of the “Inpatient Handoff Sepsis Bundle Checklist”, and 35% of nurses feel they have a high confidence level in caring for septic patients. There is an opportunity to increase the knowledge and confidence of nurses through an educational handout that will supplement the existing sepsis education framework present on the unit. The education project is low cost with a high potential for increase in knowledge and
improved patient care. Possible threats to the project acknowledged include a potential for unwillingness of nurses to participate in the education project as well as nurses not truthfully rating their knowledge and confidence levels on the pre/post-education surveys. This SWOT analysis information may be found in a graphical representation in Appendix B.

This project comes at zero cost to the unit. The educational handout will be formulated by the students with approval from the Quality Nurse Consultant on staff with existing supplies. The education will be completed by the nurses during their workday and will require no overtime. This education project will be presented to the unit at the monthly staff meeting. Based off the Gantt cart, the team is projected to complete this project within 14 weeks (Appendix C).

**Intervention**

The quality improvement project regarding nurse education of sepsis and care for septic patients was proposed to implement over a 14-week period. The primary stage of this intervention was the pre-education survey (Appendix E) that was distributed by Dr. Theresa Mostasisa on February 15, 2023. The survey was distributed to registered nurses on the medical-surgical unit of the hospital in order to establish an understanding of their baseline knowledge and confidence level regarding care of septic patients. The voluntary and anonymous survey was distributed in person. The survey consisted of five Likert-scale questions in which the nurse would rank him or herself from zero, no knowledge, to five, expert knowledge, and one free response question to a case scenario. The free response question is focused on higher order thinking skills to prompt the nurse to respond with the elements of the six-hour bundle. The team analyzed the quantitative data from the five Likert-scale questions and the responses to the case scenario to gain an understanding of the current knowledge and confidence level of the nurses on the unit.
In the second stage of the intervention, the team compiled information about sepsis from reputable sources in order to create an educational handout (Appendix D). The information presented on this handout is a direct reflection of the questions asked in the pre-survey. It is meant to increase nurse knowledge and confidence in these specific areas so that nurses are better equipped to care for patients with sepsis, which will result in improved patient outcomes. The sections presented on the handout include definitions of sepsis, severe sepsis and septic shock, risk factors for sepsis, information on the “Inpatient Handoff Sepsis Bundle Checklist”, and an acronym for early warning signs of sepsis found from Sepsis Alliance. The educational handout was presented to the unit nurses at the staff meeting on April 20, 2023. The handout will also be available for nurses unable to make the staff meeting through a distribution on the unit.

After exposure to the educational intervention, nurses were given a post-education survey. This survey will include the same questions from the pre-survey so that the team could clearly see a trend in increased knowledge and confidence of nurses.

Study of the Intervention

After the intervention is implemented, the post-education survey will be distributed to the nurses on the unit to determine if the intervention was successful. Success is measured based off the increase in the average knowledge and confidence level of nurses in each area of the survey. The results from the pre-education survey will be compared with the results from the post-education survey to determine if knowledge and confidence level increased in each specified area.

Measures

Outcome measures are calculated based off the percentage of medical-surgical nurses that self-assessed their ability to expertly care for a septic patient. The team will analyze the
percentage improved of nurses being able to expertly explain sepsis, recognize the difference between severe sepsis and septic shock, teach sepsis, and familiarity with the “Inpatient Handoff Sepsis Bundle Checklist”. The team will calculate the average of each quantitative question by adding up all the scores and dividing by the number of respondents. These average scores will be compared from pre-education to post-education to determine the percentage of increased knowledge and confidence that was obtained by the nurses through the educational intervention.

Results

Given the limited time the team had to complete this quality improvement project, we were unable to obtain post-education survey results before the deadline. The team received positive feedback from members of the medical-surgical unit after the presentation of the project given at the staff meeting on April 20, 2023. The team presented the findings of the sepsis research along with the educational handout. The handout was distributed to the unit via the unit manager after the presentation so that nurses not present at the staff meeting can benefit from the handout as well.

Although the team was not able to obtain post-education survey results, there are several evidence-based research articles that support our hypothesis that educating medical-surgical nurses on sepsis and sepsis bundle elements will increase nurse knowledge and confidence and in turn, improve patient outcomes. In the first article written by Chua et al. (2022), 709 nurses across three hospitals within a single organization completed a survey to assess their current knowledge and confidence level in recognizing and managing patients with sepsis and identify factors present on the unit that contribute to their knowledge about sepsis. This study found that nurses who received education and training on sepsis in the past year had significantly higher survey scores than those who did not have training. This study also found that factors such as
nursing education level, clinical work area and job grade were predictors in the nurse’s sepsis knowledge (Chua et al., 2022). This component would be an interesting data set to include in future surveys conducted within the organization.

Additionally, Choy et al. (2022), provides a comprehensive evaluation of sepsis education among healthcare professionals through a 32-study review. This included studies that described and evaluated any educational sepsis training delivered to healthcare professionals (Choy et al., 2022). The majority of studies found educational programs to be effective and provided a positive effect on immediate knowledge outcomes which led to improvements in patient care processes and patient outcomes (Choy et al., 2022). Common learning topics among these studies included assessment of sepsis signs and symptoms, sepsis diagnosis, and the timely and appropriate management of sepsis. Several studies also looked into the use of a sepsis screening tool, sepsis management algorithm, and a sepsis management bundle (Choy et al., 2022). All 10 studies that examined a change in the learner’s attitude reported increased confidence in identifying and managing sepsis. Of the 32 total studies, 18 investigated knowledge outcomes after education, and all reported significant improvements in test scores after intervention (Choy et al., 2022). Educational interventions that required the healthcare professional to have an active role in the learning process showed longer retention of learned material.

Furthermore, Yousefi et al. (2012), conducted a quasi-experimental study in which 64 nurses with at least one year of ICU experience were scored through a questionnaire on knowledge, attitude and practice. After a one-day workshop, there were significant increases in mean scores of knowledge, attitude, and practice. The questionnaire, educational pamphlets and contents of the workshop included educational objectives, sepsis principles, and nursing care in
sepsis (Yousefi, 2012). Questionnaires were distributed immediately and three weeks after the educational workshop. Participants were divided into test and control groups in order to fully acknowledge whether a change occurred due to the intervention. In the pre-education questionnaire, there was no significant difference between the test and control group, but after the intervention the scores of the test group significantly increased. The changes indicated stable impacts of education on promoting knowledge, attitude and practice of nurses in the study (Yousefi, 2012).

Based on the results from these three evidence-based practice articles, the team can conclude that intervention in the form of an educational initiative will increase nurses’ knowledge and confidence levels which will lead to improved patient outcomes. This will have a positive effect on patient perception of nurse competence, patient satisfaction scores, and early recognition of sepsis. Increased compliance with sepsis bundles along with increased knowledge and confidence in the pathophysiology of sepsis allows nurses to respond faster to sepsis warning signs and reduce patient mortality (Bleakley & Cole, 2020). By familiarizing nurses with the facility’s sepsis protocols, they will be more knowledgeable about sepsis and confident in escalating patients with sepsis warning signs. Early sepsis intervention saves lives.

Limitations to this study included time and resources available. If presented with enough time, the team would have had the opportunity to conduct a post-education survey that would allow for a numerical representation of the improvement in knowledge and confidence levels of nurses. Given the time constraint, the results of the project remain hypothetical and supported by results from evidence-based practice. This educational initiative was also implemented at no cost to the unit. This was instrumental in getting fast support for the project from a stakeholder point of view. After researching the importance of learner’s taking an active role, the team would like
to have the opportunity to provide simulation training to nurses in order to increase long-term retention of information related to sepsis and utilization of the “Inpatient Sepsis Bundle Checklist” (Kaiser Permanente, 2022). This extra step would require budget approval from the board along with potential overtime costs for nurses to take part in the simulation.

**Discussion**

**Summary**

Throughout this project, the importance of timely detection of sepsis has been highlighted with almost every article referenced. Timely detection can best be accomplished when nurses are knowledgeable and confident in their ability to recognize and care for patients with sepsis. After learning the current state of the nurses’ knowledge and confidence level on the medical-surgical unit, it was evident that an opportunity for education existed. An educational handout was created to reflect information needed for nurses to feel they had an expert level of knowledge in each area. After implementation of the educational handout, the team unfortunately did not have enough time to gain post-education survey results, but based on evidence-based literature review, the implementation of an educational handout will successfully educate nurses on the significant information needed to recognize and care for a patient diagnosed with sepsis. Nurses with higher levels of knowledge and confidence about sepsis are better prepared to respond to a patient presenting with sepsis, leading to improved patient outcomes.

Based off results from previous studies, the way in which education is presented to nurses determines the long-term retention of information. Learning tends to be most effective when the individual needs to play an active role in the process. For example, one study shows that nurses should be given first-hand learning opportunities such as simulation or rotations in order to apply the knowledge into practice (Chua et al., 2022). This will strengthen their confidence level when
caring for a patient, knowing they successfully simulated the scenario. If this study were to be conducted again, the team would augment the education intervention with an active learning component such as a simulation to test the nurses’ knowledge of the time sensitive bundle elements. This would allow nurses to practice using the “Inpatient Handoff Sepsis Bundle Checklist” (Kaiser Permanente, 2022) and become more comfortable with the process, leading to increased confidence and improved patient outcomes.

Conclusions

Positioned at the frontline of patient care, nurses are in a unique position to recognize and respond to early warning signs of sepsis. Early detection leads to early intervention which improves patient outcomes greatly. By reaffirming the importance of knowing warning signs for sepsis, nurses will be better able to respond quickly and efficiently. Educational projects such as this sepsis handout, provide an important reminder to nurses of the necessity to maintain a current understanding of best practice to provide safe and quality care to patients. This educational project provides the framework for future implementation on any medical-surgical unit within this facility. Given the generalized nature of the handout, the Quality Nurse Consultant will be able to easily disburse the materials to any inpatient unit within the hospital setting, allowing for maximum benefit to nurses throughout the institution.

By ensuring nurses have high levels of knowledge and confidence regarding sepsis and care of patients with sepsis, the team has better positioned staff to provide high-quality and safe care to patients. This will allow for improved patient outcomes and patient satisfaction scores. Investing time and resources in nurse knowledge and confidence levels will help to provide a safe and high-quality patient experience during hospitalization. Early detection and intervention
of sepsis is vital for patient survival and can best happen with a knowledgeable and confident nursing staff.
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https://doi.org/10.12968/bjon.2020.29.21.1248

https://www.cdc.gov/sepsis/index.html


EDUCATING MEDICAL-SURGICAL NURSES ON SEPSIS


https://doi.org/10.12968/bjon.2021.30.15.920


https://doi.org/10.1097/ccm.0000000000003342


https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3696963/
Appendix A

Literature review:

<table>
<thead>
<tr>
<th>Author</th>
<th>Objective</th>
<th>Design</th>
<th>Sample Setting</th>
<th>Results</th>
<th>Conclusion</th>
<th>Implications for Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleakly &amp; Cole (2020)</td>
<td>Knowledge and use of clinical guidelines and sepsis screening tools help reduce patient mortality</td>
<td>Three diagnostic steps: blood cultures, measure lactate, measure UO; Three therapeutic steps: give oxygen to keep sats above 94%, give a fluid challenge, give IV abx</td>
<td>This article complies multiple studies in several hospital settings</td>
<td>Delivery of sepsis six within 1 hour of suspected sepsis saves lives (reduced rate of death by 46.6%)</td>
<td>Sepsis remains a significant healthcare challenge and economic burden. Sound understanding of pathophysiology of sepsis can equip nurses with the knowledge needed for early intervention</td>
<td>Increased knowledge leads to early intervention. By increasing nurses knowledge of sepsis nurses will be better prepared to use clinical guidelines and make a rapid intervention</td>
</tr>
<tr>
<td>Chua et al (2022)</td>
<td>To examine nurses’ knowledge and confidence in recognizing and managing patients with sepsis and identify nurse and workplace factors that influence their knowledge on sepsis</td>
<td>Online survey was developed and distributed to nurses in inpatient and ED of three hospitals of a single healthcare cluster. Statistical analysis of closed-ended responses and content analysis of open-ended responses</td>
<td>Multi-site, cross-sectional survey</td>
<td>Total of 709 nurses completed the survey. Nurses possessed moderate levels of knowledge about sepsis and confidence in recognizing and responding to patients with sepsis</td>
<td>A stronger foundation in sepsis education and training programs and the implementation of sepsis screening tools and care bundles are needed to enhance nurses' knowledge and confidence in recognizing and managing patients with sepsis</td>
<td>Increased education will help nurses be able to recognize and respond to sepsis</td>
</tr>
<tr>
<td>Damiani et al (2015)</td>
<td>To perform a systematic review of studies evaluating the impact of performance improvement programs on sepsis</td>
<td>Data from the studies included studies where extracted independently by two author. Random-</td>
<td>Studies on adult patients with sepsis, severe sepsis or septic shock that evaluate changes in compliance to bundle targets</td>
<td>Fifty observational studies were selected, performance improvement programs were associated</td>
<td>Performance improvement programs are associated with increased adherence to resuscitation and management</td>
<td>Evidence supports that performance improvement programs such as educational programs are associated with increased</td>
</tr>
<tr>
<td>Authors</td>
<td>Title</td>
<td>Methods</td>
<td>Results</td>
<td>Conclusion</td>
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<tr>
<td>Edwards &amp; Jones (2021)</td>
<td>To explore the effects of sepsis training on knowledge, skills, and attitude among nurses</td>
<td>Registered nurses from 16 acute surgical and medical units were invited to complete an anonymous survey</td>
<td>Sepsis training had better knowledge of the national early warning score for sepsis screening and the SIRS criteria, had a more positive attitude towards sepsis screening and management and were more confident in screening patients for sepsis</td>
<td>Sepsis training improves nurses attitudes, knowledge and confidence with regards to sepsis screening and management, resulting in adherence to evidence based care, and should become mandatory for staff</td>
<td></td>
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<tr>
<td>Mahapatra, S., Heffner, A. C. et al (2022)</td>
<td>Educate on causes of septic shock, presentation of septic shock, treatment of septic shock and nursing management of septic shock</td>
<td>Complies literature and evidence-based practice on symptoms and treatment of septic shock</td>
<td>Article provides information on medical management and nursing management of sepsis that will be useful in the beginning sections of the paper. Also, this information is important to know for why sepsis</td>
<td>Useful information on nursing care of sepsis patients as well as distinguishing severe sepsis and septic shock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Objective</td>
<td>Participants</td>
<td>Results</td>
<td>Recommendations</td>
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<tr>
<td>Yousefi et al (2012)</td>
<td>To review the effects of an educational program on knowledge, attitude, and practice of ICU nurses at a hospital in Iran</td>
<td>Quasi-experimental study in which subjects were randomly selected and divided into test and control groups. Scores of knowledge, attitude, and practice of the participants were reviewed through a researcher-made questionnaire before, during and three weeks after a one-day workshop</td>
<td>There were significant increases in mean scores of knowledge, attitude and practice in the test group during and three weeks after the intervention.</td>
<td>Training significantly improved levels of knowledge, attitude, and practice of ICU nurses in sepsis care. Compiling and organizing seminars and continuous basic educational workshops for sepsis care and recommended for healthcare providers.</td>
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Appendix B

SWOT analysis

<table>
<thead>
<tr>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Majority of nurses feel they are able to explain definition, risk factors, and cause of sepsis (82% rate themselves 4/5 or higher)</td>
<td>• Only 53% of nurses feel they could confidently teach sepsis</td>
</tr>
<tr>
<td>• Inpatient handoff sepsis bundle checklist is already in place on the unit</td>
<td>• Only 5% of nurses felt they had expert level knowledge with the “Inpatient handoff sepsis bundle checklist”</td>
</tr>
<tr>
<td></td>
<td>• 35% of nurses feel they have a high confidence level in taking care of septic patients</td>
</tr>
<tr>
<td>Opportunity</td>
<td>Threat</td>
</tr>
<tr>
<td>• Opportunity to increase confidence and knowledge to through educational material (i.e. handout and videos)</td>
<td>• Possible unwillingness of nurses to participate in the education project</td>
</tr>
<tr>
<td>• Handout will supplement existing sepsis education framework and inpatient handoff sepsis bundle checklist</td>
<td>• Nurses not truthfully rating their knowledge and confidence level on the pre/post-survey</td>
</tr>
<tr>
<td>• Education project is low cost with high potential increase in confidence and knowledge</td>
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### Appendix C

**Gantt chart:**

<table>
<thead>
<tr>
<th>Status</th>
<th>Task/Deliverable</th>
<th>Resp. Party</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
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<th>Nov</th>
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<th>Jan</th>
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<tbody>
<tr>
<td></td>
<td>Microsystem assessment</td>
<td>CNL</td>
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<td></td>
<td>Survey nursing staff</td>
<td>CNL &amp; Team</td>
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<tr>
<td></td>
<td>Analyze survey data &amp; research initiatives</td>
<td>CNL &amp; Team</td>
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**Stakeholders:** Northern California Hospital’s executives, clinical nurse leader (CNL), director of nursing, nurse manager, and the data analysts

**CNL & Team:** CNL, data analyst/student nurses

**Training:** Sepsis Handout and Videos

**Note:** Training will be continued by other student nurses after its initial execution.
Appendix D

Educational Handout:

SEPSIS EDUCATION
April 2023

Sepsis Definitions

Sepsis is a dysregulated host response to infection, most often originating in the lung, urinary, skin, or GI tract [1]

Severe sepsis occurs when one or more organs are damaged, causing symptoms such as little to no urine output, difficulty breathing, and an abnormal heartbeat [3]

Septic shock is when blood pressure drops in addition to organ damage [3]

Sepsis Bundle Elements*[2]

3-Hour Bundle:
- Complete target fluid bolus (actual or ideal weight based)
- Use NICOM (non-invasive cardiac output monitor) if indicated

6-Hour Bundle:
- Repeat lactate if initial lactate > 1.9
- Check BP/MAP twice 1-hour post fluids
- Provider notified for persistent hypotension (if SBP < 100 or MAP > 65)
- Vasopressor ordered/given (ED/ICU only)

*subject to change in facility protocol

Risk Factors [1]

Adults 65 years or older
People with chronic medical conditions
People with weakened immune systems
People who survived sepsis
People with recent severe illness
Children younger than one year old

Recognize the symptoms of severe infection and sepsis, TIME is important [3]

T: temperature (higher or lower than normal)
I: infection (may have s/s of infection)
M: mental decline (confused, sleepy, difficult to rouse)
E: extremely ill (severe pain, discomfort, SOB)

REFERENCES


WANT TO LEARN MORE?
Sepsis Alliance has a free course for nurses to learn about sepsis!
2.30 RN CE contact hours, scan the QR Code:
Appendix E

RN Sepsis Self-Assessment Survey (Mostasisa, 2023):

**RN SEPSIS SELF-ASSESSMENT SURVEY**

Date:  

Department:  

**Purpose:** This *volunteer/anonymouse* RN SEPSIS SELF-ASSESSMENT SURVEY will provide qualitative/quantitative data to capture existing RN SEPSIS KNOWLEDGE and CONFIDENCE in recognizing and managing patients with sepsis.

**Instructions:** Please answer questions #1 through #5 using the Likert Scale (0 = *do not have any knowledge* to 5 = *have expert knowledge*). For question #5, please write in your answer.

#1. I can explain Sepsis (definition, risk factors, and cause).

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#2. I can recognize the difference between Severe Sepsis and Septic Shock.

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#3. I feel comfortable in caring for a Sepsis patient.

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#4. I can teach Sepsis.

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#5. I am familiar with the “Inpatient Handoff Sepsis Bundle Checklist”.

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#5. Case Scenario: Mr. Charles Brown was admitted to your unit at 1200 noon (came from the ED). TZ (Time Zero) was established at 0700 in ED. Initial Lactic Acid result 2.8 at 0800. Currently infusing is IV LR at 125 ml/hr. What are your nursing actions?

__________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________

Thank you for your participation!