Educating Medical-Surgical Nurses in a Large Hospital Organization on Sepsis Bundle Elements

Christopher N. Guinto
cnguinto@gmail.com

Follow this and additional works at: https://repository.usfca.edu/capstone

Part of the Critical Care Nursing Commons, Educational Assessment, Evaluation, and Research Commons, and the Other Nursing Commons

Recommended Citation

Guinto, Christopher N., "Educating Medical-Surgical Nurses in a Large Hospital Organization on Sepsis Bundle Elements" (2023). Master's Projects and Capstones. 1558.
https://repository.usfca.edu/capstone/1558

This Project/Capstone - Global access is brought to you for free and open access by the All Theses, Dissertations, Capstones and Projects at USF Scholarship: a digital repository @ Gleeson Library | Geschke Center. It has been accepted for inclusion in Master's Projects and Capstones by an authorized administrator of USF Scholarship: a digital repository @ Gleeson Library | Geschke Center. For more information, please contact repository@usfca.edu.
Educating Medical-Surgical Nurses in a Large Hospital Organization on Sepsis Bundle Elements

Christopher Guinto

School of Nursing and Health Professions University of San Francisco

NURS 653-04: Internship

Dr. Theresa Mostasisa, EdD, MS, BSN, RN

May 8, 2023
# Table of Contents

Abstract........................................................................................................................................... 3  

Introduction.................................................................................................................................. 4  
  Problem Description..................................................................................................................... 5  
  Available Knowledge/Literature Review....................................................................................... 6  
  Rationale: Conceptual Framework................................................................................................. 9  
  Aim Statement............................................................................................................................... 11  

Methodology................................................................................................................................... 11  
  Context......................................................................................................................................... 11  
  Five P’s Assessment..................................................................................................................... 11  
  Strengths, Weakness, Opportunities, and Threats (SWOT) Analysis........................................... 13  
  Cost Analysis............................................................................................................................... 13  
  Communication Plan...................................................................................................................... 14  
  Timeline....................................................................................................................................... 14  
  Intervention.................................................................................................................................... 15  
  Study of the Intervention............................................................................................................. 16  
  Measures....................................................................................................................................... 17  

Results............................................................................................................................................ 17  
  Pre-Survey.................................................................................................................................... 17  
  Results Based on Literature.......................................................................................................... 18  

Discussion...................................................................................................................................... 19  
  Summary....................................................................................................................................... 19  
  Limitations.................................................................................................................................... 20  
  Conclusion.................................................................................................................................... 20  

References...................................................................................................................................... 22  

Appendices.................................................................................................................................... 24  
  Appendix A: RN Sepsis Self-Assessment Survey........................................................................... 24  
  Appendix B: Literature Review....................................................................................................... 25  
  Appendix C: RN Sepsis Self-Assessment Survey Results-Data and Charts..................................... 29  
  Appendix D: SWOT Analysis......................................................................................................... 31  
  Appendix E: Original Gantt Chart................................................................................................. 32  
  Appendix F: Revised Gantt Chart................................................................................................... 32  
  Appendix G: Sepsis Educational Handout..................................................................................... 33
Abstract

**Problem:** Results from a voluntarily anonymous pre-survey about sepsis revealed that a majority of the seventeen nurses assessed themselves below an "expert knowledge" level. The survey results present an opportunity to improve the nurses’ knowledge and confidence in nursing response and improve patient outcomes with sepsis.

**Context:** The quality improvement (QI) project was conducted on a medical-surgical unit in a large Northern California hospital.

**Intervention:** A QI team initiated evidenced-based practice research and created an educational sepsis handout for nurses to increase sepsis knowledge and confidence.

**Measures:** The self-assessment pre-survey would be compared to the responses from the post-survey. The pre-and post-surveys will have the same questions to determine any change. A scale of 0 to 5 with 0 as “do not have any knowledge” and 5 being “expert knowledge” will be utilized.

**Results:** A post-intervention survey could not be conducted due to time constraints. Based on available studies and literature, however, sepsis training and education improved staff knowledge and confidence when dealing with potential septic patients.

**Conclusion:** From evidence-based practice studies, additional education provides nurses with increased knowledge and confidence to recognize and respond to septic patients. Professional improvement programs that offer educational programs to increase nurses’ knowledge can essentially improve nursing practice and affect patient outcomes.

**Keywords:** nursing, education, sepsis, confidence, knowledge, management, medical surgical, registered nurse, survey, septic shock
Educating Medical-Surgical Nurses in a Large Hospital Organization on Sepsis Bundle Elements

Introduction

Sepsis can significantly affect diverse types of patients across the healthcare system. Sepsis has caused 350,000 adult deaths every year in the United States (Sepsis Alliance, 2023). Referred to as blood poisoning, sepsis is a life-threatening illness that can lead to organ dysfunction. Sepsis infects the host and potentially leads to hyperinflammation and immune suppression, affecting various cells and organ systems (van der Poll et al., 2021). If a septic patient experiences damage to at least one organ, the patient would be considered in severe sepsis. If the blood pressure drops below 90/60, the patient would then be in septic shock (Sepsis Alliance, 2023a). Septic shock is a subset of sepsis that causes abnormalities on the cellular, metabolic, and circulatory level. Those who experience septic shock have increased mortality rates (Cecconi et al., 2018).

Sepsis is one of the leading causes of morbidity and mortality among severely ill patients. It affects over 30 million patients with 6 million deaths worldwide (Bleakley & Cole, 2020). Ten thousand of those cases could have been prevented with early identification and improved care (Bleakley & Cole, 2020). Furthermore, recurrence of sepsis is common with 50% of sepsis survivors being readmitted within the first year. Additionally, one-in-six of those survivors die within their first-year post-sepsis (van der Poll et al., 2021).

Nurses become the most common and have impactful interactions with patients who are susceptible to sepsis. Therefore, education of nurses to improve nursing knowledge and practice will significantly affect patient outcomes. A more comprehensive knowledge of signs and symptoms that signal sepsis progression will increase early detection and management of sepsis.
The difficulty of sepsis recognition can hinder reaction time and possible treatment. With proper education and confidence, nurses can recognize the onset of sepsis and execute early intervention sepsis elements to alleviate severe progression (Cecconi et al., 2018).

**Problem Description**

Dr. Theresa Mostasisa conducted a voluntary and anonymous survey on a medical-surgical unit to get their understanding of sepsis. As a self-assessment, the survey was to capture the level of knowledge and confidence with sepsis from the nursing staff. See Appendix A for the complete list of survey questions. Dr. Theresa Mostasisa received a response of 17 pre-surveys from nurses.

Responses allowed were on a scale of 0 to 5. 0 indicated as “do not have any knowledge” and 5 as having “expert knowledge.” According to the nurses who responded to the survey, a majority assessed themselves below expert knowledge. See Appendix C for data, charts, and graphs. The results of nurses who felt they were at a level of expert knowledge for each question were as follows: (1) The ability to explain sepsis: 4 of 17 (23%). (2) The ability to recognize the difference between severe sepsis and septic shock: 3 of 17 (18%). (3) Feels comfortable in caring for septic patients: 6 of 17 (35%). (4) The ability to teach sepsis: 2 of 17 (12%). (5) Feels familiar with the “Inpatient Handoff Sepsis Bundle Checklist”: 1 of 17 (5%).

Based upon the survey results, the nurses on the medical-surgical unit have room to improve their understanding of sepsis to build their knowledge and confidence in handling sepsis and septic patients. The quality improvement (QI) team would like to see if an educational handout would help nurses get to an expert knowledge level with sepsis.
Available Knowledge/Literature Review

As guidance through researching literature, the QI team formulated a PICO question that covers the patient/population (P), intervention (I), comparison (C), and outcomes (O) of the quality improvement project. From the survey results associated with sepsis, the question would help focus the research on evidence-based practices and studies to determine if sepsis education contributed to increased knowledge and confidence in nurses. The PICO question is as follows: (P) In nurses on the medical-surgical unit at a Northern California hospital, (I) what is the effect of additional education in the form of an informational sepsis handout (O) on increasing nurses’ knowledge and confidence in caring for sepsis patients (C) compared with no intervention?

To maximize the research options with evidence-based practice articles, the keywords were utilized independently and concurrently. The keywords that were found most effective in search of sepsis education with nurses involved the following words: nursing, education, sepsis, confidence, knowledge, management, medical surgical, registered nurse, survey, severe sepsis, septic shock, and educational programs.

The search engines used in the extensive search were Cumulated Index to Nursing and Allied Health Literature (CINAHL), PubMed, and Google Scholar. Many evidence-based practice articles revealed similar initiatives and studies to prove additional training and education to build knowledge and confidence among nurses. Therefore, six evidence-based practice articles were selected for their relativity to the intention of implementing the quality improvement plan with this microsystem at the large hospital organization.

Literature reviews helped the QI team explore various strategies of assessing sepsis knowledge and different types of surveys. Many of these evidence-based articles aided in sepsis information and provided insight with sepsis education on nurses’ knowledge and confidence.
The research teams from these articles utilized different approaches to understand the effects of sepsis education on nurses and patients. See Appendix B for the summary of the literature articles.

The article by Bleakly and Cole (2020) used various hospital studies to determine the effects of educating nurses on sepsis, protocols, using guidelines, and screening tools to build knowledge. Treating a patient within 1 hour with their sepsis protocol of sepsis six can save lives, which was supported by a study with a reduction in mortality rate by 46.6% (Bleakley & Cole, 2020). Because nurses have the greatest contact with at-risk patients, taking appropriate interventions to understand sepsis can help detect and treat potential septic patients. They found that increased sepsis knowledge prompts quick action and saves lives (Bleakley & Cole, 2020).

A multi-site, cross-sectional study by Chua et al. (2022) conducted an online survey with nurses in inpatient and emergency departments of three hospitals within a single healthcare system. Their objective was to determine the nurses’ level of knowledge and confidence in recognizing and managing sepsis patients. From the 709 nurses surveyed received, which was a 23.1% response rate, the level of competency with sepsis was at moderate levels. With the scores ranging from 3 to 15, the mean score was 10.56/15, standard deviation (SD) of 2.01. The confidence to recognize and respond to sepsis patients was a mean score of 18.46/25, SD of 2.79. This brought them to the theory of increased education to help with recognition and quicker response to sepsis. From additional education and training, a stronger sepsis foundation allowed the nurses to implement sepsis screening tools and care bundles. They helped enhance nurses' knowledge and confidence with sepsis patients (Chua et al., 2022).

In the study by Daimani et al. (2015), a systematic review of various studies where performance improvement programs were initiated to determine the compliance changes to
bundles associated with sepsis, severe sepsis, or septic shock patients by nurses. These programs included educational and process change interventions. Educational change involves increased awareness of sepsis, like in pathogenesis, diagnosis, and treatment through lectures or trainings. Process change is associated with the supporting tools to manage sepsis, like computer applications and screening tools (Daimani et al., 2015).

From fifty observational studies, performance improvement programs with educational structures have proven to be associated with increased compliance with the complete six-hour bundle, which reduced mortality rates. In addition, evidence-based practice has led to better patient outcomes from adherence to resuscitation and management of sepsis bundles (Daimani et al., 2015).

Similar to other studies, the study by Edwards and Jones (2021) performed an anonymous survey with 16 acute medical-surgical units to assess their knowledge and comfort with sepsis according to the nurses’ skills and attitudes. With a distributed sepsis questionnaire that had a 39% response rate, the study discovered only 73% took an optional sepsis training course, while 27% did not. Nurses, who went through sepsis training, proved to screen a patient for sepsis 90% of the time, while the non-trained group screened patients 58% of the time (Edwards & Jones, 2021). The study found that sepsis-trained nurses were higher in knowledge on screening and SIRS criteria. Trained nurses also presented with a positive attitude in early recognition and initial management of sepsis (Edwards & Jones, 2021). They found that sepsis educational training increased knowledge and confidence in nurses, which brought about a positive attitude toward sepsis screening and management.

With education on the causes and treatment of septic shock and necessary nursing management, Mahapatra et al. (2022) emphasize compiled literature and evidence-based practice
articles to focus on foundational information about sepsis and septic shock. They offer descriptions, causes, risk factors, assessments, and management that will be useful in nurse education and patient care. Medical and nursing management helps explain needed information for nurse education and training to distinguish differences between severe sepsis and septic shock, which involves a drop in blood pressure (Mahpatra et al., 2022). They determined that critical sepsis information is essential to help prevent and treat septic patients.

Yousefi et al. (2012) conducted a quasi-experimental study that randomly selected 64 nurses with a minimum of 1 year of intensive care unit (ICU) experience to be divided into groups as the test and control. The mean scores for knowledge for the test group were 64.5 before the education, 84.9 after the education, and 85.2 after three weeks of the education. The control group experienced the same trend, with mean scores of 63.7, 72.8, and 82.2. The test group had mean scores for attitude as follows: 73, 79.7, and 83.3. The mean scores for attitude from the control group were 72.8, 73.3, and 73.2. Practice mean scores for the test group were 81.8, 90.5, and 91.3, while the control group had 82.2, 82.2, and 82.7. Due to the significant increase in their mean scores of knowledge, attitude, and practice, attitude and education strongly correlate with one another (Yousefi et al., 2012). Therefore, they concluded that training improved levels of knowledge, attitude, and practice with ICU nurses in sepsis care.

**Rationale: Conceptual Framework**

In the execution of the quality improvement project with this microsystem, the change theory that the QI team focused on was Kurt Lewin’s Theory of Planned Change (TPC). As a prominent social psychologist, Lewin structured a three-stage change model, which is referred to as the unfreezing, change, and refreezing model (Shirey, 2013). To ensure the successful
retention and maintenance of change, it can be helpful to understand and execute Lewin’s model accordingly.

When implementing Lewin’s first stage of this change theory, preparation for change is necessary, which is the unfreezing stage that involves conducting a microsystem assessment. By analyzing the current state of the microsystem and narrowing areas of opportunity, the team was able to research possible strategies that would effectively improve the unit’s matrixes. The initial stage allows for key stakeholders to be identified, ensures support for the initiative with evidence-based practice research, and movement for change with urgency (Shirey, 2013). The anonymous survey results of the majority not feeling at an expert knowledge level revealed room for growth with nurses on the microsystem. Their sepsis knowledge and confidence to identify and manage sepsis could be higher, which could help in sepsis detection and improve patient outcomes. See Appendix C for survey results.

Stage two, change, would involve a detailed action plan and engage staff toward the intended change (Shirey, 2013). Clear communication and staff engagement are necessary to address any uncertainty and fears with change. This would help individuals to be coached and directed towards the desired target, while maximizing effectiveness and minimizing confusion (Shirey, 2013). To ensure clarity of expected knowledge, the QI team created a handout with necessary elements addressing sepsis, its recognition, and management, while providing resources for additional information and training for continued education credits.

In Lewin’s final stage of his change theory, refreezing requires integrating the changes made to existing guidelines and systems to stabilize the established improvement (Shirey, 2013). A post-survey would be conducted to see any change in knowledge and confidence from nurses in the medical-surgical unit. The unit may set a new norm with higher performance
expectations, requiring constant follow-up and staff support for additional education, training, and resources. By providing a master copy of the educational sepsis handout, necessary information is readily available to all staff in high-traffic areas like bulletin boards and the break room. The sepsis handout gives access to additional information and training from the Sepsis Alliance. Ongoing feedback and process improvement of the education and training would be continuously evaluated for optimal individual performance to ensure retention and adherence while celebrating new accomplishments in sepsis reduction.

**Aim Statement**

By implementing education and training for nurses on a medical-surgical unit at a large organizational hospital, the quality improvement team aims to increase the knowledge and confidence about sepsis with nursing staff on the medical-surgical unit by 25%. By providing an educational handout at the all-nurse meeting, the QI team will accomplish this goal at the end of three months with post-education surveys reflecting improvement.

**Methodology**

**Context**

In the assessment of the microsystem, the team took various approaches to analyze the medical-surgical unit. It included the 5 P's, SWOT analysis, cost analysis, communication plan, and Gantt timeline. Each component of the analysis contributed to developing the action plan for the quality improvement project by identifying the microsystem's strengths and areas of opportunities.

**The Five Ps Assessment**

The Five P’s assessment analyzes the microsystem according to the team’s coordination of achieving a common goal. The assessment focuses on the current state of the microsystem’s
patients, purpose, processes, professionals, and patterns to help identify areas of opportunity and growth within the unit.

**Patients:** On the medical-surgical unit, patients are admitted to the microsystem with a sepsis diagnosis, or sepsis is acquired on the unit. Nurses perform assessments to recognize signs of sepsis to intervene, treat, and care for septic patients.

**Purpose:** The purpose of the unit is to provide quality patient-centered care to acutely ill adult patients. To increase sepsis knowledge and confidence of nurses by providing educational resources like a handout would work towards quality care for sepsis patients.

**Processes:** When an adult needs medical attention, their primary entry point would be the organization's emergency department (ED). The staff would triage the patient appropriately. Patients who are given to this microsystem usually need acute care based on their diagnosis. Reports are given upon transfer, using SBAR communication. The nurse will also perform a patient assessment on newly admitted patients.

**Professionals:** The microsystem utilizes various healthcare professionals to coordinate a care team. They include healthcare providers (HCPs), registered nurses (RNs), nurse educators, quality nurse coordinators, nurse managers, certified nurse assistants, physical therapists, occupational therapists, speech therapists, social workers, and care coordinators. However, a specific professional’s utilization is dependent on the patient's needs.

**Patterns:** Based upon the anonymous pre-survey, most registered nurses do not feel they have an expert knowledge level about sepsis and dealing with septic patients. They could not recognize, treat, and teach sepsis at an expert level, which allows for improvement among staff nurses.
Strengths, Weakness, Opportunities, Threats (SWOT) Analysis

To strategically plan and assess the microsystem in the successful execution and implementation of the quality improvement project, a SWOT analysis (Appendix D) was performed to reveal areas of strength, weakness, opportunity, and threats. Strengths within the unit involved the 82% rate of nurses from the survey who felt they could explain, define, and identify risk factors and causes of sepsis with a 4/5 or higher confidence. In addition, the organization's “Inpatient Handoff Sepsis Bundle Checklist” are readily available on the unit should it be needed.

Weaknesses included the nurses' confidence in teaching sepsis at 53%, expert knowledge level of the “Inpatient Handoff Sepsis Bundle Checklist” at 5%, and high confidence in caring for septic patients was only at 35% of the nurses surveyed. The unit has opportunities to increase sepsis resources through educational materials such as a handout and access to videos for additional training. A supplemental handout with a link to sepsis information and videos would complement the “Inpatient Handoff Sepsis Bundle Checklist.” Low-cost educational training has a high potential of increasing sepsis knowledge and confidence, which remains an opportunity for growth. Threats to the initiative would be resistance from nursing staff to participate in educational training and dishonesty in their self-assessment on the sepsis pre- and post-surveys.

Cost Analysis

In every analysis of a quality improvement project, the costs involved must be assessed to determine if the benefits outweigh the costs. The required supplies would include paper and printers, which are already provided to the microsystem. The educational handouts will be made with supplies on hand, and additional sepsis information and optional training videos are available at the Sepsis Alliance website at no additional costs. In addition, continuing education
(CE) enduring courses are free for nurses (Sepsis Alliance, 2023). Therefore, the QI team’s quality improvement project is at no additional cost to the large organization, which would make it beneficial to improve sepsis knowledge and confidence through an educational handout.

**Communication Plan**

The communication plan determines how the initiative of sepsis education will be communicated with the staff on the medical-surgical unit. The QI team has decided to create sepsis education material as a handout. The handout will include essential sepsis information like its description, signs and symptoms, risk factors, sepsis bundle elements, and helpful information to recognize and improve sepsis knowledge. The execution of the educational handout will be communicated to staff through their all-nurse staff meetings. Additionally, the handout can be posted in high-traffic areas on the unit, like bulletin boards and the break room.

**Timeline**

In any quality improvement plan, a timeline must be established to set timeframes and thresholds to ensure the project is on track toward the goal. In February 2023, the microsystem assessment and staff pre-survey were administered by Dr. Theresa Mostasisa, the Quality Nurse Coordinator, to staff nurses voluntarily and anonymously. It was followed by analyzing the surveys and the organization’s data. A defined topic and aim statement were established to address the opportunity in the microsystem. During this time, sponsors and key stakeholders were identified. The educational plan would be created while researching and creating the educational handout with additional resources.

March 2023 involved the implementation of the sepsis educational handout with staff while receiving feedback; however, production of the handout went through revisions to ensure the information was necessary and resources were simple and identifiable for staff to understand.
Further research was needed to encompass all aspects of sepsis while ensuring articles adhered to evidence-based practice. Finally, the handout reached approval of all the necessary sepsis information.

On April 20, 2023, an opportunity to present the QI team’s research and handout with all available nurses at their monthly staff meeting. The QI team presented the microsystem findings from their analysis and explained the key elements and information from the handout to the nurses. Post-surveys were planned to be distributed once sepsis education and training were complete. Unfortunately, due to time constraints, this could not be implemented. To give a structured visual timeline of the quality improvement project, the initial Gantt chart is provided in Appendix E. Appendix F shows the updated Gantt chart to reflect the adjustments made in the project’s planned timeline.

The quality improvement team has to identify key stakeholders that could determine the development or execution of the initiative. They would be looking at the project's cost and benefits from the whole organization's perspective. The QI team determined that the key stakeholders for this project would be the Northern California Hospital’s executives, chief nursing officer, director of nursing, nurse manager, quality nurse coordinator or clinical nurse leader (CNL), and data analysts. The data analysts would analyze the unit's sepsis rates to see if there are positive or negative changes from the educational handout. Creating buy-in from key stakeholders is critical to the success of any improvement project (Threatt, 2020).

**Intervention**

A sepsis handout was created with essential information to recognize, treat, and teach sepsis while providing a QR code to link the Sepsis Alliance for additional information and training that can be used towards continued education (CE) credits. By utilizing essential sepsis
information on the handout, nurses will have a quick reference to identify a septic patient, reducing intervention time and possibly saving the patient's life.

Along with sepsis definitions, the handout focused on an overview of sepsis with highlights to identify the difference between severe sepsis and septic shock, which has specific signs and symptoms. Risk factors are addressed for nurses to know who would be most at risk of sepsis. The bundle elements of the 3-hour bundle and 6-hour bundle are given for reference of key nursing interventions to identify and treat sepsis before it escalates. The acronym TIME, which stands for temperature, infection, mental decline, and extremely ill, allows nurses to identify and teach common signs and symptoms that indicate sepsis (Sepsis Alliance, 2020). It stems from the "It's About TIME" national initiative to gain awareness of sepsis and to recognize signs and symptoms for early treatment (Sepsis Alliance, 2020). See Appendix G for the sepsis educational handout.

**Study of the Intervention**

The QI team's approach to the improvement project involved distributing a pre-and post-survey to be completed by nursing staff on a voluntary and anonymous basis. The survey would be titled "RN Sepsis Self-Assessment Survey," created by Dr. Theresa Mostasisa, who also distributed it to the nurses on the microsystem. The pre-survey was conducted on February 15, 2023, with a response from 17 staff nurses on the medical-surgical unit. A total of six questions were utilized for nurses to self-assess their knowledge and confidence with sepsis. The questions were based on a Likert scale scoring of 0 to 5, with 0 indicating "do not have any knowledge" and 5 identifying as "expert knowledge." Five of the six questions revolved around the Likert scale to give quantitative data, while the last question was a scenario to receive qualitative data from staff understanding. The qualitative data will be evaluated in comparison to the result of
the post-survey once sepsis education has taken place, which will determine the outcome of the intervention. See Appendix A for the complete survey.

**Measures**

Nurses voluntarily and anonymously participated in the "RN Self-Assessment Survey" pre-survey, which was distributed to staff on February 15, 2023. The purpose of the pre-survey allow the QI team to determine opportunities in knowledge and confidence around sepsis. It will be utilized as the baseline for analysis and comparison after the educational intervention takes place and post-surveys are conducted. The responses of expert knowledge level among the same five questions from the post-survey will determine if the nurses have increased their sepsis knowledge to self-assess themselves at an expert knowledge level. In addition, the percentage difference in expert knowledge level compared to the pre-survey will determine any improvement in the nurses' knowledge and confidence.

**Results**

**Pre-survey Results**

From the distribution of the pre-surveys by Dr. Theresa Mostasisa, the anonymous responses of 17 staff nurses on a medical-surgical unit helped to gain perspective of their honest opinion about their knowledge and confidence with sepsis. With a Likert scale structure from 0 to 5, a level of expert knowledge with the ability to explain sepsis was at 23%, which was 4 of the 17 surveys. An expert knowledge level for recognizing differences between severe sepsis and septic shock was 18% 3 out of 17 surveys. Only 35% of the responses, 6 of the 17, revealed they were confident to care for septic patients at an expert knowledge level.

The question regarding the ability to teach sepsis to another showed that only 12%, 2 out of 17, could execute this at an expert knowledge level. The largest opportunity among the nurses
was the development in expert knowledge about their familiarity with the “Inpatient Handoff Sepsis Bundle Checklist.” Only one nurse felt confident with expert knowledge to respond with a 5, which was about 6% of the surveys. Overall, pre-survey results revealed that sepsis knowledge and confidence would be an area of opportunity to strengthen among nursing staff on this medical-surgical unit. With the majority of responses falling in the 3 to 4 range, nurses have room for growth to improve their knowledge and skills with sepsis. See Appendix C for survey results and charts.

Results Based on Literature

Previous evidence-based practice studies similar to the quality improvement project had shown positive outcomes when nurses' knowledge and confidence about sepsis were increased with sepsis education and training. For example, according to Bleakly and Cole (2020), studies have shown a reduction in relative risk of death by 46.6% with the delivery of an effective sepsis education plan, which would translate to saving 15,000 lives annually if compliance was at 80%.

The study with an ICU microsystem resulted in an average increase of 10 points relative to the assessment questions with sepsis education (Yousefi et al., 2012). As Ceccconi et al. (2018) mentioned in their study, improved outcomes with severe sepsis and septic shock patients involve improvement in basic care through education and quality-improvement programs. Although nurses experienced an increase in confidence from 1 year of training in the study by Chua et al. (2023) and their knowledge only marginally increased, they argued that sepsis education and training are needed to maintain recognition and management of sepsis to build their attitudes, knowledge, and confidence.

On April 20, 2023, a presentation by the QI team was given during an online staff meeting regarding their quality improvement project to increase nurses' knowledge and
confidence about sepsis. With staff nurses in attendance, the QI team discussed the survey results and the initiative to supplement sepsis knowledge with the created handout. As a quick reference for sepsis information, the handout provided a QR code to the Sepsis Alliance for additional information and training to earn continuing education credits. Due to the staff’s support of the presentation, the QI team predicts adequate participation and compliance with sepsis education and training to improve their knowledge and confidence.

**Discussion**

**Summary**

For a microsystem assessment of a large Northern California hospital, a voluntary and anonymous self-assessment survey was distributed by Dr. Theresa Mostasisa to gauge the level of knowledge and confidence the nurses had with sepsis. From the 17 responses returned, results showed that most nurses on the unit did not feel they have an expert knowledge of sepsis. This allowed for improvement and growth among nurses to increase their sepsis knowledge and gain confidence. As a result, the QI team created an aim statement as their objective: to increase the knowledge and confidence about sepsis with nursing staff on the medical-surgical unit by 25%. By providing an educational handout at the all-nurse meeting, the QI team will accomplish this goal at the end of the three months with post-education surveys reflecting improvement.

The reviewed evidence-based practice articles had a common theme that sepsis education of nurses can help increase knowledge that impact patient care. Cecconi et al. (2018) encourage the idea that increased education about sepsis can help nurses increase recognition and response to treat septic patients. The QI team found that performance improvement programs are effective strategies to increase compliance with the use of the complete six-hour bundle and reduce mortality rates (Damiani et al., 2015). By implementing similar strategies from these
articles into nursing practice, units may witness the effectiveness of education on staff nurses' knowledge and confidence when dealing with patients.

Overall, the study was successful in terms of creating the sepsis educational handout and the staff nurses being receptive to it. The contents of the handout offered great information to nurses describing, defining, recognizing, and treating sepsis. The QR code to Sepsis Alliance provided additional resources while offering nurses continuing education credits. Educational tools like a handout can offer beneficial sepsis information and encourage additional training to be used in their progression as a nurse.

Limitations

Any evidence-based practice study may encounter limitations in validating or improving their research. The QI team's improvement project had two limitations that can be identified, the time constraints and sample size. The time constraints of the project did not allow the team to execute the post-surveys with the staff nurses. The post education survey could have provided a more comprehensive idea of the impact of the sepsis educational handout. Compared to the pre-surveys, post-survey results help determine if the educational handout impacted the nurses’ knowledge and confidence with sepsis. The small sample size is a limiting factor of the study. A larger sample size could have potentially provided a more encompassing assessment of nurses’ knowledge and confidence level with sepsis.

Conclusion

Literature sources have indicated successful implementation of sepsis educational trainings and programs that have helped nurses improve patient care with septic patients. It can be concluded that increased education aids nurses to recognize and respond to sepsis more appropriately. Moreover, evidence-based practice supports the effectiveness of performance
improvement programs that can be associated with increased compliance and improved patient outcomes.

Therefore, the educational intervention of a handout has potential to increase sepsis knowledge and confidence among staff nurses on the medical-surgical microsystem. The educational handout offered helpful information such as description, risk factors, sepsis bundle elements, and signs and symptoms of sepsis. In addition, a QR code to the Sepsis Alliance website was also provided on the handout for more information and training with the opportunity to earn CE credits. If the unit decides to utilize the handout, the QI team would recommend copies to be placed on the unit bulletin boards and other high-traffic areas such as the break room.
Reference


Sepsis Alliance. (2023a, March 10). *Septic shock | Sepsis Alliance.* https://www.sepsis.org/sepsisand/septic-shock/

Sepsis Alliance. (2023, April 7). *Sepsis Alliance.* https://www.sepsis.org/


Appendices

Appendix A

RN SEPSIS SELF-ASSESSMENT SURVEY

Date: 

Department: 

Purpose: This voluntary/anonymous 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 #6, please write in your answer.

#1. I can explain sepsis (definition, risk factors, and causes).

0 1 2 3 4 5

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

0 1 2 3 4 5

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

0 1 2 3 4 5

#4. I can teach Sepsis.

0 1 2 3 4 5

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

0 1 2 3 4 5

#6. Case Scenario: Mr. Charles Brown was admitted to your unit at 12:00 noon (came from the ED). TZ
(Time Zero) was established at 0700 in ED. Initial Lactic Acid result 2.0 at 0800. Currently infusing IV
LR at 1.5 ml/hr. What are your nursing actions?

______________________________________________________________________________

______________________________________________________________________________

Thank you for your participation!
## Appendix B

<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>Reduce patient mortality rates by increasing sepsis knowledge and using clinical guidelines and sepsis screening tools, like sepsis six.</td>
<td>Implementing the sepsis six: three diagnostic steps-blood cultures, measure lactate, measure urine output; three therapeutic steps: keep O2 SATS above 94%, give IV abx, , give a fluid challenge</td>
<td>Multiple studies from various hospitals</td>
<td>Treating within 1 hour of suspected sepsis with sepsis six can save lives referenced a study with reduction mortality rate by 46.6%</td>
<td>Sepsis is a challenge and economic burden in healthcare. Nurses have the greatest contact with at-risk patients; therefore, should take appropriate interventions to detect and treat sepsis by understandin g sepsis and using clinical guidelines.</td>
<td>Sepsis knowledge with nurses can increase early interventio n and would reduce risk of death with sepsis six and clinical guidelines.</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</td>
<td>Developed and collected online survey from inpatient and ED nurses of three hospitals of a single healthcare cluster. Statistical analysis of</td>
<td>Multi-site, cross-sectional survey</td>
<td>Total of 709 nurses completed the survey. Nurses' job grade, education level, and clinical work predicted sepsis knowledge. Open comments showed</td>
<td>A stronger foundation in sepsis education and training programs and the implementati on of sepsis screening tools and care bundles are needed to enhance nurses’ knowledge</td>
<td>Increased education and training in sepsis helps nurses build knowledge and confidence to recognize and respond to suspected</td>
</tr>
<tr>
<td>Factors influencing knowledge on sepsis</td>
<td>Closed-ended responses and content analysis of open-ended responses.</td>
<td>Desire for sepsis knowledge and confidence in recognizing and managing patients with sepsis</td>
<td>Sepsis patients.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>--------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factors that influence their knowledge on sepsis</td>
<td>Data put together about sepsis and septic shock with analysis of components to reduce mortality rates and treat sepsis.</td>
<td>Quick intervention and treatment are key to reducing mortality rates and increased knowledge of sepsis.</td>
<td>Sepsis education can improve recognition and reaction to treat patient with sepsis or septic shock which can reduce death rates.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cecconi et al., (2018)</td>
<td>Gathered resources to educate on sepsis vs septic shock with facts and differences.</td>
<td>Education and quality improvement programs can improve basic care which will improve patient outcomes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damiani et al., (2015)</td>
<td>Data from the studies included studies where extracted independently by two authors. Random-effects models were used for the data synthesis.</td>
<td>Fifty observation studies were selected. Performance improvement programs were associated with increased adherence to resuscitation and management sepsis bundles and with reduced mortality in patients with sepsis, severe sepsis, or septic shock.</td>
<td>Performance improvement programs that include education are associated with increased compliance and better patient outcomes.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Cecconi et al., (2018)**: To improve definition of patient populations to manage individual strategies to improve outcomes.
- **Damiani et al., (2015)**: To perform a systematic review of studies evaluating the impact of performance improvement programs on compliance with the surviving sepsis campaign (SSC).
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Objective</th>
<th>Methodology</th>
<th>Findings</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edwards &amp; Jones, (2021)</td>
<td>To explore the effects of sepsis training on knowledge, skills, and attitude among ward-based nurses</td>
<td>An anonymous questionnaire were given to registered nurses from 16 acute surgical and medical units to complete.</td>
<td>Nurses with sepsis training had better knowledge of the national early warning score for sepsis screening, SIRS criteria, a more positive attitude towards sepsis screening and management and were more confident in screening patients for sepsis.</td>
<td>Sepsis training improves nurse’s 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>
</tr>
<tr>
<td>Mahapatra et al., (2022)</td>
<td>Sepsis and septic shock education to identify risk factors, assessment, evaluation, and management for best care</td>
<td>Literature compilation of sepsis articles and research for nurse education and management.</td>
<td>Sepsis and septic shock components are reviewed in a culmination of reviews for addressing risk factors, sepsis education, and care.</td>
<td>With the coordination of the healthcare team, key sepsis information is essential to help prevent and treatment septic patients. Essential sepsis information can impact nursing care and management of sepsis and septic patients for optimal care.</td>
</tr>
<tr>
<td>Patient outcomes</td>
<td>Management</td>
<td>Team can optimize care</td>
<td>Shirey, (2013)</td>
<td>Explain and explore the use of Lewin’s Theory of Planned Change (TPC)</td>
</tr>
<tr>
<td>------------------</td>
<td>------------</td>
<td>-------------------------</td>
<td>----------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Yousefi, et al., (2012)</td>
<td>To determine the knowledge, attitude, and practice of ICU nurses impacted by the integration of an educationa l program in sepsis care.</td>
<td>Quasi-experiment al study where randomly selected subjects were divided into test and control groups. A questionnai re reviewed knowledge, attitude, and practice before and immediatel y and 3 weeks after a one-day workshop.</td>
<td>64</td>
<td>Randomly selected nurses with a minimum of 1 year ICU experience</td>
</tr>
</tbody>
</table>
Appendix C

<table>
<thead>
<tr>
<th>Nurse Sepsis Self-Assessment Survey</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response</strong></td>
<td><strong>Questions</strong></td>
</tr>
<tr>
<td>#1</td>
<td>#2</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Sepsis Self-Assessment Survey - Question

Sepsist Self-Assessment Survey - Response
Appendix D

SWOT Analysis

<table>
<thead>
<tr>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The majority of nurses felt comfortable to explain the definition,</td>
<td>• Only 53% of nurses felt they could confidently teach sepsis (Question 1:</td>
</tr>
<tr>
<td>risk factors, and cause of sepsis (Question 1: Response 4/5 or</td>
<td>Response 4/5 or higher self-assessment).</td>
</tr>
<tr>
<td>higher; 82% rate self-assessment).</td>
<td>• Only 5% of nurses felt they had expert level knowledge with the</td>
</tr>
<tr>
<td>• The “Inpatient Handoff Sepsis Bundle Checklist” is readily available</td>
<td>“Inpatient Handoff Sepsis Bundle Checklist.”</td>
</tr>
<tr>
<td>on the unit.</td>
<td>• Only 35% of nurses felt they had an expert knowledge level in caring</td>
</tr>
<tr>
<td></td>
<td>for septic patients (Question 3: 5/5 self-assessment).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To increase nurses’ knowledge and confidence through additional sepsis</td>
<td>• Possible resistance from nurses who are not receptive to participate</td>
</tr>
<tr>
<td>educational material and training (i.e. handout and videos).</td>
<td>in additional education and training about sepsis.</td>
</tr>
<tr>
<td>• Sepsis handout will supplement the existing sepsis education and training</td>
<td>• The honest response of the nurses’ self-assessment to rate their</td>
</tr>
<tr>
<td>framework to complement the “Inpatient Handoff Sepsis Bundle Checklist.”</td>
<td>sepsis knowledge and confidence level in the pre- and post-surveys.</td>
</tr>
<tr>
<td>• To implement an educational project at a low cost with the potential</td>
<td></td>
</tr>
<tr>
<td>to increase nurse confidence and knowledge about sepsis.</td>
<td></td>
</tr>
</tbody>
</table>
# Appendix E

<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>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsystem assessment</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey nursing staff</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze survey data &amp; research initiatives</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Define topic and aim statement</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify sponsor &amp; key stakeholders</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create educational sepsis training</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produce training materials</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiate sepsis training with staff</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retrieve staff feedback</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze training feedback &amp; data</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update stakeholders</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implement changes to educational tools and training</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate further sepsis training</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post survey nursing staff</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze survey data</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present findings to stakeholders</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Execute sepsis training throughout facility</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze sepsis data</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stakeholders: Northern California Hospital’s executives, clinical nurse leader (C&L), director of nursing, nurse manager, and the data analysts

C&L & Team: C&L, data analysts/student nurses

Training: Sepsis Handout and Videos

# Appendix F

<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>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsystem assessment</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey nursing staff</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze survey data &amp; research initiatives</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Define topic and aim statement</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify sponsor &amp; key stakeholders</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create educational sepsis training</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produce training materials</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiate sepsis training with staff</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retrieve staff feedback</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze training feedback &amp; data</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update stakeholders</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implement changes to educational tools and training</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate further sepsis training</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post survey nursing staff</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze survey data</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present findings to stakeholders</td>
<td></td>
<td>C&amp;L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Execute sepsis training throughout facility</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze sepsis data</td>
<td></td>
<td>C&amp;L &amp; Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stakeholders: Northern California Hospital’s executives, chief nursing officer, quality nurse coordinator/clinical nurse leader (C&L), director of nursing, nurse manager, and the data analysts

C&L & Team: C&L, data analysts/student nurses

Training: Sepsis Handout and Videos

# Appendix G
Sepsis Definitions

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

**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.

**Septic shock** is when blood pressure drops in addition to organ damage.

---

Sepsis Bundle Elements

**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

- **65**: 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!

- **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.