Resocializing Medical-Surgical Nurses On The Inpatient Handoff Sepsis Bundle Checklist

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Resocializing Medical-Surgical Nurses On The Inpatient Handoff Sepsis Bundle Checklist

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December 1, 2023
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Abstract

**Problem:** In September 2023, Hospital X identified a lack of utilization of the Inpatient Handoff Sepsis Bundle Checklist (IHSBC) in the medical-surgical unit with only 25% of nurses being familiar with it. This project aimed to improve the use of the IHSBC to maintain compliance of the sepsis bundle above the benchmark of 75%.

**Context:** A microsystem assessment was completed in a medical-surgical unit by CNL students at Hospital X. The students collaborated with Hospital X and identified the need to improve the socialization of the IHSBC in the medical-surgical unit.

**Interventions:** The intervention included resocializing the IHSBC on the unit. The CNL students reintroduced the IHSBC during morning staff huddles. Additionally, resources on sepsis were placed on the break room educational board and copies of the checklist were put into a binder and placed on the unit.

**Measures:** A pre-intervention verbal survey and post-intervention verbal survey were conducted to measure the efficacy of the interventions to resocialize the IHSBC on the unit.

**Results:** After post-interventions were implemented, the results revealed that familiarity with the IHSBC increased from 25% to 60%.

**Conclusions:** Resocialization of the IHSBC had a positive outcome on staff awareness at Hospital X. Increasing socialization of the IHSBC can in turn increase utilization of the IHSBC which could reduce hospital costs and sepsis complications. Interventions such as re-education, communicating with nurses, and placing resources on the unit are effective strategies used to resocialize the nurses on the IHSBC. Future research is indicated to further analyze the effectiveness of interventions performed to improve resocialization of the IHSBC.

**Keywords:** Sepsis, Early Sepsis Recognition, Checklist, Bundle Adherence, Compliance, Education, Septic Shock, Severe Sepsis, Quality improvement, Resocialization.
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Sepsis is the result of a life-threatening response to an infection, and if left untreated can lead to multiple organ failure and death (World Health Organization [WHO], 2020). During an infection, normally, the body releases chemical or protein mediators into the blood to fight the infection. If the body fails to do this, it has a severe, inflammatory response to the bacteria or virus leading to blood clots, and leaky blood vessels which reduce blood flow to organs causing tissue damage and organ failure (National Institute of General Medical Sciences [NIGMS], 2021). Several risk factors increase the chances of someone developing sepsis which include: “adults 65 and older, weakened immune systems, and chronic medical conditions, such as diabetes, lung disease, cancer, and kidney disease, recent severe illness or hospitalization, patients with a history of sepsis, and babies under the age of one” (CDC, 2023). Signs and symptoms of sepsis include tachycardia or a weak pulse, fever, shivering, or feeling very cold, mental changes such as confusion or disorientation shortness of breath, extreme pain, or discomfort and lastly, clammy, or sweaty skin (CDC, 2023). It is important to treat sepsis quickly as it can progressively become worse and lead to severe sepsis or septic shock. Sepsis progresses to severe sepsis when organ dysfunction occurs. If left untreated, it can progress to the most severe stage known as septic shock with hallmark signs of organ damage and a drop in blood pressure (Sepsis Alliance, 2022).

Sepsis is the leading cause of admissions to the intensive care unit (ICU) and is responsible for a third of deaths that occur during hospitalization (Centers for Disease Control and Prevention [CDC], 2023). Yearly, it is estimated that 5 million of the 19 million cases of sepsis result in death (Taj et al., 2022). To improve patient outcomes, compliance with a sepsis
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bundle or checklist as a guide to recognize, and intervene promptly is imperative for the management of patients with severe sepsis or septic shock. For example, the Surviving Sepsis Campaign (SSC) bundle is established internationally as a guideline to treat sepsis. The SSC combined the guidelines into different bundles to treat sepsis which includes fluid resuscitation, timely and appropriate antibiotics, blood cultures, and the use of serum lactate levels (Milano et al., 2018). Adhering to the sepsis bundle improves patient care and outcomes and reduces mortality rates of sepsis patients (Milano et al., 2018). By resocializing the inpatient handoff sepsis bundle checklist in the Medical-Surgical microsystem, fallouts can continue to be prevented, and patient outcomes can continue to be improved.

Problem Description

Hospital X, located in Northern California, has seen a need for utilization of the Inpatient Handoff Sepsis Bundle Checklist (IHSBC) on medical-surgical units. To combat the issue of sepsis, Hospital X, along with all twenty-one hospitals in the region, implemented the early goal-directed therapy (EDGT) program which involves early detection, and sepsis bundle compliance. The hospitals utilize a regional dashboard to compare the quality and safety of sepsis, as well as compliance with the bundle. The IHSBC (See Appendix H) includes time zero to 3-hour elements and time zero to 6-hour elements to improve patient outcomes. Elements included in the 3-hour bundle are initial serum lactate levels, administering intravenous fluids, and obtaining blood cultures before administration of the antibiotics. The 6-hour bundle includes repeating lactate if the initial lactate was greater than 1.9 mmol/L, reassessing blood pressure/fluid status, and administering vasopressors for refractory hypotension.
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In November 2022, Hospital X introduced an inpatient handoff sepsis bundle checklist to the medical-surgical unit to ensure timely interventions. During sepsis awareness month in September 2023, a verbal pre-survey conducted at Hospital X revealed an opportunity for reintroducing the sepsis bundle checklist. A pre-intervention verbal survey revealed only 25% of the nurses expressed knowledge of the Inpatient Handoff Sepsis Bundle Checklist, and only 12.5% expressed receiving prior education on the IHSBC. Additionally, the med-surg unit had an absence of sepsis information binders and copies of the Inpatient Handoff Sepsis Bundle Checklist. These findings support the need for a quality improvement project in the medical-surgical units to increase the utilization of the IHSBC in the Medical-Surgical units to potentially maintain sepsis bundle compliance above the 75% benchmark goal at Hospital X.

**PICO Question**

A Patient, Intervention, Comparison, and Outcome (PICO) question was developed to assist this quality improvement project in identifying which standard of care will lead to improved healthcare outcomes. The PICO question developed was: Among staff in a Northern California medical-surgical unit (P), what is the effect of resocializing an Inpatient Handoff Sepsis Bundle Checklist (I), in comparison to no resocialization (C), on increased bundle utilization (O)?

**Conceptual Framework**

Kurt Lewin’s change theory was used as a guide to drive change in the hospital’s microsystem. This change involved three components: unfreezing, moving or changing, and refreezing (Mitchell, 2015). During the unfreezing phase, it requires an investigation of the current situation, and because of that, increased awareness that change is necessary (Mitchell,
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2015). During sepsis awareness month, in September 2023, CNL students worked with Hospital X to increase awareness around sepsis. The students created flyers about what sepsis is (See Appendix I), discussed outcomes regarding sepsis protocol, and coordinated future hospital visits with the staff and stakeholders. During this visit, the CNL students observed and collected data on staff familiarity with the IHSBC. After evaluating the data, the CNL students recognized the opportunity to create change in the microsystem since less than 50% of nurses expressed familiarity with the checklist.

The changing phase involves the development of a plan to implement change that includes the interest of and evaluation from others with the participation of key stakeholders (Mitchell, 2015). During this phase, the CNL students collaborated with the hospital staff to resocialize the IHSBC in the medical-surgical unit by attending morning staff huddles and communicating with nurses, the unit’s nurse educator, the assistant nurse manager, and the in-house supervisor about the importance of resocializing-the sepsis bundle checklist. The CNL students also placed the Inpatient Handoff Sepsis Bundle Checklist on the medical-surgical unit, including placing copies on the educational board in the break room, and file holders on the unit. Additionally, a binder containing information about sepsis was absent on the unit, therefore, a binder with sepsis information was created and placed at the nurse’s station with other informational binders (See Appendix J).

The last step, the refreezing phase, entails establishing the change as an integral component of the microsystem and necessitates generating strategies that prevent unfreezing (Mitchell, 2015). CNL students established the change for this project by directly working with
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the educators and managers on the unit to reemphasize the importance of the checklist and to ensure that staff has readily available access to sepsis resources and the sepsis bundle checklist.

In addition to Kurt Lewin’s change theory, Roger’s Five-Stage Change Theory was used to implement change in the microsystem. The first stage involves identifying the reason for change, how it will occur, and who will be involved. During this stage Hospital X stakeholders collaborated with CNL students and identified a lack of utilization of the IHSBC. The change would occur by resocializing the IHSBC on the unit, and primarily nurses on the medical-surgical unit. The second stage focuses on persuading employees to accept the new change. This was done by resocializing the IHSBC during morning huddles and emphasizing the benefits of adhering to the checklist. The third stage analyzes the data to determine whether the change will be adopted. The data revealed that there were no fallouts to bundle use by the end of October 2023, which showed that the IHSBC was being utilized, and that the interventions had a positive outcome. The fourth stage establishes the change on a permanent basis. This was done by placing sepsis posters around the unit, placing copies of the checklist on the unit, and communicating with the staff on the importance of adhering to the checklist. Lastly, the fifth stage confirms adoption of the change by employees. Although resocialization of the IHSBC was done by the CNL students, due to time constraints it is not known whether or not the change was adopted by the employees (American Nurse Association, 2023).

**Literature Review**

**Search Strategy**

To evaluate existing research on sepsis awareness and sepsis bundle checklist utilization, a literature review was conducted from September 2023 to November 2023 using multiple
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databases such as PubMed and the Cumulative Index to Nursing and Allied Health (CINAHL) databases. Inclusion criteria for this search included “sepsis,” “sepsis protocol,” “early sepsis recognition,” “sepsis checklist,” “sepsis bundle adherence,” “sepsis bundle compliance,” “sepsis education,” “sepsis knowledge,” “nurses,” “septic shock,” “severe shock,” and “resocialization.” Although there was little research available on the effects of resocializing nurses on a sepsis bundle checklist, peer-reviewed articles regarding early sepsis recognition, sepsis bundle compliance, and sepsis education were examined as they provided relevant evidence correlating with this quality improvement project. The peer-reviewed articles were published between 2017 to 2023. The Johns Hopkins Research Evidence Appraisal Tool was utilized to grade the level of studies from Level I to Level V (Dang et al., 2022).

Review Of the Literature

A literature review was done on several evidence-based peer-reviewed articles that correlate and support this quality improvement project objective (See Appendix B). The Johns Hopkins Evidence-Based Practice for Nurses and Healthcare Professionals: Model and Guidelines was utilized to assess and grade the level of studies from Level I to Level V (Dang et al., 2022). The literature studies focused on patients diagnosed with sepsis and how early recognition and prevention through the use of a sepsis bundle checklist impacted the outcomes of the patients. Common findings included improved hospital costs and a reduction in sepsis complications such as morbidity and mortality rates by implementing sepsis bundle checklists, and screening tools, as well as, comparing bundle adherence versus non-adherence to the bundles.
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In a multicenter retrospective, observational study they investigated the outcome of patients who received sepsis bundle-adherent care compared to patients who did not receive sepsis bundle-adherent care (Milano et al., 2018). The outcomes measured were in-hospital mortality, in-hospital mortality by source of infection, and the location of sepsis declaration. This study reviewed 4,582 patients diagnosed with severe sepsis or septic shock at three Los Angeles County hospitals and concluded that the mortality rate was lower for patients who received bundle-adherent care compared to those who did not. The mortality rate of patients who received bundle-adherent care was 17.9%. Patients in the group who did not receive sepsis bundle-adherent care had a mortality rate of 20.4%. Overall, adherence to sepsis management bundles was associated with improved survival rates.

A systemic review investigated sepsis bundle adherence care outcomes related to the length of hospital stays and mortality rates of patients with sepsis in resource-restricted settings. This review analyzed six studies related to sepsis bundle protocol to identify signs of sepsis and how to manage it in the emergency department (Taj et al., 2022). The results concluded that while there was no improvement or impact on hospital lengths of stay, partial implementation of sepsis protocol resulted in a 22.6% decrease in mortality rates related to sepsis. Although simplified sepsis protocol is essential in resource-restricted settings, training healthcare workers on how to use the bundles needs to be done to successfully implement the bundles into patient care.

In a retrospective study that analyzed 14 public hospitals in Queensland, Australia, the aim was to evaluate the impact ED nurses had on patients when they initiated sepsis protocol on time to initial antibiotic administration, findings associated with compliance to the 3-hour
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Surviving sepsis Campaign and identifying of sepsis mortality during admission (Bruce et al., 2015). Using a retrospective chart, they found that protocol implementation significantly improved the average time taken to administer the initial antibiotics compared to no protocol implementation (135 minutes versus 108 minutes). There was compliance when obtaining serum lactate levels and blood culture in the post-protocol group, however, compliance with interventions such as administering fluids and antibiotics was below care standards. There were also no differences in mortality rates during admission between pre post-implementation groups.

Similar to the checklist implemented at Hospital X, this systemic review analyzes the use of a checklist communication tool called “Detect, Act, Reassess, Titrate (DART),” to improve early recognition of sepsis in a level-2 trauma center in the emergency department. Data was obtained and collected to analyze the difference between utilizing the sepsis checklist versus not utilizing it (Moore et al., 2019). When DART was utilized, there were significant improvements in time to collect lactate levels, blood cultures, and early antibiotic administration. There were also improvements in screening times, and ED length of stay, with an average decrease of 2.5 days, and compliance with all Inpatient Quality Reporting metrics increased from 30% to 80%.

**Specific Project Aim**

The specific aim of this quality improvement project is to resocialize the Inpatient Handoff Sepsis Bundle Checklist to enhance checklist utilization in the medical-surgical unit at Hospital X. Encouraging use of the IHSBC will lead to an increase in compliance, therefore leading to improved patient outcomes and a potential decrease in fallouts at Hospital X. Compliance with the IHSBC will also result in a timely diagnosis of sepsis which begins at time zero, and is completed when all elements of the bundle are fulfilled. The goal is to have the
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number of fallouts decrease by 3% and that compliance to the sepsis bundle is above the benchmark of 75% by November 2023 at Hospital X.

Methods

Project Overview

A Plan, Do, Study, Act (PDSA) Cycle was used to implement the quality improvement project (See Appendix C). During the PDSA cycle, a microsystem assessment was performed on the unit using the 5 P microsystem assessment and a root cause analysis using the fishbone diagram (RCA) (See Appendix D). From the information obtained, CNL students formulated a PICO question and specific aim statement. Additionally, a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis was conducted to assess the current protocol of the microsystem and factors that may impact the utilization of the sepsis checklist (See Appendix E). To evaluate the benefits the implementation would have on sepsis-related care costs, a cost-benefit analysis (CBA) of the microsystem was developed (See Appendix F). Lastly, a Gantt chart was developed for project organization and time management (See Appendix G).

Microsystem Assessment

To assess the medical-surgical unit for knowledge and adherence to the sepsis bundle checklist, the CNL students performed the 5 Ps assessment. The essential elements in the 5 Ps assessment are purpose, patients, professionals, processes, and patterns. The purpose of this study is to improve overall sepsis care by resocializing healthcare workers on the Inpatient Handoff Sepsis Bundle Checklist to increase utilization in the medical-surgical unit. The patient population in the medical-surgical unit at Hospital X included patients who were diagnosed with sepsis. This quality improvement project was directed at nurses, however, socialization of the
checklist also relies on understanding the checklist and its purpose by the interdisciplinary teams including physicians, nurses, nursing assistants, respiratory therapists, nurse managers, physical and occupational therapists, phlebotomists, and dieticians. The process first involves resocializing the sepsis bundle checklist. Another part of the process is adhering to the checklist and knowing the start and components of time zero to three-hour elements, and time zero to six hour elements when a patient is diagnosed with sepsis. Adherence begins before or after admission to the medical-surgical unit. For example if a time zero begins in the emergency department then adherence to the checklist would begin there. If time zero begins after admission to the medical surgical unit, then adherence to the IHSBC would start after admission. Adhering to the checklist includes obtaining serum lactate levels, administering fluids, obtaining blood cultures before administration of the antibiotics, and administering vasopressors if needed for refractory hypotension. Patterns that were observed in the unit included a lack of socialization and utilization of the IHSBC. While many of the nurses on the unit were travel nurses, it was observed that limited training was given to them due to time restraints during orientation.

**Plan, Do, Study, Act (PDSA) Cycle**

A Plan, Do, Study, Act (PDSA) Cycle is a four-stage method that was used for this quality improvement project to implement change on the medical-surgical floor at Hospital X (See Appendix C). The first phase of the PDSA cycle is the planning process. During this phase, CNL students collaborated with the multidisciplinary teams at Hospital X and identified the need to resocialize the Inpatient Handoff Sepsis Bundle Checklist among nurses in the medical-surgical unit. CNL students created a verbal pre-intervention survey to assess current
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knowledge and use of the sepsis bundle checklist among nurses. Based on the data collected, a PICO question and specific aim statement were developed.

The second phase of the PDSA cycle is the implementation phase. A microsystem assessment was performed to identify gaps and opportunities for quality improvement using the 5 Ps assessment strategy and performing a SWOT analysis on the unit. Nurses were resocialized on the IHSBC and were reinforced to utilize the IHSBC in the microsystem. CNL students observed a need for resocialization of the Inpatient Handoff Sepsis Bundle Checklist, therefore, copies were placed on the unit and the educational board to encourage nurses to use it (See Appendix J). An RCA was also performed to investigate potential factors that contributed to the lack of knowledge and utilization of the IHSBC (See Appendix D). Potential factors included insufficient training, the absence of inpatient sepsis binder and checklist copies on the unit, inadequate integration of the checklist into existing workflows, and lack of automated reminders or alerts for checklist completion.

In the study phase of the PDSA cycle, data was collected and examined following a post-intervention verbal survey, feedback was obtained from the multidisciplinary team about the implementation and evaluation of the overall effects resocialization had on the utilization of the sepsis checklist. The last phase of the PDSA cycle will evaluate if socialization increased after the intervention was implemented in the unit. Furthermore, resocialization increased from the pre-intervention verbal survey (25%) to the post-intervention verbal survey (60%), therefore, the unit will continue to inform and educate the nurses on the benefits of using the IHSBC and monitor for any necessary adjustments to improve sepsis care and sepsis protocol in the microsystem.
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Root Cause Analysis (RCA)

The sepsis bundle checklist focuses on early recognition of sepsis and early intervention of sepsis. Healthcare workers must utilize the sepsis bundle checklist to reduce hospital costs, prevent patient complications, and reduce mortality rates. For every hour of delayed treatment for severe sepsis and septic shock patients the risk of mortality increases by 4% to 9% (Sepsis Alliance, 2023). At Hospital X, stakeholders identified an underutilization of the sepsis bundle checklist. Using a fishbone diagram, a root cause analysis was performed to identify potential factors that may have contributed to this problem (See Appendix D). Potential explanations for the underutilization of the sepsis bundle checklist included time constraints, inadequate resources, ineffective communication, documentation, monitoring, and inadequate training. Lastly, a lack of awareness and education about the sepsis bundle checklist was also expressed by several healthcare workers. After identifying potential problems in the microsystem, CNL students were able to propose and implement changes to increase resocialization of the sepsis bundle checklist resulting in an increase in awareness and utilization of the IHSBC in the unit.

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

A SWOT Analysis was performed to identify specific areas of improvement and strengths in the microsystem at Hospital X. Strengths identified in the microsystem include supportive leadership, staff’s knowledge of sepsis recognition and management, sepsis information and accessibility available on the unit, and the Best Practice Alerts system on EPIC which notifies nurses if a patient is exhibiting signs and symptoms related to sepsis. Weaknesses involved a lack of familiarity with the IHSBC, nurses’ ability to override Best Practice Alerts, and that socialization and education were not given to travel nurses during orientation.
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Opportunities to improve sepsis bundle checklist compliance and utilization are increased awareness and use of the IHSBC, a decrease in hospital costs, and sepsis complications including mortality and morbidity. Threats to the intervention are time restraints to inform nurses of bundle checklist, resistance, or hesitancy to change from some nurses, and cost allocated to resocialize nurses. The SWOT analysis was significant to perform at the beginning of this project to explain the current microsystem factors that may affect the implementations made, furthermore, it may be revised after the change to analyze what can be removed or added to the SWOT analysis.

Cost-Benefit Analysis (CBA)

A component of a quality improvement project is to evaluate the cost and benefits it will take to implement an intervention. For this project, a cost-benefit analysis was developed to compare the cost it will take to resocialize the healthcare workers of the Inpatient Handoff Sepsis Bundle Checklist compared to the total average cost of patients who receive sepsis-care related to sepsis complications (See Appendix F). It is estimated that it would cost $0.00 per year to resocialize the checklist. Sepsis resocialization expenses included printing copies of the IHSBC for the medical-surgical unit, creating a binder for the unit with sepsis resources, and meeting with healthcare workers. The estimated cost per year to create flyers and provide a binder with information about sepsis is $100.00 per year. However, the costs of sepsis increase based on the severity level. Sepsis without organ dysfunction costs hospitals $16,324 to treat, however, the cost increases to $38,298 when septic shock develops (Paoli et al., 2018). The total average cost to treat 30 patients receiving sepsis care related to sepsis complications is $1,200,000.00. Based on these findings it was concluded that the estimated costs benefited and outweighed the average cost of sepsis care related to sepsis complications (Paoli et al., 2018).
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Timeline

A Gantt Chart was utilized for this project as a tool to assist in project planning, timeline management, and task organization. In August 2023, the CNL students focused on project initiation which included research of literature, synthesis of literature, and compilation of the literature review. In September the focus was project planning and project implementation. Planning involved creating posters, script creation, a microsystem assessment, and coordinating with stakeholders to visit the facility.

Implementation included conducting a verbal pre-survey with clinical departments, collecting pre-survey data on sepsis awareness in clinical departments, and informing staff of the sepsis bundle checklist. In November, the focus was project evaluation and synthesis which focused on meeting with relevant staff to solidify the plan for a post-intervention verbal survey, coordinating with stakeholders to visit the facility, conducting the post-intervention verbal survey, and data analysis. The duration of the project was from August 2023 to November 2023 (See Appendix G).

Intervention

To resocialize healthcare workers of the Inpatient Handoff Sepsis Bundle Checklist several interventions were implemented at Hospital X. CNL students began by attending morning shift huddles on the medical-surgical unit. During the morning huddles, CNL students reintroduced the IHSBC to the staff and emphasized the utilization of the bundle. CNL students collaborated with nurses, nurse educators, and nurse managers to discuss barriers in the microsystem, their experience using the checklist, and challenges using the checklist. Together the CNL students and stakeholders concluded that there is a lack of sepsis resources readily
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available in the unit, therefore, sepsis awareness posters were created and placed throughout the unit for sepsis awareness month in September 2023. Posters included information on sepsis such as statistics, signs, and symptoms, and how imperative it is to treat sepsis promptly if it is suspected. To compensate for a lack of sepsis checklists on the unit, copies of the checklist were printed and distributed throughout the unit and nursing stations. Resources on sepsis and copies of the checklist were put into a binder and placed on the unit.

Measures of interventions

A pre-intervention verbal survey was conducted for the nurses on the medical-surgical unit at Hospital X. The survey was performed during a morning huddle, in which day shift nurses were asked if they knew what the IHSBC was. The responses were taken and recorded by the CNL students. After resocializing the medical-surgical unit on the Inpatient Sepsis Bundle Checklist, a post-intervention verbal survey was conducted on the unit to evaluate the success the interventions had on the socialization of the IHSBC. The post-intervention verbal survey followed the same format as the pre-intervention survey, however, the population of the nurses that were surveyed were asked about the IHSBC individually and were night shift nurses. The CNL students compared and analyzed the results of the pre-intervention verbal survey to the post-intervention verbal survey. Once the results were analyzed, future suggestions were made such as implementing the intervention on the unit if it was successful or revising the intervention to improve sepsis checklist socialization and compliance resulting in improved sepsis quality care.

Ethical Considerations
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Although this project does not meet the criteria for institutional review board approval, it does meet the guidelines for an evidence-based quality improvement project.

Results

During September, a verbal pre-survey was conducted to measure how many nurses were aware of the sepsis bundle checklist and how many utilized it. The results revealed that only 25% of the nurses were aware of the checklist and 12.5% expressed receiving prior knowledge of the checklist. Upon returning to Hospital X, a post-intervention verbal survey was conducted to assess how many nurses have used the Inpatient Handoff Sepsis Bundle Checklist. Five floor registered nurses and one assistant nurse manager participated in the study. The results revealed that 60% (n=2) of floor nurses verbally expressed knowledge of the Inpatient Handoff Sepsis Bundle Checklist. Two of the nurses who said no expressed that they were travel nurses who did not receive training on the sepsis bundle checklist during orientation. The other nurse was reluctant to answer and stated that “he knew of the checklist, but we don’t really use it. We don’t fill it out.” Two nurses who said yes immediately recognized the checklist and when it was to be utilized. The remaining 40% expressed that they did not know what the checklist was. This was due to new staff hires, travel nurses, no training, and time restraints. Additionally, 20% of the nurses were hesitant to respond if they were familiar with the checklist and 20% did not know where they could find the sepsis binder filled with resources on the unit.

Discussion

During this quality improvement project, CNL students collaborated with Hospital X and identified the opportunity to resocialize the Inpatient Handoff Sepsis Bundle Checklist in the
medical-surgical unit to increase utilization. The pre-intervention verbal survey data collected in September 2023 revealed that 25% of the medical-surgical nurses were familiar with the sepsis checklist. However, after the interventions were implemented familiarity increased to 60%. Another finding revealed that time restraints during orientation caused many nurses to not receive training on the sepsis bundle checklist. For example, travel nurses get one to two days of orientation compared to non-travel nurses who receive regular orientation which lasts about one to two weeks with a mentor. It is recommended that more time is spent orienting and training newly hired nurses on the importance of the sepsis checklist. While this project had a short duration and small sample size, it can be used in future studies to expand the effects socialization has on compliance with the IHSBC.

**Limitations**

There were several limitations noted during this study. Due to hospital policies, scheduling time to go to the hospital was difficult, which resulted in a small sample size of nurses to collect data on. It was also difficult for the CNL students to interact with nurses because they had patients they had to attend to. Additionally, CNL students verbally surveyed different nurses from the pre-survey and post-survey due to facility limitations such as scheduling when the CNL students could visit, and nursing staff availability, potentially affecting the results. However, it is important to note that resocialization of different nurse participants allowed a more comprehensive approach to resocializing the IHSBC. Although this project had a duration of four months and a small size sample to study, it highlighted effective strategies that can be implemented in future studies to improve resocialization efforts and sepsis care.

**Summary**
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This quality improvement project aims at resocializing the Inpatient Handoff Sepsis Bundle Checklist to enhance checklist utilization and adherence among healthcare workers on a medical-surgical unit at Hospital X. To begin the interventions, a microsystem assessment was performed on the unit and a PICO question was created. During the assessment, a pre-survey was verbally conducted which indicated only 25% of healthcare workers knew of the checklist. Then interventions were developed and implemented by utilizing the PDSA cycle as a guide. Upon returning to the hospital, a verbal post-survey was done to measure the effectiveness of the interventions. The results showed an increase from 25% to 60%. Additionally, a SWOT analysis and CBA were completed. Although there was an increase in sepsis checklist awareness, it is difficult to say whether this was due to resocializing the IHSBC on the unit. Healthcare workers who were verbally surveyed during the pre-intervention were not the same nurses who were surveyed during the post-intervention verbal surveys. Other challenges included time restraints and limited training for travel nurses which many of the nurses were. Furthermore, a suggestion for future studies is to have a larger sample size to collect data on, and a longer duration to analyze the interventions and make changes to them if necessary.

Conclusion

Sepsis is the result of a life-threatening response to an infection and the outcome of patients diagnosed with sepsis significantly relies on early recognition and early intervention of sepsis. This quality improvement project completed by CNL students from the University of San Francisco focused on resocialization of the Inpatient Handoff Sepsis Bundle Checklist at Hospital X.
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF SEPSIS BUNDLE CHECKLIST

By increasing awareness and utilization of the checklist at Hospital X, consequently, hospital costs can be reduced, and sepsis complications including mortality and morbidity can be decreased. From September 2023 to November 2023, CNL students collaborated with stakeholders to implement the necessary changes to reiterate the importance of the checklist to nurses. Interventions such as re-education, communicating with nurses, and placing readily available resources on the unit were strategies used to resocialize the nurses. The outcome resulted in an increase from 25% to 60% of nurses knowing about the sepsis bundle checklist. Although this project had a small sample size and duration, it can be used as a reference for future studies related to sepsis bundle checklist adherence. Future research is indicated to analyze the effectiveness of the interventions, and strategies to improve sepsis protocol.
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF
SEPSIS BUNDLE CHECKLIST

References

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bundled care outcomes: Implementation of a nurse-driven sepsis protocol in the
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RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF SEPSIS BUNDLE CHECKLIST


RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF SEPSIS BUNDLE CHECKLIST

study. The Lancet regional health. Western Pacific, 18, 100305.  
https://doi.org/10.1016/j.lanwpc.2021.100305


https://doi.org/10.1097/CCM.0000000000003342
Appendix A
Statement of Determination

Student Project Approval: Statement of Determination

Title of Project:
Non-Clinical Perspectives on Sepsis: A Project for Enhanced Awareness

Brief Description of Project:
In this project, the objective is to improve the knowledge of non-clinical staff regarding sepsis through a targeted awareness campaign, aiming to maintain or improve the organization's sepsis-related performance. Pre-assessment surveys highlight a knowledge gap amongst non-clinical staff within the organization which are addressed through a Sepsis Awareness Campaign.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached).

Signature of Supervising Faculty: [Signature] (date) 10/9/2023

Signature of Student: [Signature] (date) 11/28/23
Appendix B
Literature Synthesis Table

<table>
<thead>
<tr>
<th>Study Authors</th>
<th>Objective and Design</th>
<th>Sample &amp; Setting</th>
<th>Results</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruce, Maiden, Fedullo, c&amp; Kim (2015)</td>
<td>This retrospective study investigated adult patients who were discharged with a diagnosis of severe sepsis or septic shock from tertiary medical center emergency departments. They studied the outcome of patients who received 3-hour SSC bundle care compared to those that did not. They measured compliance to measure serum lactate levels and blood culture collection prior to the administration of antibiotics.</td>
<td>This study reviewed 195 adult patients diagnosed with severe sepsis or septic shock at tertiary medical center emergency departments.</td>
<td>Patients who received care with the 3-hour SSC bundle had improved collection times for the serum lactate and blood cultures. It also improved the initial time of collection of serum lactate to the time of antibiotic administration. There was no change in mortality rates between pre-and post-protocol implementation groups.</td>
<td>Level III (Dang et al., 2022)</td>
</tr>
<tr>
<td>Gyang, Shieh, Forsey, &amp; Maggio (2015).</td>
<td>This observational study examined the use of a screening tool for early detection of sepsis.</td>
<td>There was a total of 2143 screening tests done for 245 patients in a medical surgical unit.</td>
<td>Of the 245 patients 39 of them screened positive for sepsis. 51% were diagnosed for sepsis, and 49% screened positive for severe sepsis. The screening tool sensitivity was 95% and the specificity was 92%. The overall accuracy of implementing a screening tool to detect sepsis was 92%.</td>
<td>Level III (Dang et al., 2022)</td>
</tr>
<tr>
<td>Milano,</td>
<td>In this retrospective</td>
<td>This study</td>
<td>The patients who</td>
<td>Level II</td>
</tr>
<tr>
<td>Authors</td>
<td>Observational Study Details</td>
<td>Results</td>
<td>Level</td>
<td></td>
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<tr>
<td>Desai, Eiting, Hofmann, Lam, Menchine, &amp; (2018).</td>
<td>An observational study that was conducted across multiple medical centers aimed to assess the results for patients who received care with the sepsis bundle in comparison to those who did not. The study focused on measuring in-hospital outcomes.</td>
<td>Reviewed three Los Angeles County hospitals that included a total of 4,582 patients diagnosed with severe sepsis or septic shock.</td>
<td>Level II (Dang et al., 2022)</td>
<td></td>
</tr>
<tr>
<td>Moore, Vermuelen, Taylor, Kirhara, &amp; Wahome (2019).</td>
<td>In this systemic study analyzed the use of a checklist communication tool called “Detect, Act, Reassess, Titrate (DART), to improve early recognition of sepsis departments and improve patient outcomes.</td>
<td>This study was conducted in the emergency department of a tertiary level-2 trauma center.</td>
<td>Level II (Dang et al., 2022)</td>
<td></td>
</tr>
<tr>
<td>Paoli, Reynolds, Sinha, Gitlin, &amp; Crouser (2018).</td>
<td>This retrospective observational study compared the mortality rates and hospital costs of patients diagnosed with sepsis without organ dysfunction, severe sepsis, and septic shock.</td>
<td>This study analyzed 2,566,689 sepsis cases of adults discharged with a diagnosis of sepsis in inpatient, general ward, and the ICU.</td>
<td>Level II (Dang et al., 2022)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Mortality rates and hospital costs increased when sepsis was more severe. Overall mortality rate was 12.5% among all cases but for sepsis without organ it was 5.6%, severe sepsis was 14.9%. Severity level pf costs increased by $16,324, $24,638, and $38,298.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Study Description</td>
<td>Findings</td>
<td>Level</td>
<td></td>
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<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Taj, Brenner, Sulaiman, &amp; Pandian (2020)</td>
<td>This systematic review examined the outcome of hospital length of stay and mortality when healthcare workers are compliant with sepsis protocols.</td>
<td>There was no improvement on hospital lengths. There was a 22.6% decrease in mortality rates related to sepsis. Simplified sepsis protocol is essential in resource-restricted settings, however, training on how to use the bundles needs to be done to successfully implement the bundles into patient care.</td>
<td>Level II</td>
<td></td>
</tr>
<tr>
<td>Venkatesh, Schlapbach, Mason, Wilks, Seaton, Lister, Irwin, Lane, Redpath, Gibbons, Ergetu, &amp; Riceg (2021)</td>
<td>This retrospective cohort study examined the process of care and patient outcomes when a sepsis screening tool and compliance of a 1-hour bundle and a 3-hour bundle is implemented.</td>
<td>The time it took to administer antibiotics improved when healthcare workers adhered to both the 1-hour (73.7% vs 85.1%) and 3-hour bundles (48.2% to 63.3%). ICU admission rates improved from 26.5% to 17.5%. There were no improvements in 30-day post discharge mortality rates between pre-and post-implementations. However, there was lower in-hospital mortality rates from pre-and post-interventions (9.7% vs 14.9%).</td>
<td>Level II</td>
<td></td>
</tr>
</tbody>
</table>
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF SEPSIS BUNDLE CHECKLIST

Appendix C

Plan, Do, Study, Act (PDSA) Cycle

**P L A N**
- Collaborated with stakeholders at Hospital A regarding knowledge of the Inpatient Handoff Sepsis Bundle Checklist
- Created a PICO question and specific aim statement
- Created a script to present during the preliminary data collection

**D O**
- Assessed the Medical-Surgical Units using the 5Ps
- Performed a SWOT analysis
- Placed Inpatient Handoff Sepsis Bundle Checklist in the microsystem
- Collected qualitative and quantitative data

**A C T**
- Continue to collect and observe data post-intervention and implement necessary adjustments

**S T U D Y**
- Analyze data from post resocialization
- Will analyze the effect of resocialization on checklist utilization and compliance
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF
SEPSIS BUNDLE CHECKLIST

Appendix D

Root Cause Analysis

ROOT CAUSE ANALYSIS:
FISHBONE DIAGRAM
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF SEPSIS BUNDLE CHECKLIST

Appendix E

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Staff are knowledgeable and informed on sepsis recognition and management</td>
<td>• Less than 50% of nurses had knowledge regarding the Inpatient Handoff Sepsis Bundle Checklist</td>
</tr>
<tr>
<td>• Sepsis awareness month flyers are available as a resource on the unit</td>
<td>• Staff are able to override the Best Practice Alerts</td>
</tr>
<tr>
<td>• Nurse educator works closely with quality nurse consultants</td>
<td>• Lack of sepsis bundle compliance re-training</td>
</tr>
<tr>
<td>• Best Practice Alerts notifies nurses if a patient is exhibiting S/S related to sepsis</td>
<td>• Resistance or hesitancy to change from some staff nurses</td>
</tr>
<tr>
<td>• Supportive leadership</td>
<td>• The unit has several travel nurses who were not oriented on the checklist due to time constraints</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increase utilization of the Inpatient Handoff Sepsis Bundle Checklist</td>
<td>• Time restraints to inform nurses of bundle checklist</td>
</tr>
<tr>
<td>• Improve patient care</td>
<td>• Cost allocated to resocialize nurses</td>
</tr>
<tr>
<td>• Decrease the number of complications related to sepsis</td>
<td>• Staff turnover and burnout</td>
</tr>
<tr>
<td>• Decrease sepsis mortality/morbidity rate</td>
<td>• Some nurses are reluctant to use the bundle checklist</td>
</tr>
<tr>
<td>• Reduce hospital costs</td>
<td>• Lab does not get a list of sepsis patients which may affect early recognition</td>
</tr>
</tbody>
</table>
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF
SEPSIS BUNDLE CHECKLIST

Appendix F

Cost-Benefit Analysis

Estimated Cost of Sepsis Resocialization:

$0.00 per year

Estimated Cost of Sepsis Information Binder and Flyers:

$100.00 per year

Total Estimated Cost: $100.00 per year

Compared To:

The Total Average Cost of 30 Patients Receiving Sepsis-Care Related to Sepsis Complications:

$1,200,000.00
## RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDBOFF

### SEPSIS BUNDLE CHECKLIST

**Appendix G**

**Gantt Chart**

<table>
<thead>
<tr>
<th>Task Title</th>
<th>Start Date</th>
<th>End Date</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
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<tr>
<td></td>
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<td></td>
<td>Week 3</td>
<td>Week 4</td>
<td>Week 1</td>
<td>Week 2</td>
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<td>Project Initiation</td>
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<td>Research of literature</td>
<td>8/17/23</td>
<td>8/31/23</td>
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<td>Synthesis of literature</td>
<td>8/24/23</td>
<td>8/31/23</td>
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<td>Compilation of literature review</td>
<td>8/31/23</td>
<td>9/6/23</td>
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<tr>
<td>Project Planning</td>
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<tr>
<td>Poster creation</td>
<td>9/6/23</td>
<td>9/12/23</td>
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<tr>
<td>Script creation</td>
<td>9/6/23</td>
<td>9/12/23</td>
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<tr>
<td>Microsystem assessment</td>
<td>9/6/23</td>
<td>9/20/23</td>
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<tr>
<td>Coordinate with stakeholders to visit the facility</td>
<td>9/1/23</td>
<td>9/20/23</td>
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<tr>
<td>Project Implementation</td>
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<tr>
<td>Conduct pre-survey with non-clinical departments</td>
<td>9/8/23</td>
<td>9/13/23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform non-clinical department staff education on sepsis</td>
<td>9/8/23</td>
<td>9/13/23</td>
<td></td>
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<td></td>
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<tr>
<td>Conduct pre-survey with inpatient (Med-Surg &amp; ICU) staff</td>
<td>9/14/23</td>
<td>9/20/23</td>
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<tr>
<td>Perform inpatient (Med-Surg &amp; ICU) staff re-education on sepsis bundle checklist</td>
<td>9/14/23</td>
<td>9/20/23</td>
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</tr>
<tr>
<td>Place sepsis resources (binder and checklist copies) on the Med-Surg unit</td>
<td>9/14/23</td>
<td>9/20/23</td>
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<tr>
<td>Project Evaluation and Synthesis</td>
<td></td>
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<tr>
<td>Meet with relevant staff to solidify plan for post-survey</td>
<td>10/5/23</td>
<td>10/12/23</td>
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<tr>
<td>Coordinate with stakeholders to visit the facility</td>
<td>10/5/23</td>
<td>10/25/23</td>
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<td></td>
</tr>
<tr>
<td>Conduct post-survey with non-clinical departments</td>
<td>10/25/23</td>
<td>10/25/23</td>
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<td></td>
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<tr>
<td>Conduct post-survey with inpatient (Med-Surg &amp; ICU) staff</td>
<td>10/25/23</td>
<td>10/26/23</td>
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<tr>
<td>Data analysis</td>
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</tbody>
</table>
Appendix H

Inpatient Handoff Sepsis Bundle Checklist (IHSBC) at Hospital X

Patient: ___________________________  Date: ________________

Time Zero (discovery of sepsis): ________________
Initial Lactate Result: ________________

Time Zero to 3-hour bundle elements:

☐ Target fluid bolus (actual or ideal wt based) completed
   Remaining volume to be given: ________________

☐ NICOM (Noninvasive Cardiac Output Monitor) indicated?
   NA  Competed  Need

Time Zero to 6-hour:

☐ Repeat lactate if initial lactate >1.9
   Due to be collected: ________________

☐ Check BP/MAP x2 1hr post fluids
   Last BP/MAP: ________________

☐ Provider notified for persistent hypotension
   (if SBP<100 or MAP <65)

☐ Vasopressor ordered/given (in ED or ICU only)
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF
SEPSIS BUNDLE CHECKLIST

Appendix I

Sepsis Awareness Month Flyer

**SEPSIS AWARENESS MONTH**
September 2023

**THIS SEPTEMBER, TAKE THE TIME TO KNOW THE SIGNS**
More than 80% of sepsis patients are 50 years of age or older.

**TIME**
- Temperature over 100.4°F
- Signs of an infection
- Neutropenia
- Low blood pressure

For every hour treatment is delayed, the risk of death increases by as much as 8%. If you suspect sepsis, seek urgent medical care.

**SEPSIS AWARENESS MONTH**
September 2023
SepsisAwarenessMonth.org

**THIS SEPTEMBER, TAKE THE TIME TO KNOW THE SIGNS**
More children die of sepsis than pediatric cancers.

**Any Child Who:**
- Feels abnormally cold to the touch
- Looks confused, looks less alert, or has a very pale skin
- Has a rash that does not fade when pressed
- Is breathing very fast
- Has a convulsion (twitching)
- Is very lethargic or difficult to wake up

**A Child Under 5 Who:**
- Is not eating
- Is vomiting repeatedly
- Has not urinated in 12 hours

For every hour treatment is delayed, the risk of death increases by as much as 8%. If you suspect sepsis, seek urgent medical care.

SepsisAwarenessMonth.org
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF SEPSIS BUNDLE CHECKLIST

Appendix J
Interventions

Placing the Inpatient Handoff Sepsis Bundle Checklist on the medical-surgical unit:

Placing the Inpatient Handoff Sepsis Bundle Checklist on the educational board in the medical-surgical unit break room:
RESOCIALIZING MEDICAL-SURGICAL NURSES ON THE INPATIENT HANDOFF
SEPSIS BUNDLE CHECKLIST

New sepsis binder found on the unit post-resocialization of the Inpatient Handoff Sepsis Bundle Checklist during Sepsis Awareness Month:

Post-resocialization of the Inpatient Handoff Sepsis Bundle Checklist during Sepsis Awareness Month–New sepsis binder found in the medical-surgical Unit, including multiple copies of the checklist: