Summer 8-4-2023

Evidenced-Based Practice Competency Assessment for Competency-Based Orientation Protocol to Improve Competency Level Among Medical-Surgical Nurses

Maryann Ornelas
University of St. Augustine for Health Sciences

DOI: https://doi.org/10.46409/sr.ZJDC4221

Evidenced-Based Practice Competency Assessment for Competency-Based Orientation Protocol to Improve Competency Level Among Medical-Surgical Nurses

Maryann Ornelas, FNP, BSN, RNFA

School of Nursing, University of St. Augustine for Health Sciences

This Manuscript Partially Fulfills the Requirements for the

Doctor of Nursing Practice Program and is Approved by:

Sandra Swearingen, Ph.D., RN

Lee Petrarca, DNP, FNP-c

Approved: August 4, 2023

University of St. Augustine for Health Sciences
DNP Scholarly Project
Signature Form

Student Last Name: ORNELAS	**First Name:** MARYANN	**Middle Initial:**

E-mail: m.ornelas@usa.edu

Title of DNP Project:

Evidenced-Based Practice Competency Assessment for Competency-Based Orientation Protocol to Improve Competency Level Among Medical-Surgical Nurses

My signature confirms I have reviewed and approved this final written DNP Scholarly Project.
DocuSign electronic signature or wet signature required.

Type Name in Blue Box Below	Signature	Date
DNP Project Primary Faculty: Sandra Swearingen, Ph.D., RN	S Swearingen PhD, RN	8-4-2023
DNP Project Preceptor: Lee Petrarca, DNP, FNP-c	Lee Petrarca DNP	07-24-2023
DNP Project Preceptor:		

Abstract

Practice Problem: Within a 12-month period, high incidences of severe post-spinal surgical complications resulted in a host of concerns in this clinical site when patients either returned to the operating room for spine revision or increased the length of stay.

PICOT: The PICOT question that guided this project was: "In Medical Surgical (Med-Surg) nurses (P), how would a Competency-Based Orientation (CBO) protocol with the inclusions of four critical elements of postoperative spinal care [POSC] (I) compared to the usual postoperative practice (C) enhance competency level in Med-Surg nurses when delivering postoperative practice at an inpatient setting (O) over 10 weeks (T)?"

Evidence: An extensive evidence literature review supported organizational reform in competence management and improves patient outcome with the development and implementation of a CBO assessment tool highlighting critical components on POSC.

Intervention: The intervention was the implementation of POSC CBO assessment tool in an inpatient hospital setting. National Association of Orthopaedic Nurses guided the CBO assessment tool to focus on four crucial elements on POSC.

Outcome: Statistical significance reflected the positive impact demonstrated in improved patient recovery in clinical practice after the implementation of a POSC CBO assessment tool compared to previous standard of post-surgical care in the Med-Surg Unit. The clinically significant findings were a reduction of post-spinal complication and improvement in patient outcomes.

Conclusion: CBO assessment tool was designed to restructure the clinical site's previous standardized nursing care in POSC. With a CBO assessment tool to clearly outline the nurses' functional role to safely and competently deliver POSC, the rate of post-spinal complications significantly reduced and patient outcome improved nearly 90%.

Practice Problem Statement

This chosen clinical site has reported high incidences of severe post-spinal surgical complications within 12 months. Over 40% of veterans who underwent spine surgery admitted to the Med-Surg unit for recovery have either returned to the operating room for spine revision or remained at the hospital longer than anticipated, caused by postoperative complications. The slow recovery rate led to poor outcomes primarily due to a deficient CBO protocol on POSC within this unit. This project demonstrated to executive leaders, nurse managers, and nurse educators the importance of implementing a CBO protocol to enhance nurse competence in POSC and successfully promoted better patient outcomes and reduced hospital stays.

PICOT

The PICOT question that guided this project was: "In Med-Surg nurses (P), how would a competency-based orientation protocol with the inclusions of four critical elements of postoperative spinal care (I) compared to the usual postoperative practice (C) enhance competency level in Med-Surg nurses when delivering postoperative practice at an inpatient setting (O) over 10 weeks (T)?”

Evidence-Based Practice Competency Assessment for Competency-Based Orientation Protocol to Improve Competency Level Among Medical-Surgical Nurses

Patient safety is the decree instilled in the nursing practice and upheld since the first time a nurse decided to care and advocate for patients. The moral obligation in the nursing profession is to accomplish the best patient outcome by maintaining competence throughout the life expectancy of their career to tighten any gaps in quality and improve work performance (American Nursing Association [ANA], n.d.). In addition, nurses are expected to successfully sustain the transformation of skill sets in the healthcare system, despite employing novice or experienced nurses. Evidence-based practice was a crucial function used to strategize a plan to improve the quality and safety of patient outcomes (Altmiller & Hopkins-Pepe, 2019). One obstacle in a nurse's previous functional role was revolutionizing basic clinical skills to a more advanced level of care with orientation (Joswiak, 2018). Furthermore, it was noted in the literature that a structured clinical competency focused on evidence-based clinical practice and corroboration contributed to bolstering the overall performance of nurses within their scope of practice (Sullivan et al., 2021).

A healthcare professional's competency is often attributed to an individual's ability and knowledge to safely perform a combination of skillsets in patient care of a particular population. Competence can only be assessed based on the skill required under an organization's patient population and need. For instance, a skilled nurse facility has different skill levels than cardiac rehabilitation units. According to the Joint Commission (TJC, 2019), competency assessment varies based on the complexity of care and is often optional, especially when these skills are a fundamental part of educational training. Nonetheless, an organization's operational goal is to evaluate its staff's competence with provisions of an orientation process, such as training,

support, and resources (TJC, 2019). In 1980, the National Association of Orthopaedic Nurses (NOAN) designed and upheld nursing practice to the highest level of standard for orthopedic care through education, communication, and research. Similarly, CBO was also intended to promote best practices in safety and quality care (Fong et al., 2021). Both protocols proved to empower the nurses to perform at an expected functional role in their healthcare profession.

The purpose of this DNP scholarly project was to develop a CBO protocol concentrated on four significant assessments in POSC obtained from NOAN standardized practice for Med-Surg nurses partaking in POSC. These assessments included early mobilization, consistent wound checks, neurogenic bowel/bladder function, and pain management. The process examined its viability and influence on the level of nurse competence in POSC. The goal provided a standardized level of nursing care in hopes of sharing with other units planning to expand POSC services within the healthcare system.

Practice Problem Statement

There was an existing problem within this chosen clinical site when post-spinal surgical complications led to 40% of severe morbidity, which caused unplanned returns to the operating room and lengthier hospital stays incurred an increase in healthcare costs. Without proper orientation in postoperative nursing care tailored to spinal surgery patients, the recovery rate remained slow and led to poor patient outcomes. The clinical question that guided this DNP scholarly project was: In Med-Surg nurses, how would a CBO protocol with the inclusion of four key elements of POSC enhance competency level when delivering postoperative spinal practice at an inpatient setting over a 10-week period? The population was targeted at Med-Surg nurses since this unit produced the highest rate of postoperative complications in veterans that underwent spine surgery compared to the Acute Rehabilitation Unit (ARU).

When ARU could no longer continue POSC due to limited inpatient hospital beds and high patient ratio of non-POSC veterans, those veterans that underwent surgery were admitted directly to the Med-Surg unit. There was a need to institute an intervention consisting of a CBO protocol to evaluate the usage of an assessment checklist tool covering aspects of POSC in the Med-Surg unit. The previous standard nursing care in the Med-Surg unit did not address early mobilization, consistent wound checks, neurogenic bowel/bladder dysfunction (also known as cauda equina syndrome), and pain management specifically for POSC. This evidence-based intervention with the utilization of CBO has proven to be successful in Magnet-status hospitals and was designed to facilitate nurses' progress toward improvement in outcomes and best practices (Winslow et al., 2021).

Significance of the Practice Problem

In 2021-2022, the DNP student observed over 10 veterans that underwent spine surgery at a private hospital and transferred back to the clinical site for POSC recovery without any prior orientation process in nursing care of this patient population. Four of the 10 veterans reported post-spinal complications. They transferred to a higher level of care after being cared for by Med-Surg nurses who did not have the foundational skills of being competent in POSC. There was a 40% complication rate for these patients that underwent spine surgery and were recovering in the Med-Surg unit. Two of the four veterans were transferred and remained in ARU until they were stable to discharge home. The third veteran was sent back to the community hospital for further surgical intervention and remained at the same facility until stable for home discharge. The fourth veteran was referred to another neurosurgeon and plastic surgeon for a deep seeded spine infection caused by a superficial wound infection and required a washout with extensive

muscle flap wound closure after unsuccessful attempts to readmit to the community hospital where the surgery was initially performed.

Despite years of pre-licensure education and hundreds of hours of bedside care, nurse competency, or lack thereof, was a primary concern in adequately caring for patients recovering from spinal surgery at this clinical site. Thus far, these Med-Surg nurses had limited knowledge about POSC and found it challenging to maintain a level of safety during the veterans' recovery period. There had been a lack of information shared about POSC customized for these healthcare professionals. Therefore, there was a need to develop a competency-based approach designed to reflect a POSC orientation protocol to promote better patient outcomes. Improper post-spinal management care by unskilled and untrained nurses had led to postoperative complications that resulted in prolonged hospital stays, returned to the operating room, transferred to a higher level of care, and increased hospital readmission. Individuals recovering from instrumented spine surgery were at higher risk of postoperative complications, which included increased mortality, morbidity, and hospital costs (Reis et al., 2015). One of the most alarming challenges that had risen in the Med-Surg unit was the absence of a skills acquisition process needed to orient nurses with little to no experience in POSC. Their knowledge gap resulted in the inability to recognize red flags, such as surgical site infection (SSI), cauda equina syndrome (CES), or cerebral spinal fluid (CSF) leak, which further negates a positive patient outcome.

SSIs are a prevalent healthcare-associated infection related to inpatient operative procedures (Centers for Disease Control [CDC], 2021). Acute onset of symptoms indicative of infection or dural leaks is a sign of post-spinal surgery complications that will change the trajectory of patient care resulting in more extended hospital stays, an increase in hospital costs, and potential returns to the operating room for further surgical revisions (Aleem et al., 2020;

Robson et al., 2018). A risk and complication of spine surgery are spinal cord injuries (SCI), which may cause impaired bowel and bladder function (World Health Organization [WHO], 2023). Although CES is rare after spine surgery, postoperative observation by nurses to recognize and report signs and symptoms of cauda equina compression will help the surgeon order necessary diagnostic studies and determine a plan of care to either treat conservatively or return to the operating room (Takayama et al., 2022). Failure to identify symptoms by negligence of routine wound checks, unintended durotomy, or inability to recognize CES have been an oversight by untrained nurses caring for a patient following spinal surgery and have led to delays in diagnosis or treatment. Any of these conditions are preventable but can be detrimental to the veteran leading to neurological deficits, brain damage, sepsis, or death. Therefore, nurse competency was a critical component in fostering appropriate POSC and reduction of postoperative complications that directly influenced patient optimization (Hou et al., 2022).

This DNP scholarly project demonstrated to key stakeholders the positive impact CBO offered to previous nursing staff. The CBO enhanced competency levels with critical elements of competency-specific orientation and showed improvement in patient outcomes. The nurse competency in the care of a POSC patient was essential when a new type of patient was to be cared for on a unit.

The PICOT question that guided this project was: In Med-Surg nurses (P), how would a CBO protocol with the inclusions of four critical elements of POSC (I) compared to the usual postoperative practice (C) enhance competency level in Med-Surg nurses when delivering postoperative practice at an inpatient setting (O) over 10 weeks (T)?

Global and National Statistics

The WHO (2019) equated the poor performance of healthcare professionals to unsafe practice in surgical patients. An annual report estimated seven million patients with surgical complications and one million deaths following surgery (WHO, 2019). Without a standardized competency assessment to observe the competency level of an employee, suboptimal care was inevitable and resulted in detrimental patient outcomes. According to the CDC (2021), there was a 3% increase in SSIs from 2015, when approximately 110,800 SSIs were reported on inpatient surgical procedures. In addition, SSI was reported to cost the United States $345 million a year (Umscheid et al., 2011). *USA Today* (2019) reported that over 50 Veterans Affairs (VA) hospitals ranked worse than any private organization when caring for inpatient veterans. VA revealed 52% higher rates of severe bedsores in spinal cord injury (SCI) and bloodstream infections than non-VA hospitals (*USA Today*, 2019). Life-threatening conditions from SCI, such as sepsis, are preventable but perilous to veterans that undergo spine surgery and can negatively impact their quality of life. The key mechanisms to prevention were simply proper and routine wound assessment.

Regional and Populational Impact

At this clinical site, the adult unit held 692 inpatient beds with an outpatient service in Neurosurgery (US Dept of VA, 2022). This clinical site subcontracted every neurosurgical candidate to the community for surgical procedures since the organization cannot operate neurosurgical cases. Neurosurgeons only provided outpatient clinical services and outsourced spine surgeries to external facilities with the agreement to transfer the veteran back to the government hospital for the remainder of their postoperative period. Spine surgery was outsourced to mitigate increased hospital costs incurred by patients admitted to community

hospitals. However, without a CBO protocol in place, 40% of those veterans that returned to the clinical site for POSC decompensated during their recovery period and required a higher level of care for postoperative complications. The lack of competency in a specific skill, combined with mediocre performance, posed many problems such as extended hospital stays, incurred higher costs, and slowed recovery rate that increased potential harm with physical and neurological deficits.

A CBO was needed for the nurses' previous skillset in delivering standardized care. The CBO included adequate resources that enhanced professional development, improved performance, and increased confidence (Fukada, 2018). As the clinical site continued to accept postoperative spine cases performed at private organizations, Med-Surg nurses remained accountable and responsible for competency in POSC. The DNP scholarly project created core competencies on POSC for all Med-Surg nurses in caring for veterans that underwent spine surgery. A pre-and post-CBO competency assessment was analyzed to determine its efficacy based on the outcome of post-spine care. The goal of CBO was to improve patient outcomes without postoperative complications while remaining in the Med-Surg unit and build confidence in nurse competency, performance, and care. The scholarly project was completed in 10 weeks.

There was a great need for nurse leaders and nurse educators to warrant an overhaul of their previous competency assessment, especially with a magnitude of 40% complication rate reported within a one-year period. Competency is the mélange of knowledge, skills, clinical judgment, and capabilities of a nurse to perform at an expected level of job duties (American Nurses Association, 2014). The development of innovative solutions with training, education, and supportive management teams were essential to help bolster the confidence of nurses to

achieve the goal of delivering quality care for those patients receiving POSC (Altmiller & Hopkins-Pepe, 2019).

Evidence-Based Practice Framework & Change Theory

The National Academy of Medicine (NAM) has taken responsibility for the task of embodying evidence-based practice and considered educated healthcare professionals to possess a level of core competencies when delivering patient-centered care (NAM, 2018). The clinical practice still shadows the *Crossing the Quality Chasm* reported by the Institute of Medicine (IOM), which envisions a healthcare system to meet the needs of today's patients and make fundamental changes that may encumber quality of care with a patient-centered care approach, collaborate with interdisciplinary teams, integrate best practice through evidence-based practice, and quality improvements (IOM, 2011). Based on the analysis of enhancement of competency and evidence-based practice illustrated in NAM publications, the Johns Hopkins evidence-based practice (JHEBP) framework paradigm best aligned this scholarly project that utilized practice process, evidence, and translation (PET) and helped navigate each phase of the project (Melnyk & Fineout-Overhold, 2019).

The JHEBP model guided the structural design of a competence assessment tool to evaluate the CBO of Med-Surg nurses. The process included interprofessional team collaboration during the reformation and development of an innovative CBO, such as preceptors to mentor Med-Surg nurses to progress at an advanced level of patient-centered care within this clinical site. The initial phase of the project followed practice questions extrapolated from the PET paradigm. Once the problem was identified, the following steps developed an evidence-based practice question, team recruitment, and coordinated meetings (Sigma Repository, 2019). The evidence phase involved web-based internal and external data research for supporting literature,

critical appraisal of evidence-based practice and synthesis of work quality, and recommendation deduction (Sigma Repository, 2019). The last step in JHEBP was the translation phase. This phase determined the project algorithm to develop an implementation and final evaluation action plan. The JHEBP framework was instrumental in identifying an area tasked for competency during transformational patient care aimed to improve patient outcomes.

Lewin's Change Theory

Lewin's change theory aligns with the PET paradigm, which takes a stepwise approach while focusing on behavioral change elicited by nurse staff members (Raihan & Cagburn, 2022). During a healthcare system reform at this clinical site, the introduction of a CBO program created some trepidation in unskilled Med-Surg nurses caring for veterans following spine surgery. A supportive facility has the adaptability for transformation to overcome the complexities of a healthcare system on communication, collaboration, and continuity of care (IOM, 2011). Therefore, procedural changes required a pre-contemplation stage to uncover staff members' behavior that were most apprehensive and carefully took measures to provide transparency and reassurance; the process had a network of supportive nurse leaders and preceptors. The objective was to develop a systematic approach to seamlessly transition from the previous competency status to a higher functional level and focused on critical elements of POSC using the Lewin 3-Stage Model.

Lewin's change theory consists of three stages: unfreezing, moving, and refreezing (Barrow et al., 2022). The unfreezing stage is when an organization recognizes the need for fundamental change within a department and makes the necessary adjustments to improve patient outcomes. At this clinical site, Med-Surg nurses have raised serious doubts about their

performance in POSC. Therefore, Med-Surg nurse assessment on competency were evaluated with a self-reported competency survey on POSC before CBO.

As the project progressed to the moving phase, the DNP student observed Med-Surg nurses utilizing the CBO checklist. The competency checklist concentrated on four key elements in POSC assessment: early ambulation, wound checks, neurologic status, and pain level. The number of nurses compliant with the competency checklist were tabulated and analyzed to determine the efficacy of CBO POSC. CBO aimed to improve patient outcomes without postoperative complications while patients remained in the Med-Surg unit. The improvement in patient outcomes proved to boost confidence in nurse competency, performance, and care.

The refreezing stage establishes a new status quo in an organization (Barrow et al., 2022). This clinic site needed competency or resources addressing POSC in an inpatient setting. Med-Surg nurses were using basic standardized nursing care for POSC and showed evidence of poor patient outcomes in 2021-2022. The DNP student led this scholarly project and the implementation of the CBO program while managing a committee of two other senior nurses: a nurse manager and a nurse educator. A movement toward a change in the process benefitted the institution by initiating a project plan that enhanced nursing care and protected the patient.

Evidence Search Strategy

A literature search strategy was performed in PubMed, CINAHL, and Cochrane databases to identify academic peer-reviewed articles. The literature search evaluated studies that correlated with the importance of nurse competency in caring for patients and its influence on patient outcomes and general postoperative care versus POSC (see Appendix B). This was followed with other literature searches specifically identifying pertinent care delivered to individuals who underwent spine surgery with reported postoperative complications. The other

literature research was based on the impact of nursing care and interventions, such as CBO, implemented to help reduce incidences of post-surgical complications.

The articles reviewed were published within a five-year period, 2017-2022. However, an older review was used by a prestigious entity that remains relevant to current clinical practice in spine care, 2011. The advance search terms were either phrased solely or combined with "and": nurse competency, competency-based orientation, orientation, training, medical surgical unit competency, self-reported nurse competency, nurse skills in postoperative spinal care, postoperative spinal care, postoperative spine complications, cerebral fluid leak complications, durotomy cause, neurogenic bladder and bowel dysfunction, CES, and SSI. Abstracts were previewed prior to accessing full-text articles to ensure the research design was based on the terms described above. The research articles were in English. Exclusions were extrapolated from an abstract preview that included nurses with higher skill sets in critical care/intensive care units, vague descriptions of nurse experience and knowledge, lacked data on nursing skill sets, non-traumatic CES, non-surgical related CES, and non-inpatient hospital care.

Evidence Search Results

There were over nine research articles used to evaluate the effects of prevention. The literature reviewed on POSC supported the positive impact of CBO implementation to Med-Surg registered nurses (RN) when caring for patients who have underwent spinal surgery. The inclusion criteria included quality improvement, systemic review, and quantitative design relevant to the PICOT. These inclusions were: adults (ages >18), spinal surgeries (cervical, thoracic, and lumbar) undergoing laminectomies with and without fusion; SSIs, postoperative complications, preventative care, competency, orientation, training, nurse care related to improving outcome in post-spinal care, CES, early ambulation, fiscal impact, and risk factors.

Exclusions were identified and included pediatric care, pathological anomalies, congenital anomalies, and surgical procedures performed outside of the United States (see Figure 2).

The total number of articles reviewed started at 130, and after the screening process, 92 were excluded. These articles were not supportive and relevant to the proposed project plan. There were over 39 studies that focused on assessment methods to improve patient outcomes (see Figure 2). Three studies combined risk factors focused on adult patients with increasing post-spinal complications. Six studies discussed the positive impacts of CBO on healthcare professionals. The remaining studies reported financial costs incurred based on preventive post-spinal surgical complications, and by using JHEBP Model Non-Research Evidence Appraisal Tool, the level and quality rating revealed four Level III, A; nine quality improvement Level V, B; one clinical guideline appraisal Level IV, A; and one study reporting the increase of financial costs incurred based on SSI (see Appendix A).

Themes with Practice Recommendations

Nine studies focused on CBO and qualitative research about this PICOT question. These concept themes were identified as methods in the health profession's core competencies, explicitly encompassing POSC. The thematic analysis of each study was thorough and systematic in the following areas: nurse competency, facility preparedness to deliver care, and post-spinal complication prevention. One of the core concepts in producing optimal patient outcomes and reducing risk reductions was ensuring clinical unit nurses had the skills and ability to carry out quality care needed for this clinical site. During patient recovery, it was important to assign a well-trained nurse to manage a higher level of care for quality assurances known to improve patient outcomes (BMC Nursing, 2022). Nurse competency remained a priority shared among nurse leaders and multi-disciplinary teams in strengthening professional development

with ongoing orientation programs (Altmiller & Hopkins-Pepe, 2019; Castella et al., 2020; Hou et al., 2022).

During the initial phase, one of the challenges met was reform resistance from the Med-Surg nurses with the CBO protocol implementation. The nurses felt the reformation was a method of punishment and disrupted their regular routine. Nurses that marginalized incompetency as a negative attribute rather than a need for progress required nurse leaders' assistance to explore and reframe this stigmatism and thought process. According to Raihan and Cogbum (2022), the motivation to change nursing attitude demonstrates a quality rating of B (see Appendix A). The nurse manager and nurse educator were inspirational leaders that initiated change and transformed attitudes with a more positive outlook on issues that hindered the nurse's ability to move toward an upward progression (Kodama & Fukahori, 2017). An interprofessional intervention team established a framework and developed a customized strategy for change with self-reflection and professional perception to help guide a practical approach to the behavioral process (Raihan & Cogburn, 2022).

Med-Surg readiness in caring for patients that had undergone spinal surgery requires comprehensive nursing skill. The ability to recognize substantial postoperative complications was one component of quality improvement. The Level III qualitative studies emphasized the amount of attention and skill needed to optimize post-surgical patient outcomes (see Appendix A). Nurses sufficiently oriented in POSC can recognize post-spinal complications (Aleem et al., 2020). Therefore, well-oriented POSC team within a unit was in a better position with risk assessment and yielded positive patient outcomes. This critical care thought process included the encouragement of early mobilization, which was one post-operative activity reported to prevent complications, such as pneumonia; yet the ability to withhold ambulation when cerebral spinal

fluid leaks is detected and to keep the patients at bedrest (Reis et al., 2015; Robson et al., 2018). Without a skillfully trained and competent RN, patient recovery resulted in a downward spiral in health and required prolonged hospital stays and incurred financial costs (Umscheid et al., 2011).

Based on an extensive review of each research, it was evident a structured approach to implement a CBO protocol to prevent postoperative complications had dodged two most considerable burdens in patients and hospital facilities: potential death and high cost. Nurse CBO protocols continued to evolve to meet the type of care tailored to the patient. The CBO program was methodically restructured in the Med-Surg unit and enhanced work performance and gained nurses' confidence.

Setting, Stakeholders, and Systems Change

The clinical site was a public sector that contained 96 beds in the Med-Surg unit (VAMC, 2022). The department operated 24 hours a day, seven days a week, with a dedicated staffing team of RNs and charge nurses. The assignment ratio was one RN to five patients. There was additional ancillary staffing support extended in other departments, such as radiology, laboratory, pharmacy, administration, certified nursing assistants, and maintenance personnel. In 2022, the hospital expanded a newer service to admit and care for veterans who have undergone spine surgeries at private hospitals in the community. Without a defined CBO outlined specifically for POSC in cervical, thoracic, and lumbar laminectomies and instrumented fusions, Med-Surg nurses implemented a general surgery nurse care plan on veterans that underwent spinal surgery and negatively impacted 40% of those veterans during their recovery period.

Any new type of care warrants nurse leaders to revise current guidelines in the delivery of care and assist nurse educators in developing continuous orientation programs to produce competent nurses to provide optimal care tailored to patient needs. Research findings

recommended evidence-based practices for nurse leaders to strategize with multi-disciplinary teams and plan interventions based on current practice and attitudes of nursing staff (Altmiller & Hopkins-Pepe, 2019; Hou et al., 2022; Raihan & Cogburn, 2022). Improvement in patient outcomes on any level of patient care begin with clinical insufficiencies recognized by nurse leaders and nursing staff. The best practice in a healthcare system requires recurrent surveillance to recognize gaps in quality care and shortfalls in nursing care. Then, collaboration with an interprofessional team and strategize an effective plan, which includes a list of possible risk factors that would hinder the progression of patient recovery and reduce hospital costs (Aleem et al., 2020; Umscheid et al., 2011).

The DNP student spearheaded this scholarly project and methodically connected with critical stakeholders that advocated and supported the plan of improving patient outcomes with a CBO in POSC at this clinical site. A three-level macro-, meso-, and micro-matrix system was utilized to assist in developing an organizational transformation plan (Nelson et al., 2011). These key stakeholders included Executive Leaders (i.e., Medical Director, Associate Director, Associate Director of Patient Care Services), Med-Surg Nurse Manager and Assistant Manager, Med-Surg Nurse Educator, RNs, Neurosurgeons, Quality Improvement Officer, Pharmacist, patient, and family members/caregivers (see Appendix F). A strength, weaknesses, opportunities, and threats (SWOT) analysis was performed to assess the inner components and helped drive external forces affecting the project plan (see Appendix G). To mitigate post-spinal complications, the core strength was recruiting influential leaders supportive of the success in delivering efficient care after completing POSC CBO. Without the strength and encouragement of leaders vested to hold unmotivated team members accountable in productivity would have

posed a threat of dismantling the entire project plan. This would have negatively impacted patient outcomes causing discord in the healthcare system.

Implementation with Timeline and Budget

The project design for this organization initially measured the knowledge gap in POSC delivered by Med-Surg RNs by using a pre-screen self-reported survey to substantiate a need to reform previous CBO (see Appendix D). A self-reported competency survey investigated knowledge impairments that hindered the delivery of effective, efficient, and safe post-spinal care. The outcome from this survey was important to measure and report to stakeholders and team members. This screening survey was validated and deemed reliable by POSC experts: experienced nurses, advanced practice nurses, neurosurgeons, and neurosurgery resident. A sample size of 35 Med-Surg nurses in various shifts completed the pre-screen self-reported survey. After the survey data was collected and analyzed, the results of 88% of Med-Surg nurses self-reported to be "not competent" in POSC (see Appendix E). The data was reported to the stakeholders, nurse leader, and nurse educator and the approval to implement a revised evidenced-based practice CBO covering four critical assessments in POSC was in effect to prevent postoperative complications and improve patient outcome.

Thereafter, a CBO assessment checklist on POSC was developed (see Appendix K). After the approval of expert neurosurgical team, the CBO assessment checklist on POSC was circulated to RN champions (preceptors) to observe Med-Surg nurses caring for veterans that have undergone spine surgery. A supportive environment was maintained while the Med-Surg unit continued to show compliance to move toward a more centered type of care, focusing on patients undergoing spinal surgery. To accomplish this goal, utilization of the SMART format as follows: *Specific*: Disseminate pre-screen self-reported survey to RNs to decipher areas of

knowledge deficit when caring for patients recovering from spinal surgery on the Med-Surg unit. Then CBO assessment checklist on POSC targeting four main examinations during their shift (NOAN, 2013):

- Encourage early ambulation

  Start ambulation day of surgery

  Walking in room (>10 feet)?

  Walking outside of room (>25ft)?

  Able to independently transfer from out of bed (OOB) to chair?

  Able to independently log roll to sitting position?

Able to perform Physical Therapy sessions?

- Consistent wound assessment (before and end of shift)

  Incision intact?

  Dehiscence?

  Purulent drainage?

  Fever?

  Abscess?

  Erythema?

  Warmth?

- Neurogenic bowel and bladder assessment

  Inspect abdomen

  Abdominal bowel sounds present?

  Passing flatus?

  Opioid-induced constipation

Consider alternative pain medication available

Encourage high fiber diet

Encourage mobilization

Is there stool softener ordered?

Able to void after removal of Foley catheter?

Palpate bladder for urinary retention

Any loss of sensation to perianal area?

- Pain management

Pain level (score 0-10, zero being no pain to 10 being worst pain)

Location of pain

Pain in legs?

Unilateral leg swelling?

Activities that trigger pain

Is pain alleviated with medication?

DNP student observed RN champions compliance with the CBO assessment checklist and veteran outcomes.

Measurable: The DNP student measured the outcome of veterans once Med-Surg nurses were deemed competent after being evaluated and signed off by RN champions with the utilization the CBO assessment checklist. Key players (interprofessional team members and stakeholders) supported the organizational change, showed high interest and desire to sustain successful outcomes and created an integrative approach to improve patient outcomes by preventing postoperative complications.

Attainable: Part of the success of this postoperative practice that enhanced patient

recovery undergoing spinal surgery involved a collaborative team and the development of protocols designed to promote improvement in safety and culture in patient-centered care (Agency for Healthcare Research and Quality [AHRQ], 2017). By utilizing data obtained from a CBO assessment in post-spinal care, the outcome of veterans after carrying out the four critical components of POSC have shown optimal results. This was attained by supportive nurse leaders, surgeons, and educators with high regards in utilizing training tools and resources to assist Med-Surg RNs in strategically improving patient recovery and reducing postoperative complications.

Relevant: A self-reported pre-survey served as a baseline marker to assess previous knowledge of Med-Surg RNs in post-spinal care. Over 88% of Med-Surg nurses did not feel competent or confident in POSC. The data alerted nurse leaders and nurse educators the dire need of practice change when poor patient outcome was due to mediocre nurse performance to deliver POSC safely and recognize potential complications. The essence of performing evidence-based practice with proper nursing technique, skills, and competency are vital components in reducing hospital stays during the recovery period and postoperative complications (Hou et al., 2022).

Timed: The planning period of getting stakeholder and team members' support and developing a self-reported survey and CBO assessment checklist took approximately three weeks. Once the data was reported to the nurse leader and nurse educator on the Med-Surg unit, planning and implementation of CBO assessment designed explicitly for post-spinal care took approximately seven weeks. Med-Surg RNs were observed by RN champions using the CBO assessment in POSC in conjunction with the veteran's recovery while

inpatient. The entire pre-implementation planning to post-CBO assessment nursing staff took 10 weeks.

Project Schedule

Before this undertaking began, a projected schedule to stay organized and meet deadlines were outlined and followed (see Appendix C). Phase one was the observation of the clinical site and discovering the problem area. Phase two was meeting with the nurse manager and nurse educator of the Med-Surg unit to discuss a screening tool to pinpoint what was required to overcome challenges. The DNP student obtained permission to use NOAN POSC as part of the CBO assessment checklist (see Appendix J). The DNP student and committee disseminated the CBO assessment on POSC to RN champions to evaluate Med-Surg RNs assigned to veterans recovering from spine surgery. This was followed by evaluation of the number of veterans reporting post-spinal complications being cared for at the Med-Surg unit. Med-Surg nurses were deemed competent after the POSC CBO assessment evaluated by RN champions. This project took approximately 10 weeks.

Budget

The total cost to support this daily operation was approximately $2035 (see Table 3). Even with two RNs served as champions to precept and evaluate Med-Surg RNs during a 12-hour day and 12-hour night shift with the CBO assessment checklist, there was no additional compensation or overtime incurred to the nurse manager, nurse educator, and Med-Surg nurses to perform their usual and customary work duties. Aside from direct costs, indirect expenses were included in the project's financial measure. These indirect costs are derived from direct costs for activities identified and beneficial for the project (National Institute of Health, 2020).

Evaluation Plan

The DNP scholarly project aimed to strengthen quality care and enhance nurse competence in POSC by restructuring previous postoperative nurse care plan with CBO specifically focusing on POSC. After identifying the knowledge gap in RNs on their competency of delivering post-spinal care at an inpatient Med-Surg unit, a CBO assessment checklist was used to carry out the four critical elements of POSC as part of their nursing care and observed by DNP student. When the Med-Surg unit was expected to care for unfamiliar health condition within a patient population and then, was not provided any formal orientation, high stakes involved the compromise of the safety and outcome of these veterans that underwent spinal surgery. With the data from a self-reported survey of extremely low competency levels of post-spinal care, nurse leaders and nurse educators have gained insight into the subpar skill level of their RN staff members. This explained why 40% of postoperative spinal complications originated from the Med-Surg unit. Both data were collected by the project manager (DNP student) to provide compelling evidence for change, and a plan of action was needed to operate safe post-spinal care.

A stakeholder analysis tool identified the rank of each group that showed the highest interest and power versus low interest and power (see Appendix I). The high power/interest players assisted in guidance and led the project to its succession. Those with high power/low interest were in the management level and the low power level were bystanders, such as patients, with little influence in the project but may still have a high interest in improvement in care. This involved key players, such as executive leaders, nurse management, nurse educators, surgeons, and RNs, supporting the project's objective to provide enough information and guide the development of an educational service to enhance RN practice in recovery care (Hou et al.,

2022). The short-term target was the development of a successful CBO assessment checklist on POSC. This allowed the project manager to follow up on any reported incidences of post-operative complications post-CBO within a 10-week period. With the improvement of patient outcomes of the DNP scholarly project, there will be an ongoing POSC assessment to ensure evidence-based practices are implemented in the long-term for tenure and novice nurses.

A Gantt chart was posted in the nurse educator's office to allow for transparency in communicating with team members and displayed the scope and progress of work (see Appendix H). There was continuous communication and weekly updates between the project manager and team committee. DNP student was present 3-4 times a week during the implementation period. Meetings with the committee team were conducted on the clinical site and available remotely.

Results

The primary focus was surgical complications in post-spine surgery on the Med-Surg unit. The project evaluation included two measures: (1) post-spinal complications *pre*-implementation of the POSC CBO assessment tool, and (2) post-spinal complications *post*-implementation of the POSC CBO assessment tool. A total of 20 patients that underwent spine surgery were observed and divided equally: 10 patients in the *pre*-implementation stage and 10 patients in the *post*-implementation stage. The data was entered into an Excel spreadsheet then analyzed by Intellectus Statistics program (Intellectus, 2022).

The data was assessed using a two-tailed independent sample t-test to evaluate the means of *pre*-CBO and *post*-CBO scores with "No" and "Yes" categories on whether the POSC CBO assessment tool had a statistically significant relationship to the outcome of post-spinal complications (Table 1). The frequency of the observed combination of POSC CBO *pre*- and

post-implementation and Post-Op Complications consisted of the "No" and "Yes" categories with a t-test=18 (see Table 2).

The result of the independent samples *t*-test was statistically significant based upon an alpha value of .05, $t(18) = -7.39$, $p < .001$, implying the null hypothesis could be rejected. The mean of patient outcome was significantly different between the "No" and "Yes" categories of CBO Completed and considered statistically significant. This suggests a statistical relationship in the improvement of patient outcome and completion of a POSC CBO assessment tool. A bar plot of the means is presented in Figure 1.

Impact

The DNP student discovered high incidences of post-spinal complication reported on the Med-Surg unit and completed an extensive research and analysis on the possible reasons. Upon further investigation, the reason for such poor outcomes was unskillfulness and lack of training in POSC. The scholarly project required a comprehensive overhaul on how Med-Surg nurses cared for patients that underwent spine surgery. Initiating a CBO that included replacement of a standardized post-operative nurse care with a focus on post-spinal care altered the Med-Surg nurses' approach to properly care for post-spinal care population.

During the implementation phase, one of the barriers was shifting the nurses' behaviors from choosing a standard post-operative care assessment for general surgery to the assessment that included the four key elements of POSC. Addressing this barrier required repeated discussions with Med-Surg nurses the need for change and how a patient-outcome based CBO would enhance competence in post-spinal care. The outcome of this scholarly project was clinically significant: nearly 90% of veterans that underwent spine surgery and were discharged in a timely manner without reported incidences of complications were cared for by Med-Surg

nurses who completed CBO. Based upon the results of these patient outcomes, the data supported the utilization of a CBO.

Even after all data were collected, the DNP student continued to monitor the use of CBO. This process included meeting with the nurse educator and nurse manager on a weekly basis via telephone or in-person to follow up on the project. The high rate of successful patient outcomes prompted adoption of the CBO by the nurse manager and nurse educator with plans to implement with every new hire entering the clinical site. This plan will not require additional funding for new hires or education, as all Med-Surg nurses will undergo CBO as part of their functional scope of practice.

There has not been a formal determination regarding whether the project will be expanded to other units. The nurse manager will present the scholarly project to their superiors, who will decide whether to pilot the project to the intensive care unit/critical care unit. In the meantime, the nurse manager at this clinical site has and will continue to evaluate and maintain the CBO.

Dissemination Plan

Once the data was collected, analysis of CBO assessment POSC was shared with stakeholders, nurse administrators, quality improvement/risk management, and team members. The dissemination of the findings was necessary as part of the distribution of the project's purpose, plan, intervention, evaluation, and sharing of results. Presentations in a variety of ways and platforms were made available to interested members and audiences (American Association of College of Nursing, 2022). For this scholarly project, virtual presentations, conferences, and unit meetings were used to broadcast information internally and externally to stakeholders and team members. The ability to highlight the scholarly project involved decision-makers

responsible for policies and procedures in current practice and facilitated the outcome (Sarver & McNett, 2020). According to Brock et al. (2021), virtual platforms improved personal interactions and engagement just as much as in-person participation, especially for those that are unable to attend in-person meetings due to schedule conflicts. Furthermore, taking advantage of a renowned publication, such as the American Journal of Nursing, known for evidence-based practice focusing on post-spinal care applications and similar professional topics to improve clinical outcomes in recovery care (AJN, n.d.).

Conclusion

The project, a CBO protocol for fellow Med-Surg RNs, further enhanced their competency in providing care for post-spinal patients. This project was embraced by the Med-Surg nurse manager and nurse educator and deemed necessary for an organizational transformation with plans to solely undertake POSC CBO. The utilization of the JHEBP model helped guide the design of the CBO assessment as a toolkit customized to focus on specific POSC, even when spine surgeries are performed at another hospital. The AHRQ's framework supported the collaboration of a multi-disciplinary team to address quality improvement measures on the readiness for organizational reform and transition to a newly revised CBO assessment tool on POSC (AHRQ, 2017; Langley et al., 2009).

The initial self-reported competency survey served as a Med-Surg RN competency level baseline to endorse an essential pre-requisite of a CBO intended for POSC. The self-reported competency survey data, along with current poor patient outcomes, were evidence to alert nurse administrators, nurse leaders, and nurse educators the need for a planned change project. The working team members and the DNP student evaluated previous nursing core knowledge and competency, or lack thereof, on post-spinal care and strategically planned a CBO assessment

checklist encompassing preventable post-spinal care complications to improve nursing competency.

The self-reported competency survey completed by Med-Surg RNs served as a reference to their baseline level of competency and comfort in POSC. The startling number of Med-Surg RNs showing deficient levels of competency regardless of how many years in practice combined with an alarmingly high enormity of postoperative complication within a short period were sufficient to propose a plan to change current practice. This DNP scholarly project revamped existing standardized nursing care and justified a need to promote quality nursing care with reform and methodically designed a CBO assessment tool for nurses to carry out their functional roles safely and confidently.

Achievement of optimal patient outcomes were clearly attributed to the implementation of a CBO assessment tool. Incorporating POSC as part of the CBO assessment augmented nursing care and provided best practice in the Med-Surg unit. The effectiveness of the CBO assessment tool successfully enhanced patient outcomes during spine surgery recovery and closed the knowledge and quality gap of POSC in the Med-Surg unit. The long-term goal of the CBO assessment tool is to implement POSC as standardized care to any unit at the facility providing care to veterans who plan to undergo spine surgery.

References

Agency for Healthcare Research and Quality. (2017). AHRQ safety program for improving surgical care and recovery. https://www.ahrq.gov/hai/tools/enhanced-recovery/index.html#:~:text=AHRQ%20Safety%20Program%20for%20Improving%20Surgical%20Care%20and,improve%20patients%27%20recovery%20after%20surgery.%20About%20This%20Project

Aleem, I. S., Tan, L. A., Nassr, A., & Riew, K. D. (2020). Surgical site infection prevention following spine surgery. Global Spine Journal, 10(1 Suppl), 92S–98S. https://doi.org/10.1177/2192568219844228

Altmiller, G., & Hopkins-Pepe, L. (2019). Why Quality and Safety Education for Nurses (QSEN) matters in practice. The Journal of Continuing Education in Nursing, 50(5). https://0b30iozz6-mp02-y-https-go-gale-com.prx-usa.lirn.net/ps/i.do?p=AONE&u=lirn55718&id=GALE%7CA676584140&v=2.1&it=r&sid=ebsco

American Journal of Nursing. (2022). About the journal. https://journals.lww.com/ajnonline/Pages/aboutthejournal.aspx

American Association of College of Nursing. (2022). Doctor of nursing practice (DNP) tool kit. https://www.aacnnursing.org/DNP/Tool-Kit

American Nurses Association. (n.d). *Scope of practice*. Nursing World. Retrieved 10 20, 2022 from https://www.nursingworld.org/practice-policy/scope-of-practice/

American Nurses Association. (2014). Professional role competence: ANA position statement. https://www.nursingworld.org/practice-policy/nursing-excellence/official-position-statements/id/professional-role-competence/

Barrow, J.M., Annamaraju, P., & Toney-Butler, T.J. (2022, September 18). Change management. StatPearls Publishing.https://www.ncbi.nlm.nih.gov/books/NBK459380/

Bock, M. J., Kakavand, K., Careaga, D., & Gozalians, S. (2021). Shifting from in-person to virtual home visiting in Los Angeles County: Impact on programmatic outcomes. Maternal & Child Health Journal, 25(7), 1025–1030. https://doi.org/10.1007/s10995-021-03169-5.

Castella, L., Sopena, N., Rodriguez-Montserrat, D., Alonso-Fernandez, S., Cavanilles, J.M., Iborra, M., Ciercoles, A., Pulido, A., Gimenez, M., Hermoso, J.A., Casas, I. (2020). Intervention to reduce the incidence of surgical site infection in spine surgery. *American Journal of Infection Control*, *48*(5), 550-554. https://doi.org/10.1016/j.ajic.2019.09.007

CDC National and State Healthcare-Associated Infections Progress Report. (2021). https://www.cdc.gov/hai/data/portal/progress-report.html

Dahlberg, K., Sundqvist, A. S., Nilsson, U., & Jaensson, M. (2022). Nurse competence in the post-anaesthesia care unit in Sweden: A qualitative study of the nurse's perspective. *BMC Nursing*, *21*(1), 14. https://doi.org/10.1186/s12912-021-00792-z

Fong, H. C., Sohal, J. L., Crosson, J. A., & Hendrix, C. (2021). A Competency-based orientation (CBO) protocol enhances competency among newly hired perianesthesia nurses. *Journal of Perianesthesia Nursing: Official Journal of The American Society of PeriAnesthesia Nurses*, *36*(5), 445–451. https://doi.org/10.1016/j.jopan.2020.09.017

Harrison, R., Fischer, S., Walpola, R. L., Chauhan, A., Babalola, T., Mears, S., & Le-Dao, H. (2021). Where do models for change management, improvement and implementation meet? A systematic review of the applications of change management models in healthcare. *Journal of Healthcare Leadership, 13*, 85–108.

https://www.dovepress.com/where-do-models-for-change-management-improvement-and-implementation-m-peer-reviewed-fulltext-article-JHL

Hou, Q., Luo, X. Li, H., Hou, Y., & Zhang, Z. (2022). The role of nursing in enhanced recovery after surgery programs in accordance with spine surgery: A mini review. *Journal of Integrative Nursing*, *4*(1), 42-47. https://www.journalin.org/article.asp?issn=2666-9854;year=2022;volume=4;issue=1;spage=42;epage=47;aulast=Hou

Institute of Medicine (US) Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine. The future of nursing: leading change, advancing health. Washington (DC): National Academies Press (US), 2011. 4, Transforming Education. https://www.ncbi.nlm.nih.gov/books/NBK209885/

Intellectus Statistics [Online computer software]. (2022). https://analyze.intellectusstatistics.com/

Joswiak, M. E. (2018). Transforming Orientation Through a Tiered Skills Acquisition Model. *Journal for nurses in professional development*, *34*(3), 118–122. https://doi.org/10.1097/NND.0000000000000439

Kelly, J., Sergent, J., & Slack. (2019). A USA TODAY analysis of Veterans Affairs data provides the broadest picture of how each 146 VA medical centers compares with non-VA care. *USA Today.* https://www.usatoday.com/in-depth/news/investigations/2019/02/07/where-every-va-hospital-lags-leads-other-care/2511739002/

Kodama, Y., & Fukahori, H. (2017). Nurse managers' attributes to promote change in their wards: a qualitative study. *Nursing Open*, *4*(4), 209–217. https://onlinelibrary.wiley.com/doi/10.1002/nop2.87

Langley et. al. (2009). The improvement guide: a practical approach to enhancing organizational performance. (2nd ed.). Hoboken,NJ : Jossey-Bass. https://psnet.ahrq.gov/issue/improvement-guide-practical-approach-enhancing-organizational-performance-2nd-ed

Melnyk, B., & Fineout-Overholt, E. (2019). Evidence-based practice in nursing & healthcare: A guide to best practice (4th ed.). Wolters Kluwer.

National Academy of Medicine. (2022). About the National Academy of Medicine. https://nam.edu/about-the-nam/

Nelson, E.C., Batalden, P.B., Godfrey, M.M., & Lazar, J.S. (2011). Value by design: Developing clinical microsystems to achieve organizational excellence. Wiley.

National Association of Orthopaedic Nurses. (2013). Postoperative spine. https://www.mymosh.com/wp-content/uploads/2019/07/Spine-Surgery-Pre-and-Post-Operative-Guide.pdf

Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., et al. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, *372*:n71. https://www.prisma-statement.org/PRISMAStatement/FlowDiagram

Raihan, N. & Cogburn, M. (2022). Stages of change theory. Treasure Island (FL): StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK556005/

Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov Smirnov, Lilliefors and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics*, *2*(1), 21-33.

Reis, R. C., de Oliveira, M. F., Rotta, J. M., & Botelho, R. V. (2015). Risk of complications in spine surgery: a prospective study. The open orthopaedics journal, 9, 20–25. https://openorthopaedicsjournal.com/VOLUME/9/PAGE/20/

Robson, C. H., Paranathala, M. P., Dobson, G., Ly, F., Brown, D. P., & O'Reilly, G. (2018). Early mobilization does not increase the complication rate from unintended lumbar durotomy. *British Journal of Neurosurgery*, 1–3. https://doi.org/10.1080/02688697.2018.1508641

Sarver, W., & McNett, M. (2020). Understanding and using data to optimize care delivery in hospitals and health systems. Chapter Seven – Determining the dissemination plan: Internal and external considerations. Academic Press. https://doi.org/10.1016/B978-0-12-816543-0.00007-8.

Sigma Repository. (2019). Chapter 9: creating a supportive EBP environment. [Excerpt and supplemental materials for] Johns Hopkins nursing evidence-based practice: Model and guidelines (3rd ed.). https://sigma.nursingrepository.org/bitstream/handle/10755/17100/Chapter9.pdf?sequence=4&isAllowed=y

Sullivan, J., Hugill, K., ElQader, A., Elraoush, T. A., Mathias, J., & Al Hetmi, M. O. (2021). Piloting of a nursing and midwifery competence framework in the cultural context of a middle eastern country. *Nurse Education in Practice*, 51, 102969. https://doi.org/10.1016/j.nepr.2021.102969

Takayama, M., Maki, Y., & Kawasaki, T. (2022). Cauda equina syndrome after L5-S1 posterior decompression surgery showing a "convexity sign" caused by engorgement of the ventral epidural venous plexus: A case series. Surgical neurology international, 13, 82.

https://surgicalneurologyint.com/surgicalint-articles/cauda-equina-syndrome-after-l5-s1-posterior-decompression-surgery-showing-a-convexity-sign-caused-by-engorgement-of-the-ventral-epidural-venous-plexus-a-case-series/

The Joint Commission. (2019). The human resourced (HR) chapter of the accreditation manuals include requirements for 'orientation' and 'competency assessment.' How do these activities really differ from each other? https://www.jointcommission.org/standards/standard-faqs/ambulatory/human-resources-hr/000002152/

Umscheid, C.A., Mitchell, M.D., Doshi, J.A., Agarwal, R., Williams, K., & Brennan, P.J. (2011). Estimating the proportion of healthcare-associated infections that are preventable and the related mortality and costs. Infect Control Hosp Epidemiol, 32,101–114. https://pubmed.ncbi.nlm.nih.gov/21460463/

United States Department of Veterans Affairs. (n.d.). VA Long Beach health care. https://www.va.gov/long-beach-health-care/

United States Department of Veterans Affairs. (2022). VA Long Beach expands surgical services to include neurosurgery. https://www.va.gov/long-beach-health-care/stories/va-long-beach-expands-surgical-services-to-include-neurosurgery/

United States Department of Veterans Affairs. (2022). About us. https://www.va.gov/long-beach-health-care/about-us/

Winslow, S.A., Bilyeu, T.E., Cook, L.A., Dorrell, J.J., Via, A., & Winslow, K.F. (2021). Competency-based orientation of Magnet program directors. American Nurse. https://www.myamericannurse.com/mpd-competency-based-orientation-of-magnet-program-directors/

World Health Organization. (2019). Patient safety. https://www.who.int/news-room/fact-sheets/detail/patient-safety

World Health Organization. (2023). Spinal cord injury. https://www.who.int/news-room/fact-sheets/detail/spinal-cord-injury

Table 1

Frequency Table for Nominal Variables

	POSC CBO			
Variable	*pre*-CBO	*post*-CBO	Missing	Total
Post-Op Complications				
yes	4 (20.00%)	1 (5.00%)	0 (0.00%)	5 (25.00%)
no	6 (30.00%)	9 (45.00%)	0 (0.00%)	15 (75.00%)
Missing	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Total	10 (50.00%)	10 (50.00%)	0 (0.00%)	20 (100.00%)

Table 2

Two-Tailed Independent Samples t-Test for Patient by CBO Completed

	No			Yes					
Variable	*M*	*SD*	*n*	*M*	*SD*	*n*	*t*	*p*	*d*
Patient Outcome	5.50	3.03	10	15.50	3.03	10	-7.39	< .001	3.30

Note. N = 20. Degrees of Freedom for the *t*-statistic = 18. *d* represents Cohen's *d.*

Figure 1

The mean of Patient Outcome by CBO Completed with 95.00% CI Error Bars

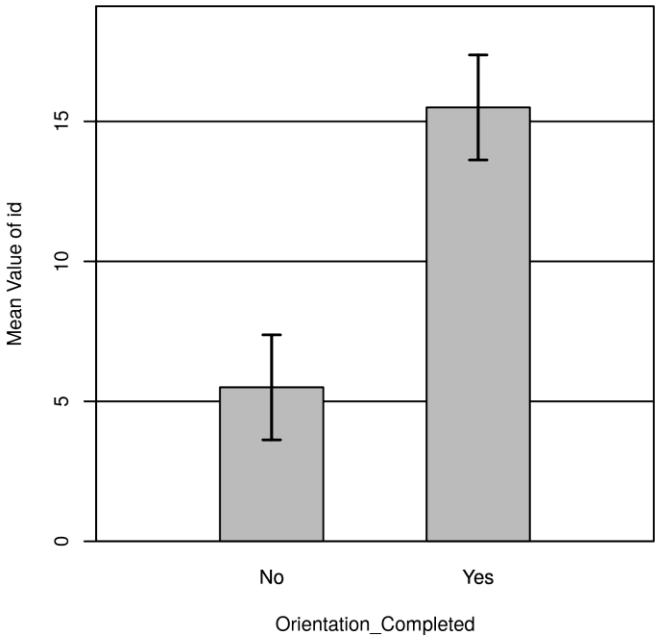


Table 3

Implementation EBP Project Budget

Direct Costs Only							
Personnel (Title of Position)	Number Needed	Total Hours	Salary	Fringe Benefits (28%)	Total Salary	Total Cost in Dollars	Funding Source
RN Champion	2	2	55 per hr	15.00/hr	70/hr	125.00/hr	In Kind
Staff RNs	2	24	55 per hr	15.00/hr	70/hr	125.00/hr	In Kind
Staff CNAs							
Subtotal Cost						250.00	In Kind

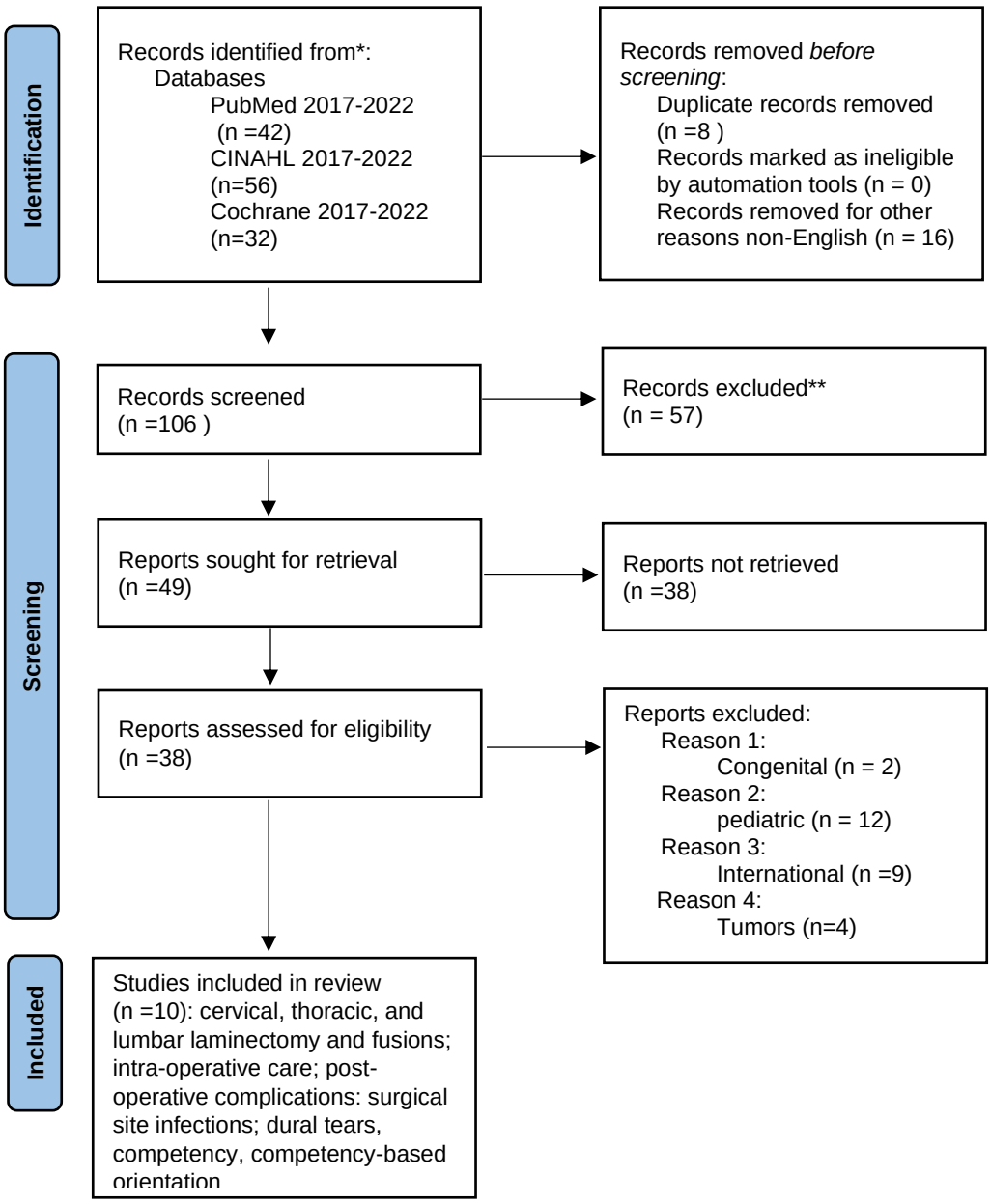
Equipment	Number Needed	Cost per Unit	Total Cost in Dollars	Funding Source
Computers	1	1500	1500	In Kind
Printers	1	100	100	In Kind
Subtotal Cost			**1600**	In Kind

Supplies	Number Needed	Cost per Unit	Total Cost in Dollars	Funding Source
Paper	1 ream	15	15	In Kind
Pens	12	7	7	In Kind
Binder	1	6	6	In Kind
Subtotal Cost			**28**	In Kind
Total of Subtotal Cost			1628	
Indirect Cost (25%)			407	
TOTAL COST			2035	
REVENUE				
Billing				
Grants			0	
Institutional budget support			500	
TOTAL REVENUE			500	
NET BALANCE			**1535**	

Note: All budget entries are estimates. Expenses are based on means. Revenue estimates do not include potential cost avoidance due to realized outcomes. All costs associated to salary and benefits, patient care supplies, and overhead are fixed indirect expenses not associated with this project. Project costs are nominal for printing and laminating, under $100.

Figure 2

PRISMA Flowchart (Page et a, 2021)



Appendix A

Individual Evidence Summary Tool

EBP Question: Evidence-Based Practice Competence Assessment for Competency-Based Orientation (CBO) Protocol to Improve Competency Level Among Medical-Surgical Nurses

Citation	Type of evidence	Population, size, and setting	Intervention	Findings that help answer the EBP question	Measures used	Evidence level and quality
American Nurses Association, 2014.	Competency based orientation.	Population: RNs Size: Setting: hospital	Competency approach Orientation.	Orientation to new nurses and expansion of services in healthcare system.	Qualitative, descriptive	Level V, B
Aleem et al., 2020.	Systemic review of combination of RCTs, quasi-experimental and nonexperimental studies	Population: adults undergoing spinal surgery Size: variable Setting: Pre-Op, Intra-op and post-op	Surgical site infection.	Methods used to optimize post-operative care.	Descriptive	Level V, B
Altmiller et al., 2019	Quality Improvement	Population: nurses Size: n/a Setting: inpatient	Nursing protocols.	Protocols in education on quality and safety measures to improve delivery of care.	Qualitative, correlative, and descriptive	Level IV, A

Fong et al., 2021.	Competency based orientation.	Population: adults undergoing spinal surgery Size: variable Setting: inpatient	Competency based orientation protocol.	Orientation to new nurses and expansion of services in healthcare system.	Quantitative, correlative, and descriptive	Level I, A
Hou et al., 2022.	Quality Improvement	Population: healthcare professionals Size: n/a Setting: inpatient and outpatient	Multi-disciplinary team and collaborative care to improve patient care in post -op setting.	Specific interventions to make the multidisciplinary team function well and increase the patients' satisfaction.	Qualitative, correlative, and descriptive.	Level III, A
Raihan et al., 2022	Prospective observational study	Population: adults with comorbidities undergoing spinal surgery (Mean age=59) Size: 95 Setting: outpatient	Utilizing Change of Theory model to identify patient behaviors and tailoring care to improve outcomes.	Changing patient behaviors to promote healthier outcomes.	Qualitative, correlative.	Level V, B
Reis et al., 2015	Retrospective analysis	Population: adults undergoing spinal surgery Size: 1125 Setting: inpatient Population: healthcare professionals Size: n/a Setting: inpatient and outpatient	Preventative Care Early mobilization after spinal surgery and unintended durotomy.	Over 7% of the patients that underwent revision spinal surgery reported infections, cerebral spinal fluid leak, and septic shock. Early mobilization decreases post op complications.	Quantitative study/prospective study	Level III, A

Sigma Repository, 2019.	Retrospective analysis	Population: patient Size: n/a Setting: inpatient	Scope of practice overview and promote patient outcome.	EBP clinical practice guidelines and nurse models	Qualitative	Level III, A
Umscheid et al., 2011.	Quality Improvement	Population: Nurses Size: n/a Setting: hospital	Prevent hospital acquired infections.	Following evidence-based practice can help reduce cost incurred by HAI, such as SSI.	Qualitative	Level V, B
Winslow et al., 2021	Quality Improvement	Population: Nurses Size: n/a Setting: hospital	CBO improves best practices in nurse in Magnet status hospitals.	Transitioning nurses to promote best practice with CBO.	Qualitative, correlative	Level III, C

Appendix B

Summary of Systematic Reviews (SR)

Author	Quality Grade	Question	Search Strategy	Inclusion Exclusion	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/
Aleem et al., 2020. Altmiller et al., 2019. Reis et al., 2015. Umscheid et al., 2011.	Level III, A Level IV, A Level III, A Level III, C	1.How to prevent surgical site infection in patients that underwent spinal surgery? 2. What are risk factors and complications of post-spine surgery?	Databases: PubMed, CINAHL, and Cochrane Search terms: Nurse, nursing, intervention, spine surgery, spine laminectomy, competence, patient outcome	Inclusion: post-operative spinal care, post-operative spine complications, surgical site infection Exclusions: critical care/intensive care units, vague descriptions of nurse experience and knowledge, lacked data on nursing skill sets, and non-inpatient hospital care		Post-operative spine complications and surgical site infection affecting the recovery rate. These included health care professionals directly caring for patients that underwent spine surgery and what lengths were taken to prevent complications.	The methods health care professionals used to optimize post-operative spinal care. Nursing protocols in education on quality and safety measures to improve delivery of care. Patient awareness that underwent revision spinal surgery reported with infections, cerebral spinal fluid leak, and septic shock. Following evidence-based practice can help reduce cost incurred by HAI, such as SSI
Hou et al., 2022.	Level III, A	1.How to improve recover in post-surgical stage?	PubMed, CINAHL, and Cochrane	Inclusion: nurse competency, medical surgical unit competency, nurse skills in post-operative spinal care Exclusions: critical care/intensive care		Nursing skills and competency required for post-operative spinal care	There specific interventions used for the multidisciplinary team to function well and increase the patients' satisfaction and overall outcome.

Author	Quality Grade	Question	Search Strategy	Inclusion Exclusion	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/
				units, vague descriptions of nurse experience and knowledge, lacked data on nursing skill sets, and non-inpatient hospital care			
Robson et al., 2018. Raihan et al., 2022.	Level III, A Level V, B	1.What are risk factors to consider when undergoing spinal surgery? 2. How did these risk factors considered to improve the overall recovery of patients?	PubMed, CINAHL, and Cochrane Search terms: Comorbidity Age, population	Inclusion: post-operative spinal care, post-operative spine complications, Durotomy complications Exclusions: critical care/intensive care units, vague descriptions of nurse experience and knowledge, lacked data on nursing skill sets, and non-inpatient hospital care		Improving post-spinal recovery with activity, encouragement, monitoring, and empowerment with knowledge and self-care.	Early mobilization decreases post op complications. Changing patient behaviors to promote healthier outcomes.

Appendix C

Project Schedule

	NUR7801								NUR7802								NUR7803							
Activity	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15
Meet with preceptor.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	
Prepare project proposal.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
List the steps for your project. Specifically, and operationally define what you plan to do and when.					X	X	X	X	X	X	X			X	X	X	X	X	X	X	X			
Construct/refine PICO question.	X	X	X	X	X	X	X	X	X	X	X													
Review/evaluate EBP material. Consult with mentor/preceptor : in person, by phone, or by email.		X X	X X	X X	X X	X X	X X	X X	X X	X X	X X		X	X		X	X	X	X	X	X			

(e.g., web, print) Appraise literature for inclusion. Participate in an interprofessional team in consultant role. Develop tools for sustainability (e.g., toolkits, PowerPoints, audit tools, etc.) Identify gaps in care in individuals, communities, and populations.		X	X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X		X X										
Consult with mentor/preceptor : in person, by phone, or by email. Review/evaluate EBP material (e.g., web, print).	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Synthesize literature (review).	X	X	X	X	X	X	X	X	X	X	X												
Consultation with experts regarding nursing practice.			X	X				X		X	X		X	X	X				X	X	X	X	
Conduct assessment of practice setting.			X					X		X	X												
Attend meetings pertinent to project.		X				X		X		X	X		X		X				X	X			
Participate in data collection.		X				X		X		X	X			X	X		X		X	X	X		
Data Analysis.				X	X	X	X	X								X	X	X	X	X	X	X	

Appendix D

Self-Reported Competency Survey

ID #_____

Total RN Experience: ____ years ____ months

RN Experience
at Current Facility: ____ years ___ months

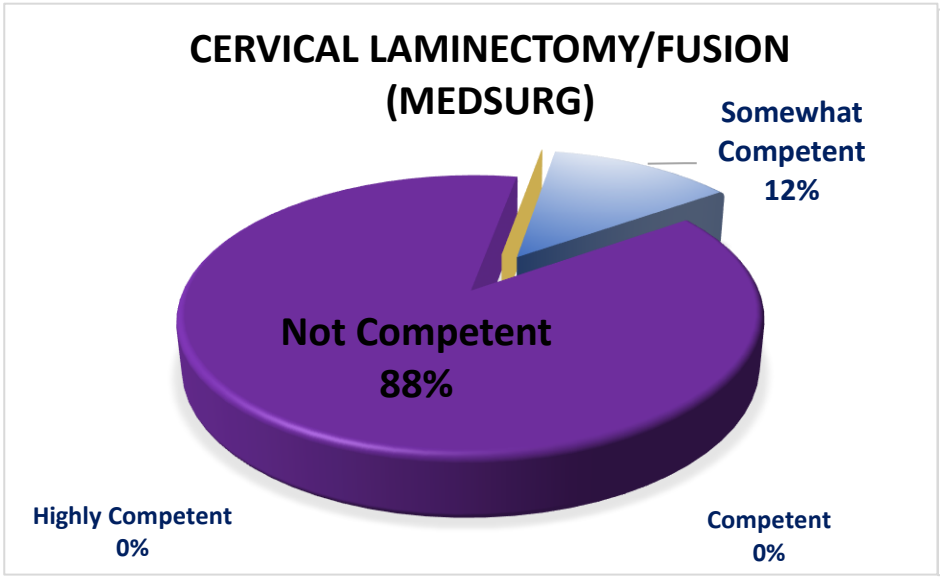
Proficiency Scale: 0 = Not Competent / Observed Only
1 = Somewhat Competent (< 5 times a year)
2 = Competent (1-2 times a month)
3 = Highly Competent (daily or weekly)

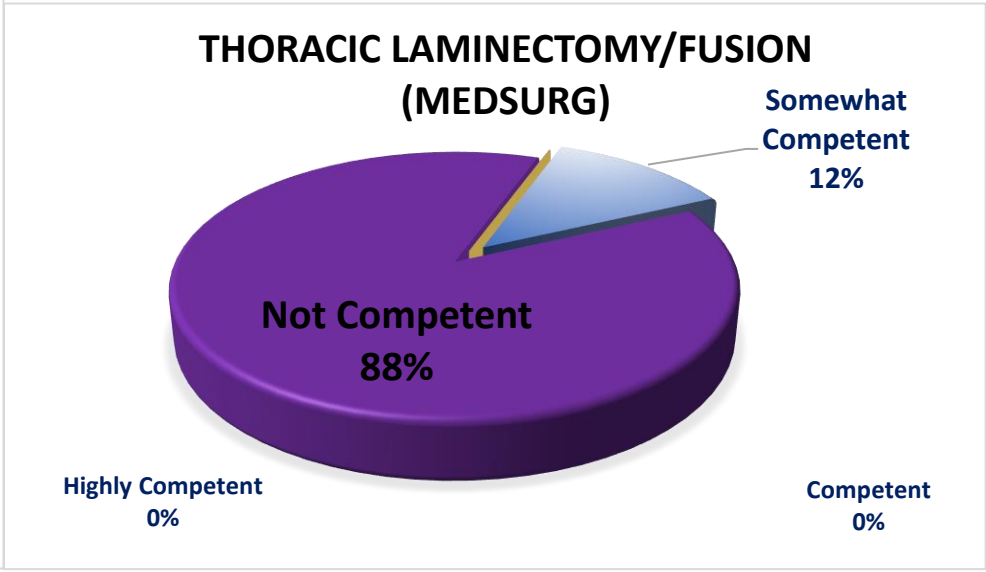
This is a self-perceived post-operative nurse care competency checklist meant to serve as a general guideline within the NEUROSURGICAL Specialty.

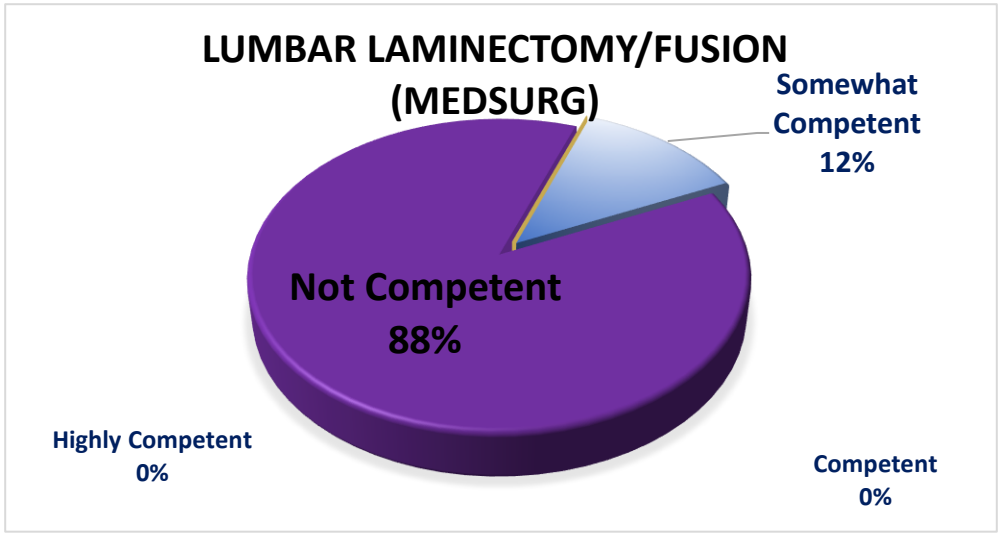
Please mark your skill level in caring for the following each post-operative surgery:

	Not Competent Observed only	**Somewhat Competent** <5 times/year	**Competent** 1-2 times a month	**Highly Competent** daily or weekly
Cervical Laminectomy				
Cervical Fusion				
Lumbar Laminectomy				
Lumbar Fusion				
Thoracic Laminectomy				
Thoracic Fusion				

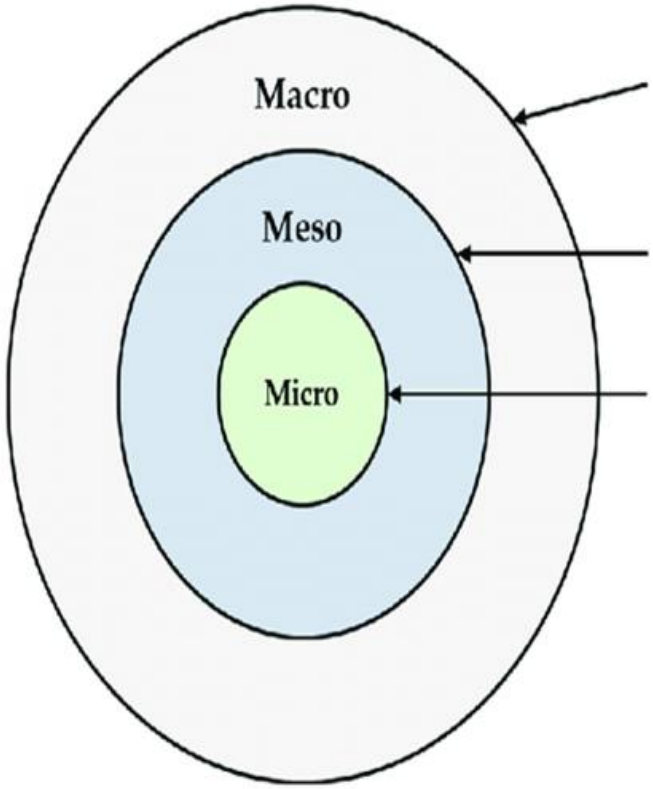
Appendix E


CERVICAL LAMINECTOMY/FUSION (MEDSURG)
Somewhat Competent 12%
Not Competent 88%
Highly Competent 0%
Competent 0%


THORACIC LAMINECTOMY/FUSION (MEDSURG)
Somewhat Competent 12%
Not Competent 88%
Highly Competent 0%
Competent 0%


LUMBAR LAMINECTOMY/FUSION (MEDSURG)
Somewhat Competent 12%
Not Competent 88%
Highly Competent 0%
Competent 0%

Appendix F



Macro

- **Military/Government**

Meso

- Executive Leaders/Nurse Managers/Educators/RNs
- Quality Improvement
- Radiology , Pharmacy, Lab
- Neurosurgeon

Micro

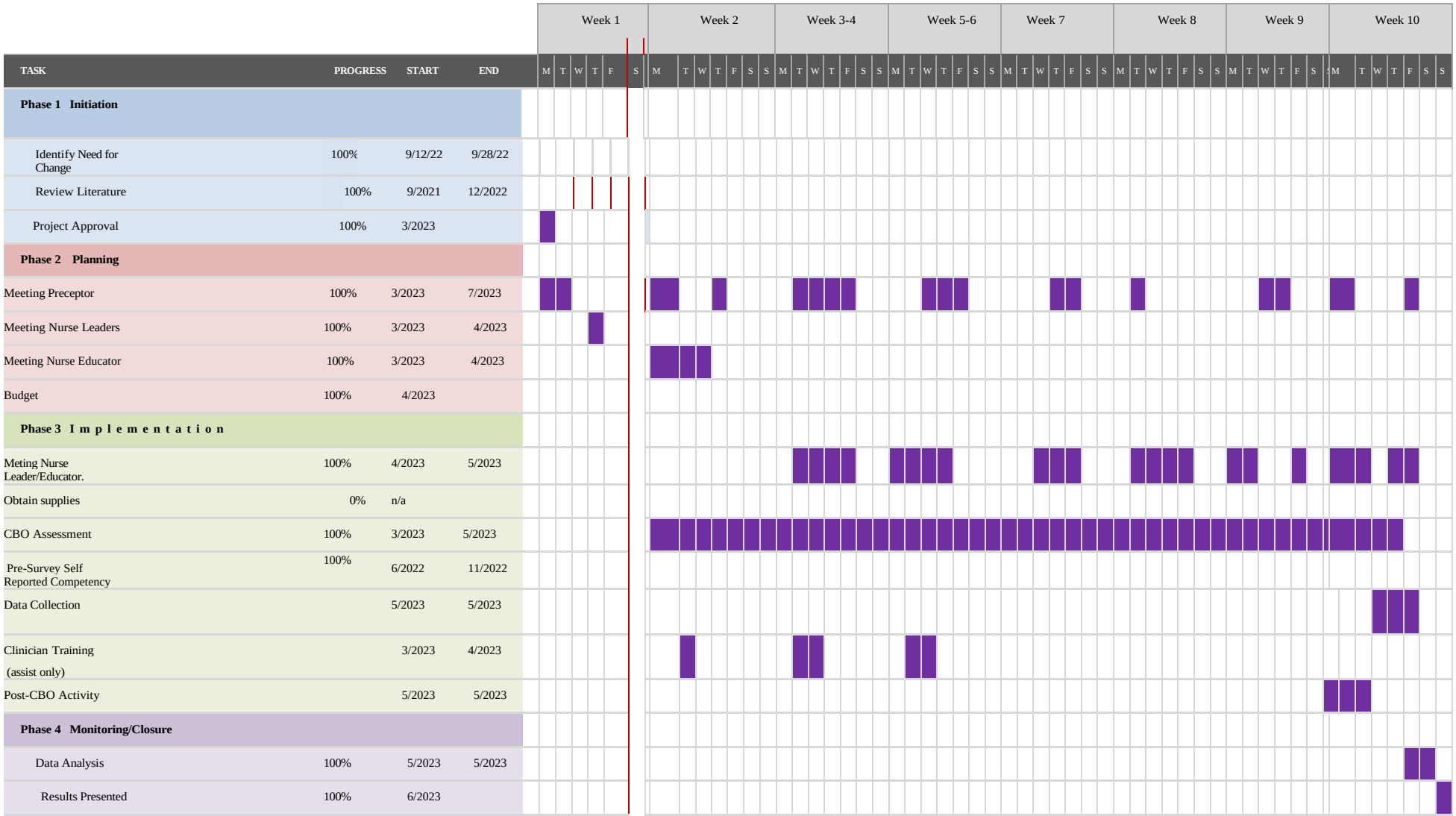
- Veteran
- Families/caregivers

Appendix G

Strengths	**Weaknesses**
* Strong leadership support * Efficiency in care delivery	* Nurse care incompetency * Nurses' reluctance to change behavior
Opportunities	**Threats**
* Promote better patient outcome * Decrease post-operative complications	* Patient death * Prolonged Hospital Stay * Incur Hospital Cost

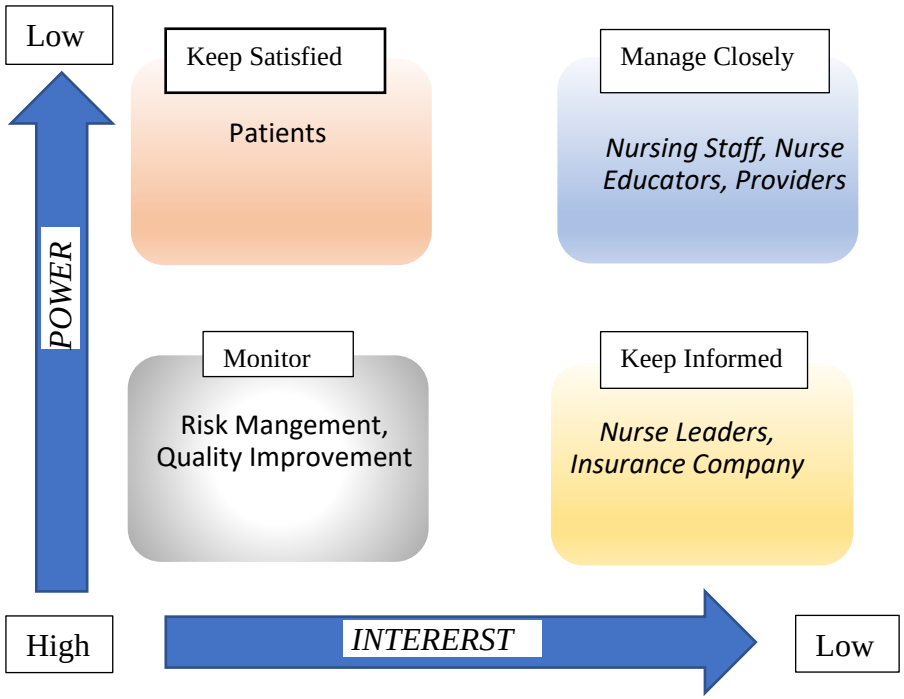
Appendix H

(GANTT Chart)



Appendix I

Stakeholder Analysis Tool



Appendix J

Competency-Based Orientation Assessment Checklist

Development pending approval by National Orthopaedic Association Nursing
(email to request for permission sent)

Permission Request

MO Maryann S Ornelas
To: naon@orthonurse.org

Sun 2/26/2023 4:07 PM

To whom it may concern;

I am reaching out to request for permission to incorporate a portion of the NAON Patient Education Series: Postoperative Spine in my Doctorate of Nurse Practitioner scholarly project. My proposed plan is to restructure the Vetarans Affairs Medical Center (VAMC) Medical Surgical Unit nursing care to include key areas that will focus on post-operative spine care.

VAMC is currently using a standard nurse care plan that does not address consistent assessment to wound care, neurogenic bladder/bowel function, pain management, and encouraging early mobilization. It would be beneficial if I could use your guidelines to develop a competency-based orientation protocol for this unit to promote better patient outcomes.

Thank you very much for your time.

I look forward to hearing from you.

Respectfully,

Maryann Ornelas, MSN, BSN, RN,

MSN-DNP Student
School of Nursing
Post Professional Programs
University of Saint Augustine for Health Sciences
1 University Blvd
Saint Augustine FL, 32086
562-308-7487 (PST)

NAON - Martini fear, Kim <kmartinifear@orthonurse.org>
To: Maryann S Ornelas
Fri 3/3/2023 9:46 AM
Start reply with:
[EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Hello Maryann,
Thanks for your note and request to use the NAON Patient Education Series: Postoperative Spine document in your project.
The purpose of these documents is to share with caregivers and patients, and we are pleased that you find the content beneficial to your project.

NAON requests that you cite NAON as the source, and maintain the NAON copyright and logo in anything that you distribute.

Best,
Kim

Kim Martini Fear
Education Manager
National Association of Orthopaedic Nurses
330 N. Wabash Ave. Suite 2000 | Chicago, IL 60611-7621
kmartinifear@orthonurse.org | 800.289.NAON (6266) |

NAON
National Association of Orthopaedic Nurses

Appendix K

POST-SPINAL NURSING CARE ASSESSMENT

NAME: UNIT: MEDICAL SURGICAL

Competency Level Codes: 1. Little or no experience 2. Needs practice or assistance 3. Competent, performs independently 4. Competent, performs independently and is able to assess others	**Assessment Methods:** ***A.*** *Verbalizes policy, procedure or standard* ***B.*** *Demonstration/Return Demonstration*

COMPETENCY STATEMENT: All nursing staff will verbalize and demonstrate knowledge and competency in all aspects POST-SPINAL NURSING CARE	Date	Competency Level				Assessment Methods	Evaluator Initial(s)	Comments
		1	2	3	4			
Demonstrate INCISIONAL WOUND checks at beginning and end of shifts								
- Demonstrate the ability describe dressing on Postop Day #1 (clean/dry/intact)								
- Demonstrate the ability describe dressing on Postop Day #2 (clean/dry/intact)								
- Demonstrate the ability to describe wound is OPEN-TO-AIR (without dressing) once dressing removed by surgeon								
Demonstrate EARLY MOBILIZATION								
- Demonstrate documentation patient is sitting up, out-of-bed, and/or ambulating with assistance								
Demonstrate pain level assessment								
- Demonstrate documentation of intervention used to manage pain								
- Demonstrate documentation of pain level after intervention								
Demonstrate documentation of BOWEL CARE								
- Demonstrate documentation of frequency								
- Demonstrate documentation of method: (digital stimulation, self, enema, or suppository)								

Employee:_____ **Date:**_____

Evaluator:_____ **Date:**_____