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# Reducing Delirium in the Hospitalized Elderly With a Nursing Prevention Protocol

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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2017

Abstract

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MSN, Nursing/Healthcare Education, University of Phoenix, 2009

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Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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## Abstract

The aim of this project was to implement and evaluate the effectiveness of the Clear Minds protocol for early detection and prevention of delirium in hospitalized, elderly patients. The protocol was used to monitor for delirium and improve sleep quality by reducing sleep disturbances caused by environmental factors in hospital settings. Due to the risk of delirium for patients in late adulthood, implementation of a delirium-prevention protocol was needed. Upon admission, patients 60 years and older or patients that screened positive for the Brief Confusion Assessment Method (bCAM) were placed on the Clear Minds protocol. The protocol consisted of establishing healthy habits including structured eating, toileting, and sleeping times. Patients were oriented, exposed to light during the day, and had orders to not disturb during the night unless medically necessary. A convenience sample of 100 patients were reassessed using the bCAM every shift. Sleep patterns, morbidity, mortality, and length of hospital stay of patients were examined pre- and post- implementation of the protocol through surveys and aggregate data pulled from the electronic medical record. Results from a 2-sample *t*-test indicated no difference between the pre- and post- implementation groups, although there was a positive relationship between the use of the protocol by clinical staff nurses and the length and quality of sleep for patients, suggesting that nurses can have a positive impact on sleep patterns of hospitalized patients. The potential for a positive social change will result from nurses using a standardized approach with a validated tool in clinical practice to assess for delirium; intervene with patients predisposed to sleep disturbances; and thereby decrease morbidity, mortality, length of stay, and readmissions.

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# Dedication

To my son Elijah, family, and friends. Thanks for the tremendous support throughout this journey! This accomplishment would not been possible without your ongoing support and encouragement. Thanks and love to you all.

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To Dr. Diane Whitehead Committee Chair: I thank you for your patience, guidance, and words of wisdom. Without your guidance, steady progression and completion throughout this entire practicum experience would have been impossible.

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## Section 1: Nature of the Project

Delirium has been found frequently in older hospitalized patients and has been linked with increased risk of inpatient death, longer hospital stays, increased morbidity, admission to long-term care facilities, and other adverse outcomes (Grover & Kate, 2012; Wong, Holroyd-Leduc, Simel, & Straus, 2010). Delirium, a profound change in state of consciousness linked with inattentiveness, has sometimes been accompanied by agitation or restlessness (hyperactive delirium) or withdrawal and apathy (hypoactive delirium). Although acute in onset, delirium is potentially reversible. Treating delirium has been costly and has been the most common complication from hospitalizing the elderly (Grover & Kate, 2012).

Delirium has often lengthened ICU stays and has been widespread in ICUs, affecting 80% of patients. It has also been costly, adding between $4 billion and $10 billion a year in the United States in ICU costs (American Association of Critical-Care Nurses [AACN], 2012). Therefore, it has been important for hospitals to assess delirium and its severity (Inouye et al., 2014). Much change has occurred in practice, starting with the introduction of DSM-III for the terminology used and the standard diagnostic criteria for delirium (Grover & Kate, 2012).

Despite increased understanding in the research literature about evidence-based practices, nursing staff members in many hospitals have not been educated properly in screening for signs of delirium, identifying risk factors for delirium, or making appropriate interventions to reduce the incidence and severity of delirium among elderly hospitalized patients. However, some research literature has shown the comparative

worth and ease of use of various screening tools for delirium and interventions with at-risk elderly hospital patients that have proven effective in lowering the incidence of delirium. Interventions such as the following help: (a) acclimating patients to the hospital setting, (b) instilling good sleep habits, (c) treating dehydration, and (c) reducing noises and distractions (Miller, 2008). Pharmacological and nonpharmacological interventions have also been shown to be helpful. When the underlying causes of delirium cannot be identified, antipsychotic drugs have been recommended after other treatments have failed (Miller, 2008).

## Problem Statement

This capstone project implemented and evaluated a nursing screening assessment and evidence-based protocol to treat patients age 60 and older for delirium on a subacute hospital unit in the southwestern part of the United States. Because delirium can lead to a medical emergency, addressing its symptoms promptly may avert any life-threatening conditions. Delirium's subtle and varied symptoms include lessened ability to focus, rapid onset (unlike dementia, which could develop gradually), disorganized thinking, impaired memory, and distraction, as well as alterations in sleep patterns and psychomotor skills (Miller, 2008; Wong et al., 2010). Multiple medical conditions (or triggering mechanisms) could lead to the presentation of delirium. These causes need to be identified and treated.

### Significance/Relevance to Practice

Delirium is costly to treat and is the most common complication from hospitalization of the elderly. Delirium has been linked with adverse outcomes such as

increased morbidity, mortality, and patient discomfort during the hospital stay. Because delirium and dementia have frequently been confused in the hospital setting, educating hospital nursing staff to conduct routine assessments for delirium in elderly hospitalized patients as well as instituting appropriate interventions for delirium among this target population will decrease the mortality and morbidity associated with this complication.

## Purpose

This project addressed the learning objectives related to the doctor of nursing practice (DNP) essentials: scholar or evidence-based practitioners, professionals or collaborators, and leaders or change agents. The purpose of this project was to implement a nurse-driven delirium assessment and prevention protocol outlined in the DNP proposal as a quality improvement (QI) initiative at an urban hospital in the Southwestern United States that expanded on an existing physician-ordered delirium prevention protocol. As a DNP student, I served as a collaborator in an ongoing IRB-approved quality improvement project aimed at studying the impact of the delirium-prevention protocol on aggregate outcomes (chemical/physical restraints, length of stay, and mental health center transfers) and hours of patient sleep from sleep surveys. I worked in collaboration with the study primary investigator (PI), Jens Oldrich Langsjoen, MD. The project was approved for an IRB modification for a third study arm that allowed Dr. Jens and myself to analyze the nurse-charted bCAM score results available after the nurse-driven QI initiative has been implemented retrospectively.

## Nature of the Doctoral Project

Although there was a strong evidence base for using a multicomponent delirium prevention protocol for hospitalized patients, the internal medicine floors at the hospital had not implemented a delirium-prevention protocol. Anonymous patient survey data collected in 2014 for QI purposes indicated that hospitalized patients on the internal medicine services at the hospital got only an average of four hours of sleep per night, with sleep deprivation a risk factor for delirium. To address this, the hospital's department of internal medicine created an evidence-based delirium prevention protocol designed for use with hospitalized patients age 60 or older. The practice-focused question for this project was: How effective was the delirium prevention protocol at the hospital in reducing the incidence of delirium at an acute-care trauma facility among hospitalized patients age 60 or older?

The assessment tool used was the Confusion Assessment Method (CAM), which was first developed in 1988–1990 and has remained the most widely used instrument for detecting delirium. The Brief Confusion Assessment Method (bCAM) is a shorter version of the CAM and is employed to assess delirium using observations rather than a more formal cognitive assessment (Inouye, 2014). This intervention used the bCAM assessment by nursing staff in the hospital unit with all patients upon admission or transfer. The Clear Minds protocol was implemented on all patients with a positive bCAM score (see Appendix A).

## Significance

The significance of this project was that nursing leadership in a trauma I hospital motivated and educated nurses on the medical unit to implement a reliable and valid tool to identify delirium and to initiate a nurse driven protocol to address this problem. Key stakeholders included patients 60 years of age and older and nursing staff. For hospitalized patients age 60 and older, delirium is a serious medical problem with significant implications for patient morbidity, mortality, and perceived well-being, both during and following a hospital stay. Hospital nurses have often not been educated to perform screenings for assessing delirium or risk of delirium among this patient population, so their ability to identify at-risk patients in this hospitalized patient population was subject to improvement through developing and implementing more effective and cost-effective screening and treatment tools. This capstone project implemented and evaluated a pilot program that used a nursing protocol for assessing and treating delirium in elderly hospitalized patients. Appropriate referrals to physicians could be made as a result of positive bCAM scores so that physicians would make appropriate treatment decisions. Intended positive social changes included better patient outcomes in length of hospital stay, mortality, and morbidity.

## Summary

Hospitalized patients age 60 and older have suffered from preventable negative outcomes (increased length of hospital stay and elevated levels of mortality and morbidity, among other adverse outcomes) due to the large proportion whose delirium has gone undiagnosed at the time of their hospital admission. In this project, nurses were

trained to administer and implement a delirium screening and treatment protocol. This was intended to reduce the incidence of these adverse patient outcomes, making physician referrals on the basis of positive bCAM scores.

## Section 2: Background and Context

Delirium is more common among elderly patients and those admitted to an ICU than among younger patients and hospital patients not in an ICU; delirium is also more common among patients with prior cognitive impairment (Grover & Kate, 2012). Delirium is significantly linked with inpatient mortality, morbidity, and distress. Different tests for delirium have been linked with different end uses, according to whether the patient could be aroused and assessed, whether the patient had preexisting dementia, and whether staff needed to assess the severity of delirium. Proper education in the use of delirium assessment protocols would address under what circumstances the various tools would be appropriate or inappropriate, including such considerations as the level of training and expertise of the staff members who would administer the assessments. This section provides an overview of the concepts, models, and theories that were used in this doctoral project; the relevance to nursing practice; local background and context; and the role of the DNP student and project team.

### Concepts, Models, and Theories

Research on innovations and change in clinical settings clearly indicated that clinicians found it difficult to incorporate new knowledge into their clinical practice (Hyrkäs & Harvey, 2010). The plan-do-study-act (PDSA) model (Table 1) was used as a framework for quality that helped frame issues about intended outcomes such as how to measure the effectiveness of change (whether the change was an improvement) and determine additional changes needed to make improvements (Langley et al., 2009). Lewin's theory of planned change (Kritsonis, 2005) also guided the change process.

Lewin's theoretical framework (Table 2) involves three stages of change: unfreezing, moving or transitioning, and refreezing (Kritsonis, 2005). Potential barriers for this practicum in the academic hospital environment included the lack of utilization in resources, administrative pushback, lack of funding for research efforts, and lack of support from medical leaders, particularly lack of support from the medical director, for meaningful research and project implementation.

Table 1

*Plan-Do-Study-Act (PDSA)*

| |
|---|
| **Plan:** Assemble the team. Select Clear Minds Protocol and bCAM |
| **Do:** Implement nursing training and collect primary data |
| **Study:** Patient sleep outcomes (quality and length) pre- and post-training; patient outcomes (pre- and post-training) |
| **Act:** Recommendation for continued research into validated screening tools for delirium. |

Source: Langley et al. (2009).

Table 2

*Lewin's Theoretical Framework for Change*

| |
|---|
| **Unfreezing:** letting go of counterproductive patterns; overcoming resistance |
| **Moving or Transitioning:** changing thoughts, feelings, and behavior (training) |
| **Refreezing:** establishing the changes in behavior as a new set of habits (reinforcement) |

Source: Kritsonis (2005).

Challenges from nursing staff that were anticipated included those from new staff members who might have been grappling with mastering standard routines and who therefore might have found any changes as frustrating complications. Anticipated challenges from experienced staff were those staff members who were resistant to change, particularly if they believed that the status quo was working well. Another challenge to implementation was learning about the internal key stakeholders: who they were, what their values and positions were, and how they could have helped or hindered the process. Wright (2010) advised researchers to be conscious that in nursing, there was an inclination to dispute changes and address anything that would alter the status quo with worry and opposition rather than admiration and support (Wright, 2010). Lewin's model (Kritsonis, 2005) highlighted how and why psychological and emotional issues experienced by nurses could have impeded the effectiveness of the introduction of these new screening and treatment protocols for delirium. However, if the training enhanced nurses' perceived sense of competency at providing excellent patient care and improved patient outcomes, then nurses were far less likely to be resistant.

**Key Terms**

*Delirium:* An altered mental state "somewhere on the continuum between coma and stupor at one extreme and normal wakefulness and alertness at the other" (Grover & Kate, 2012). Delirium is sudden and acute in onset and may include hallucinations and hyperactivity, but it is potentially reversible (MedicineNet.com, 2016).

*Dementia:* a significant loss of mental ability (e.g., memory, concentration, and reasoning) severe enough to interfere with normal activities and functions, such as the

ability to carry out job duties. Diagnostic signs of dementia include "impairment of attention, orientation, memory, judgment, language, motor and spatial skills, and function." Major causes include Alzheimer's disease, alcoholism, and AIDS, but (by definition) not depression or schizophrenia (MedicineNet.com, 2016).

## Relevance to Nursing Practice

This project addressed the ability of nursing staff to implement and evaluate interventions intended to reduce the incidence and severity of delirium during hospitalization of elderly patients (age 60 and older). This involved further nursing education in the use of delirium assessment protocols to address the issue of when (under what circumstances) the various tools would be appropriate or inappropriate, including such considerations as the level of training and expertise of the staff members who would administer the assessments.

## Local Background and Context

This project implemented and evaluated a nursing protocol for assessing and managing delirium. The pilot project was conducted on an inpatient progressive care unit in a Southwestern urban trauma teaching hospital in the United States for three months and included the implementation of the bCAM assessment and the Clear Minds nursing protocol. An education program was offered that included: (a) a best-practices interactive session to hospitalists, (b) three interactive sessions to the internal medicine residents, (c) quarterly e-mails to providers, and (d) a printed educational tool that described the delirium prevention protocol, which was distributed and posted in designated resident work areas. The quarterly (three-month) percentage of eligible

patients receiving the delirium prevention protocol was monitored as a marker for ongoing educational interventions.

A nurse-driven delirium screening and prevention protocol was developed by the nursing staff and was implemented on an inpatient unit with 27 beds. Under this protocol, nursing staff screened patients upon arrival to the floor for delirium and risk of delirium using an electronic bCAM scoring tool. Patients age 60 or older who screened positive for delirium via a positive bCAM score result for delirium or risk of delirium were placed on the delirium prevention protocol through a nurse charting system and screened daily for delirium using the electronic bCAM tool. Incident cases of delirium in patients hospitalized on the unit were documented in the electronic medical record. At the conclusion of the three-month pilot, the project was evaluated, and results were presented to nursing administration.

## Role of the DNP Student

I worked with the project team as the collaborator of the PI project on the designated unit. My role as the collaborator was to develop the protocol, to educate the physician residents, to educate staff nurses on the unit on the screening tool and intervention, to facilitate or conduct patient surveys with the patients who met the inclusion criteria, and to evaluate the data. I educated 60 nurses on the unit on the ICAM tool and protocol for delirium and how to use the insights in the research literature through receiving proper training.

## Role of the Project Team

The team reviewed the quarterly aggregate outcomes data collected by the clinical quality analyst with the office of quality and safety and removed patient names from the data. These data were located as a password-protected Excel file in a secure hard drive on the password-protected computer of the study leaders. The project team was included of a physician leader who served as the primary investigator for an IRB-approved and ongoing quality improvement project at the facility for "reducing delirium in the hospitalized elderly with a prevention protocol."

## Literature Review

The articles used in the review of literature included two at Level I, one at Level III, one at Level V, and two at Level VII (see Table 3 and Appendix B). A summary of the data analysis revealed that all critically ill and elderly hospital patients should be screened promptly and accurately for delirium, although 63% were currently going undiagnosed. Appropriateness of screening tools depends upon the amount of time available for screening and the discipline of the practitioner; NEECHAM scales are recommended for screening and CAM scales for diagnosis. The literature review that was conducted was comprehensive and exhaustive.

Table 3

*Hierarchy of Evidence*

| |
|---|
| **Level I:** Evidence from a systematic review of all relevant randomized controlled trials (RCT's), or evidence-based clinical practice guidelines based on systematic reviews of RCT's |
| **Level II:** Evidence obtained from at least one well-designed Randomized Controlled Trial (RCT) |
| **Level III:** Evidence obtained from well-designed controlled trials without randomization, quasi-experimental |
| **Level IV:** Evidence from well-designed case-control and cohort studies |
| **Level V:** Evidence from systematic reviews of descriptive and qualitative studies |
| **Level VI:** Evidence from a single descriptive or qualitative study |
| **Level VII:** Evidence from the opinion of authorities and/or reports of expert committees |

Source: Melnyk, B. M., & Fineout-Overholt, E. (2005). *Evidence-based practice in nursing & healthcare: A guide to best practice*. Philadelphia: PA: Lippincott, Williams & Wilkins.

**Delirium Assessment and Prevention**

Grover and Kate (2012) reviewed the scales used to assess delirium. Their article was descriptive in nature and provided the following information about each scale that they reviewed: the criteria on which the scale was based (e.g., DSM-IV or research), the number of items (ranging from 7 to 109), who does the ratings (e.g., nurses, physicians, psychologists), and time taken in minutes to administer. Their conclusion was that in the

general hospital and surgical ward settings, the NEECHAM confusion scale and the delirium observation screening scale (DOSS) were the most accurate. Several instruments used for diagnosing delirium "have good to excellent reliability and fair to good validity," namely: the confusion assessment method (CAM), the CAM for the intensive care unit (CAM-ICU), the Delirium Rating Scale–revised version (DRS-R-98), the memorial delirium assessment scale, and others (Grover & Kate, 2012, p. 68).

The literature identified the CAM as the most useful diagnostic instrument due to its accuracy, conciseness, and ease of use, as well as the fact that it takes nonpsychiatric physicians less than 5 minutes to administer (Wong et al., 2010). The CAM has been adopted widely for use in the ICU (Grover & Kate, 2012). The DRS-R-98 was identified as a more sensitive instrument for monitoring changes over time and was found to be most suitable for use by experienced experts, while other measures were suitable for nonspecialists (Grover & Kate, 2012).

Although the CAM was generally favored, it had not been highly regarded for assessing the severity of delirium (Grover & Kate, 2012) until the development of the Confusion Assessment Method—Score for Delirium Severity (CAM-S), which is discussed below. Clinicians with psychiatric training can assess the severity of delirium via the Delirium Rating Scale (DRS), or nurses with limited training can do so via the delirium-o-meter (Grover & Kate, 2012). The confusional state evaluation scale (CSE) was identified as another measure for the severity of delirium best reserved for specialists: trained nurses, doctors, and psychologists (Grover & Kate, 2012). A research assistant (not a psychiatrist) can use the Delirium Index (DI), which was adapted from the

CAM (Grover & Kate, 2012). The Delirium Assessment Scale (DAS) has been found to be sensitive in measuring the severity of delirium, but it has not been found to be useful for differentiating delirium from dementia (Grover & Kate, 2012). The Delirium Severity Scale (DSS) was found to be useful for tracking the severity of delirium over time (Grover & Kate, 2012).

The CAM-S was developed to make the CAM a more sensitive and reliable measure of the severity of delirium (Inouye et al., 2014). Inouye et al. (2014) had a sample of 300 in the successful aging after elective surgery cell and 919 in the project recovery sample, samples large enough to draw valid conclusions about the usefulness of a delirium severity measure under review. The CAM-S has not been regarded as a standalone tool. Instead, it has been used in addition to the original CAM to measure the intensity of delirium symptoms. Tracking the severity of delirium over time has many practical applications, including assessing the effectiveness of treatments for delirium and measuring the effects of different levels of patient delirium on the quality and costs of healthcare delivery (Inouye et al., 2014). The CAM-S was therefore identified as a potentially valuable validated tool. Inouye et al. (2014) tested the reliability of the CAM-S both in its short form (4 items) and its long form (10 items). Their hypothesis was that a reliable measure of the severity of delirium could predict outcomes, such as length of hospital stay, nursing home placement, and death. High CAM-S scores were significantly linked with worse posthospital outcomes, such as death within 90 days (Inouye et al., 2014). The researchers found high interrater reliability and strong predictive power for

outcomes for the CAM-S, which made its introduction useful, given how widely used the CAM was already (Inouye et al., 2014).

Many assessment measures have been used widely due to differences in patients, symptoms, and the expertise of the people administering the tool, including assessment measures suitable for nonspecialists. The Richmond Agitation and Sedation Scale (RASS) has been proved useful for assessing the level of sedation or agitation. Given the prevalence of delirium and cognitive decline in older patients and the overlap between delirium and dementia, a questionnaire was developed that can be completed by relatives of elderly patients or other caregivers: the informant questionnaire on cognitive decline in the elderly (IQCODE) (Grover & Kate, 2012).

Some instruments have been intended for use only in specific types of locations. The NEECHAM confusion scale has been deemed suitable for use by nurses for assessing confusion while providing routine care. The Nursing Delirium Screening Scale (Nu-DESC) and the Delirium Observation Screening Scale (DOSS) have also been used while providing routine patient care.

**Assessing the CAM and CAM-S using GRADE guidelines.** The CAM has been perhaps the most widely used measure for assessing delirium among elderly hospitalized patients, but it has not been notably reliable for assessing the severity of delirium, an important element in predicting length of hospital stay, the likelihood of placement in a long-term care facility, mortality, morbidity, and other adverse outcomes. The CAM-S, used in conjunction with the CAM, has addressed this issue head-on, making it a practical and timely addition. One way to assess the CAM and the CAM-S

was with the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) guidelines (Guyatt et al., 2011).

The GRADE system rated evidence and studies on the basis of characterizing them as randomized controlled trials (RCTs)—a high score—versus observational studies or qualitative research—a low score. It was most useful to consider all evidence, not just a few studies pulled at random. Such factors as the following were taken into consideration: risk of bias, inconsistencies, effect size, imprecision, and publication bias. All patient-important outcomes were considered in this evaluation process. On this basis, the meta-analysis conducted by Wong et al. (2010) indicated the strength of the evidence in favor of the confusion assessment model (CAM): 6,570 citations that met inclusion criteria and reviews of 11 bedside instruments to assess delirium in hospitalized patients. They concluded that the CAM had the best data to support its use.

**General Literature on Patient Satisfaction**

Delirium has posed great costs on the healthcare system and has caused adverse outcomes, including elevated levels of patient morbidity and mortality during and after the hospital stay. Delirium has been linked with distressing experiences for patients and reducing the quality of their hospital stay. Therefore, measuring patient satisfaction before and after introducing nursing training for assessing and treating delirium was one important way of evaluating the effectiveness of that training in improving the hospital experience of elderly inpatient hospitalized patients.

**The ASQ Patient Experience Survey as a way to measure improving patient satisfaction through Voice of the Customer (VOC) input.** Many rating measures have

assessed patients' satisfaction with the quality of medical care, generating data intended to find where improvements were needed and that could be used to assess whether experimental interventions (such as instituting training protocols for patient communication with doctors and nurses) showed measurable improvements in patient satisfaction that warranted their widespread or permanent adoption. According to a recent survey of healthcare experts, improving communications between patients and healthcare providers to make access to care easier for patients was a top priority for 83% of respondents (American Society for Quality, cited in Caldwell, Pope, & Partin, 2015).

A consensus emerged recently on how to measure the effectiveness of physicians' communications with patients—and how to train physicians and others to communicate more effectively with patients (King & Hoppe, 2013). Physicians needed to foster the relationship, exchange information with patients, make joint decisions, respond appropriately and empathetically, and facilitate compliance with treatment plans (King & Hoppe, 2013).

Positive physician communication behaviors included making eye contact, while negative communication behaviors included being too forceful or failing to address patients' primary concern (King & Hoppe, 2013). The conclusions on which communication behaviors were effective in boosting patient satisfaction were based on Pearson *r* scores (correlation) (Tallman, 2007). More effective physician communications have been linked with improved patient outcomes (King & Hoppe, 2013). Greater patient understanding of, recall of, and adherence to treatment guidelines

lowered patient readmission, while also lowering costs of care (due to reductions in rates of relapse and readmission) (AACN, 2012; Miller, 2008; Wong et al., 2010).

One Texas hospital, Hill Country Memorial (HCM) Hospital, encouraged hospital physicians to use voice of the customer (VOC) input by instituting a hospitalist program (Caldwell et al., 2015). Patient satisfaction was measured by the ASQ patient experience survey. Measures of success included greater access to care through extending hours of availability of physicians in clinics, better work–life balance for caregivers (which yielded augmented engagement of medical staff), reduced delays in admitting and discharging patients, reduced length of stay, and swifter review of and response to clinical data (Caldwell et al., 2015).

HCM Hospital developed a coordinated communication program known as GIFT: greet, inform, find out, and time (Caldwell et al., 2015). The greetings included addressing everyone in the room, not just the patient, and providing a personalized "baseball card" about the physician, with a description of his or her position, responsibilities, and even personal interests and hobbies (Caldwell et al., 2015). The time element included taking the time to explain all test results and clinical actions to date, along with an explanation of upcoming tests and treatments. The improvements in care delivery and patient satisfaction were made possible by addressing the problem of uncoordinated and fragmented care due to poor staff communication. This improvement was made possible by instituting "a daily afternoon huddle" of an interdisciplinary team to address action plans for patients and current concerns.

Another attempt to address the issue of improving patient satisfaction with communications between doctors and nurses and patients was the pilot study undertaken by Huerta, Langsjoen, and Fraire (2015). In that study, nurses were trained to ask patients, "What matters to you?" and to follow specific procedures to ensure that patient's' requests were addressed. Although during the five months of the pilot project, 90% of these patient concerns were addressed, this experimental intervention had no effect on hospital patient experience scores used to rate hospitals in the Hospital Consumer Assessment of Healthcare Providers & Systems (HCAHPS), as discussed in the following section.

**Patient experience, as measured by the Consumer Assessment of Healthcare Providers & Systems (CAHPS).** Patient experience surveys are not identical to patient satisfaction surveys, although many people conflate the two; instead of asking such questions as "How satisfied were you with ____?" patient experience surveys solicit factual information, such as frequency of doctor contact, length of time between hospital release and follow-up care visits, and how well patients understand their instructions for taking medications (CMS, 2015). The Centers for Medicaid and Medicare Services (CMS) created and maintain several measures of patient experience; the Consumer Assessment of Healthcare Providers and Systems (CAHPS) encompasses many of them (CMS, 2015). The CAHPS Consortium approved all of these measures (CMS, 2015).

All of these surveys have been regarded as reliable quantitative research, using proven investigation methodology and protocols, standardized questionnaires with closed-end questions, representative samples, and large sample sizes so that comparable

results can be obtained for a variety of healthcare providers (CMS, 2015). These surveys have focused on issues important to consumers and have provided information that only patients could provide, based on their experience with healthcare (CMS, 2015). Payments to medical providers can be altered based on these findings, an incentive for providers to address shortcomings as perceived by patients (CMS, 2015).

One of the CAHPS surveys was the Hospital CAHPS (HCAHPS). It used 32 items to assess patients' hospital experiences, making possible valid comparisons between different hospitals nationwide (CMS, 2015). Subject areas ranged from communications with doctors and nurses to pain management, the cleanliness of the premises, and how discharge plans were handled. A random sample of patients was surveyed 2 and 42 days after being discharged from the hospital. Official translations of the survey instrument have been provided into several languages, including Spanish, Russian, and Vietnamese, one of many rigorous attempts to ensure that the sample of patients surveyed was representative. Another measure of high quality was the exceptionally large sample size: over 3.0 million patients were surveyed annually, making the findings highly reliable (CMS, 2015). Results each year have been made available to the public.

Few other sources of consumer or patient data obtained via surveys could ever be as representative, reliable, and rigorous as the CAHPS and the HCAHPS surveys. Basically, any hospital has been compelled to address any issues of substandard patient experience detected by the HCAHPS to avoid cuts in funding, which has meant that the

HCAHPS research findings, unlike many other survey findings, have been highly unlikely to get ignored by stakeholders, decision-makers, and hospital administrators.

Huerta, Langsjoen, and Fraire (2015) explored a pilot project to improve patient experiences, as measured by the HCAHPS, given its importance in determining hospital payments through the Hospital Value Based Purchasing Program (VBP), a huge incentive for hospitals to improve their patient experience scores as measured by HCAHPS. Many of the HCAHPS measures have concerned communications between patients and healthcare staff. The pilot project was implemented for five months as part of a multidisciplinary patient experience project. Nurses were trained to ask patients, "What matters to you?"

The nurse then recorded the patient's response on the patient's whiteboard and attempted to address any patient concerns or convey those concerns to another staff member. This procedure encouraged patients to express concerns, while informing the healthcare team about patient concerns and priorities. Records were kept of these patient concerns and priorities, as well as the extent to which they were addressed. This allowed for the collection of the incidence (%) with which patient concerns were addressed successfully and completely, to the patient's satisfaction.

Patient concerns were coded to fall into these categories: pain management, sleep and rest, discharge plan, ambulation, special meal requests, family, overall improvement in health, and miscellaneous. The most frequently voiced concern was pain management (36%). Sleep and rest accounted for the second most frequent type of concern (21.2%). Most requests (90%) were met. Despite this encouraging finding, HCAHPS scores were

not affected one way or the other by this pilot project. There was no significant change in the HCAHPS scores for communications with doctors or nurses during the five months of the pilot project.

**AHRQ inpatient quality indicators.** The previous two types of data have concerned patient satisfaction and patient experience, as measured by patient surveys. The Agency for Healthcare Research and Quality (AHRQ) has provided inpatient quality indicators based on hard data about patient outcomes. These measures were developed by the University of California, San Francisco; Stanford University's Evidence-Based Practice Center; and the University of California, Davis, under contract with the AHRQ, starting in 2002 and updated ever since then; many of these measures have been endorsed by the National Quality Forum (NQF) (AHRQ, 2015).

The measures used to determine the AHRQ Inpatient Quality Indicators typically have been derived from hospital discharge abstracts and datasets (AHRQ, 2015). Quality indicators (QIs) have included mortality rates for medical conditions and surgical procedures. Differences between hospitals could provide significant indicators about the quality of service and care provided by different hospitals. The incidence or utilization rate for different procedures could also provide action-oriented results (including underutilization of effective procedures or overuse of procedures relative to their efficacy or medical outcomes).

## Summary

In this capstone project, evidenced-based nursing practices were used for evaluation and implementation. The evidence was obtained through evaluating the

literature review as it correlated to patients 60 and older in an inpatient acute-care setting. During the implementation, nursing conducted assessments with the bCAM methodology and charted bCAM scores in the electronic medical record q-shift. This capstone project included reviewing aggregate data, retrospective data, reviewing sleep surveys, and reviewing bCAM scores.

## Section 3: Collection and Analysis of Evidence

The goal of this proposed QI project was to determine whether increased use of the delirium prevention protocol at the hospital would lead to a decrease in the incidence of delirium, improvements in patient care and patient outcomes, and improvements in patient self-reported sleep.

### Practice-Focused Questions

The practice-focused question for this project was: How effective was the delirium prevention protocol on a designated unit in reducing the incidence of delirium at an acute-care trauma facility among hospitalized patients age 60 or older?

### Sources of Evidence

A literature search was conducted using CINAHAL, EBSCOhost, MEDLINE, and ProQuest. Key search terms included *delirium*, *screening tools*, *delirium treatment*, and *delirium intervention*. The purpose of this literature review was to identify the most effective and cost-effective screening and treatment protocols for delirium among hospitalized patients age 60 or older. The literature review was used to review various methodologies and instruments available to screen for and to treat delirium thoroughly.

The current evidence demonstrated that the recommended assessment for delirium in non-ICU settings involves using the bCAM methodology. According to Inouye et al. (2014), although the bCAM and CAM-ICU (see Appendix A) were quite similar, they had two fundamental differences. In place of the characters (acoustic) and the image (graphic) examinations utilized by the CAM-ICU, the bCAM unassumingly requested that the client rehearse the months rearward from December to July to assess for

inattentiveness (Feature 2). If the client made more than one mistake or was incapable of completing the task or declined to complete the task, these behaviors were characterized as positive evidence for inattention (Inouye et al., 2014). Vanderbilt Hospital demonstrated a strong framework for the Delirium Triage Screen (DTS). Vanderbilt validated the bCAM's use for delirium screening and found it to be 84% sensitive, which increased to 96% if performed by a physician (Inouye, 2014). Other sources of evidence included patient sleep surveys and pretraining and posttraining data on patient outcomes (decreases in length of hospital stay, use of pharmacological treatments, and use of chemical or physical restraints).

## Implementation/Evaluation

The quality project was implemented on a 27-bed acute care medicine unit at a Level I trauma facility also identified as an academic medical center. Participants of the QI project included the interim nurse manager and registered nurses who worked directly on the unit. The nursing staff was educated on the use of the DTS and the bCAM tools. Both of these have been considered to be best-practice assessment tools for delirium assessment in the acute-care setting. The bCAM assessment was selected due to its ease of administration, accuracy, and utility, as indicated in the research literature. Upon admission of the target patient group (60+ years of age or a positive bCAM score), nurses used the Clear Minds screening tool to identify patients who were to be placed on this Clear Minds nursing protocol, using the specified interventions, including sending a text message to the physician in the event of a positive bCAM score (see Appendix A).

Day nursing staff were instructed to place a yellow delirium sign outside the patient's room, to encourage the family to stay with the patient during the day and to ensure that (a) the patient had all needed visual and hearing devices, (b) the patient's lights stayed on during the day, (c) the patient was seated near a window when possible, (d) the patient was helped out of bed for meals (if appropriate), (e) the patient was prompted to void frequently (unless a catheter was in place or the patient was incontinent), and (f) the patient's bCAM score was assessed q-shift. Night nursing staff turned the TV off after 9:00 p.m., assessed the patient's bCAM score q-shift, ensured that room lights were off at night, and instructed other medical staff not to disturb the patient between 10:00 P.M. and 6:00 A.M. (including no taking of vital signs if the patient was subacute and no capillary blood glucose testing during those hours, unless medically necessary). If the patient had trouble sleeping, nursing staff (as appropriate) offered herbal tea, warm blankets, earplugs, and a sleeping mask or contacted the provider if further interventions were needed, reassigning the patient if sleeplessness persisted for more than 60 minutes.

## Analysis and Synthesis

The delirium team reviewed patient surveys along with aggregate data. The team reviewed these data once there was a way in the electronic medical record for nurses to assess and chart the bCAM for those patients identified with a positive bCAM score. A framework for quality model was incorporated into the implementation phases of this project: the PDSA framework, which helped teams focus on goals and whether the changes implemented actually led to the desired improvements (Langley et al., 2009).

Donnelly and Kirk (2015) argued that the PDSA procedure was frequently utilized to assist groups in enhancing the excellence of care. Enhancing excellence involves producing healthcare that was more secure, more cost-effective, patient-focused, opportune, effective, and reasonable (Donnelly & Kirk, 2015).

The organization of the data was tracked through REDCap, an application database to manage online surveys (nursing surveys) and data. I managed the compliance portion of the data. I reviewed the patients who were actually screened upon admission and all bCAM screening utilization over time. I also reviewed what percent of patients were actually screened upon admission. I used a prescriptive analysis with the SAS statistics software to generate the statistical analysis. This involved a *t*-test two sample for a normal distribution. Statistical information about aggregate data of descriptive trends over time was correlated into graphs. Limitations of the study included patient compliance, staff compliance, and adherence to bCAM education and the impact of this education on nursing workflow.

## Summary

This section has covered how data were collected and analyzed to determine whether the delirium prevention protocol at the hospital would decrease the incidence of delirium among patients age 60 or older while improving their care and outcomes, including self-reported sleep. The search engines and key search terms have been delineated for identifying effective and cost-effective screening and treatment protocols. Research had supported the use of bCAM methodology in non-ICU settings. Other than the literature review, sources of data included patient sleep surveys and pre- and

posttraining data on patient outcomes. The clinical setting and selection of participants were explained, as well as data analysis and synthesis. This section covered the settings in which various screening tools were most appropriate and the variables that determined their appropriateness (e.g., length of time available and practitioner expertise).

## Section 4: Findings and Recommendations

Many older hospitalized patients (60 and older) have suffered from delirium, which has correlated significantly with elevated risk of inpatient death, longer hospital stays, increased morbidity, admission to long-term care facilities, and other adverse outcomes (Grover & Kate, 2012; Wong et al., 2010). Despite its acute onset, delirium in many cases can be reversed, but doing so requires that nursing staff in hospitals be properly trained and educated to screen for delirium and to make proper interventions through pharmacological and nonpharmacological methods.

The purpose of this DNP project was to improve quality of patient care by implementing and evaluating a nursing screening assessment for an evidence-based protocol to treat patients age 60 and older for delirium on a subacute unit of the hospital. Because of multiple possible causes of delirium, some of which are life-threatening, properly identifying the underlying cause(s) has proved critical in improving outcomes for hospitalized patients age 60 and older who present with obvious or subtle signs of delirium. Measures used to assess quality of care included aggregate outcomes (chemical/physical restraints, length of stay, and mental health center transfers) and hours of sleep from patient surveys. The Clear Minds protocol was implemented for all patients of 60 years of age and older to assess for baseline factors, such as quality of sleep (see Appendix A). Major sources of evidence were aggregate data, retrospective data, and sleep surveys. Based on the findings from the data from the 100 sleep surveys, there was a clear indication that a validated tool was necessary to assess and intervene for those experiencing delirium.

## Findings and Implications

Findings about hours of sleep (pretest and posttest) are summarized numerically and graphically in Figures 1–6. Hours of sleep increased from a mean (pretest) of 4.09 hours to a mean (posttest) of 4.60 hours of sleep (Figure 1). These data are followed by numerical and graphical summaries of the quality of sleep (pretest and posttest), which are presented in Figures 7–12.

No significant differences ($p = .05$) were found between pretest and posttest groups. Although the mean hours of sleep were not significantly different, the closeness to the level of significance might suggest that with a larger sample size, a statistically significant difference might have been observed. The mean pretest was 4.1 hours of sleep per night (95% ci 3.7 to 4.4) versus a mean posttest of 4.6 hours per night (95% ci 4.1 to 5.1), with *p* value of 0.08 (see Figures 1–6). Data collection and analysis have been ongoing, with the next step in the PDSA cycle being the implementation of the nursing assessment and implementation of the bCAM tool.

Figure 1 contains the means and standard deviations for the number of hours of sleep for the pretest group and posttest group. An inspection of this figure revealed that the pretest group had a mean of 4.09 hours of sleep, with a standard deviation of 1.60, and the posttest group had a mean of 4.60 hours of sleep, with a standard deviation 2.43. The mean difference between these groups was .51 hours, with a standard deviation of 2.06.

| Prepost | N | Mean | Standard Deviation | Standard Error | Mini-mum | Maxi-mum |
|---|---|---|---|---|---|---|
| Post | 100 | 4.6000 | 2.4309 | 0.2431 | 0 | 9.0000 |
| Pre | 100 | 4.0900 | 1.6024 | 0.1602 | 0 | 9.0000 |
| Difference (1–2) | | 0.5100 | 2.0587 | 0.2911 | | |

*Figure 1.* The SAS system: *t*-test procedure variable quality: Hours of sleep.

Figure 2 contains the 95% confidence intervals for the pretest and posttest group means and standard deviations for number of hours of sleep. An inspection of this figure revealed that for the pretest group, the 95% confidence interval for the mean was between 3.77 and 4.41, while the standard deviation was between 1.41 and 1.86. For the posttest group, the 95% confidence interval for the mean was between 4.12 and 5.08, while for the standard deviation, it was between 2.13 and 2.82. The 95% confidence interval for the mean difference was between -.064 and 1.08, and for the standard deviation, it was between 1.87 and 2.28. These ranges indicate where the means and standard deviations would fall 95% of the time upon repeated sampling.

| prepost | Method | Mean | 95% CL Mean | | Standard Deviation | 95% CL Standard Dev | |
|---|---|---|---|---|---|---|---|
| Post | | 4.6000 | 4.1177 | 5.0823 | 2.4309 | 2.1343 | 2.8239 |
| Pre | | 4.0900 | 3.7721 | 4.4079 | 1.6024 | 1.4069 | 1.8614 |
| Difference (1-2) | Pooled | 0.5100 | -0.0641 | 1.0841 | 2.0587 | 1.8744 | 2.2836 |
| Difference (1-2) | Satterthwaite | 0.5100 | -0.0647 | 1.0847 | | | |

*Figure 2.* Pooled and Satterthwaite: Hours of sleep.

Figure 3 contains the results of the *t* tests for number of hours of sleep, assuming equal and unequal variances. If the variances for the two groups were assumed to be equal and the pooled variance term was used in calculating the *t* test, then there were no differences between the pretest and posttest groups, $t(198) = 1.75$, $p = .081$. If the variances were assumed not to be equal and separate estimates for the two groups were used to calculate the *t* test, again then there were no differences between the pretest and posttest groups, $t(171.37) = 1.75$, $p = .082$.

| Method | Variances | DF | *t* Value | Pr > \|*t*\| |
|---|---|---|---|---|
| Pooled | Equal | 198 | 1.75 | 0.0814 |
| Satterthwaite | Unequal | 171.37 | 1.75 | 0.0816 |

*Figure 3. t* values.

Figure 4 indicates that there was reason to believe that the variances in the pretest and posttest groups were not equal, $F(99,99) = 2.30$, $p < .0001$; therefore the separate variance *t* test was more appropriate to use when testing the differences between the groups.

| **Equality of variances** | | | | |
|---|---|---|---|---|
| Method | Num DF | Den DF | F Value | Pr > F |
| Folded F | 99 | 99 | 2.30 | <0.0001 |

*Figure 4.* Equality of variances; *F* value.

Figure 5 contains the histograms for the pretest and posttest groups for the number of hours of sleep. An inspection of this figure revealed that the distribution appears to be normal for both groups.

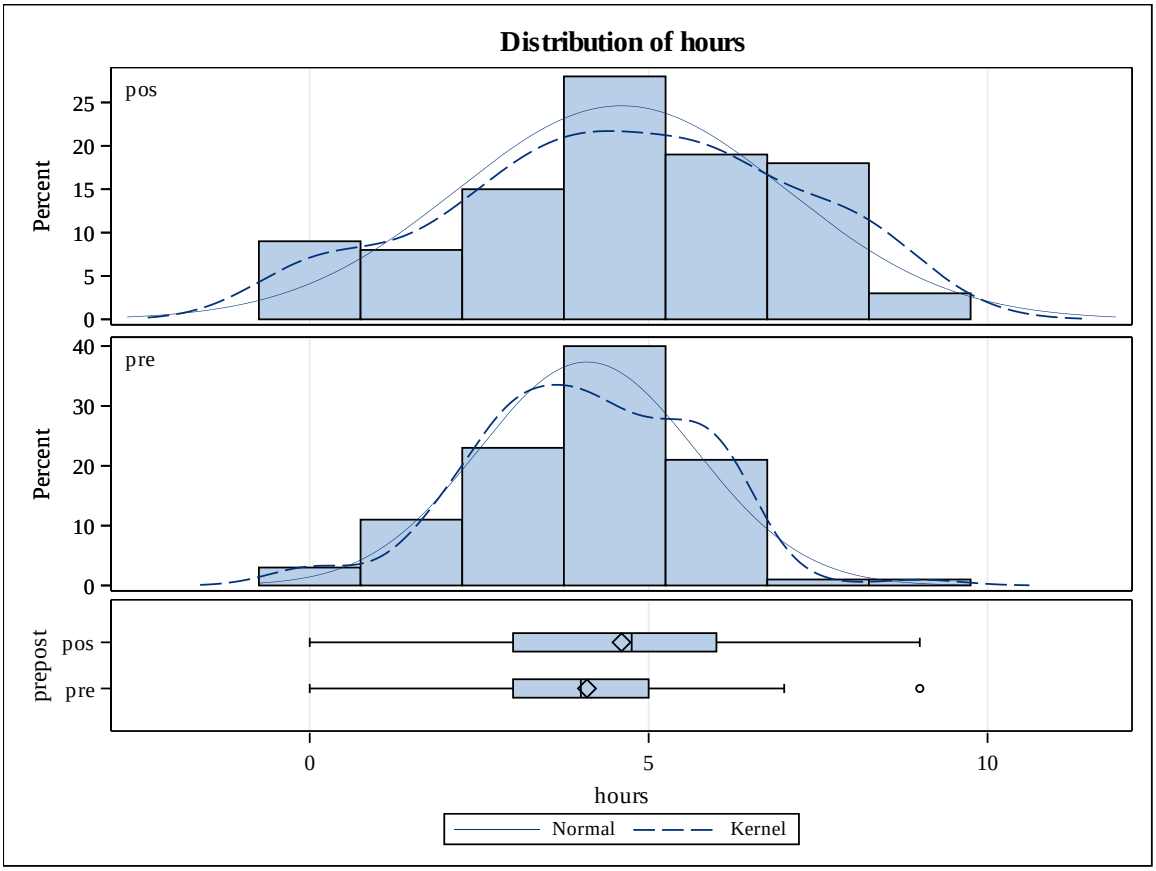


*Figure 5.* Distribution of hours of sleep.

Figure 6 contains the Q-Q plots for the pretest and posttest groups for number of hours of sleep. An inspection of this figure indicated that the hours of sleep followed a normal distribution. This was shown by the strong linear relationship between the expected frequencies of subjects in each quantile according to normal distribution and the observed frequencies in the sample.

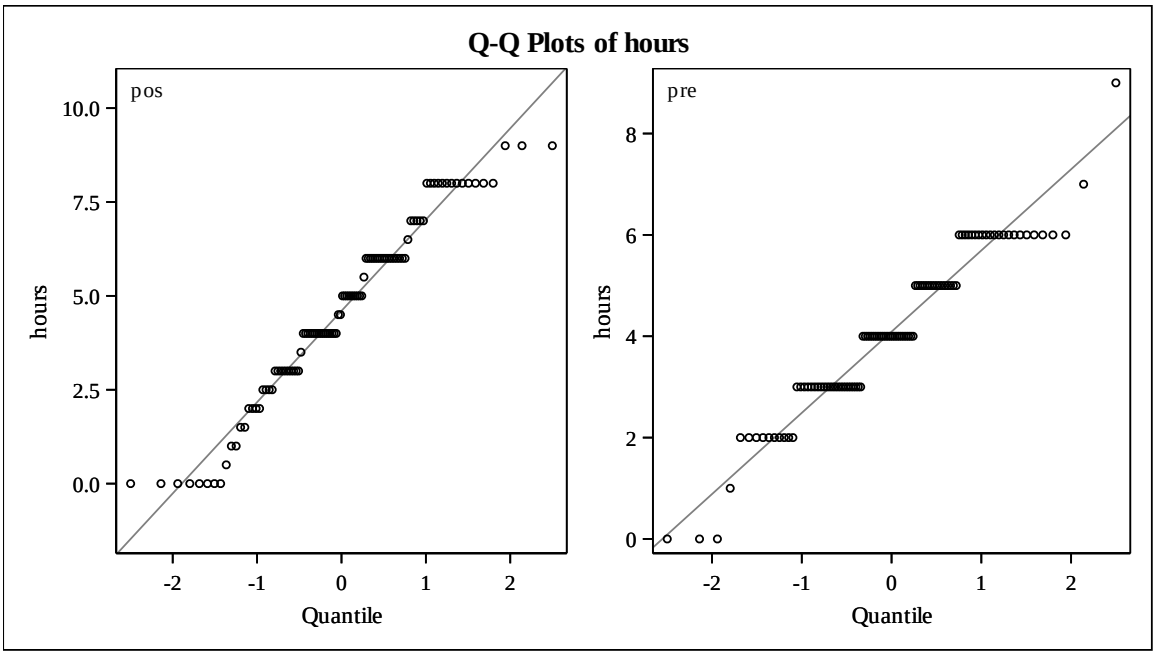


*Figure 6.* Q-Q plots of hours of sleep.

Figure 7 contains the means and standard deviations for the quality of sleep for the pretest group and posttest groups. An inspection of this figure revealed that the pretest group had a mean score of 3.27 for quality of sleep, with a standard deviation of 1.17, while the posttest group had a mean score of 3.15 for quality of sleep, with a standard deviation 1.48. The mean difference between these groups was -.11, with a standard deviation of 1.34.

| prepost | N | Mean | Std Dev | Std Err | Minimum | Maximum |
|---|---|---|---|---|---|---|
| Post | 100 | 3.1500 | 1.4831 | 0.1483 | 0 | 5.0000 |
| Pre | 98 | 3.2653 | 1.1714 | 0.1183 | 0 | 5.0000 |
| Diff (1-2) | | -0.1153 | 1.3379 | 0.1902 | | |

*Figure 7.* The SAS system: The *t*-test procedure: Quality of sleep.

Figure 8 contains the 95% confidence intervals for the pretest and posttest group means and standard deviations for quality of sleep. An inspection of this figure revealed that for the pretest group, the 95% confidence interval for the mean was between 3.03 and 3.50, and the standard deviation was between 1.03 and 1.36. For the posttest group, the 95% confidence interval for the mean was between 2.86 and 3.44, and for the standard deviation, it was between 1.30 and 1.72. The 95% confidence interval for the mean difference was between -.49 and .26, and for the standard deviation it was between 1.22 and 1.48. These ranges indicated where the means and standard deviations would fall 95% of the time upon repeated sampling.

| prepost | Method | Mean | 95% CL Mean | | Standard Deviation | 95% CL Standard Deviation | |
|---|---|---|---|---|---|---|---|
| Post | | 3.1500 | 2.8557 | 3.4443 | 1.4831 | 1.3021 | 1.7228 |
| Pre | | 3.2653 | 3.0305 | 3.5002 | 1.1714 | 1.0272 | 1.3630 |
| Difference (1–2) | Pooled | -0.1153 | -0.4904 | 0.2597 | 1.3379 | 1.2176 | 1.4849 |
| Difference (1–2) | Satterthwaite | -0.1153 | -0.4896 | 0.2590 | | | |

*Figure 8.* Pooled and Satterthwaite values: Quality of sleep.

Figure 9 contains the results of the *t* tests for quality of sleep, assuming equal and unequal variances. If the variances for the two groups were assumed to be equal and the pooled variance term was used in calculating the *t* test, then there were no differences between the pretest and posttest groups, $t(196) = -.61$, $p = .55$. If the variances were assumed not to be equal and separate estimates for the two groups were used to calculate

the *t*-test, then again there were no differences between the pretest and posttest groups, $t(187.58) = -.61$, $p = .54$. Figure 10 indicates that there was reason to believe that the variances in the pretest and posttest groups were not equal, $F(99,97) = 1.60$, $p < .021$, and therefore the separate variance *t* test was more appropriate to use when testing the differences between the groups for quality of sleep.

| Method | Variances | DF | *t* Value | Pr > \|t\| |
|---|---|---|---|---|
| Pooled | Equal | 196 | -0.61 | 0.5450 |
| Satterthwaite | Unequal | 187.58 | -0.61 | 0.5441 |

*Figure 9. t* values: Quality of sleep.

| Equality of Variances | | | | |
|---|---|---|---|---|
| Method | Num DF | Den DF | F Value | Pr > F |
| Folded F | 99 | 99 | 1.60 | 0.0205 |

*Figure 10.* Equality of variances: *F* value: Quality of sleep

Figure 11 contains the histograms for the pretest and posttest group for quality of sleep. An inspection of this figure revealed that the distribution appeared to deviate from the normal distribution for both groups.

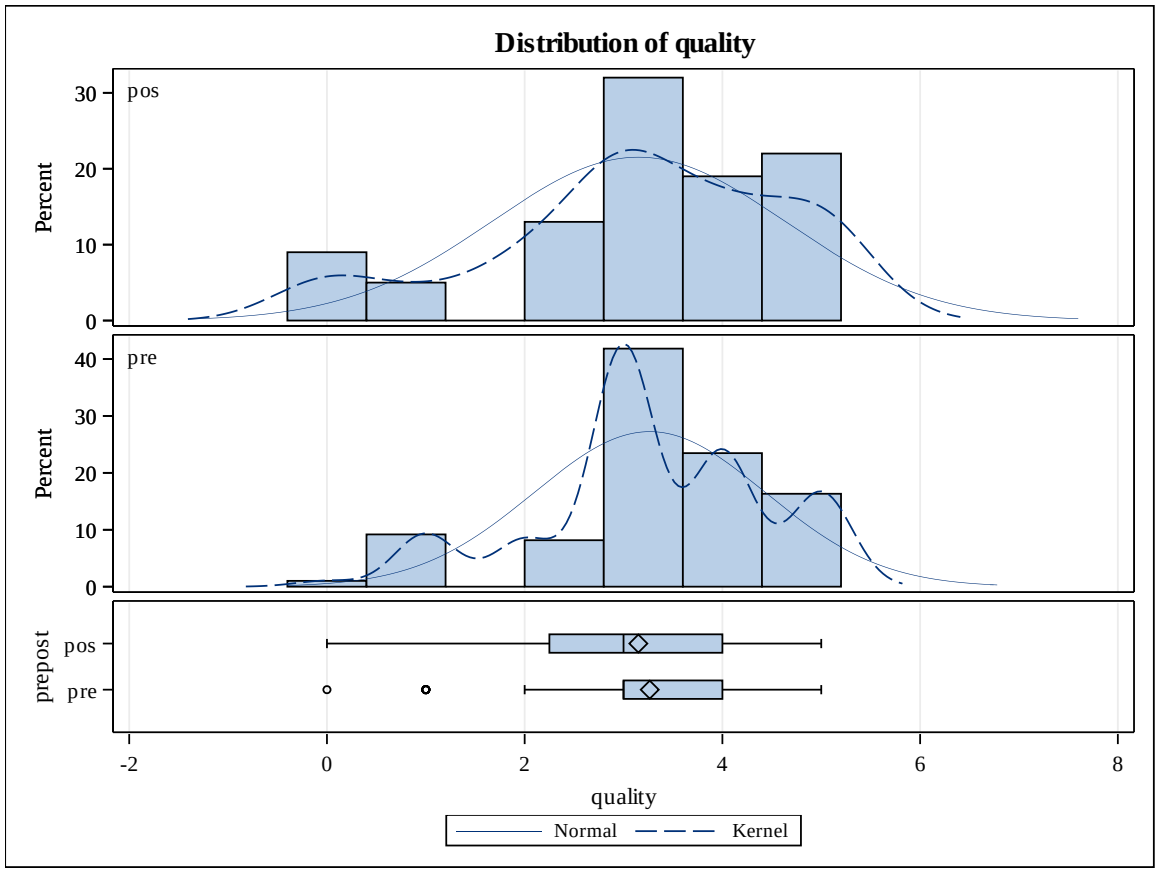


*Figure 11*. Distribution of quality of sleep.

Figure 12 contains the Q-Q plots for the pretest and posttest groups for quality of sleep. An inspection of this figure indicated that the hours of sleep followed a normal distribution. This was shown by the strong linear relationship between the expected frequencies of subjects at each quantile according to the normal distribution and the observed frequencies in the sample.

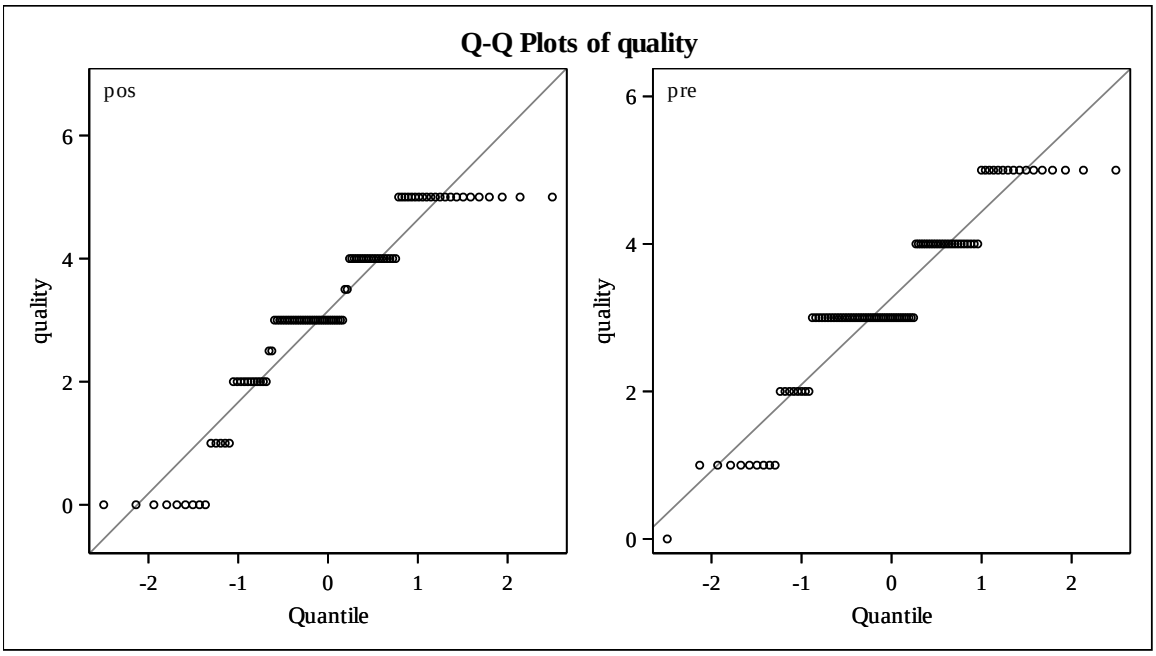


*Figure 12.* Q-Q plots of quality of sleep.

## Recommendations

Preliminary data were suggestive, although not statistically significant regarding the influence of nurse training on length or quality of patient sleep. Data collection has been ongoing. As additional data become available about the training in the use of the bCAM, additional analysis will be conducted related to hours of sleep and quality of sleep. Although lacking statistical significance, possible beneficial implications of this suggestive preliminary finding should not be overlooked. Any improvement in length or quality of sleep for hospital patients has huge implications, whatever the possible cause or causes, whether primarily physical (e.g., reduction in pain) or psychological (e.g., greater confidence in the competence of medical care provided or greater optimism about long-term prospects for recovery). However, further research needs to be conducted in

order to assess the patient's quality of sleep and the associated patient outcomes. According to the literature, sleep in the hospital has been limited to findings in the critical care setting rather than on general medical surgical wards, and mainly the research cases have been incomplete to subjective analysis of sleep (Missildine, Bergstrom, Meininger & Foreman, 2010). Next steps should include nursing staff assessing for sleep and sleep patterns within the acute environment, especially for those patients who present as a risk, in order to gather and track robust data.

Training could instill greater self-confidence in nursing staff, which could indirectly lessen patients' anxiety and physical tension. In other words, there could be positive synergy from training that could lead to improved outcomes for a variety of reasons, ranging from the intrinsic quality of care provided to an improved ambience in the hospital unit that patients might find reassuring.

**Social Change**

The implications for positive social change are significant, as they relate to the impact on education, change, and the optimization of patient outcomes through decreased patient mortality, morbidity, length of stay, and readmission, as well as reducing falls. Social impact is defined as "the effect of an activity on the social fabric of the community and well-being of individuals and families" (Bradbury-Jones & Taylor, 2014, p. 45). The definitive goal of this evidenced-based practice project will be to educate nurses, while creating and implementing a validated tool for assessment and intervention of those patients at risk for delirium within the acute care setting. The nursing assessment and intervention will allow the primary RN to adequately screen patients of 60 years of age

and older by utilizing a validated tool. The interventions will include nonpharmacology interventions, and if delirium is not resolved, the physicians could order pharmacology interventions based on the patient bCAM score and the frequency of incidences. The overarching goals will include reducing the incidence of delirium, decreasing the length of stay, and reducing falls.

However, the impact of social change and implementation is consistent with the DNP project study goals identified by Walden. Ultimately, the DNP Project aims to prepare doctoral students with the knowledge and experience to improve the quality of health care and advance the nursing profession through integration and application of knowledge (Walden DNP Practicum Manual, 2011).

## Strengths and Limitations of the Project

The initial project results have been preliminary and suggestive only. More data are anticipated, and these data may yield more statistical significance. Although the preliminary findings did not produce statistically significant differences, this may be due to the relatively small sample sizes pretest and posttest, but the insignificant improvement in mean hours of sleep has suggested that further training and larger sample sizes might result in statistically significant improvements, which would be in line with the literature review.

Nursing education and implementation of the bCAM was the next phase of this quality of care project. The information initially available was based on the literature review and the sleep surveys that were conducted. Additional information should be available for dissemination (as discussed below, in the following section) based on the

electronic medical record after nursing staff members have been trained in administering the bCAM. However, all other professionals in interdisciplinary teams, including social workers and patient advocates, should be aware of the various signs of delirium, both acute-onset symptoms and more subtle symptoms, as these can be indicative of serious underlying medical conditions that can often benefit from rapid assessment and treatment. The following section discusses in detail the plans for dissemination of findings and implications for nursing practice.

## Section 5: Dissemination Plan

Dissemination of nursing scholarly endeavors and research outcomes is a professional obligation for the DNP prepared nurse (AACN, 2006). However, there are various avenues or settings for informal and formal circulation of evidenced-based findings for successful dissemination to the targeted audiences. The plan for dissemination will be a multifaceted process in collaboration with nursing staff and physician partners. The primary setting for dissemination will be in the form of an oral presentation (along with a poster presentation) as it relates to evidenced-based practice and research. Successful circulation of evidence-based project findings to stakeholders and other providers of healthcare is crucial for best practices (Forsyth, Wright, Scherb, & Gaspar, 2010). Dissemination relies on an effective medium for the target audience, and thus, information must be presented in an appropriate manner (Forsyth et al., 2010).

### Oral Dissemination (Poster Presentation)

The initial setting for dissemination was an oral poster presentation. Recently, an abstract for a poster presentation was submitted to the Society of Hospital Medicine Conference, in May 1-4, 2017. The interdisciplinary team received a notification to inform the group that the abstract was accepted for the poster, which was titled "Why So Delirious? The Implementation of a Delirium Prevention Protocol in Hospitalized Elderly Patients." I also submitted an abstract to the Walden University School of Nursing and the Phi Nu Chapter of Sigma Theta Tau International to present at the Inspiring Scholarship & Social Change Webinar Symposia Series, which was held on Tuesday March 14, 2017, and was selected as an alternate virtual poster presenter.

According to Forsyth et al. (2010), noted posters generally distribute results to an assortment of individuals. Posters are utilized at expert meetings to distribute state-of-the-art evidence and are demonstrated at health care organizations to notify health care experts about practice transformations, discoveries, results, or polices (Forsyth et al., 2010) This poster presentation will serve as a guide for practice for key stakeholders to implement change and optimize outcomes in the healthcare setting.

## Conclusion

The dissemination plan will include the interdisciplinary project teams, which were comprised of physician partners, nursing staff, and nursing leadership. The collaboration of the teams involved participating in the patient plan of care at the hospital. Everyone involved needed to be aware of both the scholarly evidence regarding the prevalence and severity of the problem of delirium with the hospitalized elderly (patients of 60 years of age and older). This crucial final stage of research must consider the entirety of knowledge, literature review, and summary findings that will translate into clinical application (Forsyth et al., 2010). Dissemination of research findings can help improve and build on nursing knowledge and foster new evidence-based projects (Oermann & Hayes, 2016).

The interpretation and analysis of the sleep data clearly indicated the need to create and implement a validated tool for assessment and intervention. The dissemination of the research and the validated tool will need to be coupled with education about the latest findings from the research literature on best practices, which is primarily focused on screening, assessment, and prevention protocols. The importance of

the publication of research findings lies in the potential to assist nursing professionals and others in guiding best practices (Oermann & Hayes, 2016). The implementation of evidence-based practice research will optimize the patient experience and outcomes during the inpatient hospitalization.

Nursing education and implementation of the bCAM was the next phase of this quality of care project. The information initially available was based on the literature review and the sleep surveys that were conducted. Additional information should be available for dissemination based on the electronic medical record after nursing staff members have been trained in administering the bCAM. However, all other professionals in interdisciplinary teams, including social workers and patient advocates, should be aware of the various signs of delirium, both acute-onset symptoms and more subtle symptoms, as these can be indicative of serious underlying medical conditions that can often benefit from rapid assessment and treatment.

## Analysis of Self

I saw myself as having skills in communication and coordination, based on both hands-on provision of patient care and on the ability to relay findings of the research literature to various stakeholder groups in appropriate terminology to keep members of interdisciplinary teams abreast of the latest findings on best practice in patient care. The goal was improved quality of care and patient outcomes: reducing length of hospital stay, reducing length of ICU hospital stays, avoiding preventable medical complications due to routine screening for signs and symptoms of delirium in hospitalized elderly, reducing patient morbidity and mortality, and reducing admission to long-term care facilities.

## Summary

The purpose of this capstone project was to implement and evaluate a nursing screening assessment and evidence-based protocol to treat hospitalized patients 60 and older on a subacute unit to improve quality of care by assessing delirium and increasing sleep while hospitalized in a Southwestern U.S. hospital. Without proper training in the use of screening and assessment tools, including the bCAM, delirium and dementia have often been confused in practice, which has led to improper diagnosis and treatment. The primary question for this quality improvement was: How effective was the delirium prevention protocol at the hospital in reducing the incidence of delirium at an acute-care trauma facility among hospitalized patients age 60 or older? Primary research data were obtained from patient sleep surveys and pretraining and posttraining data on patient outcomes. No significant differences in patient outcomes were found between pretest and posttest groups or in sleep outcomes. A validated tool was needed to assess for and treat elderly hospitalized patients with delirium.

# References

American Association of Critical-Care Nurses. (2012, March). Delirium assessment and management: AACN practice alert. *Bold Voices*, 7–9.

Bradbury-Jones, C., & Taylor, J. (2014). Applying social impact assessment to nursing research. *Nursing Standard, 28*(48), 45–49. http://dx.doi.org.ezp.waldenulibrary.org/10.7748/ns.28.48.45.e8262

Donnelly, P., & Kirk, P. (2015). Use the PDSA model for effective change management. *Education for Primary Care, 26*(4), 279–281. doi:10.1080/14739879.2015.11494356

Forsyth, D. M. Wright, T. L., Scherb, C. A., & Gaspar, P. M. (2011). Disseminating evidence-based practice projects: Poster design and evaluation. *Clinical Scholars Review*, *3*(1), 14–21.

Grover, S., & Kate, N. (2012, August 22). Assessment scales for delirium: A review. *World Journal of Psychiatry, 2*(4), 58–70. doi:10.5498/wjp.v2i4.58

Hyrkäs, K., & Harvey, K. (2010). Editorial: Leading innovation and change: How should we approach innovations and change in clinical settings today? *Journal of Nursing Management, 18,* 1–3.

Inouye, S. K. (2014). *The Short Confusion Assessment Method (Short CAM): Training manual and coding guide*. Boston, MA: Hospital Elder Life Program.

Inouye, S. K., Kosar, C. M., Tommet, D., Schmitt, E. M., Puelle, M. R., Saczynski, J. S., . . . Jones, R. N. (2014, April 15). The CAM-S: Development and validation of a

new scoring system for delirium severity in 2 cohorts. *Annals of Internal Medicine, 160*(8), 526–543.

Kritsonis, A. (2005, January). Comparison of change theories. *International Journal of Scholarly Academic Intellectual Diversity, 8*(1), 17–20.

Langley, G. L., Moen, R., Nolan, K. M., Nolan, T. W., Norman C. L., & Provost, L. P. (2009). *The improvement guide: A practical approach to enhancing organizational effectiveness* (2nd ed.). San Francisco, CA: Jossey-Bass.

Medical dictionary: Medical Terminology, Medical Definitions & Medical Terms. (n.d.). Retrieved May 16, 2017, from http://www.medicinenet.com/medterms-medical-dictionary/article.htm

Melnyk, B. M., & Fineout-Overholt, E. (2005). *Evidence-based practice in nursing & healthcare: A guide to best practice*. Philadelphia, PA: Lippincott, Williams, & Wilkins.

Missildine, K., Bergstrom, N., Meininger, J., & Foreman, M. D. (2010). Sleep in hospitalized elders: A pilot study. *MEDSURG Nursing, 31*(4), 39–46. doi:10.1016/j.gerinurse.2010.02.013

Miller, M. O. (2008, December 1). Evaluation and management of delirium in hospitalized older patients. *American Family Physician, 78*(11), 1265–1270.

Oermann, M. H., & Hays, J. C. (2016). *Writing for publication in nursing* (3rd ed.). New York, NY: Springer Publishing Company.

Walden University. (2011, December). *Doctor of Nursing Practice (DNP) practicum and DNP project manual*. Minneapolis, MN: Author. Retrieved from www.WaldenU.edu

Wong, C. L., Holroyd-Ledue, J., Simel, D. L., & Straus, S. E. (2010, August 18). Does this patient have dementia? *Journal of the American Medical Association, 304*(7), 779–786. doi:10.1001/jama.2010.1182

Wright, S. (2010). Dealing with resistance. *Nursing Standard, 24*(23), 18–20.

Appendix A: bCam and CAM-ICU

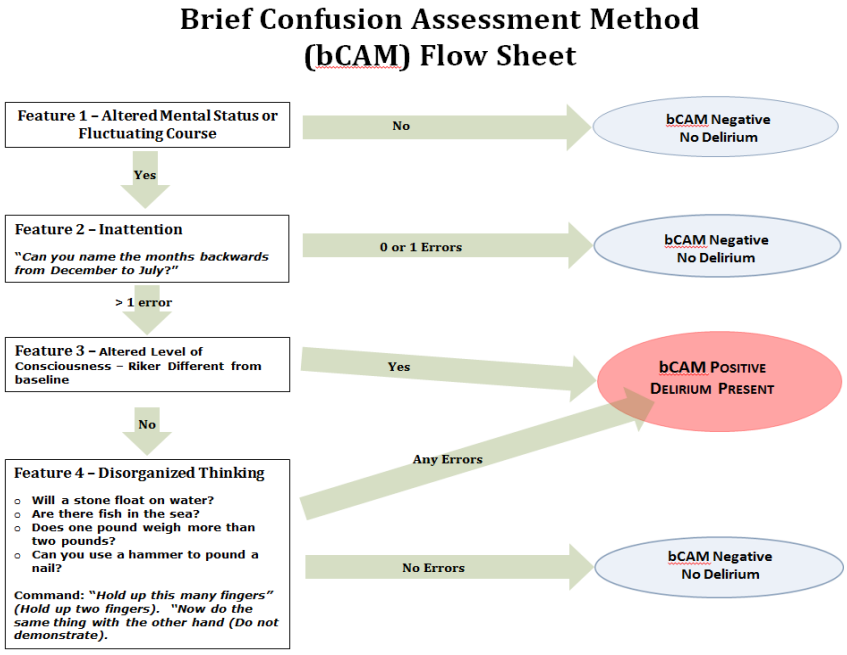


*Figure A1:* bCAM assessment flow chart. (Modified from chart on Vanderbilt Hospital)

Appendix B: Literature Summary with Level of Evidence

| Reference | Research Method | Main Findings | Level of Evidence |
|---|---|---|---|
| AACN. (2012, March). Delirium assessment and management: AACN practice alert. *Bold Voices*, 7–9. | Summary of best practices based on current practice for assessing and managing delirium | Assess delirium in all critically ill patients, using CAM-ICU or other assessment tools; decrease risk through early exercise | Level VII |
| Donnelly, P., & Kirk, P. (2015). Use the PDSA model for effective change management. *Education for Primary Care, 26*(4), 279–281. doi:10.1080/14739879.2015.11494356 | Summary of best practices, using PDSA model, for implementing organizational change | Plan Do Study Act was a useful framework for change management in medical practice. | Level VII |
| Grover, S., & Kate, N. (2012, August 22). Assessment scales for delirium: A review. *World Journal of Psychiatry, 2*(4), 58–70. doi:10.5498/wjp.v2i4.58 | Literature review of current research on scales for screening, diagnosing, and assessing the severity of delirium | NEECHAM scale = best for screening general medical patients; CAM was the most useful instrument for diagnosis | Level I |
| Inouye, S. K., Kosar, C. M., Tommet, D., Schmitt, E. M., Puelle, M. R., Saczynski, J. S., . . . Jones, R. N. (2014, April 15). The CAM-S: Development and validation of a new scoring system for delirium severity in 2 cohorts. *Annals of Internal Medicine, 160*(8), 526–543. | Validation analysis in 2 independent cohorts n1 = 300 (patients 70+ scheduled for surgery); n2=919 medical patients 70+) | CAM-S = a strong new measure for delirium severity: psychometric and clinical outcomes | Level III |
| Miller, M. O. (2008, December 1). Evaluation and management of delirium in hospitalized older patients. *American Family* | Literature review of delirium evaluation and treatment of hospital in-patients | Treatment of delirium depends on prompt and | Level V |

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| *Physician, 78*(11), 1265–1270. | | accurate diagnosis of underlying cause | |
| Wong, C. L., Holroyd-Ledue, J., Simel, D. L., & Straus, S. E. (2010, August 18). Does this patient have dementia? *Journal of the American Medical Association, 304*(7), 779–786. | Literature review of articles (1950–2010) on studies of delirium among inpatients; 25 prospective studies; n = 3027 patients | CAM supported; choice of instrument may depend on time available and discipline of examiner | Level I |