EARLY DETECTION AND MANAGEMENT OF DELIRIUM THROUGH ROUTINE NURSE SCREENING ON OLDER ADULT HOSPITALIZED PATIENTS

by

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Abstract

Nurses play a crucial role in implementing care designed to reduce delirium's duration and severity. Unmanaged delirium in the older adult patient population can result in prolonged hospitalization, profound decline in health status, and possible short or long-term institutionalization. A nurse-driven delirium management protocol was piloted on an orthopedic surgical unit over a period of four weeks. The goal was to detect delirium early in the postoperative period for early management and thus, the patient would be free of delirium symptoms at discharge.

All patients age 65 years old and over were assessed for delirium every shift and a delirium nursing care plan was implemented on those identified as positive for delirium. A total of 81 patients were assessed for delirium with nine percent (9%, *n*=8) testing positive at some point during their hospitalization. Delirium nursing care plans were implemented on all these patients and none of these patients exhibited delirium symptoms at discharge. The nurses' ability to recognize delirium using a standardized assessment tool can lead to early management and reduce delirium's severity and duration.

Early Detection and Management of Delirium Through Routine Nurse Screening on Older Adult Hospitalized Patients

Delirium is a syndrome characterized by acute onset and fluctuating course of disturbed attention, consciousness, and impaired cognition (Burns, Gallagley, & Byrne, 2003). Contrary to prior belief that delirium is an expected outcome of illness in some older adults 65 years old and over, it is now viewed as a medical emergency because of its negative outcomes and consequences (Gordon, Melillo, Nannini, & Lakatos, 2013). It is the leading cause of older adult medical mortality and morbidity in the acute care settings (Aguirre, 2010).

Hospital-acquired delirium is the most common complication in the elderly with 2.5 million affected each year (Rice et al., 2011). In the hospitalized older adult population, the average incidence is 30% to 50% with the intensive care units reporting 60% to 85% (Pae, Marks, Han, Patkar, & Masand, 2008). A study showed a 12-month mortality rate of 63.3% (N=384; n=243) from the time delirium is diagnosed in the acute care setting (McCuster, Cole, Abrahamowics, Primeau, & Belzile, 2002).

Hospital-acquired delirium results in longer lengths of stay (LOS) and increases risk of long-term care facility placement. Older adults who develop delirium while hospitalized are more likely to experience a decline in health and function (Burns et al., 2003). Thus, the burden lies on hospitals across the nation to manage delirium and protect the older adult patients from the debilitating result of the condition. With a rapidly aging population across the nation, hospitals need to be at the forefront in improving older adult patient outcomes based on evidence-based practice.

A hospital located in the southern United States wanted to implement a delirium screening protocol to address the high incidence of hospital-acquired delirium among its older

adult patients and to meet its commitment as a designated Nurses Improving Care for Healthsystem Elders (NICHE) exemplar organization. The NICHE exemplar designation shows organizational commitment to improve the quality of care of the older adult population. This was achieved following a rigorous program evaluation of current and future organizational goals, which included application of evidence-based protocols on all units, implementation of system-wide policies specific to aging population, involvement of patient, families, and community providers in the planning and implementation of aging initiatives, and participation and assumption of regional and national leadership roles (NICHE, 2015).

In June 2015, a total of 563 patients on 12 adult medical-surgical areas in the hospital were identified as having delirium on their problem list and 47% (*n*=265) of these patients did not have delirium on admission. The orthopedic surgical unit was identified as one of the highest number of older adult patients who developed delirium during hospitalization. The unit had 24 patients with delirium, 79% (*n*=19) of which were not present on admission. None of these patients had delirium nursing care plans initiated during their hospital stay. This provided the basis for the organization to evaluate and implement evidence-based methods to improve delirium care of the hospitalized older adults on the orthopedic surgical unit for a period of four weeks.

Methods

This evidence-based project involved the creation of a nurse-driven delirium management protocol to address an organizational need of addressing hospital-acquired delirium. The nurse-driven delirium management protocol was developed by the hospital's NICHE steering committee composed of a dietician, geriatricians, geriatric resource nurses, nursing executives, nurse managers, physical and occupational therapists, palliative care practitioners, home health

care leaders, case managers, college of nursing professors, and hospitalist providers. The team assessed gaps in practice, chose tools to standardized delirium assessment by bedside nurses, and developed delirium nursing care plans.

Design

The nurse-driven delirium management protocol used for the four-week pilot implementation period included routine nurse screening of delirium utilizing a standardized assessment tool. A validated delirium assessment tool called the confusion assessment method (CAM), developed by Inouye et al. in 1990, was used to assess patients 65 years old and older every shift. The CAM is a validated tool commonly used to screen patients for delirium. It has 100% sensitivity, 90-95% specificity and high inter-rater reliability (Hartford Institute for Geriatric Nursing, 2001; Inouye et al., 1990). It can be administered in less than five minutes. Patients tested positive for delirium when nurses were able to identify the presence of acute onset and fluctuating course of confusion, inattention, and either disorganized thinking or altered level of consciousness.

Once patients were identified as positive for delirium, nurses conducted a chart review to look for specific risk factors that may have contributed to the development of the syndrome. This enabled the nurse to individualize a delirium care plan to address existing risk factors. To aid in chart review, copies of the list of risk factors were provided to all nurses when delirium education was provided (Appendix A). Identification of these risk factors was crucial for nurses to be able to tailor nursing interventions designed to manage existing risks. According to Aguirre (2010) the combination of pre-existing risk factors and precipitating factors increases the likelihood of older adults developing the syndrome. Pre-existing factors include old age, depression, acute or chronic illness, dehydration, malnutrition, alcohol abuse, impaired sensory

function, and medication use. Precipitating factors included the usual treatment given in the hospital setting such as medications, restraints, metabolic disturbances, bladder catheterization, inadequate nutrition, and dehydration. These treatment modalities are intended to manage an existing clinical problem or symptom but can inadvertently result to delirium when not used appropriately or when clinicians fail to identify early signs of the syndrome as well as recognizing patient's risk (Aguirre, 2010).

The delirium nursing care plan was developed by the NICHE steering committee (Appendix B). The nurse individualized delirium nursing care plan after identifying specific risk factors present on patient. If the nurse identified mobility, disorientation, poor nutrition, and sleep disturbance as patient risks, he or she selected goals pertaining to maintenance or improvement of baseline cognitive status (goal 1), maximization of functional ability (goal 2), provision of adequate nutrition (goal 12), and implementation of sleep hygiene protocol (goal 13). The nursing care plan was reviewed daily to ensure that it addressed the patients' needs. Presence of delirium symptoms was tracked during the patient's hospitalization until the day of discharge.

Results

The results of the evidence-based pilot project provided a foundation to support the importance of early identification and management of delirium. For a period of four weeks, 81 patients, 65 years old and over, who were admitted on an orthopedic surgical unit were assessed for delirium every shift using the CAM tool. Overall compliance rate for required shift assessment was 88% (n=71). The compliance rate fell short of the 95% target due to missed assessments during the first week of implementation. This may be attributed to staff adjustment to the change of practice that was only applicable to a segment of their patient population.

Out of the 81 older adult patients, eight patients (9%) tested positive for delirium at some point during hospitalization. Delirium nursing care plans were implemented on these patients. Although the compliance rate for shift assessment was low during the first week of implementation, nurses slowly improved compliance over the next few weeks through daily follow-up. At discharge, none of these patients exhibited delirium symptoms. The success in implementing the delirium nursing care on all delirium positive patients can be attributed to good communication between staff and charge nurses each shift. The orthopedic surgical unit charge nurses ensured that a delirium nursing care plan was implemented and a geriatric consult was done. With charge nurses tracking delirium positive patients each shift, it provided an extra layer of reminder in the event that nurses missed implementation of delirium nursing care plan.

Discussion

This quality improvement pilot project demonstrated the importance of the role of bedside nurses in routine bedside screening, since undiagnosed delirium is strongly dependent on the clinician's ability to recognize the problem (Stall & Wong, 2014). The findings of this project align with the studies conducted by Stall and Wong (2014) and Young et al. (2008) which showed that the early detection of delirium can prevent or reduce delirium's severity. According to Younga, Leentjensb, Georgec, Olofssond, and Gustafsond (2008) delirium episodes and their duration can be reduced by one third if systems are in place to identify delirium symptoms and manage these early on during hospitalization. This was evident in the result of this project, which showed those who tested positive for delirium and had an individualized nursing care plan in place were free of delirium symptoms at discharge.

Limitations

The main limitation in this project is the sample size because nursing assessment was limited to a single unit. There are other medical-surgical units with higher numbers of elderly patients but from this project's standpoint, choosing this unit was ideal for a pilot project since it had the highest rate of hospital-acquired delirium in the older adult medical-surgical population. It is also important to note that other limitations such as changes in patients' cognition each day may be a result of other factors that can add to the severity of hospital-acquired delirium (e.g. nosocomial infection, alcohol withdrawal, dementia, and depression).

Another limitation was the lack of delirium protocol education provided to the float nurses assigned on the unit during the four-week implementation period. This was one of the reasons for missed assessments. However, based on the results of the pilot project, the organization was able to validate the importance of early detection and management of delirium through routine nursing assessment and implementation of individualized nursing care plan. This quality improvement project may pave the way for future studies to evaluate effects of a nurse-driven delirium assessment and management on a bigger patient population over a longer period of time.

Implications for Nursing Practice

Delirium remains to be the most misunderstood syndrome that is frequently missed, undetected, or misinterpreted as dementia or depression by nurses and physicians despite the severity of outcomes and having clearly defined medical diagnosis (Rice et al., 2011). Staff knowledge of delirium varied based on actual conversations with bedside nurses prior to the implementation of this project. Some were able to articulate signs of delirium while others attribute delirium symptoms to normal physiologic processes that go with aging. In addition, the

cognitive assessment of clinicians can be clouded or strongly affected by pre-existing psychiatric conditions or primary medical condition.

Hospital-acquired delirium is often misdiagnosed which is the reason why patients incur longer hospital stays that can most likely result to short or long-term care facility placement (Rice et al., 2011). Patients who develop delirium can suffer profound decline in health status that directly affects their ability to independently care for themselves after discharge. Functional decline, malnutrition, dehydration, safe medication management, and ability to carry out activities of daily living are just a few of the challenges faced by patients and their family caregivers post discharge (Milisen, Lemiengre, Braes, & Foreman, 2005). With all the adverse effects of the disease, more than half of unmanaged hospital-acquired delirium cases can result to death within a 12-month period (McCuster et al., 2002).

With bedside nurses playing a proactive role in early recognition and management of delirium among older adult patients, adverse patient outcomes and its corresponding cost of care during hospitalization can be reduced (Rice & Castex, 2013). It is estimated that the national annual healthcare cost to manage delirium in the acute care setting can range from 38 to 152 billion dollars a year (Rice & Castex, 2013). The current hospital LOS index (ratio of actual versus expected LOS) of the older adult patients at this southern US hospital averages around 1.15 each month compared to 0.9 target set by the organization. This translates to higher cost of care. The burden lies with bedside nurses in recognizing subtle changes in patient cognition that may indicate presence of delirium. Nurses needed the appropriate delirium assessment tools, and resources, and must remain compliant in their consistent use. In this way, they will be able to identify early signs and symptoms of delirium.

The orthopedic unit nurses involved in this quality initiative were provided with a standardized approach to assess delirium and how to early manage it with the intent to shorten its severity and duration. As Milisen et al. (2001) noted, early detection and management affects the reversibility of the delirium in relation to a reduction in its duration and severity. The orthopedic unit nurses were focused on their ability to early manage risk factors that may have contributed to the development of delirium. They learned and understood the importance of properly assessing elderly baseline cognition - a factor that is very important in detecting delirium. When accurate baseline cognitive function was not established, it was difficult for the clinician to measure any clinical changes to support the diagnoses of delirium. It was of prime importance to provide the orthopedic unit nurses with the appropriate tools and resources to early identify and manage delirium. To ensure success in the hospital-wide implementation of the nurse-driven delirium management protocol, the implementation process will be refined to address challenges identified during the pilot phase of the project.

Conclusions

There are no diagnostic tests for delirium so the diagnosis relies mainly on clinical observation. Clinical observations are usually from the physicians and the nurses who are considered as the 24-hour healthcare givers in the acute care setting. They are strategically positioned to recognize early signs and symptoms of this medical emergency that is known to have substantial life-limiting consequence. Implementing nurse-driven assessment and interventions focused on addressing risk factors known to contribute to the development of delirium can lead to early management and reduction of its severity and duration.

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APPENDIX A. OLDER ADULT DELIRIUM PRE-EXISTING AND PREDISPOSING FACTORS LIST

Delirium Risk Assessment

☐ **Cognitive Impairment:**

- History of delirium
- Memory decline
- Hallucinations
- Dementia
- Disorientation
- Brain lesion
- Language disorder
- Positive CAM

☐ **Recent Severe Illness**

☐ **Catastrophic Event Involving Hypoxia**

☐ **≥3 Medications Added During Hospitalization, especially:**

- High dose opioids
- Anticholinergics
- Corticosteroids
- Benzodiazapines
- Antibiotics (including Levaquin)
- Anticonvulsants
- H2 receptor antagonists (PPIs)

☐ **Electrolyte Imbalance**

- Na^{++}<135 or >145 mmol/L
- K^{+}<3.5 or >5.2 mmol/L
- Glucose <70 or >126 mg/dl

☐ **Dehydration**

BUN: Creatinine Ratio >18

☐ **Infection, consider:**

- Surgical site
- Skin ulcerations
- Urinary tract
- WBC >10
- Respiratory

☐ **Surgery or General Anesthesia Within Last 5 Days**

☐ **Uncontrolled Pain**

☐ **Uncompensated Sensory or Language Impairment**

☐ **Restraints**

☐ **Urinary Catheter**

☐ **Poor Nutrition**

- Pre-albumin ≤10

☐ **Sleep Disruption**

☐ **No Factors Identified**

APPENDIX B. DELIRIUM NURSING CARE PLAN

Goal 1: Maintain or improve baseline Cognitive status	Assess baseline cognition and mental status Address safety concerns including surveillance needs Educate patient and family on delirium risk and interventions Implement no-fail environment to limit frustration Place caregiver names and date on patient's whiteboard Frequent reorientation to surroundings and what is happening but not out point of frustration/agitation Differentiate between night and day with activity and lighting; include time of day when re-orienting Monitor patient's reaction and modify approach to one of reassurance and validation of patient's experiences rather than reorienting Converse with patient at least TID (suggested topics: current events, reminiscence or inquiries about family and friends Invite the family/significant others to stay as much as possible to assist with orientation and sense of well-being. Encourage family/significant others to bring familiar items from home (photos, robe, etc.) Make contact at eye level, sit down if patient in bed or chair Speak to patient calmly and slowly; lower voice if patient becomes agitated Introduce self with each interaction & use simple one-step commands Respond to the emotional tone of the patient; "You sound angry." Or "You seem sad." Consider psychiatric consult for medication management of symptoms Communicate therapeutic interventions to health care team
Goal 2: Maximize functional ability	Structure a daily routine and establish toileting schedule/rounds Encourage participation in activities of daily living (feeding, bathing, dressing), assist as needed Evaluate need for OT consult and obtain if appropriate Modify diet to improve self-feeding, assist as needed Implement aspiration precautions as needed Provide an environment to promote optimal intake (bring table close, provide appropriate utensils, etc.)
Goal 3: Insure adequate CNS oxygen delivery	Assess for hypoxia, notify MD if: oxygen saturation <95%, SBP <2/3 baseline or <90 mmHg Notify MD if hematocrit <30%
Goal 4: Review all active medications	Collaborate with MD or clinical pharmacist in medication review Taper or d/c all non-essential medications, including prn medications Review and verify medication reconciliation with patient and care giver Evaluate need for medical devices (IV's, Foley, catheters, monitors)
Goal 5: Correct electrolyte imbalance(s) and	Notify MD and restore sodium, potassium and/or glucose to normal limits as indicated Evaluate skin turgor and mucous membranes with physical assessment

dehydration	and PM Notify MD if BUN: Creatinine ratio >18 Encourage PO fluids as appropriate (1200 ml/day); consider intravenous fluid therapy if unable to take sufficient amount of PO fluids
Goal 6: Assess for signs and symptoms of infection, sepsis, and hypotension	Assess for fever (note: patients >65 years may not present with fever or increased WBC or typical symptoms) Notify MD if signs and symptoms of infections, sepsis and hypotension
Goal 7: Promote excretion of general anesthesia	Promote progressive activity out of bed in day and evening hours as appropriate Encourage and assist with cough and deep breathing exercises q1h while awake
Goal 8: Provide pain management	≤3 or ≤patient's goal Utilize FLACC scale, or patient self-report When providing pain medication, use lowest possible dose to alleviate pain
Goal 9: Minimize sensory impairment and/or language barrier	Asses baseline sensory deficits (insure eyeglasses, hearing aids, denture, etc. are accessible to patient) Provide consistent environment
Goal 10: Re-evaluate need for restraints and remove as soon as appropriate	Provide a safe environment (fall risk precautions if indicated) Utilize chair and bed check devices, consider a low bed, wedge cushion, move patient closer to nurse's station, sit in chair/recliner….get patient OOB as much as possible!!!! "Hide" peg and/or any exposed invasive tubes with abdominal binder, "Hide" IV with stockinette Address any unmet patient needs (i.e. toileting, thirst, pain control, etc.) Consider alternatives to restraints on an ongoing basis
Goal 11: Remove bladder catheter unless contraindicated	Follow UTI bundle
Goal 12: Provide adequate nutrition (> 75% consumed each meal)	Assess for hypoglycemia, hunger, thirst regularly (elderly may have decreased thirst; offer fluids regularly) Assess food preferences and modify meals/snacks, offer assistance with menu completion, assess for and correct fecal impaction, assess for urinary retention r/o bladder distension
Goal 13: Implement Sleep Hygiene Protocol	Offer warm decaffeinated drink, establish a routine PM care (face and teeth cleaning, toileting, back rub, positioning for comfort), offer soft music, reduce environmental noise and light, minimize staff changes Allow 6 hours of uninterrupted rest; do not awaken patient unnecessarily (cluster care)

APPENDIX C. STATEMENT OF ORIGINAL WORK

Academic Honesty Policy

Capella University's Academic Honesty Policy (3.01.01) holds learners accountable for the integrity of work they submit, which includes but is not limited to discussion postings, assignments, comprehensive exams, and the dissertation or capstone project.

Established in the Policy are the expectations for original work, rationale for the policy, definition of terms that perta**ellipsis**in to academic honesty and original work, and disciplinary consequences of academic dishonesty. Also stated in the Policy is the expectation that learners will follow APA rules for citing another person's ideas or works.

The following standards for original work and definition of *plagiarism* are discussed in the Policy:

> Learners are expected to be the sole authors of their work and to acknowledge the authorship of others' work through proper citation and reference. Use of another person's ideas, including another learner's, without proper reference or citation constitutes plagiarism and academic dishonesty and is prohibited conduct. (p. 1)
>
> Plagiarism is one example of academic dishonesty. Plagiarism is presenting someone else's ideas or work as your own. Plagiarism also includes copying verbatim or rephrasing ideas without properly acknowledging the source by author, date, and publication medium. (p. 2)

Capella University's Research Misconduct Policy (3.03.06) holds learners accountable for research integrity. What constitutes research misconduct is discussed in the Policy:

> Research misconduct includes but is not limited to falsification, fabrication, plagiarism, misappropriation, or other practices that seriously deviate from those that are commonly accepted within the academic community for proposing, conducting, or reviewing research, or in reporting research results. (p. 1)

Learners failing to abide by these policies are subject to consequences, including but not limited to dismissal or revocation of the degree.

Statement of Original Work and Signature

I have read, understood, and abided by Capella University's Academic Honesty Policy (3.01.01) and Research Misconduct Policy (3.03.06), including the Policy Statements, Rationale, and Definitions.

I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the APA *Publication Manual*.

Learner name and date	**Elaine D. Delvo-Favre August 12, 2016**
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