

# Reducing Delirium in Hospitalized Older Adults with a Nursing Prevention Protocol

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*This continuous quality improvement project included the implementation and evaluation of the Brief Confusion Assessment Method (bCAM) for early detection and prevention of delirium in hospitalized older adults. The presence of delirium significantly increases their risk of morbidity and mortality (Rosen et al., 2015). Sleep patterns, morbidity, mortality, and length of stay were examined before and after implementation.*

**D**elirium has been found frequently in hospitalized older adults and has been linked to increased risk of inpatient death, longer hospital stays, increased morbidity, admission to long-term care facilities, and other adverse outcomes (Marcantonio, 2017). Delirium, a profound change in state of consciousness linked with inattentiveness, sometimes has been accompanied by agitation or restlessness (hyperactive delirium) or withdrawal and apathy (hypoactive delirium) (Rosen et al., 2015).

Because delirium and dementia often have been confused in the hospital setting, educating nurses to conduct routine assessments for delirium in older adults using the Brief Confusion Assessment Model (bCAM) tool and instituting appro-

### Literature Review

- Older hospitalized patients who present with delirium are at significantly elevated risk of morbidity, mortality, and other adverse outcomes (Marcantonio, 2017; Rosen et al., 2015).
- Nurses' psychological and emotional characteristics may impede their effectiveness in using new screening and treatment protocols for delirium (Miliard, 2014).
- Nurses were far less likely to be resistant if their training enhanced their perceived sense of competency at providing excellent patient care and improved patient outcomes (Miliard, 2014).
- Benefits of the Brief Confusion Assessment Method (bCAM) include its ease of administration (Rosen et al., 2015). Disadvantages of the bCAM include its lack of sensitivity (Hendry et al., 2016).

### CQI Model

Plan-Do-Study-Act model (Deming Institute, 2019) and Lewin's Model of Planned Change (Lewin, 1947)

### Quality Indicator & Data Collection Methods

- Major sources of evidence were aggregate data, retrospective data, and sleep surveys.
- Findings from 100 sleep surveys provided a clear indication that a validated tool was needed to assess and intervene for persons experiencing delirium.

### Clinical Setting/Patient Population

27-bed medical unit in a western academic hospital

### Average Daily Census

27 adult patients

### Program Objective

Average improvement of at least 20% in patient sleep outcomes (quality and length) based on patient self-reports

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appropriate interventions for delirium in this target population will decrease the mortality and morbidity associated with this complication (Han, 2015; Hendry et al., 2016). The need for accurate screening is underscored by the fact that, although 7%-17% of older adults who present to a hospital Emergency Department have delirium (Rosen et al., 2015), up to 80% of these older patients are misdiagnosed or under-diagnosed with delirium during their hospital stay (Han, 2015; Hendry et al., 2016).

One benefit of the bCAM tool is its brevity: the test takes less than 2 minutes to administer, as opposed to the 10 minutes needed to administer the Confusion Assessment Method (CAM) (Rosen et al., 2015). Although the bCAM has strong specificity (accurate in identifying delirium), it has been found to have poor sensitivity (missing 3 in 10 patients with delirium) (Hendry et al., 2016). Hendry and colleagues conceded the lack of a perfect screening tool for detecting delirium.

### Project Site and Reason Change

This project implemented and evaluated a nursing screening assessment and evidence-based protocol to treat patients age 60 and older for delirium. The practice change was initiated due to lack of a standardized approach with a validated tool to assess for delirium in clinical practice. Delirium's subtle and varied symptoms include lessened ability to focus, rapid onset (unlike dementia, which sometimes develops gradually), disorganized thinking, impaired memory, and distraction, as well as alterations in sleep patterns and psychomotor skills (Inouye, 2016). Multiple medical conditions (or triggering mechanisms) could contribute to delirium. Because delirium can lead to a medical emergency, addressing its symptoms promptly may avert any life-threatening conditions. The bCAM tool has proven a reliable and easy-to-follow method for making this assessment (Hendry et al., 2016).

### Program

This continuous quality improvement (CQI) project was part of an ongoing project approved by the hospital's Institutional Review Board (IRB) to study the impact of the delirium-prevention protocol on three specific aggregate outcomes (chemical/physical restraints, length of stay, mental health center transfers) and hours of patient sleep from sleep surveys. The project was approved for an IRB modification for a third study arm that analyzed the nurse-charted bCAM results available after implementation of the nurse-driven quality initiative.

A nurse-driven delirium screening and prevention protocol was developed by the nurses and implemented on an inpatient unit with 27 beds. Under this protocol, nurses screened newly admitted patients for delirium and risk of delirium using an electronic bCAM scoring tool. Patients age 60 or older who screened positive 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. Incidents of delirium in unit patients were documented in the electronic medical record (EMR).

A survey inquiring about the quantity and quality of sleep was administered to a convenience sample of 100 patients after implementation of the protocol and later compared with previously collected survey results of 100 patients before protocol implementation. Aggregate outcomes, including use of sleep aids, pharmacologic and physical restraints, and length of stay, were obtained through EMR data queries; 9 months of pre-protocol data were compared with 23 months of post-protocol data using a two-sample *t*-test. At the conclusion of the 3-month pilot program, the project was evaluated and results were presented to nursing administrators.

### Evaluation and Action Plan

The Clear Minds protocol involved establishing healthy hab-

its, 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 was used to reassess 100 patients using the bCAM over a period of 6 months. Sleep patterns (quality and quantity of sleep) were assessed through surveys. Morbidity, mortality, and patient length of hospital stay were examined before and after implementation of the protocol through aggregate data pulled from the EMR.

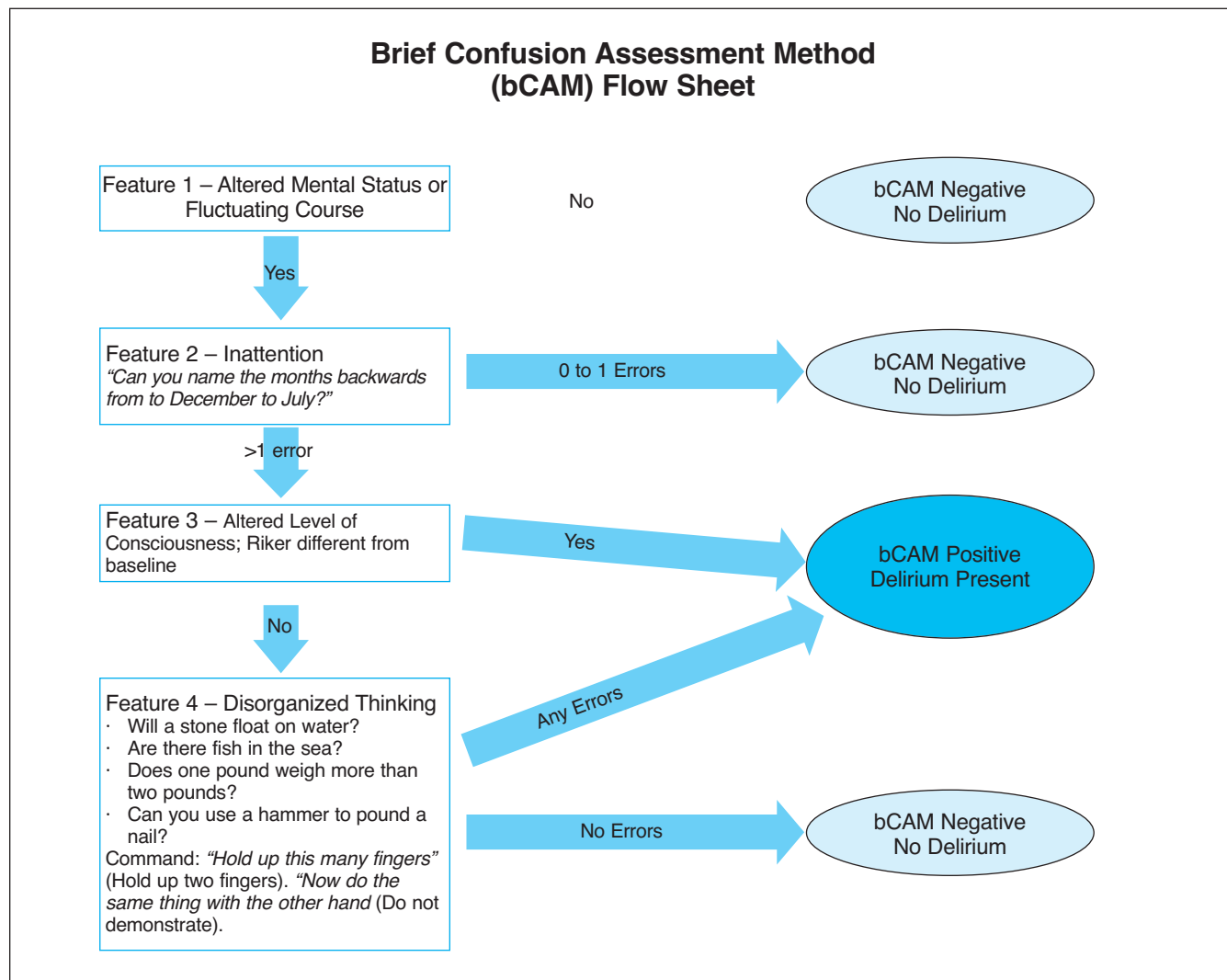
Nurses on the day shift were instructed to place a yellow delirium sign outside the patient's room and encourage the family to stay with the patient during the day. They also were instructed to ensure the patient had all needed visual and hearing devices, the patient's lights stayed on during the day, and the patient was seated near a window when possible. In addition, they had to help the patient out of bed for meals (if appropriate) and prompt the patient to void frequently (unless a catheter was in place or the patient was incontinent). Finally, the patient's bCAM score was assessed during the shift.

Night nursing staff turned the TV off after 9:00 p.m., assessed the patient's bCAM score during the shift (see Figure 1), ensured 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's condition 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. They contacted the provider if further interventions were needed, reassessing the patient if sleeplessness persisted for more than 60 minutes.

### Results and Limitations

Hours of sleep, as measured in

**FIGURE 1.**  
bCAM Confusion Assessment Flow Sheet



**Source:** Modified from Han, 2015

patient surveys, increased from a pre-intervention mean of 4.09 hours to a post-intervention mean of 4.60 hours of sleep. No significant difference ( $p=0.05$ ) in mean hours of sleep was found between groups. In evaluating quality of sleep, the pretest group had a mean score of 3.27, while the posttest group had a mean score of 3.15. Results from a two-sample  $t$ -test indicated no difference between the pre- and post-implementation groups. A positive relationship was found between the use of the protocol by clinical nurses and the length

and quality of sleep for patients, suggesting nurses may have a positive impact on the sleep patterns of hospitalized older adults.

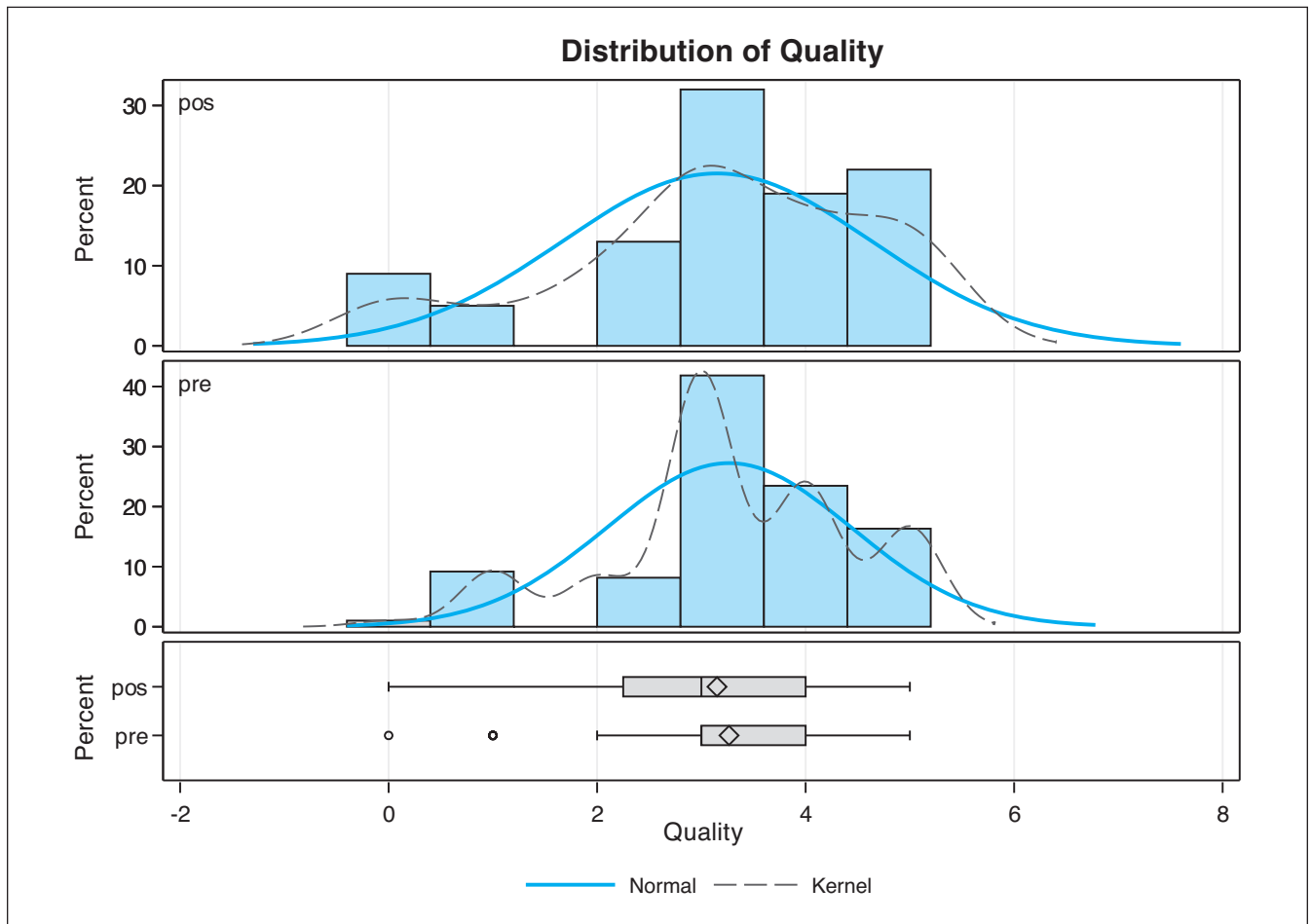
Figure 2 contains the histograms for the pretest and posttest group for quality of sleep. Distribution appeared to deviate from the normal distribution for both groups. The initial project results have been preliminary and suggestive only. The lack of statistically significant differences in preliminary findings may be due to the relatively small sample size in the pretest and posttest groups. Alt-

hough not significant, improvement in mean hours of sleep suggests further training and larger samples may lead to significant improvements as identified in the literature (Caldwell, Pope, & Partin, 2015; Hendry et al., 2016; Marcantonio, 2017; Rosen et al., 2015).

### Lessons Learned/Nursing Implications

Appropriate nursing education on the administration of the bCAM as a screening tool for older adults at risk of delirium on hospital

**FIGURE 2.**  
Distribution of Quality of Sleep



admission can optimize patient outcomes through decreased patient mortality, morbidity, length of stay, and readmission, as well as reducing falls. The definitive goal of this CQI project was to create and implement an evidence-based intervention for assessing patients at risk for delirium within an acute care setting. The nursing assessment and intervention allowed the primary RN to screen patients age 60 and older adequately by using the bCAM as a validated tool, possibly in conjunction with the Delirium Triage Screen (DTS) (Han et al., 2013). The interventions included nonpharmacologic interventions, as indicated in the literature (Rosen et al., 2015). If delirium was not resolved or behavioral emergencies

(e.g., patient's level of agitation) interfered with providing essential medical services or caused danger to self or others, Rosen and co-authors suggested physicians could order pharmacologic interventions based on the patient's bCAM score and the frequency of incidents. Overriding goals were to reduce incidence of delirium, decrease length of stay, and reduce falls.

The importance of team support, including physicians, nursing administrators, families, and clinical nurses, cannot be overemphasized. Recognition that providers might have different ideas and experiences related to delirium needs to be a starting place for continuing education to meet the goal of addressing delirium in hospital-

ized patients. Any tools must be supported with evidence and manageable for all providers within the constraints of their workloads, including the possible combination of the bCAM with the DTS or other instruments to increase the sensitivity of assessment (Han et al., 2013; Hendry et al., 2016; Rosen et al., 2015). Next steps should include nurses' assessment of patients' sleep and sleep patterns within the acute environment, especially for patients who present as at risk for delirium, to gather and track robust data. Additional information will be disseminated from the EMR after nurses have been trained in administering the bCAM, and additional analysis will be conducted related to hours of sleep and quality of sleep.

## Conclusion

The interpretation and analysis of sleep data clearly indicated the need to create and implement a validated tool for assessment and intervention. Preliminary data suggested the possible influence of nurse education on length or quality of patient sleep. Possible benefits of this suggestive preliminary finding should not be overlooked. Any improvement in length or quality of sleep for hospitalized patients has physical (e.g., reduction in pain) and psychological implications (e.g., greater confidence in the competence of medical care provided or greater optimism about long-term prospects for recovery). All interprofessional team members should be aware of the various signs of acute-onset delirium and more subtle symptoms as possibly indicative of serious underlying medical conditions that require rapid assessment and treatment. **MSN**

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