

IMPLEMENTING A DELIRIUM SCREENING TOOL FOR
OLDER ACUTE HIP FRACTURE PATIENTS IN
THE EMERGENCY CARE SETTING

by

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of

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ABSTRACT

Delirium is associated with consequences such as prolonged hospital duration, accelerated functional and cognitive decline, increased mortality, high healthcare costs, and loss of independence. The Geriatric Emergency Guidelines recommend using the screening tools, Delirium Triage Screen (DTS) and Brief Confusion Assessment Method (bCAM), to identify patients with delirium. The Emergency Department (ED) and non-ICU units at a level III trauma center in Southwest Montana lack formal delirium prevention policies and protocols, including delirium screening tools and management following a positive result. This quality improvement (QI) project was designed to identify delirium among hip fracture patients aged 65 or greater in the emergency setting by implementing the delirium screening tools DTS and bCAM. Three Plan-Do-Study-Act cycles every 2 weeks with qualitative surveys, educational video for emergency department registered nurses (RNs), and electronic health record (EHR) data were used to evaluate the success of this QI project. Interventions included building the delirium screening tool DTS/bCAM in the EHR charting system and creating and distributing a nurse education video with a survey to identify learning outcomes and process feedback. Total sample size was 15 emergency RNs who responded to surveys collected over a 4-week period. There were five emergency department patients who met criteria. Three of the five patients were screened for delirium. The ED has adopted the delirium screening tool procedure and the practice change has been accepted by the ED RNs

CHAPTER ONE

LITERATURE REVIEW

Introduction

Delirium is associated with prolonged hospital duration, accelerated functional and cognitive decline, institutionalization, increased mortality, and high healthcare costs (Boucher et al., 2019; Chen et al., 2022; El Hussein et al., 2021; Francis & Young, 2022; Gou et al., 2021; Han et al., 2013; Oh et al., 2017). The five key features of delirium include: (a) inattention, (b) impaired cognition, (c) developing over a short period of time within hours to days, (d) unexplained by other preexisting neurocognitive problem, and (e) with evidence that the new disturbance is caused by a recent medical condition (Francis & Young, 2022). The emergency department is often the first encounter within a healthcare system for patients, including vulnerable groups such as older adults. However, delirium continues to be underrecognized in rural and urban emergency department settings across the United States and Canada (Boucher et al., 2019; Chen et al., 2022; El Hussein et al., 2021; Han et al., 2013; LaMantia et al., 2017; Lee et al., 2020; Minion et al., 2021; Oliveira et al., 2021; Rosen et al., 2015).

Background and Significance

Screening for delirium is the standard of care in most intensive care units (ICUs) throughout the United States and Canada using the validated Confusion Assessment Method (CAM) or the more recent and broadly used adaptation titled CAM-ICU (Francis & Young, 2022; Han et al., 2013; Hsieh et al., 2018; LaMantia et al., 2014; Lee et al., 2020; Oliveira et

al., 2021). Despite the wide use of CAM-ICU in the ICU setting, there is a lack of formal delirium screening throughout emergency departments and non-ICU areas (Boucher et al., 2019; El Hussein et al., 2019; Han et al., 2013; Lee et al., 2020). Common themes preventing emergency department staff such as physicians and nurses from using a validated screening tool for delirium are: (1) lack of formal training to identify delirium, (2) not enough time in a busy working environment, (3) lack of patient baseline cognitive function, and (4) approaches for treatment lack standardization or department protocols (LaMantia et al., 2017).

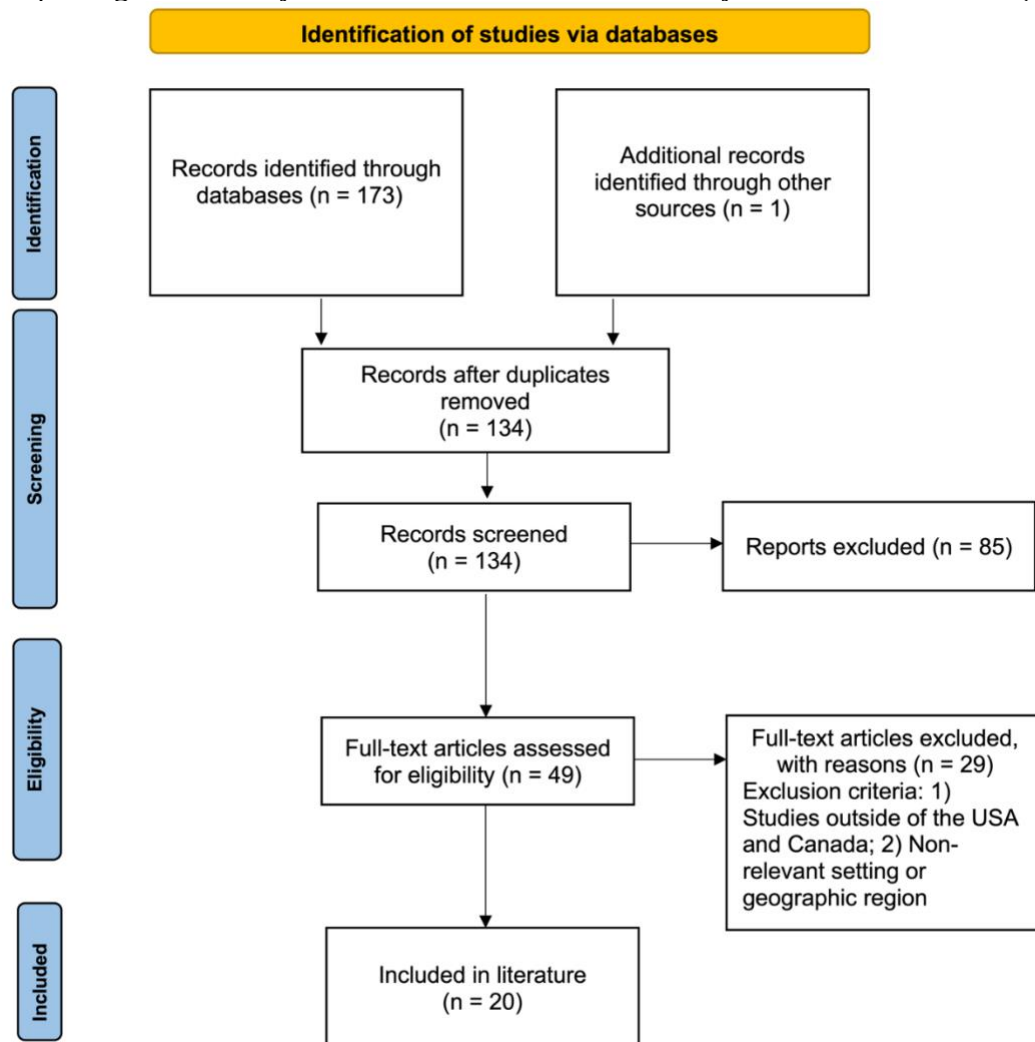
Individuals who are aged 65 or greater and undergo major surgery, such as hip or knee replacements and invasive general or cardiothoracic surgeries, and experience hospital-acquired delirium, incur an additional cost of \$44,291 over the following year compared to the same population group without delirium (Gou et al., 2021). The geriatric population is especially vulnerable to negative postoperative outcomes, with delirium being a catalyst for a drastic change in independence. The standard of care to prevent delirium among geriatric hip fracture patients should begin with a reliable, validated screening instrument at the first hospital area encounter; the emergency department. The purpose of this literature review is to apply research to the clinical problem of delirium among older hip fracture patients who arrive in the emergency setting.

Methods

The article search process included the following parameters: (a) peer-reviewed journals published in English, (b) key words included delirium AND emergency departments AND screening tool, (c) search engines used were PubMed, CINAHL, and Google Scholar, searched

in September 2022. Studies were excluded if (a) the journal or hospital setting within the article was outside of the USA or Canada; (b) outside of non-relevant settings such as preoperative units, post-anesthesia care units, assisted living facilities, or outpatient settings; and (c) excluded if beyond 10-year publication date. Additional records were reviewed from the database UpToDate (see PRISMA figure 1).

Figure 1.1. Systematic Literature Review Using PRISMA flow diagram. PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses from Moher et al. (2009)



Results

There were 20 articles identified that are a combination of qualitative or quantitative studies, systematic reviews and/or meta-analyses, literature reviews, evidence-based narrative reviews, and evidence reviews. The selected articles occurred in the following settings: 15 in emergency departments, three in admitted hospital non-critical care units, one in a critical care department, and one literature review without a clinical setting. Of the 20 articles, 18 discuss delirium screening tools with nine referencing bCAM. To identify common themes, each article was read and grouped into the following categories: screening tools, barriers to using screening tools, delirium statistics in emergency settings, and impact of delirium.

Common themes are: (1) delirium is overlooked and under identified among older emergency departments; (2) the most widely used screening tools are based on CAM; (3) emergency department staff are hesitant to adopt a screening tool due to time limitations and insufficient formal training regarding delirium; and (4) with short delirium training and education modules, study participants improve knowledge and the ability to use bCAM as a screening tool.

Delirium was found in 15.4% of the 652 participants per Boucher et al. (2019) and among 15.2% of emergency department patients in the systematic review completed by Chen et al. (2022). Among additional studies, Delaney, Pepin, and Somes (2015) identified 23% of geriatric patients to have delirium when screened in emergency department triage setting using bCAM. During hospitalization, Gou et al. (2021) found a delirium rate of 25% among older patients who had major surgery. The most commonly unidentified form of delirium is hypoactive delirium (Francis & Young, 2022).

The most widely used screening tool is the Confusion Assessment Method (CAM), which has been translated into over 20 languages and used in 4500 studies (Hshieh, Inouye & Oh, 2018). The brief Confusion Assessment Method (bCAM) is recommended for emergency department use by Han et al. (2013), Lee et al. (2020), Minion et al. (2021), Rosen et al. (2015), Sederstrom et al. (2021) and Shenvi et al. (2020). Additional screening tools are 3D-CAM, the Delirium Triage Screen (DTS), 4AT, Recognizing Acute Delirium As part of your Routine (RADAR), and Family CAM are mentioned in the literature search by Han et al. (2013), Hare et al (2014), LaMantia et al. (2014), Lee et al. (2020), Minion et al. (2021), Oh et al. (2017), Oliveira et al. (2021), Rosen et al. (2015), Sederstrom et al. (2021) and Shenvi et al. (2020).

Barriers to adopting a delirium screening tool in emergency settings include staff hesitation due to time constraints from a demanding workload, discordance between perceived nurse knowledge and capabilities and a hospital culture which may not support or encourage delirium screening tools (Eagles et al., 2020). Additional themes include how staff focus on hyperactive delirium versus hypoactive and the need for a tool to help staff identify each form of delirium (LaMantia et al., 2017).

To assist with perceived barriers, emergency nurses can use delirium assessment tools with educational support (El Hussein, Hirst, & Stares, 2021). A short education module, including a pretest, delirium discussion module, and post-test, indicated great improvement comparing pre- and post-test data from 40% pretest to 100% post-test (Minion et al. 2021). Preventing delirium with non-pharmacologic approaches is effective; however, pharmacologic prevention and treatment remains controversial (Oh et al., 2017). The literature review completed by Rosen et al. (2015) discusses a novel protocol to include a formal delirium

diagnostic tool, physicians checking in with staff on mental status changes, analgesia management, urinary retention, constipation, dehydration, environmental adjustments, and medication reconciliation. However, there is not a follow-up study revealing results of the suggested protocol implementation.

Discussion and Practice Implications

The delirium screening tool, bCAM, is a reliable and validated screening tool specific to the needs of the busy emergency department (Chen et al., 2022; Delaney et al., 2015; Han et al., 2013; Lee et al., 2020; Rosen et al., 2015; Sederstrom et al., 2021; Shenvi et al., 2020). In 1 to 2 minutes, delirium can be assessed as either positive or negative as inspired by the most widely used delirium screening tool, CAM. Formal training guided by an organization's education department is necessary to ensure staff engagement and promote the longevity of a practice change. Challenges faced by emergency nurses in the literature review include: (1) competing demands due to time and workload; (2) discordance between perceived nurse knowledge and capabilities; and (3) hospital culture may influence screening tool compliance by staff (Eagles et al., 2022). However, Minion et al. (2021) did find significant pre- versus posttest improvement with the use of a short delirium education module leading to 86% of emergency department provider participants using bCAM within 30 days. Finding a realistic teaching solution that most, if not all, nurses will participate in, will help to empower the emergency RN staff with the skills and background to successfully screen the growing geriatric population for delirium.

Conclusion

As evidenced by the literature, screening for delirium in the emergency setting is overlooked and underutilized, which can cause long-term consequences for the healthcare system. Delirium prevention can start with a screening tool utilized in the emergency setting. Initiating bCAM in the emergency department is rapid to complete and effective for objectively diagnosing delirium, an important first step that most emergency departments are not doing. The literature describes how delirium is consistently unidentified along with staff hesitancy of adding another task to an already overwhelming occupation. However, studies have identified encouraging results, which utilized short education and training tools for emergency staff to be successful and confident in applying a delirium screening tool such as bCAM. Screening for delirium impacts delirium treatment and prevention throughout the hospital stay, ultimately affecting healthcare systems and communities.

CHAPTER TWO

PROJECT PROPOSAL

Introduction and Problem

The standard of care to prevent delirium among geriatric hip fracture patients should begin with a reliable, validated screening instrument in the first hospital area encounter; the emergency department. Delirium is preventable and impacts some of the most vulnerable patients in all healthcare arenas around the world. Intensive care units routinely screen for delirium using the most widely used tool, CAM-ICU. Emergency departments screening for delirium use a shorter, more appropriate tool for noncritically ill patients; however, most are not doing this due to time constraints and the busy, unpredictable nature of the care environment. The purpose of this quality improvement project is to implement a delirium screening tool at a level III trauma certified emergency department for older hip fracture patients in Southwest Montana.

Problem Statement

To approach the prevention of delirium as a complication from hip fracture injury, we propose introducing the two-step delirium screening process, Delirium Triage Screen (DTS) with the Brief Confusion Assessment Method (bCAM), to the emergency department as recommended by the Geriatric Emergency Department Guidelines (American College of Emergency Physicians, 2019). Significant steps involved are stakeholder support, educational training for the nurses who will use the tool, the implementation of the tool in the electronic

health record (EHR), and data collection regarding RN training and DTS-bCAM usage. With hypoactive delirium being the most frequently missed type, using the DTS-bCAM screening tool will clarify unnoticed behavior. If this project is successful in the ability to screen for delirium among the select population or older hip fracture patients, then perhaps all emergency department patients ages 65 or greater will be screened for delirium following the Geriatric Emergency Department Guidelines (American College of Emergency Physicians, 2019). Clinical practice guidelines recommend routine cognitive screening and documentation in a formal way to assess mental status at present and future emergency visits. Following formal mental status assessment, the guideline policy states:

It is the policy of the Geriatric ED to comprehensively evaluate geriatric adults presenting with delirium, encephalopathy, or an altered mental status. Coordination of care, with special attention to directing interventions towards improving reversible causes and limiting factors that extend or cause delirium is the main goal. (American College of Emergency Physicians, 2019, p. 26)

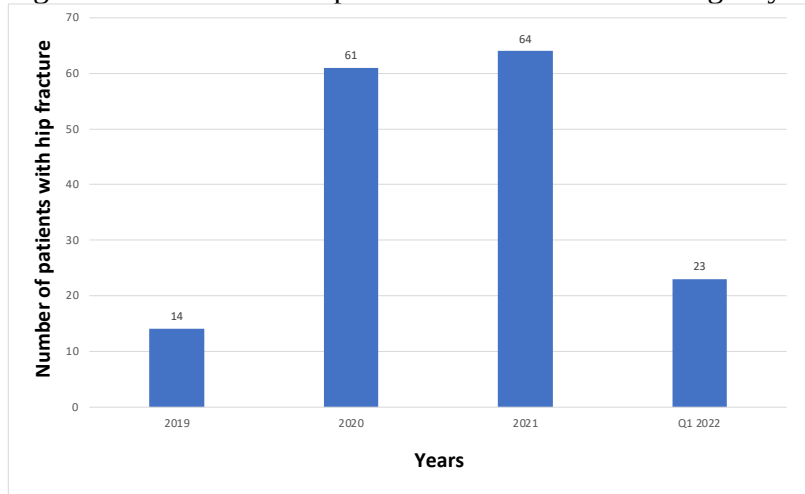
Currently, the Emergency Department does not use a delirium screening tool and physicians are hesitant to implement a tool such as DTS-bCAM for all patients aged 65 or greater due to increasing their workload of identifying a reversible cause.

Organizational Microsystem Assessment

The site for this QI project is a hospital in Southwest Montana providing care to a primary and secondary service area. The primary area contains three counties total with 149,103 residents (U.S. Census Bureau, n.d.). The secondary service area provides care for part of eight additional counties estimated at 152,024 residents (U.S. Census Bureau, n.d.). The trauma registry provided data regarding total number of hip fractures from January 1, 2019, to the first

quarter of 2022, resulting in a total of 162 patients with hip fractures. From January 1, 2020, to the first quarter of 2022, six patients were diagnosed with delirium. Figure 2 demonstrates the number of hip fracture patients per year at the Level III Trauma Hospital in Southwest Montana. The numbers were provided by the trauma coordinator via the trauma registry database.

Figure 2.1. Number of Hip Fractures Per Year in Emergency Department



Several factors contribute to the interpretation of the hospital data. First, in 2019 hip fractures that occurred from a ground level fall were not included in the trauma registry; therefore, the total number is much lower than other years. Secondly, the trauma registry also did not track delirium as a complication in 2019. Thirdly, patients with a prior diagnosis of osteoporosis were not included in the trauma registry during any year, leaving the total numbers within the data set much lower than what the hospital sees overall.

Outside of the ICU on the medical or surgical units, delirium is not assessed or identified in a formal way; rather, nursing or physician gestalt may lead to interventions to improve sleep, mobility, pain control, or bladder elimination. Currently, there is not a formal nursing protocol that includes interventions specific for delirium in the non-ICU departments. Within the ICU, all

patients are screened for delirium using the CAM-ICU tool within the hour. However, there is not a formal policy regarding nursing interventions following a positive screening result.

Rationale

Delirium is linked with adverse consequences and is also preventable. Up to 15.4% of older patients in the emergency department have delirium and it is underrecognized up to 84.6% of the time because the standard of care does not include the use of a screening tool (Boucher et al., 2019). Older patients who do become delirious as a complication accrue an additional \$44,291 over the course of the year following major surgery (Gou et al., 2021). The delirium care provided in the setting of the emergency department has downstream effects on patient care before and after hip surgery. Screening for delirium using the two-step tool, DTS with bCAM, takes less than 2 minutes and should be the first step in delirium prevention (American College of Emergency Physicians, 2019; Han et al., 2013). This QI project proposes the use of the two-step screening tool, DTS with bCAM, for its ease in learning, time efficiency, and improved sensitivity for noncritically ill patients. The Geriatric Emergency Department Guidelines approved by the American College of Emergency Physicians includes the two-step DTS with bCAM as the recommended delirium screening tool as of 2013 and reaffirmed in January 2019 (American College of Emergency Physicians, 2019). Additionally, Dr. Jin Han of Vanderbilt University Medical Center, the primary author of Eddelirium.org and several academic articles on delirium screening tools in the emergency setting, has granted written permission for our facility to use all training manuals and visuals to implement this practice change in our department (VUMC Center for Health Services Research, 2022).

As the community continues to grow, the need for an additional hospital unit specializing in spine and joint replacement surgeries has been identified, unit managers hired, and construction is estimated to be completed by mid-2023. The initial prompt for this project is to address delirium in a formal way as part of a larger hip fracture protocol. The hip fracture protocol is currently being built by the spine and joint unit manager and will include nursing and provider interventions, if patients are experiencing delirium with a bCAM positive screening test.

Conceptual Framework

The Systems Engineering Initiative for Patient Safety (SEIPS) 3.0 framework describes the need to expand the focus of patient care processes by looking at the entire patient's journey across multiple healthcare delivery areas rather than anchoring the patient experience to one single encounter (Carayon et al., 2021). The journey of an older patient with an acute hip fracture will likely entail multiple healthcare environments while encountering multiple caregivers, RNs, medical providers, therapists, social workers, and other specialists. Hospitalized older patients with an acute hip fracture will experience a variety of policies and interventions concerning delirium along their healthcare journey post hip fracture. As part of the SEIPS 3.0 framework, it is important to recognize the various healthcare arenas along the patient's journey. Further, each arena will have different policies, workplace cultures, and care environments in relation to delirium (Carayon et al., 2021). Approaching change from a safety perspective, this QI project has recognized the gaps in current organization policies and the lack of formal delirium training and education for nurses. Information technology (IT) specialists at the organization have shared

knowledge of other prominent organizations who use the proposed screening tools via the community library within the EHR (see Appendix A).

Quality Improvement Model

Applying the Plan Do Study Act (PDSA) method provides structure to test a healthcare practice change and improve hospital-acquired consequences related to delirium (Institute for Healthcare Improvement, 2022; Taylor et al., 2014). This implementation project proposal will use the PDSA model to guide how delirium is assessed among older hip fracture patients in the emergency department. Beginning with the first steps of the PDSA process, the aims, measures, and changes are listed below.

Aims

1. Build education module for emergency department nurses on delirium screening tool.
2. Identify delirium among older hip fracture patients in the emergency department using a screening tool.

Measures

1. Establish emergency nurse education in the identification of delirium via Net Learning video module which will be measured by the utilization (click completion) frequency.
2. Evaluate emergency nurse knowledge related to delirium screening through the use of a Qualtrics, anonymized survey to examine nurse DTS-bCAM familiarity, process understanding, and utilization of Net Learning video module as a resource (see Appendix B).

3. The use of the screening tool measured by the number of patients screened for delirium versus patients not screened.
4. Identify the number of patients appropriately screened positive versus negative for DTS-bCAM.

Change

1. Build the DTS-bCAM education module for emergency nurses.
2. Build DTS-bCAM in EHR using the Geriatric Emergency Department Practice Guidelines (American College of Emergency Physicians, 2019).

This project proposal has two components that will each use PDSA cycles as a guide, with the first being RN education and the second being the implementation of the two-step screening tool, DTS-bCAM.

PDSA Cycle for RN Education

Plan: Are nurses completing the education module?

Do: Build education module and track module completion using hospital-based Learning Management System, Net Learning, while identifying barriers.

Study: Analyze results and reflect what was learned after building module and presenting it to the RNs.

Act: Adapt to address barriers and observations, make changes to learning module and run cycle again, which could be a new way of presenting or marketing the information.

PDSA Cycle for DTS-bCAM Implementation

Plan: Are nurses screening all hip fracture patients aged 65 or greater for delirium using the screening tool? If so, will there be clinically significant findings identifying delirium?

Do: Build DTS-bCAM tool in EHR.

Study: Analyze the use of the screening tool among hip fracture patients aged 65 or greater using the Excel document with ICD-10 codes, the use of the screening tool and possible underlying cause such as infections, medication use, electrolyte imbalance or alcohol withdrawal (see Appendix C).

Act: Options include adapting via another cycle and making adjustments to the EHR tool and adjusting to any feedback from the nursing staff.

Specific Aims

The specific aims of this QI project are development of the two-step DTS-bCAM screening tool within the EHR and utilization of the internal education portal called Net Learning for emergency nurse education. Ultimately, implementing DTS-bCAM will contribute to delirium prevention and/or to shortening the duration in all patients aged 65 or greater who are admitted to the hospital site in Southwest Montana. Sequentially, a delirium bundle order set is being created by the spine and joint unit team and will address the multitude of actions and interventions to shorten the course of delirium. These actions address sleep hygiene, mobility, orientation, nutrition, hydration, elimination, and pain management. Delirium cannot be prevented unless we are actively screening for it using a valid, reliable tool that is realistic for staff to learn and complete.

Context

The location is a level III trauma center emergency department located in Southwest Montana. Open 24 hours per day, the department contains 27 beds staffed by 22 board-certified physicians, one physician assistant, over 50 registered nurses, three behavioral health specialists, 20 patient care techs, and one social worker. The stakeholder team consists of the emergency department physician lead, the department trauma coordinator, and the department manager who have all approved of this implementation project for the stated population. This QI project addresses one component of the new hip fracture protocol with the goal of screening for delirium in a vulnerable group. The patients impacted by this project are hip fracture patients, aged 65 or greater, who present to the emergency department in Southwest Montana.

Current practices in the emergency department at the organization do not include the use of any type of delirium screening tool or formal nursing interventions within a protocol. Additionally, both the ICU and non-ICU units do not have a formal delirium protocol regarding screening or interventions. The ICU does use the CAM-ICU screening tool; however, they do not have a protocol in place for interventions if patients are CAM-ICU positive. Implementing the use of a delirium screening tool for the select population is a step for the organization to move towards recommended clinical practice guidelines.

Intervention and Implementation

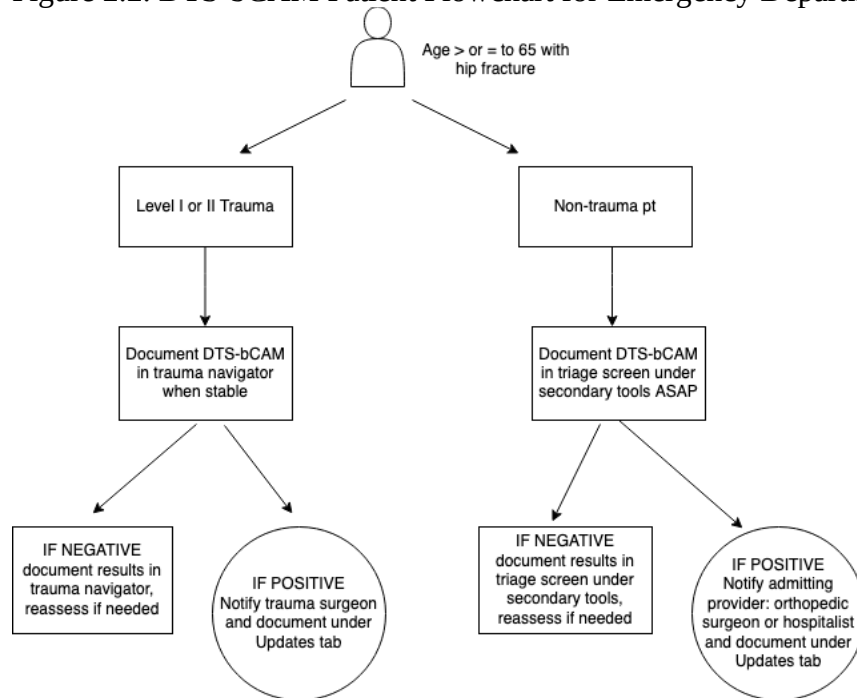
In addition to the multiple screening tools used by emergency department nurses every day, this QI project proposes the implementation of the two-step delirium screening tool, DTS with bCAM (see Figure 4). As a pilot project for the emergency department, DTS and bCAM

will be used exclusively for patients aged 65 or greater who have sustained an acute hip fracture. When a patient aged 65 or greater is suspected to have a hip fracture based on mechanism of injury and inability to stand on affected leg, or is formally diagnosed with a hip fracture following x-ray interpretation, the emergency RN will complete the delirium screening tool based on the training module.

Patients arrive to the emergency department in two ways: via Emergency Medical Services (EMS) or by private vehicle. Patients who arrive by EMS are placed into two categories: Level 1 or 2. Trauma criteria are met based on pre-hospital data and patients are placed in a trauma resuscitation room. Non-trauma patients are placed directly into a non-trauma room. Patients arriving by non-EMS transport present to the main entrance for initial evaluation by the triage RN and are typically placed into a non-trauma room or the waiting room. If level 1 or 2 trauma criteria are met in triage, the patient's care is escalated with prompt placement into a trauma resuscitation room. For designated trauma patients, the ED RNs utilize a trauma charting screen separate from a routine, non-trauma patient triage screen. The delirium screening tool will be located in two areas populating the same flowsheet, which is available for all hospital personnel to view. The screening tool will be available on two screens to create redundancy and ensure that the delirium screening is completed. If the patient is bCAM positive, the RN will document that either the trauma surgeon, orthopedic surgeon, or admitting hospitalist was notified in-person or via secure chat within EHR (see Figure 3). As the larger hip fracture protocol is currently a work in progress, a representative from the trauma surgical service, orthopedic surgical service, and the hospitalist group are aware that a delirium screening tool is being implemented and that a formal policy regarding interventions to improve outcomes is

being created by the spine and joint unit manager. Figure 3 illustrates the DTS-bCAM patient flowchart for RN use of where to document the screening tool results, when, for whom, and what they should do if the patient is DTS-bCAM positive or negative.

Figure 2.2. DTS-bCAM Patient Flowchart for Emergency Department RNs

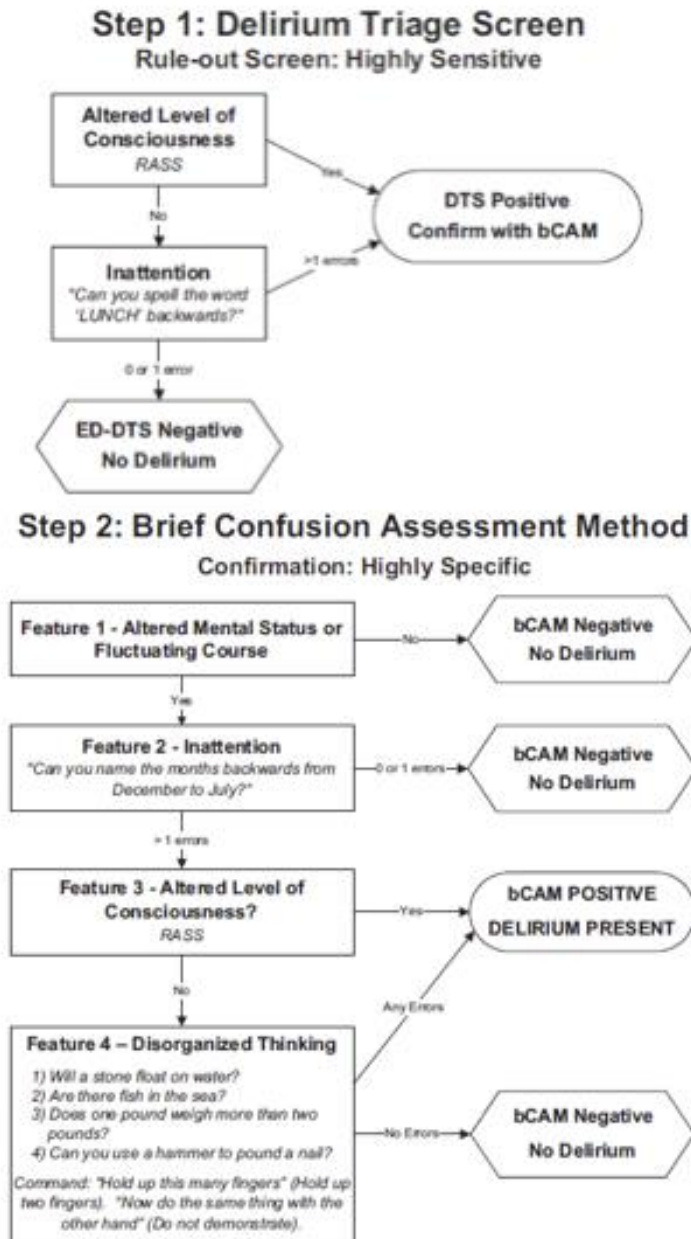


Designed to rule out delirium in less than 20 seconds, the two-step delirium screening tool, DTS, is the first step of the proposed implementation (see Figure 4) (VUMC Center for Health Services Research, 2022). DTS was originally designed to be used during the triage nurse assessment, but can also be used on inpatient units outside of the ICU (Han et al., 2013). The DTS tool first assesses for altered level of consciousness using the Richmond Agitation Sedation Scale (RASS). The second part of the DTS tool assesses for inattention by asking the patient to spell the word “lunch” backwards. Patients must be arousable to verbal stimuli to be screened for delirium (VUMC, 2022). If the patient has an alert and calm RASS of zero and makes zero to

one errors while spelling “lunch” backwards, then DTS is negative and delirium is ruled out, completing the screening process. If DTS is positive, the person screening the patient will move onto bCAM for a more specific tool to either rule-in or rule-out delirium. DTS is positive if the patient has an altered level of consciousness with a RASS of anything above or below zero; asking the patient to spell “lunch” backwards is not necessary because they will move onto bCAM as step two.

bCAM uses the most widely used CAM algorithm which assesses four features: (1) altered mental status or fluctuating course; (2) inattention; (3) altered level of consciousness; and (4) disorganized thinking (Han et al., 2013). In older emergency department patients, bCAM is 78% sensitive and 97% specific when performed by nonphysicians (Han et al., 2013). Feature one assesses for an acute change or fluctuations in mental status, which is ideally obtained from a family member, caregiver, or by calling the patient’s living facility to speak to a staff member. If a proxy is not available, the screener can assume feature one is positive and may move onto feature two. Feature two assess for inattention by asking the patient to state the months backwards from December to July. Feature three assess for altered level of consciousness using RASS a second time. Feature four assess for disorganized thinking using yes/no questions (see Figure 4). To be considered bCAM positive, patients must be positive for features one and two and either feature three or four.

Figure 2.3. Steps 1 and 2: The Delirium Triage Screen (DTS) and Brief Confusion Assessment Method (bCAM)



From *Geriatric Emergency Department Guidelines* (p.27), by the American College of Emergency Physicians, 2019. (<https://www.acep.org/globalassets/new-pdfs/policy-statements/geriatric-emergency-department-guidelines.pdf>). In the public domain.

Steps to implement the DTS-bCAM screening tool include the following: (1) present rationale for DTS-bCAM to stakeholder team, permission granted on November 22, 2022; (2) build DTS-bCAM flowsheet screening tool in Epic; and (3) build education video for all emergency department nurses using the facility's Learning Management System called Net Learning.

Timeline goals were: (1) project approval by stakeholders on November 22, 2022; (2) implement DTS-bCAM in two locations in EHR within the trauma documentation screen and on triage screen under secondary evaluations, by mid-January 2023; (3) create nurses education module by late-December, 2022; (4) track and collect nurses' education screening data starting late December, 2022, to January 15, 2023; and (5) track and collect DTS-bCAM usage correlated with the number of hip fracture patients entering the emergency department aged 65 or greater between January 15, 2023 and March 15, 2023.

Cost estimation: There are no associated financial costs for this project. The time required of this project leader and emergency department team is an accepted indirect cost. The website <http://eddelirium.org/> developed by Dr. Jin Han at Vanderbilt University Medical Center contains detailed instructions on screening for delirium in the emergency setting. On November 29, 2022, Dr. Han granted us permission via email to use all materials at zero cost (VUMC Center for Health Services Research, 2022).

Barriers

The first barrier is RN education completion and reminding nurses to use the screening tool. Due to current practices and hospital culture, screening tools are completed in two ways.

Either the providers place an order task to be completed or RNs remember to complete a task based on clinical judgement, which is variable among the staff. To overcome these barriers, a total of four PDSA cycles every 2 weeks between January 15, 2023, and March 15, 2023, will be used to understand barriers and make adjustments. To initiate education on the delirium screening tools, an email to all department nurses will introduce the screening tool and a new learning module video to be viewed using the facility-based Learning Management System called Net Learning. To ensure project success, there will be a need for more education reminders throughout the department. Ideas include the following: (1) laminated index cards in view at the three main nurse charting areas, the team lead desk, and at the triage desk as reminders to complete DTS-bCAM for the select population (see Appendix D); (2) print the DTS and bCAM tools with an education module reminder on the staff break room information bulletin board (see Appendix E); (3) announce the DTS-bCAM education module and tool use in the monthly team leader meetings to have the team leaders remind the nurses to complete the task for the select population (see Appendix F); and (4) a DTS-bCAM reminder in the shift announcements that are completed by the team leader RN at the 7 a.m. and the 7 p.m. shift huddle (see Appendix F).

The second barrier is ensuring that the bCAM tool will be visible and usable by January 15, 2023. Steps taken with IT department are below.

- October 13, 2022, a request ticket was created by the trauma coordinator to build bCAM. Within the Epic platform, there is a high likelihood that bCAM exists within the database. On October 13, 2022, the bCAM ticket was created and designated as an open ticket.
- November 22, 2022, email to Epic specialist to discuss details of bCAM implementation.

- November 29, 2022, email correspondence between Epic specialist, myself, and trauma coordinator. Voicemail left for Epic specialists.
- December 1, 2022, emergency services workgroup meeting with Epic specialist to discuss the open ticket and next steps. The meeting was cut short due to low participant turn out as this was a meeting held for additional Epic concerns. The Epic specialist stated she will work on the DTS-bCAM tools based on support and provided information from this proposal.
- December 5, 2022, phone call with Epic specialist updates on other organizational use of delirium screening tools outside of the ICU. Epic specialist will continue detailed work on bCAM flowsheets at other organizations and send screen shots to project leader and trauma coordinator. Email confirmation of bCAM tool in community library at Vanderbilt University Medical Center and screenshot communicated (see Appendix A).
- December 8, 2022, scheduled Epic specialist's meeting to discuss location of DTS-bCAM tool and next steps.

Facilitators

This QI project contributes to patient safety around delirium protocols by implementing the use of clinical practice guidelines among a small pilot population. This project aims to close the gap between current and recommended practices by bringing awareness to where the organization lacks in formal delirium care. Because our organization uses the EHR EPIC, the IT department has access to a vast community library demonstrating how to complete and document the DTS and bCAM screening tools (see Appendix A for bCAM example). Prominent

organizations, such as the Mayo Clinic, Vanderbilt University Medical Center, and Wake Forest Medical Center, currently use the same tools this project is adopting. This is helpful because this small pilot population benefits from implementing endorsed and proven templates to detect delirium. By implementing an aspect of clinical practice guidelines related to delirium, this QI project contributes to the greater body of national efforts to improve patient safety and outcomes related to delirium.

Evaluation

First, creating a bCAM training module with the Emergency Department Education Lead to be placed in Net Learning and emailed to emergency department nurses to access. This author will be responsible for tracking the education module completion using Net Learning analytics for all emergency department nurses. The goal is to have 75% of the nurses compliant within 1 month post education email. In addition, we will use a Qualtrics survey containing six questions to evaluate knowledge surrounding process understanding, DTS-bCAM familiarity, and availability of the Net Learning video module as a resource (see Appendix B).

Second, when the DTS-bCAM screening tool is built within the EHR, we will track its use among the targeted, pilot project population. The trauma registrar will create a separate Excel sheet for the purpose of this project, placing patients with hip fracture ICD-10 codes between January 15 and March 15, 2023. With the Excel sheet data, this author will then look for the DTS-bCAM screening tool used under each patient chart in the EHR flowsheet and use this information to guide the Excel data spreadsheet (see Appendix C). The Excel data sheet contains numbers to identify patients without the use of specific identifiable information, a range of age

columns, the use of the DTS-bCAM tool, and possible contributing factors such as infections, electrolyte imbalances, medications such as narcotics or sedatives, and alcohol withdrawal. When delirium is identified, it is advised by the clinical practice guidelines that providers look for a reversible cause such as the contributing factors described above (American College of Emergency Physicians, 2019). The goal is to have 75% of all older hip fracture patients screened for delirium in the emergency department, by emergency nurses during the 8-week data collection period.

Table 2.1. SMART Goal #1

SMART Goal #1		
DTS-bCAM Training for Registered Nurses with Awareness Support Provided by Emergency Department Education Lead		
Data to be collected	Method of Collection and who is responsible	Planned data analysis
Nurse education completion re: Delirium screening tool education video in Net Learning software and Qualtrics survey.	Check list with all unit nurse's names using Net Learning software showing viewers and completion as well as Qualtrics survey data. Author responsible.	Goal to have 75% of nurses compliant within 1 month post education email by February 15, 2023.

Table 2.2. SMART Goal #2

SMART Goal #2		
DTS-bCAM screening tool populated in EHR		
Data to be collected	Method of Collection and who is responsible	Planned data analysis
Nurse awareness and use of the DTS-bCAM tool for all hip fracture patients > or = 65 years of age.	Trauma register will provide this author with access to project-based Excel sheet of patients who have hip fracture ICD-10 codes between January 15, 2023 and March 15, 2023. Based on those patients, this author will view the chart for bCAM usage in flowsheet.	Goal to have 75% of hip fracture patients screened for delirium by nurses between January 15 and March 15, 2023.

Summary

Screening for delirium in the emergency setting is routinely uninitiated despite evidence of harmful short- and long-term consequences. Fortunately, there are reliable and validated delirium screening tools designed to meet the time constraints and training needs of busy EDs. Initiating the DTS-bCAM screening tools with successful emergency nurse training is a start to a routine screening practice for all patients aged 65 or greater who are admitted to the hospital.

The scope of this QI project is starting with a specific population group, yet the implications for this project may impact new policies and procedures regarding delirium at the organization.

CHAPTER THREE

QI PROJECT

Introduction

Delirium is associated with prolonged hospital duration, accelerated functional and cognitive decline, institutionalization, increased mortality, and high healthcare costs (Boucher et al., 2019; Chen et al., 2022; El Hussein et al., 2021; Francis & Young, 2022; Gou et al., 2021; Han et al., 2013; Oh et al., 2017). Individuals who are aged 65 or greater and undergo major surgery, such as orthopedic procedures including hip or knee replacements, or invasive general or cardiothoracic surgeries, and experience hospital-acquired delirium incur an additional cost of \$44,291 over the following year compared to the same population group without delirium (Gou et al., 2021). Delirium is associated with five key features: (a) inattention, (b) impaired cognition, (c) developing over a short period of time within hours to days, (d) unexplained by other preexisting neurocognitive problem, and (e) with evidence that the new disturbance is caused by a recent medical condition (Francis & Young, 2022).

The emergency department is often the first encounter within a healthcare system for patients, including vulnerable groups such as older adults. The prevalence of delirium among older adults in the emergency setting is up to 17%, and underrecognized up to 80% of the time due to a lack of screening-tool use (Boucher et al., 2019; Chen, 2022; Han et al., 2013). Delirium is preventable and impacts some of the most vulnerable patients in all healthcare arenas around the world. Intensive care units routinely screen for delirium using the most widely used tool, CAM-ICU. Emergency departments (EDs) that screen for delirium use a shorter, more

appropriate tool such, as the Delirium Triage Screen (DTS) and the Brief Confusion Assessment Method (bCAM), for noncritically ill patients. However, it is estimated that most EDs do not screen for delirium due to time constraints and the busy, unpredictable nature of the care environment.

Background

According to the Montana Legislature (Poulette, 2021), the retirement age proportion of Montanans compared to the working and youth age groups is projected to continue growing through 2030. Nationally, as of August 2021, Montana has the sixth-highest percentage of a population over age 65 (Poulette, 2021). In 2020, Montana ranked 2.8% higher than the national percentage of reported falls for persons 65 years of age and older; national percentage of reported falls was 27.1% compared to Montana at 29.9% (America's Health Rankings, 2020). Montana ranked 39th out of the 50 states for the highest number of reported falls among adults aged 65 or greater for the year 2020 (America's Health Rankings, 2020). Among the 29.9% of reported falls in Montana, persons were more likely to be female, live in non-metro versus metro areas and have a yearly income between \$25,000 and \$49,999 (America's Health Rankings, 2020).

The project site for this QI project was a level III trauma hospital in Southwest Montana providing care to a primary and secondary service area. The primary area contains three counties total with 149,103 residents (U.S. Census Bureau, n.d.). The secondary service area covers part of eight additional counties with an estimated 152,024 residents (U.S. Census Bureau, n.d.). Open 24 hours per day, the emergency department contains 27 beds staffed by over 20 board-

certified physicians, one physician assistant, over 55 registered nurses, four behavioral health specialists, 20 patient care techs, and one social worker.

Delirium Triage Screen (DTS) and Brief Confusion Assessment Method (bCAM)

The two-step Delirium Triage Screen (DTS) and brief Confusion Assessment Method (bCAM) is recommended for emergency department use by Han et al. (2013), Lee et al. (2020), Minion et al. (2021), Rosen et al. (2015), Sederstrom et al. (2021) and Shenvi et al. (2020), and is part of the Geriatric Emergency Guidelines (American College of Emergency Physicians, 2019). The DTS and bCAM screening tools were chosen for this project because of the Geriatric Emergency Guideline recommendations, feasibility in department setting, ease of accessible technology to implement the screening tools within the site's electronic charting system, and availability of educational materials (American College of Emergency Physicians, 2019).

Barriers to adopting a delirium screening tool in emergency settings include staff hesitation due to time constraints from a demanding workload and discordance between perceived nurse knowledge and ability to recognize delirium (Eagles et al., 2020). A hospital culture where department leadership, nurse educators, and physicians supported and emphasized screening for delirium would help nurses prioritize a practice change (Eagles et al., 2020). Common themes preventing emergency department staff (e.g., physicians and nurses), from using a validated screening tool for delirium are: (1) lack of formal training to identify delirium, (2) time constraints, (3) lack of patient baseline cognitive function, and (4) approaches for treatment lack standardization or department protocols (LaMantia et al., 2017). Additional themes include staff focus on hyperactive delirium rather than hypoactive delirium, the need for

a tool to help staff distinguish between the two forms of delirium, and the lack of treatment/management guidelines (LaMantia et al., 2017).

Purpose

The purpose of this quality improvement project is to implement the delirium screening tools, Delirium Triage Screen (DTS) and Brief Confusion Assessment Method (bCAM) for use in the emergency department for patients aged 65 or greater with a hip fracture. The project site organization does not have evidence-based, delirium protocols or screening tools in the emergency department or inpatient, non-ICU settings. This project aims to address the lack of formalized care for patients who experience delirium as a hospital complication in the ED setting. This project idea originated from the trauma program which tracks complications from traumatic injuries, such as delirium. Additionally, in anticipation of a new unit specializing in spine and joint surgeries, where many hip fracture patients will go following ED evaluation, the new unit leadership team plans to build policies and protocols addressing delirium. They plan to continue screening the same patients for delirium using the DTS/bCAM tools according to their policies and protocols which were not completed by the end of this project.

Conceptual and Project Approach

The Systems Engineering Initiative for Patient Safety (SEIPS) 3.0 framework describes the need to expand the focus of patient care processes by looking at the entire patient's journey across multiple healthcare delivery areas rather than anchoring the patient experience to one single encounter (Carayon et al., 2021). The journey of an older patient with an acute hip fracture

will likely entail multiple healthcare environments while encountering caregivers, RNs, medical providers, therapists, social workers, and other specialists. Hospitalized older patients with an acute hip fracture will experience a variety of policies and interventions concerning delirium along their healthcare journey post hip fracture. As part of the SEIPS 3.0 framework, it is important to recognize the various healthcare arenas along the patient's journey. Further, each arena will have different policies, workplace cultures, and care environments in relation to delirium (Carayon et al., 2021). Approaching change from a safety perspective, this QI project recognized the gaps in current organization policies and the lack of formal delirium training and education for nurses.

Quality Improvement Model

Applying the Plan Do Study Act (PDSA) method provided a structure to test a healthcare practice change and improve hospital-acquired consequences related to delirium (Institute for Healthcare Improvement, 2022). The PDSA method is a way to test change starting with the development of a plan, implementing the planned change, observing how the implemented change is working, and, finally, understanding what modification should be made to meet the planned goals. This implementation project used the PDSA model to guide and evaluate the success of the nursing education video by analyzing results of the nursing survey and number of patients screened for delirium during three, 2-week cycles over a total of 6 weeks.

The organization where this QI project took place uses the PDSA method to test change across most inpatient departments. The PDSA method was used for this project for its applicability to test change in a broad range of contexts that can be broken down into 2-week cycles. This project was conducted over a 6-week period. The PDSA model allows for cycles to

be as brief as possible to determine if a change is working. Two-week cycles were chosen for two key reasons. First, it gave nurses time to adapt to the new change and complete the education module. Second, it allowed for time for patients with hip fractures to present themselves to the emergency department as this does not typically occur on a daily basis.

Aims

The delirium care provided in the setting of the emergency department has downstream effects on patient care before and after hip surgery. This QI project implemented the two-step screening tools DTS with bCAM for the ease in learning, time efficiency, and improved sensitivity for noncritically ill patients. The short-term goals of this QI project were to build the DTS/bCAM flowsheets in the EHR (by January, 2023), build and distribute the educational training video with a 75% rate of completion by the emergency RNs, and to have 50% of acute hip fracture patients aged 65 or greater screened for delirium during a 6-week period.

Methods

Sample and Recruitment

During multiple meetings in late August and October 2022 with the trauma coordinator, the emergency department manager, and the spine and joint unit manager, it was decided that the department would benefit from the implementation of a delirium screening tool as part of a collaborative hip fracture protocol. The next step was to gain department approval from the physician committee. A presentation by this author was added to the agenda of the monthly ED physician meeting in October 2022; however, it was removed from the agenda due to higher

priority projects. By mid-November, the spine and joint manager resigned from the position and the project was stalled before any significant progress had been made. Formal approval of the delirium screening tools from the ED physician group had still not been obtained. The November ED physician meeting agenda was full, and the December monthly meeting was cancelled due to the winter holiday season. The ED manager encouraged an email be sent to the ED physician group lead to ask for project approval. Project support and approval was granted by the lead ED physician on November 21, 2022, as part of the collaborative hip fracture protocol. Additionally, this author gave a brief PowerPoint presentation to members of the trauma team during their trauma surgeon lead meeting on December 14, 2022. At this meeting, representatives from the internal medicine group, trauma surgeons, orthopedic surgeons, and ED physicians gained knowledge of the delirium screening tools and were supportive of formalizing delirium evaluation beginning at the hospital in Southwest Montana.

Next, the project lead worked with the information technology (IT) specialists to build the delirium screening tools within the hospital site's EHR system, Epic. Between late November 2022 and early January 2023, the project lead emailed with the IT team multiple times and met for three collaborative web-based meetings. Because the EHR system, Epic, is part of a larger community library, Epic users can access templates and flowsheets used by other organizations. The DTS-bCAM tools are in use at prominent organizations such as Vanderbilt University Medical Center, Wake Forest Medical Center, and the Mayo Clinic, and the IT department implemented the same flowsheets into the hospital's Epic system. Written permission was granted from the creator of DTS/bCAM, Dr. Jin Han of Vanderbilt University Medical Center,

whose open-source website provided visual resources for the project (VUMC Center for Health Services Research, 2022).

Next steps involved building a plan to successfully educate the ED nurses to perform the delirium screening tools. An educational training video was created for all emergency department nurses. An employee email list was utilized to disperse the training video. Within the training video, an IRB consent statement was provided and a Qualtrics survey link was used for data collection regarding nurse feedback and knowledge testing. Additional recruitment methods included staff meeting presentations introducing the practice change, email reminders, an information flyer in the breakroom, and person-to-person solicitation. Because of the relationship between the project lead and the department, word-of-mouth and verbal reminders during twice-daily shift huddles were also used to encourage the department nurses to complete the education module and to screen the select patient population for delirium using the DTS-bCAM tools.

Electronic Health Record Chart Review

The trauma registrar created a separate Excel sheet for the purpose of this project, listing patient medical record numbers associated with hip fracture ICD-10 codes. The project lead accessed patients' EHRs at the hospital site and on hospital-site only computers. Using the Excel sheet information, the medical records of identified patients were accessed looking for the use of the DTS-bCAM screening tool and possible contributing factors such as infections, electrolyte imbalances, narcotic or sedative medications, and alcohol withdrawal. On the author's personal computer, a separate Excel sheet was created to transcribe information from the EHR regarding patients who meet criteria for this study. The Excel data sheet on the project lead's personal computer contained numbers to identify patients without the use of specific identifiable

information, and contained a range of age columns, the use of the DTS-bCAM tool, and possible contributing factors.

This project was reviewed by the Institutional Review Board (IRB) and determined to be of exempt status as a QI project. IRB approval and consent statements for participants are required for a doctoral project by the university where the project lead is a Doctor of Nursing Practice student.

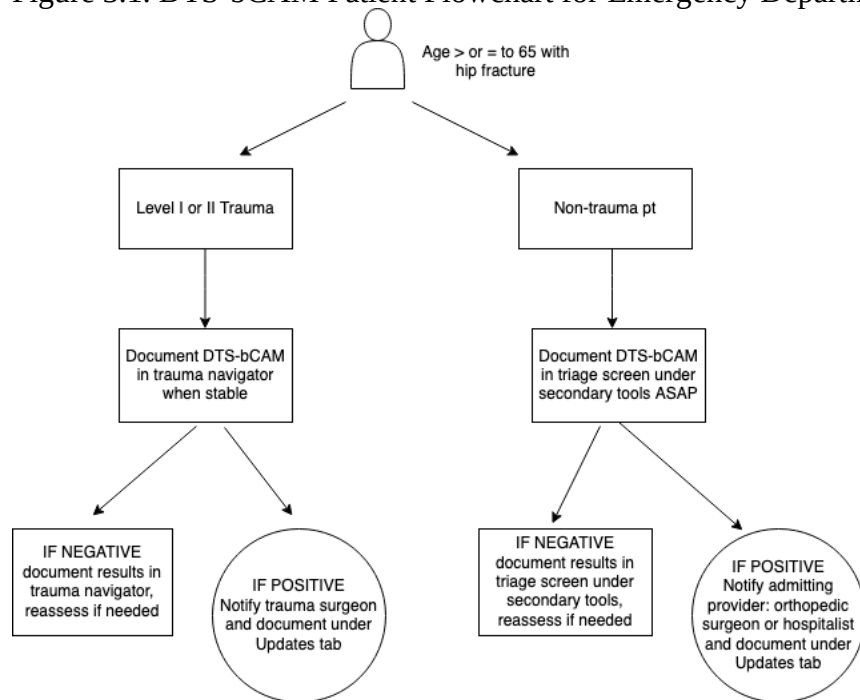
Procedure

In addition to the multiple screening tools used by emergency department nurses every day, this QI project implemented the two-step delirium screening tool, DTS and bCAM. As a pilot project for the emergency department, DTS and bCAM were used exclusively for patients aged 65 or greater who have sustained an acute hip fracture. When a patient aged 65 or greater was suspected to have a hip fracture based on mechanism of injury and inability to stand on affected leg or, was formally diagnosed with a hip fracture following x-ray interpretation, the emergency RN completed the delirium screening task based on the training module.

Patients arrive to the emergency department in two ways: via Emergency Medical Services (EMS) or by private vehicle. Patients who arrive by EMS are placed into two categories; trauma or non-trauma. Trauma patients must meet either level 1 or 2 trauma criteria based on prehospital information and patients are then placed in one of the trauma resuscitation rooms on arrival. Non-trauma patients are placed directly into a non-trauma room. Patients arriving by private vehicle or non-EMS transport present to the main entrance for initial evaluation by the triage RN and are typically placed into a non-trauma room or the waiting room. If level 1 or 2 trauma criteria are met in triage, the patient's care is escalated and the patient is

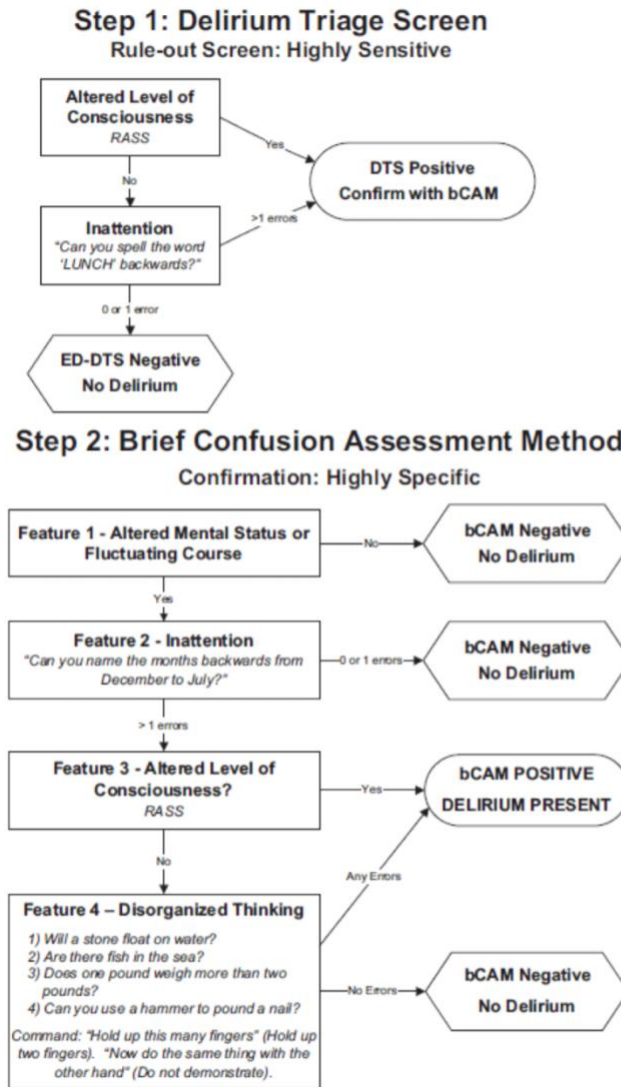
placed into a trauma resuscitation room. For designated trauma patients, the ED RNs utilize a charting screen that is separate from the routine, non-trauma patient triage screen. The delirium screening tool was located in two areas populating the same flowsheet, which was available for all hospital personnel to view. The screening tool was available on two screens to create redundancy and ensure that the delirium screening is completed. If the patient was bCAM positive, the RN documented that either the trauma surgeon, orthopedic surgeon, or admitting hospitalists were notified within the documentation flowsheet. See Figure 3.1 for the RN process. Copies of Figure 3.1 were duplicated onto small cards and placed at nurses stations during project implementation. Figure 3.1 illustrates the DTS-bCAM patient flowchart for RN use of where to document the screening tool results, when, for whom, and what they should do if the patient was DTS-bCAM positive or negative.

Figure 3.1. DTS-bCAM Patient Flowchart for Emergency Department RNs



Screening for delirium using the two-step tools, DTS with bCAM, takes less than 2 minutes and should be the first step in delirium prevention (American College of Emergency Physicians, 2019; Han et al., 2013). Step 1 of the screening process is the DTS, which takes 20 seconds or less to complete. If the patient is DTS negative, no further testing is necessary. If the patient is DTS positive, the RN will move on to step 2, bCAM. The bCAM tool takes 1–2 minutes for the RN to complete. The nurses then document the DTS-bCAM score as positive or negative. If the patient had a positive score, the nurse notified the admitting provider and then documented this notification (see Figure 4 for the DTS-bCAM algorithm).

Figure 3.2. Steps 1 and 2: The Delirium Triage Screen (DTS) and Brief Confusion Assessment Method (bCAM)



From *Geriatric Emergency Department Guidelines* (p. 27), by the American College of Emergency Physicians, 2019. (<https://www.acep.org/globalassets/new-pdfs/policy-statements/geriatric-emergency-department-guidelines.pdf>). In the public domain.

Measures

Emergency RN Education

Evaluation of emergency RN education using a Qualtrics survey was done following the video presentation. Data collected included the following qualitative measures: (1) consent to survey, (2) important takeaways, (3) post-video questions, (4) previous experience using DTS/bCAM, (5) barriers to using screening tools, (6) true or false knowledge testing, and (7) knowledge testing of who cannot be assessed for delirium regarding RASS (see appendix B).

Electronic Health Record Chart Review

The use of the DTS/bCAM screening tool was evaluated during each 2-week PDSA cycle by reviewing each patient chart who met screening criteria. The project lead transcribed the chart data onto a separate Excel sheet using numbers to identify patients, a range of age columns, the use of the DTS-bCAM tool, screening tool results, and possible contributing factors described in the above methods section.

Results

Qualtrics Emergency Nurse Education Survey

A total of 15 emergency department registered nurses watched the educational video and participated in the survey within 5 weeks. Data collection stopped 1 week prior to the 6-week scheduled timeline due to sufficient survey data. Questions one, two, and four were free-text answers with a variety of answers (see Table 1). The most important things learned from the video included the location of the screening tool within the EHR, how to use the tool, the higher

prevalence of delirium in the emergency department, and the importance of finding delirium related to outcomes. Questions nurses still had after watching the video included: why some people have delirium and others do not, what to do if patients have delirium, when will the department screen all patients aged 65 and greater, if the screening tool will auto populate for musculoskeletal injuries such as ground-level falls or hip pain, and what to do if patients are intoxicated or altered due to drugs, which led to a fall with a hip fracture. Barriers to implementing the delirium screening tools included remembering to complete the task, being too busy, adding a required pop-up or flagging within appropriate charts, changing RN habits, having a shorter description of tool-use directions within the her, and available paper copy of the screening tool directions. Table 1 describes how each RN answered the free text questions.

Table 3.1. Questions One, Two, and Four of Qualtrics Survey

Q1 - After viewing the Net Learning video, what was the most important thing you learned?	Where to find the screening tool and why it won't be there in all patient charts
	What the flow sheet looks like for a positive screening
	How to effectively use the delirium screening tool
	The location of the bCAM screening tool in Epic
	People be gettin confused!!
	Initiating screening tool to assist patient care during hospital stay
	Delirium is acute and easily addressed; more likely after age 65
	To broaden our spectrum of care in the ED, to better anticipate discharge needs of at-risk populations

Table 3.1. Questions One, Two, and Four of Qualtrics Survey Continued

	The prevalence of delirium in these patients is probably the most notable thing I learned. Too often we may assume that the confusion level was present prior to the fall versus the other way around.
	Where to find the delirium screening tool
	How to use the tool
	That delirium is on a spectrum
	How to screen for delirium
	How important finding delirium is to pt outcomes
Q2 - What questions do you have after watching the Net Learning video?	None
	N/A
	Nothing!
	What if patient intoxicated or on drugs causing fall and hip fracture?
	None
	NONE!
	Is there a way for Epic to promote the screening tool when the patient presents with hip pain, or ground-level fall is the initial diagnosis?
	So they are delirious. Then what?
	When will we start screening ALL elderly patients?
	None

Table 3.1. Questions One, Two, and Four of Qualtrics Survey Continued

	Why some people have delirium and others don't, how to improve delirium in the ED, long term effects of delirium
Q4 - What do you think are barriers to implementing a delirium screening tool for older hip fracture patients in this emergency department?	I love that there is info about the tool that we can access by clicking the "show row info" box, but I have to say that it is all very long! Is there a way you can make the info more concise (bullet points, maybe?). Also, can we have access to the flowsheet in the ED? Maybe it could go in a folder by the cactus? Great job on the video Ashley!
	Forgetting to use the tool
	Lack of time, busy ED
	Just remembering to do it. We should make an ED hip fx protocol that includes it!
	Just remembering to do it. More charting
	Compliance by staff
	Forgetting to complete it
	Too busy
	Remembering. Muscle memory of location of screening tool
	The largest hurdle you will have to overcome is creating the habit in the nurses. It will need to become part of the process in every elderly ground-level fall or it won't become part of the normal workflow.
	It's not required documentation. In other words it's not flagged as mandatory when charting as assessment on patients who meet the criteria.
	Lazy RNs
	None

Table 3.1. Questions One, Two, and Four of Qualtrics Survey Continued

None	
	Probably just remembering to do it...maybe it could have a red flag next to it in the trauma charting to remind us to complete this tool in the ED?

Questions three, five and six asked first if the RN has previous experience with DTS and/or bCAM. These were followed by two questions testing knowledge from the educational video (see Table 2). Out of 15 nurses, 13.33% had previous experience using the screening tools, indicating this project had introduced a new concept and new practice change to 86.67% (13) of surveyed RNs. Question five tested the post-video knowledge, asking if patients with an altered level of consciousness should be screened using DTS first; 40% of RNs answered this incorrectly, suggesting some confusion. Question six asked who cannot be screened, and the RN may document “unable to assess” because the patient is unresponsive to voice or physical stimuli and unable to participate; 26.67% of the RNs answered this incorrectly. Table 2 illustrates the differences in responses to the survey questions.

Table 3.2. Questions Three, Five, and Six of Qualtrics Survey

Question	N	Mean	SD	Min	Max	Variance
Q3	15	1.87	0.34	1	2	0.12
Q5	15	1.6	0.49	1	2	0.24
Q6	15	1.47	0.81	1	3	0.65

Electronic Health Record Chart Review

During the 5-week data collection period, there were five identified patients aged 65 or greater with a hip fracture. Of the three out of five who were screened, all were negative for delirium. All five patients received narcotic pain medication. Table 3 represents the five patients with a hip fracture diagnosis, their ages, delirium screening results, RNs performing the screening tool, and contributing factors being pain medications.

Table 3.3. Hospital Data

Patient #	Age 65–69	Age 70–74	Age 75–79	Age 80–84	Age 85–89	Age 90–94	DTS/bCAM result	RN	Pain meds
1		x					Neg	A	x
2						x	Neg	B	x
3					x		Neg	A	x
4						x		C	x
5			x					D	x

Discussion

Prior to this project, the organization relied on improvised, makeshift care to address delirium in both the ICU and non-ICU units. The ICU flowsheets include a delirium screening tool designed for critically ill patients; however, they lack a formal policy for care in the event of a positive result. Until this project, the emergency department and all non-ICU units were absent of any formal delirium screening tools, policies, or protocols. The primary strengths of this project were gaining project approval, implementing the delirium screening tools in the

organization's EHR, and successful introduction of the practice change. Three out of the five patients meeting criteria were screened for delirium by the emergency nurses meeting the 50% goal.

All 15 emergency RNs consented to participate in the survey post-educational video. The RNs provided a range of answers for the most important thing they learned varying from the location of the screening tool in the EHR, importance of identifying delirium, how to use the tools, the prevalence of delirium to the outcomes from delirium. Further questions not addressed in the education video included when the department will start screening all older patients, if the screening tools will auto populate for other musculoskeletal injuries, can the EHR be used to promote (flag) the screening tool when patients meet criteria, and would patients be screened if intoxicated or on drugs that cause a fall and hip fracture. Barriers to using the screening tool include forgetting, lack of time due to the busy department, staff compliance, the length of the directions in the flowsheet, building a new habit to become part of the normal workflow, and not having the screening tool flagged as mandatory.

To test post-video knowledge, the survey included two questions addressing important concepts regarding who can be screened for delirium. The first question was true or false and asked if the DTS is appropriate for someone with an altered level of consciousness; meaning if the RASS is anything other than zero, the RN would move to bCAM without asking the patient to spell the word "lunch" backwards. There was a range of understanding as nine out of the 15 nurses answered the question correctly and six incorrectly, indicating some confusion post-educational video. The second question asked when the RN is unable to assess the patient for delirium, which is when they have a RASS score of -4 or -5 and the patient is unable to verbally

respond due to deep sedation or is unarousable. For this question, 73.33% (11) of the RNs answered this correctly, indicating areas for improvement in the educational video.

During the 5-week data collection period, there were five patients who met criteria for delirium screening. Three of the five patients were screened for delirium, all screenings were negative, and all had received narcotic pain medication. Of the five patients who met screening criteria, there were a total of four RNs involved in care as one RN had been assigned to two of the five patients. The RN who completed two of the three screenings has 30 years of nursing experience. They are an active member of the unit practice counsel, which is a team of department RNs who meet monthly to address practice change. The RN who completed one of the three screening has previous experience with delirium screening tools specific to the ICU and was familiar with the CAM algorithm. The fourth and fifth patients were not screened by the two other RNs due to their busy workflow, and they forgot to complete the screening tool. Of note, one of the nurses who did not screen their patient for delirium reported that the patient was extremely confused with a head injury in addition to their hip fracture, required one-on-one supervision for safety, and ultimately received a fascia illiaca nerve block to decrease narcotic pain medication use. All four RNs during the 5-week data collection period had the opportunity to screen all five hip fracture patients and two of the four completed the screenings.

Limitations

Data were collected over a 5-week period from February 2023 to March 2023. Had the month of January been included in this time period, more patients could have been added to the data set. However, IRB approval was not obtained until January 20, 2023, and the educational

training video was not uploaded until February 2023 due to organizational and staff constraints. There were nine patients aged 65 or greater with a hip fracture in January which would have potentially added more data.

Implications for Practice

The tools implemented during this project were successfully used to screen older adult hip-fracture patients for delirium in the emergency setting. Initiating delirium education for emergency RNs and collecting sufficient data were made possible by the working relationships between the staff and project leader who is also a coworker in the department. The DTS/bCAM tools can be used in other non-ICU settings, such as medical and surgical units, which are likely areas for emergency patients with hip fractures to continue their inpatient journey.

Lessons learned from this project included that improvements to the educational video may have reduced confusion among the RNs. A new educational video should have been sent to the non-ICU units where this project could potentially be replicated in the future. Queries for patients screened for delirium in the current EHR could be improved by collaborating with the IT department. Collaboration may have allowed for creating reports of screened patients versus needing to conduct individual chart reviews.

Interventions to aid in the future sustainability of this project include ideas such as mandatory education training and presentations or verbal reminders during staff meetings to encourage the RNs to complete both online training and patient screenings. Future education may focus on the negative short- and long-term outcomes from delirium to emphasize the importance of the screening tools. In-services emphasizing key points, such as who meets criteria

for screening, could address poor recall from the educational training video. Other supports could include having the EHR prompt RNs to complete the screening tool. Involving unit practice counsels may provide more brainstorming among unit RNs, which could help generate additional ideas. Pop-ups and mandatory screenings are other potential reminders; however, these may not be very effective. For example, during the Covid-19 pandemic, recent travel screenings were either ignored or incorrectly answered due the busy nature of the department.

Screening tools are a way to identify clinical problems and guide clinical decision-making. The problem with screening tools in general is the possibility for false positive or false negative results. Additionally, without protocols to guide clinical decision-making, the screening tool is less valuable. Recommendations from this project are to improve the educational video to reduce confusion, encourage the organization to create protocols addressing delirium, implement this project in other non-ICU areas for continuity of patient care, and improve the methods for evaluating screening-tool use with assistance from IT, rather than individual chart reviews.

Conclusion

This quality improvement project implemented delirium screening tools at a level III trauma center in Southwest Montana. A group of emergency RNs at the project site have gained knowledge regarding delirium and how to use the DTS/bCAM screening tools recommended by the Geriatric Emergency Guidelines. At the conclusion of this project, the trauma team planned to continue data collection and use of the implemented screening tools for delirium as part of the department's hip fracture protocol. Practice change is a slow process, and it may take the organization and nurses time to adopt processes to include the use of delirium screening tools.

This project is the beginning of organizational change towards Geriatric Emergency Guidelines concerning delirium in the emergency department with, hopefully, continued application for non-ICU inpatient areas.

CHAPTER FOUR

REFLECTION ON DNP ESSENTIALS

Introduction

Accomplishing a terminal degree in nursing was influenced by my critical-care work experience at academic medical centers where collaborating with multidisciplinary experts revealed diverse roles in advanced practice nursing. If I had exclusively worked in rural areas, I might have never known of the exciting career options from earning a terminal degree in nursing. The American Association of Colleges of Nursing (AACN) has created the Doctor of Nursing Practice (DNP) Essentials to be used as an outline to guide education and competency for advanced practice nurses (AACN, 2006). During the 11 semesters of coursework at Montana State University, the DNP Essentials were integrated throughout all classes and semesters. There are eight DNP Essentials, and the following paragraphs bring attention to specific exemplars from my experience in the DNP program.

Essential I: Scientific Underpinnings for Practice

Courses completed, such as advanced pathophysiology, advanced pharmacology, statistical applications, primary care skills, diagnostic reasoning, and advanced health assessment encompassed hundreds of hours of learning where evidence-based decisions originate and why this concept is the foundation for scientific underpinnings for practice. The most interesting and surprisingly enjoyable course of the entire DNP program for me was statistical applications. The course was taught in a way that was engaging and consistent throughout the entire semester,

where learning to interpret research studies felt informative and empowering. In healthcare where the medical language and terminology is abundant, understanding statistical terms is critical.

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

Courses in healthcare informatics and leadership were part of the foundation for implementing a quality improvement (QI) project. The culminating project for healthcare informatics was essentially a simulated QI project. The approach was similar with project research, a proposal, and the formal presentation of a practice change. After experiencing my first formal leadership course, I think every student should consider a way to evaluate their own leadership style. Successful leaders are self-aware of their strengths and weaknesses, remain authentic and consistent, are often role models, and empower their team members. Learning how to do this took deep reflection with helpful exercises and assignments from our leadership course.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

Implementing the delirium screening tool at my project site first required research and a literature appraisal to make sure I proposed an evidence-based practice change. After the in-depth process of reviewing literature for my DNP project, I have a much larger appreciation for detailed, comprehensive research. To gain project approval at my hospital site, I wrote thoughtful emails to department leaders and delivered short “elevator pitch” presentations for the larger

trauma team. Narrowing my research to the specific delirium screening tools was vital to pitching a practice change already abundant in recent literature.

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

Implementing a delirium screening tool in a level III trauma emergency department for my DNP project required collaboration with the site information technology (IT) team. The site utilizes the modern electronic medical record system, EPIC. Fortunately, the IT team had access to a vast community library containing flowsheets and templates used by prominent university healthcare settings such as the Mayo Clinic, Vanderbilt University Medical Center, and Wake Forest Medical Center. Ensuring that the evidence-based delirium screening tool could be successfully implemented in the hospital site emergency department in a timely manner to align with the academic timeline was imperative. This process required knowledge of the EHR system and the RN workflow to successfully implement a new tool and have the tool visible and easy to locate. Several emails, phone calls, and web-based meetings were crucial to the success of my DNP project and ultimately the community surrounding the hospital site.

Essential V: Health Care Policy for Advocacy in Health Care

The course titled ethics, law, and policy for advocacy in healthcare included several assignments reading complex case studies and writing prompted responses. Writing a formal advocacy letter was required by the course and started with designing a template for future use that included considerations for a brief yet impactful letter. Reading the book *American Overdose* (McGreal, 2018) was a highlight of the course. It illustrated how policies impact

healthcare and, especially, vulnerable populations. A final group project presenting the work by McGreal (2018) built collaboration among classmates and required a detailed understanding of the opioid crisis and how policy changes could impact millions of people.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

As explained by the AACN (2006), it takes highly collaborative teams of skilled, experienced, and knowledgeable working experts from different professions to accomplish safe, timely, effective, and efficient individualized care. Implementing a delirium screening tool over two semesters for my DNP project depended on interprofessional collaboration and relationships. Based on my DNP project experience, the real-world setting is full of unexpected challenges from organizational constraints, staff members resigning, higher priority items leading to delays, and stalled steps. My experience implementing and evaluating a QI project will inform and impact my career as a doctoral-prepared nurse practitioner as I now am aware of the hard work and collaboration required to make a practice change.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Completing the course titled vulnerability and health care in diverse communities provided formal educational opportunities that led to a more detailed understanding of the complexities surrounding healthcare disparities among specific populations. Concepts discussed were the role of systems and providers in the delivery of care to vulnerable groups, such as older

adults, Native Americans, Latinos, and veterans, and disparities in rural areas. Reading the book by Van Der Kolk (2015) was a highlight of the course for a profound comprehension of how trauma can impact lives. The culminating group presentation required 90.5 field hours learning more about the Latino population in Montana and presenting research findings in a final PowerPoint presentation.

Essential VIII: Advanced Nursing Practice

The clinical hours completed over four semesters provided real world experience and insight to the role of the DNP-prepared APRN. My clinical experiences in Montana were diverse in both rural and urban settings at Community Health Partners in West Yellowstone, urgent and emergency care in Bozeman, specialists in women's health, geriatrics, diabetes, urology and otolaryngology in Bozeman, primary care in Ennis and Bozeman, and dermatology in Helena.

My experience implementing and evaluating a QI project was humbling, as every step of the process required detailed focus while new questions and considerations emerged constantly. Curiosity for practice change will be an inevitable part of working as a doctoral-prepared nurse practitioner because systems and technology are evolving and there is always room for process improvement. Learning the details of how to implement and evaluate a practice change was the culmination of the DNP program that will impact my career as a healthcare provider and team member working to improve patient outcomes and system improvements.

Conclusion

Throughout each semester, there were moments I wondered how individual courses would align together to meet the goal to be a doctoral-prepared family nurse practitioner. Moving from the experienced RN role to a new provider role is a big leap with more responsibility and complex decision-making, which has clearly become more evident with time in the DNP program. While there continue to be clinical days where I feel ready to move into a new role in healthcare, there are also challenging days where I recognize gaps in my knowledge along with the excitement to stay hungry and curious for evidence-based knowledge.

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APPENDICES

APPENDIX A

EXAMPLE OF BCAM DOCUMENTATION FROM THE EPIC COMMUNITY LIBRARY

Appendix A: Example of bCAM Documentation from the Epic Community Library

Brief Confusion Assessment Method (bCAM)			
Feature 1: Acute Onset or Fluctuating Course	List	List	+
Feature 2: Inattention	List	List	+
Feature 3: Altered Level of Consciousness	List	List	+
Feature 4: Disorganized Thinking	List	List	+
Overall bCAM	Formula (Read Only)	Formula (Read Only)	+

Brief Confusion Assessment Method (bCAM)			
Feature 1: Acute Onset or Fluctuating Course	List	List	+

List options:
Positive
Negative

Row information:
Either an acute change in mental status or fluctuating course needs to be present for a patient to be feature 1 positive

1) To determine if the patient has an acute change in mental status or fluctuating course when there is a proxy present: a. Ask the proxy: "Has the patient been more confused to you lately?" A positive response indicates that the patient is feature 1 positive. b. Alternatively, to specifically determine altered mental status, ask the proxy: "Is the patient acting normally to you right now or does he/she seem more confused than usual? If the patient is not acting normally or is more confused than usual, then the patient likely has altered mental status and is feature 1 positive. c. To determine a fluctuating course, several questions can be asked: "Have you noticed any fluctuations in the patient's mental status where he/she appears to be more confused at some moments and less confused at other moments throughout the course of the day?" A positive response indicates that the patient has a fluctuating course, and as a result, the patient is feature 1 positive. d. Remember, a patient can have either altered mental status or a fluctuating course to be positive for feature 1.

2) If a proxy is not present in the ED: a. You can call a person who knows the patient well (i.e. family member or caregiver) by phone to determine feature 1. If they have not seen the patient for some time, they may still be useful in helping to establish what the patient's baseline mental status is. b. If the patient is from a skilled nursing facility, then the patient's nurse at that facility can be contacted. You can also review the transfer documents to see if there is any documentation of altered mental status. c. If available, review the medical records to establish the patient's baseline mental status. If the patient seems to be different from what is stated in the medical record, then assume the patient has an acute change in mental status. d. If transported by ambulance, you can use the ambulance run sheet to see if there was any documentation of altered mental status. e. You can also call the patient's primary care provider to establish what the patient's mental status is. f. If the patient is feature 2 (inattention) positive and either feature 3 (altered level of consciousness) or feature 4 (disorganized thinking) is positive, but you are still unable to determine feature 1 (altered mental status/fluctuating course), it is always safer to assume that feature 1 is positive until proven otherwise. Delirium is considered a medical and psychiatric emergency. g. If a patient lives at home alone and is clearly altered to you, it is probably safe to assume that the patient has altered mental status and is feature 1 positive.

3) Determining feature 1 for experienced raters: a. A delirious patient's mental status can often fluctuate during the patient interview. If such fluctuations are noted, then the patient is likely feature 1 positive. Fluctuations can also occur over several hours. For example, a patient may be mildly confused when you initially evaluated the patient only to be more confused several hours later. This patient is likely having a fluctuation in mental status and would be considered feature 1 positive.

For further information on the bCAM go to www.icudelirium.org

Copyright © 2012. Vanderbilt University. The Brief Confusion Assessment Method (bCAM) is adapted from: Ely EW, et al. JAMA. 2001; 286: 2703-2710. Confusion Assessment Method for the Intensive Care Unit. Copyright © 2002, Vanderbilt University. Inouye SK, et al. Ann Intern Med. 1990; 113: 941-948. Confusion Assessment Method. Copyright © 2003, Hospital Elder Life Program, LLC.

Synonyms: CONFUSION ASSESSMENT METHOD ICU, Row type: Data, Value type: Custom List, Allow completion

Feature 2: Inattention	List	List
List options: Positive Negative Row information: Say to the patient "<i>Can you name the months backwards from December to July?</i>" 1) Have the patient recite the months backwards from December to July. Based upon our preliminary data, non-delirious patients should be able to recite the months backwards without stopping. As a result, we recommend that the task is stopped if there is a significant pause (>15 seconds) or if the patient perseverates on a specific month (i.e. "December, November, October.... October... October") for a significant amount of time (>15 seconds). Similarly, if the patient keeps repeating a sequence of months (December, November, October.... December, November, October.... December....) for >15 seconds, then the task can be stopped. 2) Error Coding a. Each missing month is assigned one error. A patient who recites "December, November, September, August, July" would be considered to have made one error since October was not recited. b. If a patients switches two months (December, October, November, September, August, July) then this is counted as two errors since two of the months are in the incorrect order. 3) A patient is considered to have inattention (feature 2 positive) if they make 2 or more errors. 4) If the patient refuses to recite the months backwards or is unable to perform this task, then the patient is considered to have made 6 errors and is feature 2 positive. 5) Determining feature 2 for experienced delirium raters: Reciting the months backwards from December to July is not 100% sensitive; some delirious patients will be able to perform this task perfectly. Inattention can also be observed during your assessment: a. Patients who are easily distractible or have difficulty keeping track of what you say are likely inattentive. b. If you frequently have to repeat your questions to the patient and he/she does not have a history hearing impairment, then the patient is likely inattentive. c. Patients who fall asleep during your assessment are likely inattentive For further information on the bCAM go to www.icudelirium.org Copyright © 2012. Vanderbilt University. The Brief Confusion Assessment Method (bCAM) is adapted from: Ely EW, et al. JAMA. 2001; 286: 2703-2710. Confusion Assessment Method for the Intensive Care Unit. Copyright © 2002, Vanderbilt University. Inouye SK, et al. Ann Intern Med. 1990; 113: 941-948. Confusion Assessment Method. Copyright © 2003, Hospital Elder Life Program, LLC. Synonyms: CONFUSION ASSESSMENT METHOD ICU, Row type: Data, Value type: Custom List, Allow completion, Display all list choices in Navigator		

Feature 3: Altered Level of Consciousness		List	List
List options:			
Positive			
Negative			
Row information:			
"Positive" should be selected when the Richmond Agitation Sedation Score (RASS) is anything other than "0=Alert and calm".			
RASS	Description		
+4	Overtly combative, violent, immediate danger to staff		
+3	Very agitated, pulls or removes tube(s) or catheter(s); aggressive		
+2	Agitated, frequent non-purposeful movement		
+1	Restless, anxious but movements not aggressive or vigorous		
0	Alert and calm		
-1	Mildly drowsy, not fully alert, but has sustained awakening (>10 seconds)		
-2	Moderate drowsy, briefly awakens with eye contact to voice (<10 seconds)		
-3	Very drowsy, movement or eye opening to voice (but no eye contact)		
-4*	No response to voice, but movement or eye opening to physical stimulation		
-5*	No response to voice or physical stimulation		
Box 1. Richmond Agitation Sedation Scale (RASS). Note that a patient with a RASS of -1 or +1 can have subtle presentation. If the patient has a RASS of -4 or -5, then these patients are considered stuporous or comatose. These are the most severe forms of acute brain dysfunction and you cannot assess for delirium in these states.			
For further information on the bCAM go to www.icudelirium.org			
Copyright © 2012, Vanderbilt University. The Brief Confusion Assessment Method (bCAM) is adapted from: Ely EW, et al. JAMA. 2001; 286: 2703-2710. Confusion Assessment Method for the Intensive Care Unit. Copyright © 2002, Vanderbilt University. Inouye SK, et al. Ann Intern Med. 1990; 113: 941-948. Confusion Assessment Method. Copyright © 2003, Hospital Elder Life Program, LLC.			
Synonyms: CONFUSION ASSESSMENT METHOD ICU, Row type: Data, Value type: Custom List			

Feature 4: Disorganized Thinking		List	List
List options: Positive Negative			
Row information: Disorganized thinking is assessed for by asking four yes/no questions and a command (Box 2). Either set A or B can be performed. If the patient makes any errors, then the patient is considered to have disorganized thinking (feature 4 positive). If the patient makes incomprehensible sounds or does not attempt to answer the questions, then the patient is also considered to be feature 4 positive.			
Feature 4: Disorganized Thinking (Use either Set A or Set B, alternate on consecutive days if necessary):			
Set A 1. Will a stone float on water? 2. Are there fish in the sea? 3. Does one pound weigh more than two pounds? 4. Can you use a hammer to pound a nail?	Set B 1. Will a leaf float on water? 2. Are there elephants in the sea? 3. Do two pounds weigh more than one pound? 4. Can you use a hammer to cut wood?		
Command: Say to patient: "Hold up this many fingers" (Examiner holds two fingers in front of patient). "Now do the same thing with the other hand" (Do not demonstrate). If patient is unable to move both arms, for the second part of the command ask patient "Add one more finger".			
Box 2. Assessing for feature 4 (disorganized thinking).			
Feature 4 for Experienced Raters: The yes/no questions and command is not 100% sensitive for disorganized thinking. Disorganized thinking can be observed during these assessment. If a patient's speech is nonsensical, or he/she displays tangential thoughts or an illogical flow of ideas, then he/she likely has disorganized thinking.			
For further information on the bCAM go to www.icudelirium.org Copyright © 2012. Vanderbilt University. The Brief Confusion Assessment Method (bCAM) is adapted from: Ely EW, et al. JAMA. 2001; 286: 2703-2710. Confusion Assessment Method for the Intensive Care Unit. Copyright © 2002, Vanderbilt University. Inouye SK, et al. Ann Intern Med. 1990; 113: 941-948. Confusion Assessment Method. Copyright © 2003, Hospital Elder Life Program, LLC. Synonyms: CONFUSION ASSESSMENT METHOD, Row type: Data, Value type: Custom List, Allow completion			

Overall bCAM	Formula (Read Only)	Formula (Read Only)
Row information: Feature 1 <u>plus</u> 2 <u>plus</u> either 3 <u>or</u> 4 are positive = bCAM positive -delirium present.		
For further information on the bCAM go to www.icudelirium.org Copyright © 2012. Vanderbilt University. The Brief Confusion Assessment Method (bCAM) is adapted from: Ely EW, et al. JAMA. 2001; 286: 2703-2710. Confusion Assessment Method for the Intensive Care Unit. Copyright © 2002, Vanderbilt University. Inouye SK, et al. Ann Intern Med. 1990; 113: 941-948. Confusion Assessment Method. Copyright © 2003, Hospital Elder Life Program, LLC. Formula: M:0,negVal=""Negative"",posVal=""Positive"",x1={Feature 1: Acute Onset or Fluctuating Course},x2={3040088980;;0},x3={3040088981;;0},x4={3040088982;;0},x5={!(x1=negVal)! (x2=negVal):negVal,x2=0:""", (x3=posVal)! (x4=posVal):posVal, (x3=negVal)! (x4=negVal):negVal,1:""}, Synonyms: OVERALL BCAM, Row type: Custom Formula, Value type: String Type		

APPENDIX B

QUALTRICS EMERGENCY NURSE EDUCATION SURVEY

Appendix B: Qualtrics Emergency Nurse Education Survey

1. After viewing the Net Learning video, what was the most important thing you learned?
[OPEN FIELD TEXT RESPONSE]
2. What questions do you have after watching the Net Learning video? [OPEN FIELD TEXT RESPONSE]
3. In previous experience, have you completed a delirium screen using DTS and/or bCAM?

YES or NO

4. What do you think are barriers to implementing a delirium screening tool for older hip fracture patients in this emergency department?

FILL IN THE BLANK

The following questions are checking your knowledge of DTS-bCAM screening based on the Net Learning video module.

5. I have to ask the patient to spell the word “LUNCH” backwards if the patient has altered level of consciousness

TRUE

FALSE

CORRECT ANSWER: False, a patient who has altered level of consciousness is already DTS positive. Having him/her spell the word “LUNCH” backwards provides no additional information. Move onto bCAM.

6. In what instance can you document ‘unable to assess’?

a: RASS -4 or -5

b: RASS of -3

c. RASS +4 or +5

CORRECT ANSWER: a, a RASS of -4 or -5 is not arousable to verbal stimuli to answer questions.

APPENDIX C

DATA COLLECTION EXCEL DOCUMENT

Appendix C: Data Collection Excel Document

AutoSave OFF ... Data collection

Home Insert Draw **Page Layout** Formulas Data Review View Automate Tell me

Themes Aa Colors Width: 1 page Height: 1 page Gridlines View View Print Print

N11 x

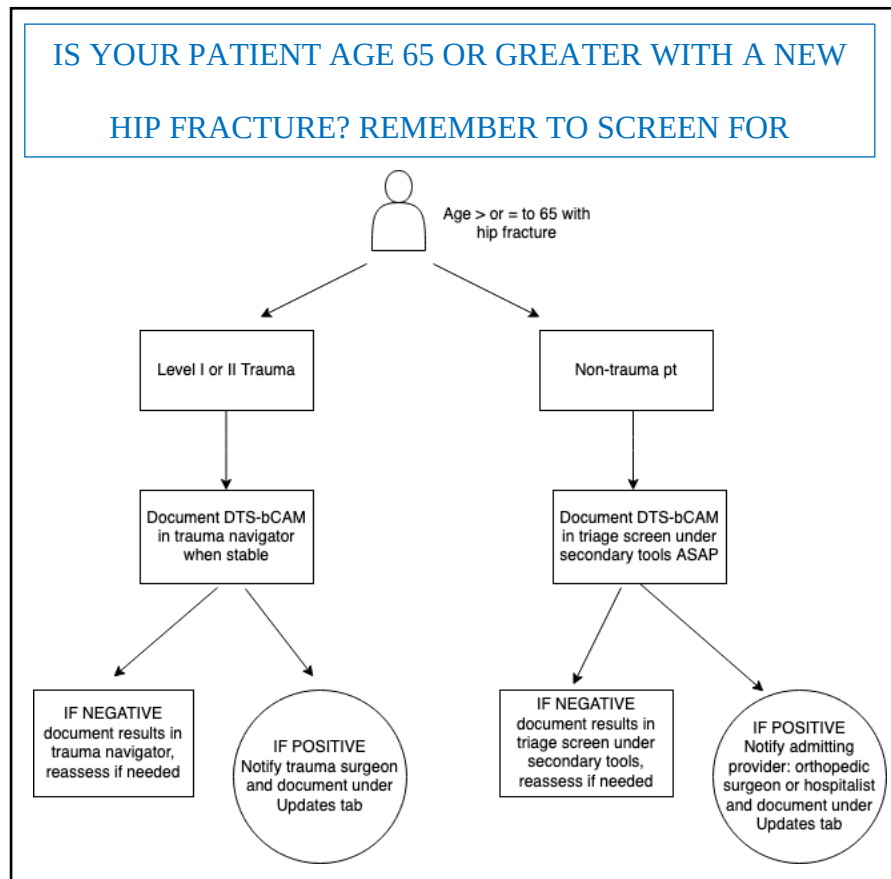
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Pt #	age 65-69	age 70-74	age 75-79	age 80-84	age 85-89	age 90-94	age 95+	DTS-bCAM result	Infections	Medications	Electrolyte imbalance	ETOH withdrawl			
2	1															
3	2															
4	3															
5	4															
6	5															
7																
8																
9																
10																
11																
12																

Code Legend
 1 Positive
 2 Negative
 3 Not completed
 x Age column

APPENDIX D

LAMINATED REMINDER INDEX CARDS AT NURSES CHARTING DESKS

Appendix D: Laminated Reminder Index Cards at Nurses Charting Desks



APPENDIX E

REMINDER FLYER FOR NURSES TO COMPLETE EDUCATION

MODULE ON BREAKROOM BULLETIN BOARD

Appendix E: Reminder Flyer for Nurses

This Facility Quality Improvement project is considered research by Montana State University. If you have any concerns about participation, please contact your immediate supervisor for possible options to opt out.

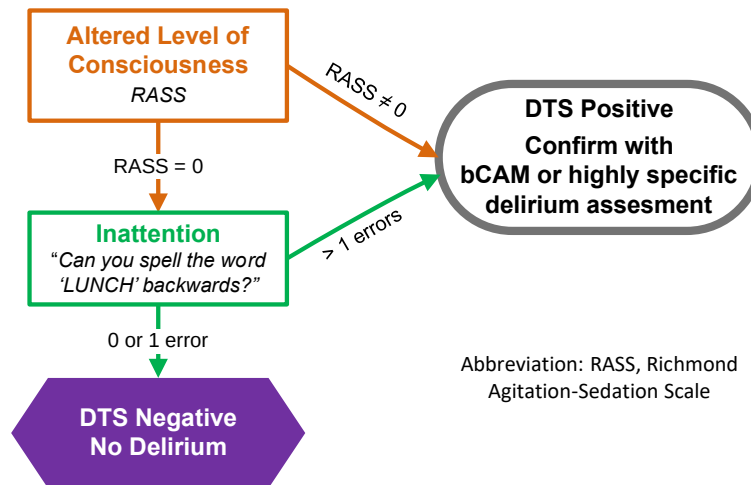
What is DTS-bCAM????

Delirium prevention starting
with a screening tool for
patients age 65 or older with a
hip fracture

Please watch the short video in
Net Learning and visit the in-
video link to a survey

Email Ashley Feerer with questions
ashley.feerer@student.montana.edu

Delirium Triage Screen (DTS) Flow Sheet



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Instructions on using the Delirium Triage Screen

The Delirium Triage Screen (DTS) was developed to rapidly rule-out delirium and reduce the need for formal delirium assessments. It takes less than 20 seconds to perform and consists of two components:

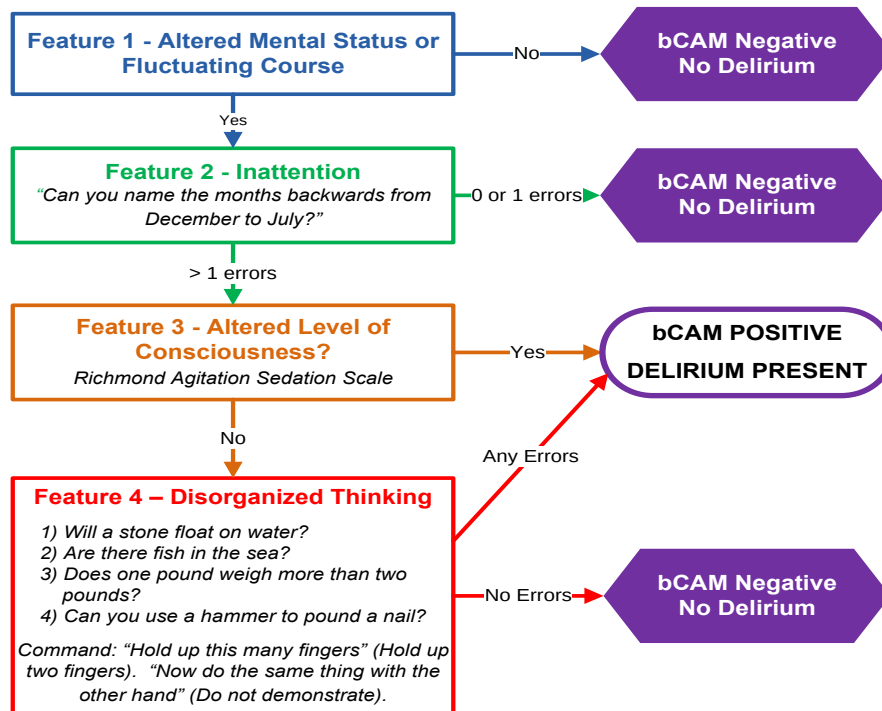
- 1) Level of consciousness as measured by the Richmond Agitation Sedation Scale (RASS).
- 2) Inattention by spelling the word "LUNCH" backwards.

If the patient has a RASS of 0 (normal level of consciousness) or makes 0 or 1 errors on "LUNCH" backwards spelling test, then the DTS is considered negative. Because the DTS is 98% sensitive, delirium is ruled out in this case and no additional delirium testing is needed. If the patient has a RASS other than 0 (altered level of consciousness) or makes >1 error on the "LUNCH" backwards spelling test, then the DTS is considered positive. Because the DTS is 55% specific, confirmatory testing is needed using the bCAM or CAM to rule in delirium.

Reference

Han JH, Wilson A, Vasilevskis EE, Shintani A, Schnelle JF, Dittus RS, Graves AJ, Storrow AB, Shuster J, Ely EW. Diagnosing delirium in older emergency department patients: validity and reliability of the delirium triage screen and the brief confusion assessment method. *Ann Emerg Med.* 2013; 62(5):457-465.

Brief Confusion Assessment Method (bCAM) Flow Sheet



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The Brief Confusion Assessment Method (bCAM) is adapted from:
Ely EW, et al. *JAMA*. 2001; 286: 2703-2710. Confusion Assessment Method for the Intensive Care Unit. Copyright © 2002, Vanderbilt University.
Inouye SK, et al. *Ann Intern Med*. 1990; 113: 941-948. Confusion Assessment Method. Copyright © 2003, Hospital Elder Life Program, LLC.
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APPENDIX F

VERBAL ANNOUNCEMENT FOR EMERGENCY
DEPARTMENT TEAM LEADER TO PRESENT TO STAFF
AND ANNOUNCE AT TEAM LEADER MEETINGS

Appendix F: Verbal Announcement for Emergency Department Team Leader

There are new delirium screening tools called Delirium Triage Screen (DTS) and brief confusion assessment method (bCAM) in the emergency department. These are for patients age 65 or greater with an acute hip fracture. The tools are in two places, in the triage narrator under secondary tools and also in the trauma navigator at the bottom of the trauma assessment. There are index cards for reference at each of the three charting areas and at the team lead desk. Remember to notify admitting provider and document that they were notified. Implementing these tools is the quality improvement project for Ashley Feerer's DNP-FNP degree at Montana State University. All emergency nurses will receive an email with a notification to watch an educational video on the screening tools in Net Learning. Within the video is a clickable link to a survey. The survey is voluntary however this is a project supported by the department. The goals of the survey are to test knowledge learned from the video and to improve the delirium screening process.