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Clinical Practice Guideline for Delirium Screening

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Walden University

College of Nursing

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Raji George

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Executive Summary: Clinical Practice Guideline
Clinical Practice Guideline for Delirium Screening

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Summary

This doctoral project developed a clinical practice guideline (CPG) to address the critical health issue of early identification of delirium among hospitalized high-risk patients. Hospital delirium is associated with prolonged hospital stay, increased nursing home or rehab use after hospitalization, and higher mortality. Evidence shows that systematic screening improves delirium identification among hospitalized high-risk adults. However, there was not a clinical practice guideline for delirium screening at the project facility for high-risk non-intensive care unit patients. Therefore, the practice-focused question for the project was, “Does the evidence support the development of a CPG for delirium screening in high-risk hospitalized patients that was validated by an expert panel via the Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument and approved for use in the practice setting by end-users? The purpose of this project was to provide best practices for the early screening of delirium among hospitalized high-risk patients. The Johns Hopkins evidence-based tool was used to organize the 20 articles of evidence supporting the project. An expert panel of four evaluated the CPG using the AGREE II Instrument. The results showed quality scores in all six domains ranging from 87.5% - 97.2%. The project overall quality score was 89.2% and the guideline was accepted for use in practice. Implications for nursing practice include use of this CPG for enhanced identification of delirium to improve delirium outcome by ensuring equitable screening of all high-risk patients. This project therefore aligns with social change goals of diversity, equity, and inclusion in care.

Background

Delirium is an altered state of consciousness characterized by episodes of confusion that can develop over hours or days. It is a syndrome, not a disease, noting that it affects people of all ages, but especially older adults who are acutely ill (Oh, 2020). Hospital delirium causes changes in a person's thoughts, mood, behavior, and attention, and literature studies underline that delirium is an acute complex brain dysfunction associated with poor clinical outcomes, longer hospital stays and frequent readmissions. Its identification is fundamental to reducing adverse outcomes and decreasing the high mortality rate associated with this condition (Saviano et al., 2023). There was no nurse delirium screening tool for non-intensive care hospitalized patients at the project facility, and this causes a delay in the early identification of delirium and the referral of those high-risk patients for management. Delirium in hospitalized patients is a significant public health issue, yet delirium is often unrecognized and missed during inpatient admission (Ragheb et al., 2023). Delirium is associated with increased hospital length of stay, increased rates of admission to rehab or other facilities, and an overall rise in morbidity, mortality, and healthcare costs. It is a common neuropsychiatric syndrome in hospitalized elderly patients and is associated with poor clinical outcomes and characterized by an acute onset of altered consciousness, cognitive impairment, and inattention that fluctuates in severity over time.

As per Ormseth et al. (2023), the incidence of hospital delirium is 29% to 64% in general medical units, 50% after high-risk surgical procedures, and up to 75% in patients receiving mechanical ventilation in intensive care units. Hospital delirium is associated

with adverse outcomes, including increased risk of falls, functional decline, dementia, prolonged hospitalization, rehab and nursing home placements, and death, at an annual cost of \$38 billion to \$152 billion in the United States (Ragheb et al., 2023). According to studies, delirium is caused by a change in the way the brain is working, potentially triggered by infection, severe pain, serious illness, certain medications, lack of adequate sleep, dehydration, stroke, sedation, or withdrawal from drugs or alcohol. The symptoms of delirium vary from person to person and tend to fluctuate throughout the day. People with delirium cannot think clearly, have difficulty paying attention, may see or hear things that are not there, may become quiet or withdrawn, and may act restless, upset, or agitated (Oh, 2020).

The practice-focused question was, “Does the evidence support the development and AGREE II quality scoring of a CPG among hospitalized adult patients for early identification of delirium, that is also approved for use in the practice setting by end-users?” The purpose of this CPG was to provide guidelines to the nursing staff for early identification using the Nursing Delirium Screening Scale (Nu-DESC) tool and managing delirium among hospitalized high-risk patients. The recommended CPG (see Appendix A) is to add the Nu-DESC as part of the daily nursing assessment for high-risk patients for early identification of hospital delirium to notify the providers to initiate early management to prevent long-term complications. Nu-DESC is a validated tool used for early identification of delirium with five categories: disorientation, inappropriate behavior, inappropriate communication, illusion/hallucinations, and psychomotor retardation. CPGs are developed using rigorous methodologies that can promote the

consistent use of validated screening tools and appropriate follow-up assessment and referral (Murad, 2019). Implementing CPGs has been shown to significantly increase screening rates and double the detection of new delirium cases compared to usual care (Panteli et al., 2021). An extensive exploration of scholarly publications was conducted across five databases: EBSCOhost, CINAHL, MEDLINE, Google Scholar, and Cochrane Methods. Clinical evidence was obtained from books, peer-reviewed articles, publicly disseminated reports, public websites, and other written knowledge communicating theories and findings about practice relevant to this CPG project. During the search procedure, peer-reviewed articles from 2019 to 2023 were identified to support the delirium and Nu-DESC screening tool (see Appendix B). Utilizing a model is important for guiding evidence-based projects. The JHEBP problem-solving methodology was used for evidence-search and to appraise, evaluate, and guide evidence-based literature for delirium screening. The JHEBP tool assisted in documenting and collating the results of the review and appraisal of each piece of evidence in preparation for evidence synthesis.

The literature search pointed out the use of Nu-DESC by nurses with minimal training and showed consistent sensitivity (85.7%) and specificity (86.8%) in detecting delirium (Heidenreich & Gresbach, 2019). The JHEBP search resulted in eight Level I articles, including experimental studies, randomized controlled trials (RCTs), and systematic review of RCTs with or without meta-analysis showing compelling solid evidence; seven Level II sources, which includes quasi-experimental studies, a systematic review of a combination of RCTs and quasi-experimental studies, or mixed-method design showing excellent and consistent evidence; three in Level III, which includes

nonexperimental study, systematic review of a combination of RCTs, quasi-experimental and nonexperimental studies, qualitative study or meta-synthesis showing good and consistent evidence for practice changes; and two Level V articles resulting in good, not clear evidence (see Appendix C). These findings, supported by diverse methodologies, reinforced the efficacy and applicability of proposed changes in delirium screening practices.

Clinical Practice Guideline Development

A multidisciplinary panel of four was convened to review the draft CPG for this project. Each member had expertise and extensive background in managing patients with delirium. The panel included a neurologist specialized in clinical neurology with many years of experience ensuring the evaluation of the guidelines, and a clinical psychiatrist managing patients with neurologic and psychiatric conditions. The third panel member was an internal medicine physician who works as a hospitalist in the acute care setting, and the fourth panel member was the clinical nursing educator and the coordinator for the surgery unit where the pre and postoperative patients are managed. The panel members were selected based on their academic qualifications and clinical experience in their respective fields, ensuring a multidisciplinary approach to guideline assessment. This expert panel composition enabled diverse perspectives encompassing clinical knowledge, topic expertise, and research methodology.

This CPG was evaluated using the AGREE II instrument, a tool that assesses the methodological rigor and transparency in which a guideline is developed, and which is used for evaluation of quality of CPGs (Brouwers et al. 2013). The AGREE II tool,

considered the gold standard for CPG assessment, assesses six domains: scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and editorial independence (AGREE Next Steps Consortium, 2017). All six domains were scored; each item is rated on a 7-point Likert scale (1= *strongly disagree* to 7= *strongly agree*), with higher scores indicating better quality. The content experts were provided with the CPG AGREE II assessment guidelines, and a detailed instruction guide. I met with each panelist in person before and after their assessment to discuss the CPG draft, purpose, AGREE II method, scores, comments to justify ratings, concerns, and suggestions. They individually completed the CPG evaluation of all 23 essential components under six domains, and the results were marked in the AGREE II guide with scores, suggestions and reasoning of the provided scores. Standardized domain scores are calculated to quantify overall quality and guide the recommendation for CPG implementation. The expert panel was instructed to independently assess the CPG based on their expertise and clinical judgment. They provided comments to justify ratings and concerns, or make suggestions. Once the experts completed individual evaluations, overall domain scores were calculated by summing the 23-item rating, scaling by maximum and minimum possible domain totals, and converting them into a percentage (see Appendix D). This comprehensive review process identified the quality of CPG and its readiness for dissemination and implementation at this clinical site.

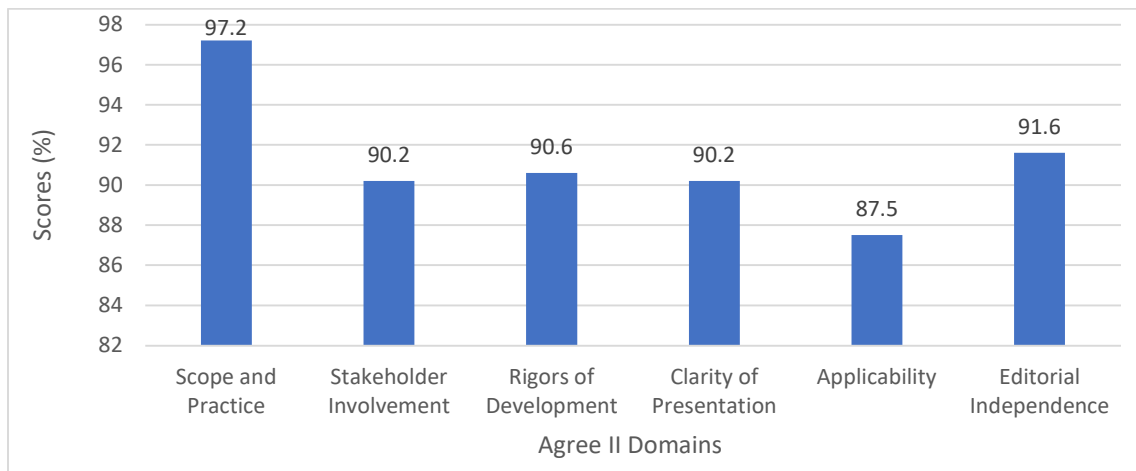
Results

The AGREE II evaluation tool comprised 23 items in six domains, completed by four expert panelists, including physicians from neurology, psychiatry, internal medicine,

and a clinical nursing educator, who provided high domain scores across the reviews, denoting good overall CPG quality. Figure 1 elaborates on the AGREE II assessment results. The scope and purpose domain scored 97.2%, with the recognition that the CPG objective, the developed question, and the population covered were detailed. The stakeholder involvement included panels from different specialties, target populations, and target users, resulting in 90.2%. The rigor of development scored 90.6%, clarifying the systematic methods used criteria for selecting the shreds of evidence, strengths, and limitations of the CPG. A score of 90.2% for clarity of presentation acknowledged the recommendations are specific, CPG structure, and format. Applicability was noted for facilitators, barriers to application were noted, recommendations for practice and resource implications scored 87.5%. Finally, editorial independence was rated 91.6%, acknowledging that an unbiased external review and a transparent development process were necessary for the development of this CPG (see Appendix D). The project global score was 89.2% and the professional panel agreed for use in practice by end users. The AGREE II was also used to evaluate the degree to which the guideline was adopted into practice, and the content expert panel strongly agreed that the delirium CPG should be used in practice as a nursing protocol for early identification of hospital delirium.

Figure 1

Results of Expert Panel AGREE II Assessment



The content experts provided qualitative recommendations to augment the CPG. The psychiatry physician recommended adding psychomotor agitation also as a symptom of delirium along with psychomotor retardation. Neurologist emphasizes adding the cerebrovascular accident as one of the risk factors for hospital delirium. From the clinical nursing aspect, the panel requested more information for the nursing staff about managing delirium to enhance the nurse's knowledge. The panel recommends that the CPG be practiced at the facility to improve patient care quality and prevent long-term complications from delirium. The content experts agreed on the clear description of the population to whom a recommendation is appropriate, the baseline risk of this population, the quality of evidence, and the strength of the CPG recommendation. Widespread implementation in the nursing units will promote standardized practice of early identification of delirium, prevention of worsening symptoms, and timely management.

Providing protocols on when to screen, how to administer/score the Nu-DESC and guidelines for responding to results will enhance workflow and resource utilization.

The limitations of this CPG are that it is prepared and evaluated by the expert panel given this particular healthcare facility's use, and its applicability beyond the local site should be considered on a larger scale. Also, the experts suggested that the systematic literature review of peer-reviewed articles within the last 5 years could have been extended to international databases, and a broader time frame could have strengthened the evidence foundation of the CPG. Another factor to consider is broader representation of content experts across disciplines and practice settings, which could elicit additional perspectives to strengthen the CPG.

CPGs are considered crucial means of improving the delivery of patient care. This CPG for Nu-DESC tool for delirium is informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options. The draft CPG underwent meticulous review by content experts from different related specialties, and the clinical nursing expert assessment provided this CPG's methodological quality and clinical applicability. The AGREE II instrument was used in evaluating the prepared CPG, a methodological approach to evaluate the guideline's longevity and subsequent implementation by assessing the transparency of the guideline and the rigor of its development. The CPG protocols and education help overcome barriers such as inadequate tools, limited time, and knowledge gaps, as the Nu-DESC tool is self-explanatory for the nurses. Thus, implementing the routine use of the Nu-DESC tool can

enable early delirium detection among high-risk hospitalized patients, allowing for timely intervention to reduce morbidity.

Conclusions

This CPG to improve the quality of patient care by encouraging interventions that have proven benefits and discouraging ineffective or potentially harmful interventions, reducing unnecessary variation in practice, lessening disparities, empowering patients, and influencing public policy. Implementing the CPG as a daily nursing assessment for early identification and prevention of delirium will assist in ruling out previously unrecognized delirium cases and enable timely management. With this CPG, standardized screening for delirium among high-risk patients in the nursing and postoperative units empower nurses to become more proactive and assist in assessing for delirium. Continued evaluation and input from a larger, interdisciplinary expert panel could strengthen the CPG for broader dissemination. Maintaining and iterating the CPG over time will be vital for a sustained impact on hospital delirium screening practices. Routine use of a quality CPG can provide an interpretation to overcome existing practice gaps and improve the trajectory of high-risk patients' management more effectively to prevent long-term complications of delirium in the hospital setting. While developed for this current facility, this CPG has the potential for broader implementation across diverse healthcare facilities and practices. CPGs are statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options. They have the potential to reduce unwarranted practice variation, enhance translation of research into

practice, and improve healthcare quality and safety. The CPG evaluation was completed by an expert panel using the AGREE II Instrument to assess for variability in guideline quality, and methodological rigor. This tool assessed the quality and reliability of CPGs across six domains: scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and editorial independence. Each domain was scored on a scale from 1 (*very poor*) to 7 (*excellent*). Scores reflect the degree to which each domain met the criteria set by the AGREE II framework.

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Appendix A: Clinical Practice Guideline (CPG)

Introduction

Delirium is an altered state of consciousness characterized by episodes of confusion that can develop over hours or days. It is a syndrome, not a disease, noting that it affects people of all ages, but especially older adults who are acutely ill (Oh, 2020). Hospital delirium causes changes in a person's thoughts, mood, behavior, and attention. Delirium is associated with longer hospital stays, increased nursing home or rehab use after hospitalization, and higher mortality. In the long term, delirium is linked with poor functional recovery, cognitive decline, and incident dementia. Research shows that systematic screening improves delirium identification among hospitalized older adults. The first step in screening a vulnerable hospitalized adult for delirium is completing a baseline cognitive screen and then using a validated delirium screening tool.

Nurse Delirium Screening Scale (Nu-DESC) is a validated tool used for early identification of delirium with five categories: disorientation, inappropriate behavior, inappropriate communication, illusion/hallucinations, and psychomotor retardation. My recommended CPG is to add the Nu-DESC as part of the daily nursing assessment for high-risk patients for early identification of hospital delirium to notify the providers to initiate early management to prevent long-term complications.

Problem

The Quality and Safety Committee data analysis at this healthcare institution identified a practice gap. There is no nurse delirium screening tool for hospitalized patients except in the intensive care unit. This causes a delay in the early identification of

delirium and the referral of those high-risk patients for management. Delirium in hospitalized patients is a major public health issue, yet delirium is often unrecognized and missed during inpatient admission (Ragheb et al., 2023). Delirium is associated with increased hospital length of stay, increased rates of admission to rehab or other facilities, and an overall rise in morbidity, mortality, and healthcare costs.

Purpose

This Clinical Practice Guideline provides guidelines to the nursing staff for early identification and management of delirium among hospitalized high-risk patients.

Audience

The primary audience is the health care professionals - clinicians and nurses- at the facility, patients for whom the guideline is normally intended, and those most likely to use the guideline in a patient care setting.

Background of the Problem Addressed

Delirium is a common neuropsychiatric syndrome in hospitalized elderly patients and is associated with poor clinical outcomes. It is characterized by an acute onset of altered consciousness, cognitive impairment, and inattention that fluctuates in severity over time. Delirium is usually reversible by treating the causative condition. Unlike dementia, delirium is acute in onset, fluctuates, and is typically reversible (Al Farci et al., 2023). As per Ormseth et al. (2023), the incidence of hospital delirium is 29% to 64% in general medical units, 50% after high-risk surgical procedures, and up to 75% in patients receiving mechanical ventilation in intensive care units. Hospital delirium is associated with adverse outcomes, including increased risk of falls, functional decline, dementia,

prolonged hospitalization, rehab and nursing home placements, and death, at an annual cost of \$38 billion to \$152 billion in the US. According to studies, delirium is caused by a change in the way the brain is working, potentially triggered by infection, severe pain, serious illness, certain medications, lack of adequate sleep, dehydration, sedation, or withdrawal from drugs or alcohol. The symptoms of delirium vary from person to person and tend to fluctuate throughout the day. People with delirium cannot think clearly, have difficulty paying attention, may see or hear things that aren't there, may become quiet or withdrawn, and may act restless, upset, or agitated (Oh, 2020). This hospital has no nurse delirium screening tool in the medical-surgical units for early identification of delirium except in the intensive care unit

How to Use This CPG

Delirium is diagnosed based on clinical presentation, focusing on the timing of symptom onset, associated symptoms, and thorough mental status and cognitive exams. Healthcare providers should assess for cognitive changes, including memory deficits, difficulty sustaining attention, or disorientation. Beyond being mindful of the risk factors, clinicians can also implement screening tools for the early identification of delirium among hospitalized vulnerable patients. The Nu-DESC is a validated observational five-item scale that can be completed quickly. It can be easily integrated into routine care and clinical practice, as it is easy to use, time-efficient, and accurate, and could lead to prompt delirium recognition and treatment. The Nu-DESC shows promise as a useful concomitant delirium research tool, allowing continuous screening, symptom monitoring, and severity rating (Gaudreau et al., 2005).

Methods

CPGs are developed through a rigorous systematic methodology synthesizing the ever-increasing amounts of published literature into a practical and digestible set of clinical recommendations for healthcare. An extensive exploration of scholarly publications was conducted across five databases- EBSCOhost, CINAHL, MEDLINE, Google Scholar, and Cochrane Methods. The clinical evidence was obtained from books, peer-reviewed articles, publicly disseminated reports, public websites, and other written knowledge communicating theories and findings about practice relevant to this CPG project. An independent search was also conducted on relevant American Academy of Neurology publications. A total of 20 peer-reviewed articles from 2019- 2023 were identified during the search procedure relevant to the delirium and Nu-DESC screening scale. Utilizing a model is important for guiding evidence-based projects. The Johns Hopkins Evidence-Based Practice (JHEBP) problem-solving methodology for the clinical decision-making model is a three-phase approach employed for this project. The PET method- practice question, evidence, and translation are used in this CPG. The initial stage is formulating a practice question, where the patient population, interventions, and outcomes (PICO) are identified. The second stage is a comprehensive review of existing evidence from the literature, which is evaluated for its robustness and excellence.

The professional team of multidisciplinary content experts from related practices will evaluate the evidence for the development of CPG. The content experts will review the CPG draft using the **Appraisal of Guidelines Research and Evaluation (AGREE) II Instrument**, which provides the framework to guide the development of clinical practice

guidelines and assess the quality of the guidelines developed. The initial AGREE instrument underwent refinement, leading to the development of AGREE 11 and the creation of a user manual. AGREE 11 comprises 23 essential components categorized into six domains, which are then followed by two global rating items referred to as “overall assessment.” Every domain encompasses a distinct aspect of guideline quality (Brouwers et al., 2010). The domains one to six consist of scope and purpose, stakeholder involvement, development rigor, presentation clarity, applicability, and editorial independence. Overall assessment includes rating the overall quality of the guideline and determining whether the guideline should be deemed suitable for implementation in practice. All AGREE 11 items and the two global rating items are evaluated on a 7-point scale. A score of 1 (strongly disagree) is assigned when there is no pertinent information regarding the AGREE 11 item- when the concept is inadequately reported or when the authors explicitly state that the criteria were not satisfied. If the reporting quality is extraordinary and all the criteria and considerations outlined in the User’s manual have been met, a score of 7 (strongly agree) should be assigned. When the reporting of the AGREE 11 item fails to match the complete criteria or considerations, a score ranging from 2 to 6 is issued. A numerical value is allocated based on the extent and caliber of the reporting. The higher the AGREE II scores, the more confident users can be that the guideline developers used an evidence-based approach to reach their recommendations. During the third phase, the results are reported in order to formulate practical recommendations.

Evidence for Practice

Clinical practice guidelines play a fundamental role in improving healthcare and patient outcomes by helping clinicians make the best evidence-based decisions for their patients. Delirium is an independent risk factor for increased morbidity and mortality and is associated with increased lengths of stay and higher associated costs of care. Without proper identification and interventions for delirium, patients may suffer additional adverse outcomes, including decreased quality of life and cognitive impairment. The American Nurses Association and American Delirium Society partnered to develop the online resource – Delirium: prevent, identify, treat- to understand delirium in hospitalized patients better (American Nurses Association, 2021). The literature search pointed out the use of Nu-DESC by nurses with minimal training and showed consistent sensitivity (85.7%) and specificity (86.8%) in detecting delirium (Heidenreich & Gresbach, 2019). The tool allows nurses to easily assess patients at the moment rather than needing to determine if the patient was always confused or if we were witnessing a new finding. Each category uses familiar nursing assessment terminology from our cognitive and neurologic assessments (oriented, lethargic, hallucinating), and nurses don't need to learn additional assessment terms. Postoperative delirium can occur from 10 minutes after anesthesia to up to seven days in the hospital or until discharge. It is commonly recognized in the post-anesthesia care unit as a sudden, fluctuating, and usually reversible disturbance of mental status with some degree of inattention. A systematic review and meta-analysis by Sujeong et al. (2023) to identify the most accurate postoperative delirium screening tools for detecting postoperative delirium among patients who

underwent general anesthesia surgery in the units. The meta-analysis included the Confusion Assessment Method (CAM), Delirium Detection Score (DDS), and Nurses Delirium Screening Checklist (Nu-DESC). Overall, Nu DESC demonstrated higher sensitivity than CAM or DDS, while all showed high specificity (0.90 or greater). The study suggested that Nu-DESC can be employed as an accurate screening tool with high specificity for assessing postoperative delirium during routine follow-ups. Nu DESC reported the best evidence of diagnostic accuracy and recommended that clinical nurses employ this easy-to-use and validated tool for daily screening of postoperative delirium to facilitate its early detection and accurate estimation of its prevalence. Henao-Castano et al. (2020) conducted an integrative review of a tool for the early detection of delirium in hospitalized adult patients in various departments. The use of Nu-DESC in different contexts, such as the hospital units, PACU, ICU, and palliative care unit, facilitated the early diagnosis of delirium due to its easy application, considering that many of the studies were descriptive or comparative with other diagnostic scales. The study concluded that Nu-DESC allows the trained nurses to recognize the event and individualize care, avoiding immediate pharmacological interventions and coordinating interdisciplinary actions for delirium diagnosis and management involving the family as the principal active caregiver. A blinded cross-sectional and quality improvement study was conducted from August 2015- February 2016. Nurses' Nu-DESC scores were compared to delirium diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria. A total of 405 consecutive hospitalized patients were included. Nu-DESC-positive patients were matched with equal numbers of Nu-DESC-

negative patients by sex, age, and nursing unit. Nurses recorded a Nu-DESC score for each patient on every 12-hour shift. A Nu-DESC blinded evaluator interviewed patients for two consecutive days. The physicians determined delirium diagnosis using the DSM criteria applied to the collected data. The study shows that the NU-DESC is a sensitive and specific screening tool for hyperactive delirium using a threshold of >2 that nurses can easily apply in a fast-paced, clinically diverse hospital environment (Hargrave et al. 2019). The Nu-DESC is a delirium screening instrument that can be easily integrated into routine care and clinical practice. It is easy to use, time-efficient, and accurate and could prompt delirium recognition and treatment. Gaudreau et al. (2005) developed the Nu-DESC for professional nurses; this screening scale assesses disorientation, inappropriate behavior, inappropriate communication, illusion/hallucination, and psychomotor retardation. As in recent research articles above, Nu-DESC is a validated and proven screening tool with strong evidence to support its use. An advantage of the Nu-DESC is that only five items have to be determined in comparison with other available delirium screening like the Delirium Observation Screening Scale (DOS), where thirteen items to screen and Nu-DESC can be completed in two to three minutes compared to DOS will require at least five minutes (Bergjan et al. 2020). The Nu-DESC is an efficient delirium screening tool that can be integrated into routine patient care, and it's user-friendly for nurses to complete as part of a daily shift assessment. According to Henao-Castano et al. (2020), the Nu-DESC facilitates the recognition of delirium episodes by the nursing team, makes care quicker and individualized for each patient, avoids immediate pharmacological interventions, and coordinates interdisciplinary actions for diagnosis,

especially in post-anesthesia units. As delirium is a common surgical complication among older adults, with an incidence reported up to 10%- 20% after major elective surgery and up to 50% after high-risk procedures (cardiothoracic and hepatic surgeries), it should be assessed in any post-surgical patients. Compared with other scales and individually, the Nu-DESC showed high sensitivity and specificity and is the most usable option for postoperative delirium assessment, especially in the hyperactive and mixed subtypes. Still, it does not replace CAM-ICU as a gold standard in delirium diagnosis.

Recommendations

- Nursing Delirium Screening Scale (Nu-DESC) is a tool for early detection of delirium in hospitalized adult high-risk patients.
- The Nu-DESC is an efficient delirium screening tool that can be integrated into routine patient care, and its user-friendly instructions assist nurses in completing as part of a daily shift assessment. According to Ntalouka et al. (2020), Nu-DESC has proven to be a successful nurse-delirium screening scale in assessing postoperative delirium hyperactive and mixed types of delirium in the hospital setting.
- Postoperative delirium affects up to 50% of patients undergoing major surgeries, commonly divided into hypoactive and hyperactive delirium.
- The nurse must be able to carry out a complete and exhaustive evaluation to achieve an adequate clinical judgment; from the evidence-based practice, the nurse must help assess using the validated tools to measure and compare the patient's clinical evolution per shift.

- Based on the synthesis, the available research provides strong, compelling, consistent results from eight articles, and good and consistent evidence from seven studies provides a strong indication for practice change.
- The screening tool should be used consistently once in every shift for high-risk patients and with every change in mental status (Gaudreau et al., 2005).
- Assessment at every shift can track the patient's mental status throughout hospitalization.
- The nurse should communicate with the physicians the high risk scored patients via N-DESC as early for the management of delirium.
- The screening tool should be reassessed annually, and the clinical nursing education department should complete necessary updates.

Guideline

Goal: This clinical practice guideline aims to assist nurses in the general medical and surgical units in using the best evidence screening tool for early identification of delirium among high-risk patients. The guideline adds the Nu-DESC tool as part of daily nursing shift assessment for early identification and management of hospital delirium.

Nurse Delirium Screening Checklist

- Delirium is a clinical bedside diagnosis based on healthcare professionals' recognition of its characteristic features.
- The tool allows nurses to assess patients easily at the moment rather than needing to determine if an acute change from baseline has occurred.

- Nurses should assess all the patients with predisposing risk factors – older age, postoperative patients, multiple co-morbidities, sepsis, acute infection, patients with memory problems, alcoholism, vision, and hearing impairment- for the development of delirium each shift and with any altered mental status.
- Nurses should assess every older adult undergoing anesthesia and surgery for early identification of delirium.
- Nu-DESC is an observational instrument used with five categories: disorientation, inappropriate behavior, inappropriate communication, illusion/hallucination, and psychomotor retardation. Each item has a score between 0 and 2 (total score range: 0-10) based on the presence and intensity of each symptom, and individual ratings are added to obtain a total score per shift and with any change in mental status. The providers have communicated the score for the management of delirium.

Features and descriptions		Symptoms Rating (0-2)		
Symptom	Time Period	Midnight - 8 AM	8 AM - 4 PM	4 PM - Midnight
I. Disorientation Verbal or behavioural manifestation of not being oriented to time or place or misperceiving persons in the environment				
II. Inappropriate behaviour Behaviour inappropriate to place and/or for the person; e.g., pulling at tubes or dressings, attempting to get out of bed when that is contraindicated, and the like.				
III. Inappropriate communication Communication inappropriate to place and/or for the person; e.g., incoherence, noncommunicativeness, nonsensical or unintelligible speech.				
IV. Illusions/Hallucinations Seeing or hearing things that are not there; distortions of visual objects.				
V. Psychomotor retardation Delayed responsiveness, few or no spontaneous actions/words; e.g., when the patient is prodded, reaction is deferred and/or the patient is unarousable.				
	Total score			

- The patients should be assessed every eight-hour shift; the timings can be adjusted per hospital policy.
- Delirium varies in this presentation and can be categorized by the psychomotor profile as hyperactive (overly vigilant, agitated, often wandersome), hypoactive (sedate or withdrawn), or mixed.
- Nurses should understand any patients receiving psychoactive medications or anticholinergic drugs are prone to develop delirium, and should be assessed as part of daily shift assessment.
- Nurses should understand that delirium is often multifactorial in etiology and can be influenced by several predisposing factors, precipitating factors, or both.
Understanding this clinical syndrome assists in the early identification of delirium
- The tool mirrors exactly what nurses already document in their notes and assessments. Each category uses familiar nursing assessment terminology from our cognitive and neurologic assessments (oriented, lethargic, hallucinating)
- If one underscores a patient with delirium in one category, they will likely receive an additional number in another category. Thus, the patient won't be missed because of underscoring.
- Some characteristics of dementia are similar to delirium, and the Nu-DESC tool may score positive for a patient who has dementia. However, patients with dementia are at higher risk for developing delirium. So, the Nu-DESC score gets the patient on the nurse's radar to be watched more closely.

- Delirium is a potential indicator of a life-threatening illness, and every episode of delirium should be appropriately evaluated.
- The Nu-DESC shows promise as a useful concomitant delirium research tool, allowing continuous screening, symptom monitoring, and severity rating.
- Nu-DESC assists in early identification of delirium, the high scored patents should be reported to the providers to manage on time to prevent future complications.
- Proper and systematic attention to hospitalized patients' cognitive/behavioral status through the Nu-DESC could greatly improve global psychiatric patient care.
- Nu-DESC guideline should be reviewed annually by the nursing clinical education department for necessary updates.

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Appendix B: Evidence Summary- Literature review

Date: 02/28/24		EBP Question: Does the evidence support development and Agree II validation of a clinical practice guideline for Nu-DESC screening tool among the hospitalized adult patients for early identification of delirium? That is also approved for use in the practice setting by end users?					
Article number	Author and date	Evidence type	Sample, sample size, setting	Findings that help answer the EBP question	Observable measures	Limitations	Evidence level, quality
1	Ormseth et al., 2023	Systematic review	315 studies with 101144 patients. Hospital setting	Studies reported 33 predisposing and 112 precipitating factors associated with delirium	Quantitative measures to determine the effect, impact	Heterogeneity of included studies limited the narrative review. The study did not provide risk factors associated with delirium	Level II
2	Falk et al., 2023	Qualitative descriptive study	Adult patients (>18 years), with hypoactive or mixed forms of delirium after cardiac surgery in inpatient unit and Thoracic ICU in Sweden	Post operative delirium affects up to 50% of patients undergoing cardiac surgery, commonly divided into hypoactive and hyperactive symptoms.	Qualitative content analysis	Study was conducted in Sweden and reflects the experiences of Swedish patients, undergoing surgery.	Level III
3	Ewens et al., 2021	Qualitative descriptive study	246 in the pre-evaluation and 149 post evaluation in the inpatient tertiary hospital setting	An interprofessional approach to delirium education was effective in hospital staff for increased use of delirium assessment tool	Quantitative measure to answer a research question	Discrepancy in the completion rate pre and post education intervention.	Level II
4	Gnatta et al., 2022	Systematic review	403 articles after excluding the artifacts from 2626 total articles.	Instruments to identify delirium in patients recovering from Anesthesia, the earliest detection was by Nu-DESC and CAM-ICU.	Qualitative synthesis of evidence	The study was conducted with search strategy among articles published in English, Spanish and Portuguese.	Level I
5	Zheng et al., 2023	Observational study	119 patients admitted for elective non-cardiac major surgery.	Determine the association and prediction of subjective sleep quality and post operative delirium occurrence.	Quantitative measure	Participants sleep status was not specifically measured, also specific surgical patients were selected, and the study was done in small population in one hospital	Level III
6	Munawar et al., 2023	Systematic review and Meta-analysis	31 studies from 11 countries.	Risk factors and outcomes of delirium in hospitalized older adults with Covid 19	Qualitative measure about cause, effect	There was considerable variation in the criteria used for delirium diagnosis. Study was conducted only with articles in English,	Level I

						and did not yield enough data for the 2/3 pre-specified outcome.	
7	Bergjan et al., 2020	Prospective Observational study	698 hospitalized patients In Neurological and cardiology units.	Validation of two nurse-based screening tools-Nu-DESC, DOS- for delirium in elderly patients in general medical units.	Qualitative measures	The study was conducted only among neurology and cardiology patients 65 and older, thus limiting the generalization of the findings. The patients were not always diagnosed with delirium soon after a positive screening.	Level II
8	Sevcikova et al., 2019	Literature review	21 research studies	Delirium screening instruments administered by nurses for hospitalized patients	Qualitative approach for demonstrating effect and impact	The methodological quality of the included studies about the tools was not evaluated.	Level II
9	Hargrave et al., 2017	Cross-sectional and Quality-improvement study	405 consecutive hospitalized patients	Nurses' Nu-DESC scores were compared to delirium diagnosis according to Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5) criteria.	Qualitative evidence uses context, experience and represent the phenomenon of the study	Sampling strategy concern about selecting older population, who might have overrepresented by neurological comorbidities than the hospital as a whole, so chance of low sensitivity estimate.	Level II
10	Ho et al., 2021.	Systematic review and Meta-analysis	11 studies with 2062 post operative patients	The evidence of the diagnostic accuracy of the Nu-DESC in assessing post operative delirium.	Qualitative approach	The study excludes studies published in non-English and non-Mandarin languages which limits the generalization of the findings.	Level I
11	Perkins et al., 2021	Prospective case cohort design	30 patients admitted as post operative hip fracture patients. In a level 1 trauma center in PA.	Probable delirium as a risk factor for adverse surgical outcomes in Geriatric patients with Acute hip fracture.	Qualitative evidence	The patients were screened only once with Ultra brief - from CAM- tool, it is not validated tool. Also baseline cognitive impairment was not always documented to exclude the patients.	Level III
12	Martinez-Arnau et al., 2023	Systematic review	14 eligible studies evaluated with 13 different tools, in Europe, USA, Asia and Canada	Accuracy of Delirium Screening Tools in Older People with Cancer	Qualitative evidence for context and experience	Lack of studies exclusively in older people. Also, the studies were heterogenous in terms of population.	Level I

13	Ho et al., 2021.	Systematic review and Meta-analysis	11 studies involving 2062 post operative patients were screened with Nu-DESC tool	Using the nursing delirium screening scale in assessing post-operative delirium,	Quantitative measures to detect the effectiveness	Because of substantial heterogeneity, the results should be carefully interpreted, study also excluded non-English and non-Mandarin languages.	Level I
14	Henao-Castano et al., 2020	Integrative Review	23 articles with Nu-DESC screening tool usage were reviewed. Patients were from ICU, PACU, Inpatient units and palliative care unit.	Nursing delirium screening scale, a tool for early detection of delirium by use of Nu-DESC screening tools in the hospitalized patients.	Quantitative evidence to determine the effect, impact and influence.	Studies in English, Spanish and Portuguese only were included, also category of delirium in Oncology patients were not included.	Level II
15	Heinrich et al., 2019	Quality improvement project	Among 192 patients in medical units both Nu-DESC and short CAM were scored by nurses for identification of delirium.	The Nu-DESC was shown to be an easy-to deploy delirium screening tool on general medical units with improved sensitivity when compared to short-CAM.	Qualitative evidence revealed poor sensitivity with the use of short-CAM when compared to Nu-DESC	External validity/generalizability is limited to Nu-DESC use of general medical units only. The study did not control for medical or psychiatric diagnosis, illness severity, or patient demographics as it was conducted among the admitted patients regardless of these factors.	Level V
16	Vreeswijk et al., 2022.	Systematic review of articles	2198 articles screened o summarize the delirium prediction models, screening tools and the non-pharmacologic prevention of delirium.	The findings are potentially useful for screening purposes and optimizing prevention strategies targeted at reducing the incidence of post operative delirium. The results show that early symptoms can be detected by the use of screening scales for the recognition and diagnosis of delirium.	Qualitative studies to clarify the effectiveness of early identification of delirium by screening scales.	The research design, application and reporting of statistical methods seem inadequate. The incidence of delirium varied among the retrospective and prospective studies. Also, the selected articles with different way of screening (time, method, and personnel) could have had consequences for delirium incidence.	Level 1
17	Sujeong et al., 2023	Systematic review and meta-analysis	The studies were from 19 articles including 3088 patients who are post operative and the scales	Overall, the Nu-DESC demonstrated higher sensitivity than CAM or DDS, while all showed high specificity	Quantitative study for most accurate post-operative delirium screening	The study articles were selected only this using CAM, DDS or Nu-DESC and it was conducted in the	Level 1

			used were Confusion Assessment Method (CAM), Delirium Detection Score (DDS), and Nurse Delirium Screening Checklist (Nu-DESC).	(0.90 or greater).	tools for early detection.	post operative patients, so using among the general units need to be studied or evaluated.	
18	Abdelrahman et al., 2020	Retrospective study	The study was conducted among 262 patients showed signs of delirium among the burn unit using Nu-DESC tool. And results found strong association between delirium, older age, provision of intensive care, and post anesthesia.	A total of 262 patients were included in the study, showed signs of delirium based on NU-DESC recordings during their hospital stay. Per the authors, the study used the Nu-DESC for assessment of delirium which is widely accepted and a validated screening tool.	Qualitative measures like cases, methods and evidences are used.	The study was not designed to distinguish exactly between the possible underlying mechanism of delirium. Also, the patients were not classified as post operative, severe burn injury, longer duration of stay, longer period of mechanical ventilation, so generalization was difficult to make.	Level 11
19	Henao-Castano et al., 2020	Integrative review	23 articles used Nu-DESC was used to analyze the context and use of the Nu-DESC for early detection of delirium in adult patients.	The article search resulted in Nu-DESC facilitates the recognition of delirium episodes by the nursing team, makes care quicker and individualized for each patient, avoiding immediate pharmacological interventions, and coordinate interdisciplinary actions for diagnosis, especially in post-anesthetic care units.	Qualitative measures of cases, methods and evidences are used.	Articles in languages different from Spanish, English or Portuguese were not included. The study was resulted in identification of Hyperactive and mixed subtypes of by Nu-desc tool, but was limited in identifying hypoactive delirium.	Level V
20	Ntalouka et al., 2020	Prospective cohort study	Data from 60 patients and 180 records in total were analyzed. The study was conducted given lack of standardized tools limits the diagnosis of post operative delirium in the Greek Population.	With the translation, the cultural adaptation, and the determination of their inter-rater agreement, the CAM diagnostic algorithm and the Nu-DESC may serve as reliable instruments for the detection of post op delirium in the Greek population.	Quantitative measures such as used to answer a research question.	A limitation in this study could be the selection of the population. Also, the study did not choose to compare either CAM or Nu-DESC to diagnostic and statistical manual of Mental disorders v or iv.	Level II

Appendix C: Synthesis Process and Recommendation Tool

EBP Question: Does the evidence support development and Agree II validation of a clinical practice guideline for Nu-DESC screening tool among the hospitalized adult patients for early identification of delirium? That is also approved for use in the practice setting by end users?			
Category (Level Type)	Total Number of Sources/ Level	Overall Quality Rating	Synthesis of Findings Evidence That Answers the EBP Question
Level I <ul style="list-style-type: none"> ▪ Experimental study ▪ Randomized controlled trial (RCT) ▪ Systematic review of RCTs with or without meta-analysis ▪ Explanatory mixed method design that includes only a Level I quantitative study 	8	Strong compelling evidence	Instruments to identify delirium in patients recovering from Anesthesia, the earliest detection was by Nu-DESC and CAM-ICU model. Accuracy of Nu-DESC delirium screening tools in older people with cancer Use of successful nurse-delirium screening scale in assessing post-operative delirium Articles- 1, 4, 6, 12, 13
Level II <ul style="list-style-type: none"> ▪ Quasi-experimental studies ▪ Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis ▪ Explanatory mixed method design that includes only a Level II quantitative study 	7	Good and consistent evidence	An interprofessional approach to delirium education was effective in hospital staff for increased use of delirium assessment tool Studies reported predisposing and precipitating factors associated with delirium Nursing delirium screening scale as a tool for early detection of delirium by use of Nu-DESC screening tools in the hospitalized patients. Articles – 3, 5, 7, 8, 9, 14
Level III <ul style="list-style-type: none"> ▪ Nonexperimental study ▪ Systematic review of a combination of RCTs, quasi-experimental and nonexperimental studies, or nonexperimental studies only, with or without meta-analysis ▪ Qualitative study or meta-synthesis ▪ Exploratory, convergent, or multiphasic mixed-methods studies ▪ Explanatory mixed method design that includes only a level III Quantitative study 	3	Good and consistent evidence	Post operative delirium affects up to 50% patients undergoing major surgeries, commonly divided into hypoactive and hyperactive delirium Inpatient rehabilitation delirium screening in relation with acute care transfers and functional outcomes. Probable delirium as a risk factor for adverse surgical outcomes in Geriatric patients with Hip fracture. Articles- 2, 10

Level IV <ul style="list-style-type: none"> ▪ Opinions of respected authorities and/or reports of nationally recognized expert committees or consensus panels based on scientific evidence 			
Level V <ul style="list-style-type: none"> ▪ Evidence obtained from literature or integrative reviews, quality improvement, program evaluation, financial evaluation, or case reports ▪ Opinion of nationally recognized expert(s) based on experiential evidence 	2	Good, not clear evidence	Probable delirium as a risk factor for adverse surgical outcomes in Geriatric patients with Acute hip fracture, and use of screening tool nu nurses can assist in identification of delirium. (11)
Based on your synthesis, which of the following four pathways to translation represents the overall strength of the evidence?			
<input checked="" type="checkbox"/> Strong, compelling evidence, consistent results: Solid indication for a practice change is indicated. <input checked="" type="checkbox"/> Good and consistent evidence: Consider pilot of change or further investigation. <input type="checkbox"/> Good but conflicting evidence: No indication for practice change; consider further investigation for new evidence or develop a research study. <input type="checkbox"/> Little or no evidence: No indication for practice change; consider further investigation for new evidence, develop a research study, or discontinue project.			
<i>If you selected either the first option or the second option, continue. If not, STOP, translation is not indicated.</i>			
Recommendations based on evidence synthesis and selected translation pathway			
<ol style="list-style-type: none"> 1. Post operative delirium affects up to 50% patients undergoing major surgeries, commonly divided into hypoactive and hyperactive delirium. An interprofessional approach to delirium education was effective in hospital staff for increased use of delirium assessment tool for early identification of delirium. 2. Nursing delirium screening scale as a tool for early detection of delirium by use of Nu-DESC screening tools in the hospitalized patients. 3. Instruments to identify delirium in patients recovering from Anesthesia, the earliest detection was by Nu-DESC and CAM-ICU model. Use of successful nurse-delirium screening scale in assessing post-operative delirium 			

Appendix D: AGREE II Assessment Scores for CPG- Delirium Screening

Domain 1- Scope and Practice

Appraiser	Que 1	Que 2	Que 3	Total
1	7	7	6	20
2	7	7	7	21
3	7	7	7	21
4	7	6	7	20
Total	28	27	27	82

Maximum possible score = 7 (strongly agree) x 3 (items) x 4 (appraisers) = 84

Minimum possible score = 1 (strongly disagree) x 3 (items) x 4 (appraisers) = 12

The scaled domain score will be: [Obtained score – Minimum possible score]/ Maximum possible score – Minimum possible score x 100 = Percentage of result

$$[(82-12) / (84-12)] \times 100 = [70/72] \times 100 = 97.2\%$$

Domain 2- Stakeholder Involvement

Appraiser	Que 4		Que 5	Que 6	Total
1	7		6	7	20
2	7		7	6	20
3	6		7	7	20
4	6		4	7	17
Total	26		24	27	77

Maximum possible score = 7 (strongly agree) x 3 (items) x 4 (appraisers) = 84

Minimum possible score = 1 (strongly disagree) x 3 (items) x 4 (appraisers) = 12

$$[77-12 / 84-12] \times 100 = 65/72 \times 100 = 90.2\%$$

Domain 3- Rigors of Development

Appraiser	Que 7	Que 8	Que 9	Que10	Que11	Que12	Que13	Que14	Total
1	7	7	7	7	6	7	7	7	55
2	7	7	6	7	7	7	7	7	55
3	7	7	5	7	6	7	5	4	48
4	7	5	5	7	5	7	5	7	48
Total	28	26	23	28	24	28	24	25	206

Maximum possible score 7 (strongly agree) x 8 items x 4 appraisers = 224

Minimum possible score 1 (strongly disagree) x 8 items x 4 appraisers = 32

$$[206 - 32 / 224 - 32] \times 100 = 174/192 \times 100 = 90.6\%$$

Domain 4- Clarity of Presentation

Appraiser	Que 15	Que 16	Que 17	Total
1	7	7	7	21
2	7	6	7	20
3	7	4	6	17
4	7	5	7	19
Total	28	22	27	77

Maximum possible score = 7 (strongly agree) x 3 (items) x 4 (appraisers) = 84

Minimum possible score = 1 (strongly disagree) x 3 (items) x 4 (appraisers) = 12

$[77-12 / 84- 12] \times 100= 65/72 \times 100= 90.2\%$

Domain 5- Applicability

Appraiser	Que 18	Que 19	Que 20	Que 21	Total
1	7	7	6	7	27
2	6	7	7	7	27
3	5	6	7	6	24
4	4	7	5	6	22
Total	22	28	25	26	100

Maximum possible score- 7 (strongly agree) x 4 items x 4 (appraisers) = 112

Minimum possible score – 1 (strongly disagree) x 4 items x 4 (appraisers) = 16

$[100-16 / 112- 16] \times 100 = 84/96 \times 100= 87.5\%$

Domain 6- Editorial Independence

Appraiser	Que 22	Que 23	Total
1	7	7	14
2	7	7	14
3	7	5	12
4	7	5	12
Total	28	24	52

Maximum possible score 7 (strongly agree) x 2 items x 4 (appraisers) = 56

Minimum possible score 1 (strongly disagree) x 2 items x 4 appraisers) = 8

$[52- 8 / 56- 8] \times 100= 44/48 \times 100= 91.6\%$