Implementation of a Delirium Screening Tool and Delirium Care Plan in the Post-operative Setting for Geriatric Hip Fracture Patients

Jihyun Suh, MSN, RN, AGCNS-BC, AGACNP-BC, CCRN

Advisor: Beth Quatrara DNP, RN, CMSRN, ACNS-BC

2nd reviewer: Dr. Kathryn Reid, PhD, RN, FNP-C, CNL

Practice Mentor: Dr. Abby Denby, DNP, RN, NE-BC

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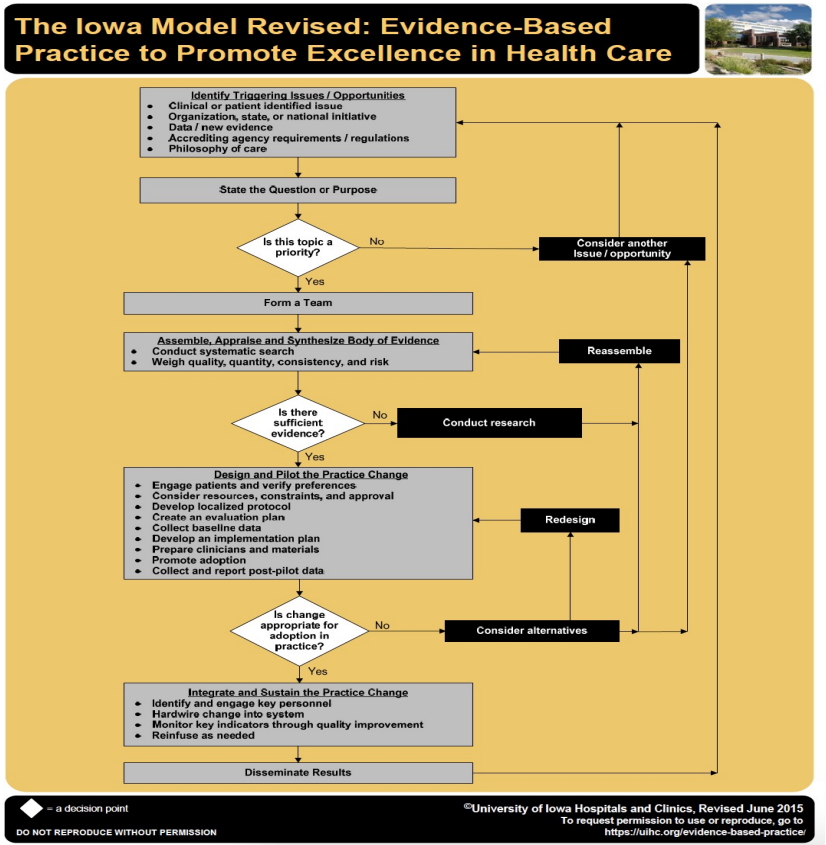
Introduction and Background

Hip fracture and Delirium

- 1-year mortality rate : 22% (Downey et al., 2019)
- Delirium incidence : 20-50% (Mosk et al., 2017)
- Complications associated with delirium (Lam et al., 2021)
  : Increased mortality, longer hospital stays, higher risk of dementia and falls
- Risk factors of delirium (Schenning & Deiner, 2015)
  : unmodifiable Vs. modifiable
- **Early detection is the KEY!**



Systematic, 7-step guide for implementation of EBP

- Identify Triggering Issues/Opportunities
- State the Question or Purpose: *Is this topic a priority?*
- Form a Team
- Assemble, Appraise and Synthesize Body of Evidence: *Is there sufficient evidence?*
- Design and Pilot the Practice Change*: Is change appropriate for adoption in practice?*
- Integrate and Sustain the Practice Change
- Disseminate Results

(Iowa Model Collaborative, 2017)

Step 1: Identify Triggering Issues/Opportunities

- **Issues at the practice site**
  - Increased length of stay (2021:5.7 days/ goal :5 days)
  - The delirium incidence rate of 9% for hip fracture patients
  - No delirium screening tool available for hip fracture patients
- **Opportunities**
  - Cost saving by reducing length of stay
  - Institution and orthopedic department interest in delirium management for hip fracture patients

Step 2: Clinical Question

In geriatric patients (65 years old or older) admitted to non-ICU units for hip fracture repair,

does the standardized delirium screening tool and delirium nursing care plan increase identification of delirium and decrease hospital length of stay?

Step 3: Form a Team

- **Setting** – A community hospital with 176 beds located in Central Virginia
- **Team -** The delirium prevention implementation team
  - Academic advisor: Dr. Beth Quatrara
  - 2nd Reviewer: Dr. Kathryn Reid
  - Practice mentor, Director of Nursing Services: Dr. Abby Denby
  - Orthopedic Navigator, Ms. Tiffany Townsend RN
  - Nurse managers and nurse educators

Step 4: Assemble, Appraise, & Synthesize the Body of Evidence

- **Comprehensive database search**
  - CINAHL, Web of Science, PubMed, and PsycINFO
  - Key search terms: "*delirium*" "*postoperative*", *"screening"*
- **Filters applied**
  - Publication in the last 10 years
  - English language
  - Geriatric 65+

Literature Review Conclusion

- Using a reliable and validated delirium screening tool helps to support the ability of nurses to easily recognize symptoms (Shaji & McCabe, 2020; Choi et al., 2019).

- Nu-DESC is the most recommended tool in postoperative setting (Da & Wand, 2015; Ho et al, 2021; Kim et al., 2019).

- Non-pharmacological interventions were effective in reducing the incidence of delirium in hospitalized patients, particularly in those at high risk for delirium (Choi et al., 2019; Freter et al., 2017).

Step 5: Design and Pilot the Practice Change

Purpose Statement

The purpose of this evidence-based practice project is to implement a nursing delirium screening (Nu-DESC) tool and delirium care plan in geriatric postoperative hip fracture patients and to evaluate outcomes of utilization of screening tool, delirium care plan, delirium incidence and length of stay

Step 5: Design and Pilot the Practice Change

Method

Sample- All geriatric (>65) post hip fracture repair admitted in the hospital

- Inclusion- Adult > 65 years older, post hip fracture repair, both emergency and elective cases
- Exclusion- patients with h/o substance abuse disorder within the last 2 years, patients in ICU, discharge delay due to insurance authorization

Intervention – Implementing nursing delirium screening tool and delirium nursing care plan

Nu-DESC

- Disorientation
- Inappropriate Behavior
- Inappropriate communication
- Illusion and hallucination
- Psychomotor retardation

Score ≥ 2 =positive delirium screening

- ✓ Sensitive and specific screening tool
- ✓ Straightforward
- ✓ Easily applied by nurses in a fast paced

Careplan

- Provide familiar objects from home
- Minimize awakening of patient
- Promote family presence and social contact
- Include family pictures in patient room
- Expose patient to natural light
- Reduce noise levels
- Promote regular sleep and rest patterns
- Encourage use of glasses
- Encourage use of hearing devices

(Siddiqi et al. 2016 ; Martinez et al., 2012 ; Choi et al., 2019)

Procedures

- Comprehensive Hip Fracture Clinical Care Pathway
- Nu-DESC tool and delirium care plan were built into **hip fracture post-op order-set** in EHR.
- **Screening reminder** in placed in nurses' task list
- Nu-DESC under nursing flowsheet
- Care plan under interdisciplinary care plan section in the EHR.

Procedures (Cont.)

- **Nurse Education for all in-patient nurses**
- General knowledge of delirium among hip fracture patient, and how to perform Nu-DESC.
- Primary nurse completes Nu-DESC on admission and every shift (12 hours and as needed)
- **<u>If Nu-DESC screening is positive for delirium</u>**
- Initiate individualized delirium care plan if Nu-DESC is positive for delirium.
- Notify the hospitalist or orthopedic surgeon
- Notify Pharmacist via secure message

Data Collection and Analysis

- Comparing two groups
  - Pre-implementation : Feb 2022 to June 2022
  - Post-implementation : July 2022 to Dec 2022
- Data Source: electronic health record
- Descriptive statistics

Demographics

	Pre-implementation	Post-implementation
n	29	37
Age (Mean)	81.2	81.0
Female	75.9% (22)	78.4% (29)
Male	24.1% (7)	21.6% (8)

Compliance and Detection Rate

	Pre-implementation	Post-implementation
Compliance of NuDesc	NA	81.1% (30)
Compliance of Care Plan	NA	62.5% (5 / 8)
Delirium Incidence Rate	6.9% (2/29)	27.0% (10/37)

Length of Stay & Discharge Placement

	Pre-implementation	Post-implementation
Length of Stay (days, mean)	5.34	5.41
Discharge Disposition		
Home	13.8% (4)	24.3% (9)
Rehab	20.7% (6)	8.1% (3)
Skilled Nursing Facility	65.5% (19)	64.9% (24)
Hospice	-	2.7% (1)

Discussion

- Demographic findings: mean age and gender
- Delirium detection improved: 3.9 times higher
- More discharge to home and similar LOS
- High level of compliance

Cost Avoidance of Preventing Falls by Preventing Complications of Delirium

- Preventing complications of delirium can reduce the incidence of falls in hospitals
- Falls can lead to additional medical treatments and longer hospital stays, resulting in increased costs
- By preventing falls through the prevention of complications of delirium, hospitals can avoid these additional costs
- The unreimbursed costs for treating a hospital related fall injury range from $7,000 to $30,000 (Stevens et al., 2006).

Step 6: Integrate and Sustain Practice Change

Strengths

- **Strong administration and provider support**
- Order-set with Nu-DESC screening tool, care plan and reminder were placed in EHR
- Real-time audit, re-education

Limitations

- High turnover of staffing, no delirium standing order
- Small sample, different size

Step 6: Integrate and Sustain Practice Change

Sustainability

- Staffs annual training
- Continue to use postoperative hip fracture order-set
- Add a Nu-DESC as a nursing order

Ethical Principles

- Beneficence
- Nonmaleficence

Step 6: Integrate and Sustain Practice Change

Nursing Practice Implications

- Improve delirium awareness of nurses and providers
- Increase the use of a screening tool and prevention strategies
- Standard practice for non-ICU hip fracture patients
- Possible expanding to other geriatric populations

Step 7: Disseminate Results

- Submission to Libra
- TriService Nursing Research Program in April 2023
- Manuscripts to the Orthopedic Journal Nursing

References

- Albanese, A. M., Ramazani, N., Greene, N., & Bruse, L. (2021). Review of postoperative delirium in geriatric patients after hip fracture treatment. *Geriatric Orthopaedic Surgery & Rehabilitation*, 1–11. doi: https://doi.org/10.1177/21514593211058947
- Baker, N. D., Taggart, H. M., Nivens, A., & Tillman, P. (2015). Delirium: Why are nurses confused? *MEDSURG Nursing, 24*(1), 15–22.
- Choi, J.Y., Kim, K., Kang, M., Lee, Y. K., Koo, K. H., Oh, J. H., Park, Y. H., Suh, J., Kim, N. H., Yoo, H. J., Koo, J., Moon, H. M., Kim, E. H., Park, K., & Kim, C. H. (2019). Impact of a delirium prevention project among older hospitalized patients who underwent orthopedic surgery: A retrospective cohort study. *BMC Geriatrics*, *19*(1), N.PAG-N.PAG. doi: https://doi.org/10.1186/s12877-019-1303-z
- De, J., & Wand, A. P. F. (2015). Delirium screening: A systematic review of delirium screening tools in hospitalized patients. *The Gerontologist*, *55*(6), 1079–1099. https://doi.org/10.1093/geront/gnv100
- Dolan, M., Hawkes, W., Zimmerman, S. I., Morrison, S., Gruberbaldini, A., Hebel, R., & Magaziner, J. (2000). Delirium on hospital admission in aged hip fracture patients: Prediction of mortality and 2-year, *Journal of Gerontology, 55*(9), M527–M534.

References

- Freter, S., Koller, K., Dunbar, M., MacKnight, C., & Rockwood, K. (2017). Translating delirium prevention strategies for elderly adults with hip fracture into routine clinical care: A pragmatic clinical trial. *Journal of the American Geriatrics Society*, *65*(3), 567–573. https://doi.org/10.1111/jgs.14568
- Ho, M. H., Choi, E. P. H., Chiu, H. Y., Shen Hsiao, S. T., & Traynor, V. (2022). Using the nursing delirium screening scale in assessing postoperative delirium: A meta-regression. Research in Nursing & Health, 45(1), 23–33. https://doi.org/10.1002/nur.22194
- Iowa Model Collaborative, Buckwalter, K. C., Cullen, L., Hanrahan, K., Kleiber, C., McCarthy, A. M., Rakel, B., Steelman, V., Tripp-Reimer, T., Tucker, S., & Authored on behalf of the Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: Revisions and validation. *Worldviews on Evidence-Based Nursing*, *14*(3), 175–182. https://doi.org/10.1111/wvn.12223
- Kim, S., Choi, E., Jung, Y., & Jang, I. (2021). Postoperative delirium screening tools for post-anaesthetic adult patients in non-intensive care units: A systematic review and meta-analysis. *Journal of Clinical Nursing*. https://doi.org/10.1111/jocn.16157

References

- Koskderelioglu, A., Onder, O., Gucuyener, M., Altay, T., Kayali, C., & Gedizlioglu, M. (2017). Screening for postoperative delirium in patients with acute hip fracture: Assessment of predictive factors. *Geriatrics & Gerontology International*, *17*(6), 919–924. https://doi.org/10.1111/ggi.12806
- Lam, D. M. H., Wang, C., Chung, Y.F., Lau, T. W., Fang, C., Leung, F., & Chan, T. C.W.(2021). Multi-Component Care Bundle in Geriatric Fracture Hip for Reducing Post-Operative Delirium. *Geriatric Orthopedic Surgery & Rehabilitation*, 12, 1-5
- Marcantonio, E. R., Flacker, J. M., Michaels, M., & Resnick, N. M. (2000). Delirium is independently associated with poor functional recovery after hip fracture. *Journal of the American Geriatrics Society*, *48*(6), 618–624. https://doi.org/10.1111/j.1532-5415.2000.tb04718
- Saez-Lopez P, Branas F, Sanchez-Hernandez N, Alonso-Garcia N, Gonzalez-Montalvo JI. Hip fracture registries: utility, description, and comparison. *Osteoporosis Int.* 2016;28(4):1157-1166. doi:10.1007/s00198-016-3834-x
- Saller, T., MacLullich, A. M. J., Schäfer, S. T., Crispin, A., Neitzert, R., Schüle, C., Dossow, V., Hofmann-Kiefer, K. F., von Dossow, V., & Hofmann-Kiefer, K. F. (2019). Screening for delirium after surgery: Validation of the 4 a's test (4at) in the post-anaesthesia care unit. *Anaesthesia*, *74*(10), 1260–1266. https://doi.org/10.1111/anae.14682

References

- Shaji, P., & McCabe, C. (2021). A narrative review of preventive measures for postoperative delirium in older adults. *British Journal of Nursing*, *30*(6), 367–373. https://doi.org/10.12968/bjon.2021.30.6.367
- Smulter, N., Claesson Lingehall, H., Gustafson, Y., Olofsson, B., & Engström, K. G. (2019). The use of a screening scale improves the recognition of delirium in older patients after cardiac surgery—A retrospective observational study. *Journal of Clinical Nursing (John Wiley & Sons, Inc.)*, *28*(11/12), 2309–2318. https://doi.org/10.1111/jocn.14838
- Stevens, J. A., Corso, P. S., Finkelstein, E. A., & Miller, T. R. (2006). The costs of fatal and non-fatal falls among older adults. Injury prevention, 12(5), 290-295.
- Song, K.-J., Ko, J.-H., Kwon, T.-Y., & Choi, B.-W. (2019). Etiology and related factors of postoperative delirium in orthopedic surgery. *Clinics in Orthopedic Surgery*, *11*(3), 297–301. https://doi.org/10.4055/cios.2019.11.3.297

Questions?