Educating Nurses to Screen for Postoperative Delirium Utilizing the 4AT

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Background
Surgical Complications Among Older Adults
• The most common surgical complication among older adults is postoperative delirium and often results in increased length of stay, functional decline and increased rates of death.

• To prevent this post-operative complication, it is critical to identify patients at risk of developing postoperative delirium.
The purpose of this quality improvement project is to educate nurses regarding postoperative delirium and assess the use of the validated screening tool, the 4AT, in patients over 65 years of age.
Specific Aims

- **Aim 1**: Increase staff nurses’ knowledge of delirium in postoperative patients through an education program measured by a pre and post-assessment tool provided by the Nurses Improving Care for Healthsystem Elders (NICHE) Geriatric Resource Nurse (GRN) curriculum.

- **Aim 2**: Evaluate the utilization of the 4AT among nurses as part of their patient assessment measure by weekly EMR reports over the course of eleven weeks.
Review of the Literature

Formal delirium education has been shown to improve nurses’ knowledge as well as increase accuracy of assessments. Coach based education leads to higher accuracy of delirium detection.

(Niches & DeGennaro, 2018)
(Coyle et al., 2018)
(Destroyer et al., 2018)
(Gordon et al., 2013)

Nurses Improving Care for Healthsystem Elders (NICHE) Geriatric Resource Nurse curriculum is a validated tool for improving nurses’s knowledge of delirium and currently used in over 500 health systems.

(Fulmer, 2019)
(Rosenfeld et al., 2018)
(Squires et al., 2021)

The use of a screening tool has been shown to increase identification of delirium and compliance can decrease mortality rates in postoperative older adults. Advantages of the 4AT include ease of use, high sensitivity and specificity, and no required specialized trainings.

(Belelli et al., 2014)
(Brooks et al., 2014)
(De & Wand, 2015)
(Tiages et al., 2020)
Methods

• **Design**
  • Pre-Post Design; Quality Improvement Project

• **Setting**
  • 24 bed medical-surgical unit at Sibley Memorial Hospital

• **Sample**
  • Convenience sample
  • All licensed nursing staff permanently assigned to this unit
  • Sample size- 30 nurses

• **Ethical Review Plan**
  • Approved by Johns Hopkins SON OSI IRB April, 2021
Intervention

• **Intervention:** Delirium Education Presentation
  • Education based on Geriatric Resource Nurse Delirium Knowledge Module

• **Intervention:** Delirium Screening Tool-4AT
  • Utilization evaluated by EMR Documentation
Intervention

Delirium Education

Geriatric Resource Nurse (GRN): Delirium Module

Implementation of Delirium Screening Tool- 4AT

4AT

Assessment tool for delirium & cognitive impairment

Test:

Date of birth:

Patient:

Patient number:

Test date:

Test time:

[Scores and questions are not fully visible, but suggest a structured screening tool for delirium and cognitive impairment.

4AT SCORE]
Data Collection

• Sources of Data
  • Pre- and Post- Intervention Data Collected via Hard Copy Tests
  • EPIC Electronic Medical Record

• Outcome Measures and Instruments
  • Aim 1 Outcome: Increase in nurses’ knowledge of delirium
    • NICHE Delirium Learning Module Assessment Questionnaire
  • Aim 2 Outcome: 4AT Delirium Screening Tool Documentation Rate
    • EMR Documentation
### Demographic Characteristics of Nurse Participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>(SD)</th>
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<tbody>
<tr>
<td><strong>Age, mean (SD)</strong></td>
<td>41</td>
<td>(12.68)</td>
</tr>
<tr>
<td><strong>Gender Identity, n (%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
<td>(26.7)</td>
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<tr>
<td>Female</td>
<td>22</td>
<td>(73.3)</td>
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<tr>
<td>Non-binary</td>
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<td>(0.0)</td>
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<td><strong>Primary Shift, n (%)</strong></td>
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<td></td>
</tr>
<tr>
<td>Day</td>
<td>16</td>
<td>(53.3)</td>
</tr>
<tr>
<td>Night</td>
<td>11</td>
<td>(36.7)</td>
</tr>
<tr>
<td>Rotating</td>
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<td>(10.0)</td>
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<tr>
<td><strong>Years of RN Experience, n (%)</strong></td>
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<tr>
<td>Less than 1 year</td>
<td>1</td>
<td>(3.3)</td>
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<tr>
<td>1-5 years</td>
<td>12</td>
<td>(40.0)</td>
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<tr>
<td>6-10 years</td>
<td>6</td>
<td>(20.0)</td>
</tr>
<tr>
<td>10+ years</td>
<td>11</td>
<td>(36.7)</td>
</tr>
<tr>
<td><strong>Years of RN Experience on Unit, n (%)</strong></td>
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<tr>
<td>Less than 1 year</td>
<td>4</td>
<td>(13.3)</td>
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<tr>
<td>1-5 years</td>
<td>18</td>
<td>(60.0)</td>
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<tr>
<td>6-10</td>
<td>2</td>
<td>(6.7)</td>
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<tr>
<td>10+ years</td>
<td>6</td>
<td>(20.0)</td>
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<td><strong>Highest Degree Earned, n (%)</strong></td>
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<tr>
<td>Associates</td>
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<td>(13.3)</td>
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<tr>
<td>Bachelors</td>
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<td>(26.7)</td>
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<tr>
<td>Doctorate</td>
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SD = standard deviation
Results: Aim 1: Delirium Knowledge
Results: Aim 2: 4AT Utilization
Significant improvements in nurses’ knowledge of delirium were found.

Add to the body of evidence that in-person nurse education is beneficial to better support nurses’ understanding and comprehension.

Fluctuating staffing needs of the unit may have affected delirium screening tool documentation.

Measurement of nurse confidence in delirium assessments may be helpful in further evaluating clinical significance.
Limitations

• Timing of intervention during change of shift

• Larger sample size to strengthen statistical analysis

• Fluctuating staffing needs of the unit

• Adaptation of GRN Delirium Learning Module
Conclusions

• In-person, delirium specific education is effective in improving nurses’ knowledge of postoperative delirium in older adults

• Understanding unit specific factors can provide insight into adoption of a new screening tool

• Nurse led interventions continue to play a role in postoperative delirium prevention
References


References cont.

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Questions?