Evidence Synthesis: Education Intervention to Improve Nurses’ Knowledge and Recognition of Delirium

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Presentation Objectives

• Describe delirium and associated sequela
• Discuss the need for nursing education to improve delirium knowledge and recognition
• Identify sources of evidence to support the PICO question
• Present a synthesis of the critiqued evidence findings
• Formulate recommendations for practice
“The very first requirement in a hospital is that it should do the sick no harm!”

Florence Nightingale: Notes on Nursing, 1859
Delirium was first described more than 2500 years ago and yet…

*It remains poorly understood and is frequently unrecognized!*
Story time...Have you experienced?
Nurses...

Are key to detecting and reporting delirium symptoms since they spend time with patients...yet many times the condition goes unrecognized and therefore is poorly managed!

Baker et al., 2015
“Why does this happen to patients that come in with a UTI?”

BACKGROUND
Delirium…

- Is defined as an acute disorder and decline of attention and cognition  
  Inouye et al, 2014
- It is common, serious, costly, under-recognized and often *fatal*  
  Inouye et al, 2014
- It affects as many as 50% of hospitalized adults 65 years and older  
  Leslie et al., 2014
- Care of the delirious older adult accounts for greater than 49% of all hospital days  
  Inouye, 2006
Delirium...

- Prevalence of delirium (on admission) in general medical and “old age” medical units is 18-35%
- Overall occurrence is 29-64% in these types of units  
  Inouye, et al., 2014
- Siddiqi et al. (2006) reported occurrence rate per admission of 11-42%
Delirium Causes...

• Usually multifactorial; the causation model has been well validated and widely accepted

  Inouye et al., 2014

• Depend on complexities of relationships with 

  *predisposing* factors in vulnerable patients

  *precipitating* factors  Inouye, 1998; Inouye et al., 2014
Delirium Risk Factors

**Predisposing**
- Baseline cognitive impairment; dementia
- Underlying illness or co-morbidity
- Functional impairment
- Advanced age
- Chronic renal insufficiency
- Dehydration
- Malnutrition
- Sensory impairment—vision or hearing

**Precipitating**
- Medication
- Immobilization
- Indwelling catheters
- Restraints
- Dehydration
- Malnutrition
- Illnesses—infeciton, electrolyte imbalances
- Hospitalization—environmental
- Psychosocial factors
- Alcohol
Predictive Model

Inouye & Charpentier, 1996; Inouye et al, 2014
Delirium Outcomes...

- One of the most preventable adverse events for older patients Inouye, 2006
- Longer hospital stays
- More hospital acquired complications
- More likely to be admitted to long term care
- Increased incidence of dementia
- Increased mortality

National Institute for Health and Care Excellence (NICE), 2010
Delirium Costs...

- Estimated range from $16,303 to $64,421 per patient with the national burden on U.S. health care ranging from $38 to $152 billion yearly
  
  Leslie et al., 2008

- More than $182 billion per year in 18 European countries combined
  
  OECD, 2012; WHO, 2012

*The cost to patients...immeasurable...*
More about Delirium

Delirium types:
• Hyperactive
• Hypoactive
• Mixed
• Delirium superimposed on Dementia (DSD)

Delirium Symptoms:
• Acute onset
• Fluctuating symptoms
• Inattention
• Impaired consciousness
• Disorientation, memory impairment, language change
• Hallucinations, delusions, inappropriate behavior
Unrecognized by Nurses

• Continues to be attributed to normal aging process—lack of understanding differences between delirium, dementia, and delirium superimposed on dementia (DSD)

• Fluctuating nature of delirium

• Communication barriers

• Inadequate use of delirium assessment tools

Delirium recognition education is an immediate need!!

El Hussein et al., 2014
What does the Evidence Show?

ASSESSMENT
Johns Hopkins Nursing Evidence Based Practice (JHNEBP) Model

Dearholt, 2012

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JHNEBP PET Process

Dearholt, 2012
PICO Question

Does implementing a delirium educational program for nurses result in increased delirium knowledge and recognition and use of delirium plans of care and nonpharmacological interventions?
P = Nurses

I = Educational program

C = No education (current)

O = Increased recognition and use of delirium plan of care and nonpharmacological interventions
JHNEBP PET Process

Dearholt, 2012
Search Strategy

**Databases**
- Academic Search Premier
- CINAHL plus with full text
- E-books (EBSCO host)
- ERIC
- Health Source—consumer / academic editions
- MEDLINE with full text
- MLA Directory of Periodicals
- MLA international bibliography
- Professional Development Collection
- PsychARTICLES / PsychINFO

**Years of Evidence Searched**
- 2000 to present
- Classic articles from 1990’s
  - Inouye et al., 1999, 1996
  - Inouye, 1998

**Excluded Studies**
- Studies in long term care
- Alcohol related delirium studies
- Delirium tool comparisons
- Pharmacological intervention only
Keywords for Search

- Nurs* education
- Deliri*
- Acute confusion
- Web-based education
- Dementi*
- Education methods
- Acute care

- Delirium knowledge
- Delirium recognition
- Delirium treatment
- Delirium management
- Nonpharmacological delirium interventions
Strategy Titles

- “nursing education” and deliri*
- nurs* education and deliri*
- “nursing education” and “delirium”
- “education methods” and delirium
- “web-based education” and nurs*
- Nonpharmacological delirium interventions and nurs*
- “acute confusion” and deliri* and nurs* and “delirium recognition”
Records identified through database searching: academic search premier, CINAH, plus full text; E-books, ERIC, Health Source Academic Ed. MEDLINE with full text, PsychARTICLES, PsychINFO (n = 180):

Records after duplicates removed (n = 140)

Records screened (n = 140)

Records excluded: long-term care, delirium screening tool comparison, alcohol related delirium, and pharmacological interventions only (n = 100)

Full-text articles assessed for eligibility: knowledge measurement tool, education intervention related to delirium knowledge and recognition, nonpharmacological interventions (n = 40)

Full-text articles excluded, with reasons: C-quality, no education intervention used to improve delirium recognition, study critique article (n = 7)

Studies included in evidence synthesis (n = 33)

Liberati et al., 2009
### Evidence Critiqued

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Number of articles</th>
<th>&quot;A&quot; Quality</th>
<th>&quot;B&quot; Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Level II</td>
<td>8</td>
<td>3</td>
<td>5</td>
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<tr>
<td>Level III</td>
<td>15</td>
<td>8</td>
<td>7</td>
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<tr>
<td>Level IV</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Level V</td>
<td>5</td>
<td>3</td>
<td>2</td>
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<tr>
<td>Total</td>
<td>33</td>
<td>19</td>
<td>14</td>
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**Quantitative:** 24
**Qualitative:** 2
**Non-research:** 7
## Evidence Synthesis

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of sources</th>
<th>Overall Quality Rating</th>
<th>Synthesis of Findings/ Evidence that answers PICO</th>
</tr>
</thead>
</table>
| **Level I** | 3 | A | • A web-based education program had a positive effect on nurses’ knowledge and ability to recognize delirium (McCrow et al., 2014)  
• Delirium education needs to be on-going (McCrow et al., 2014)  
• An intervention program (including nursing education) reduced duration of delirium, length of hospital stay, mortality rates in patients admitted to general medicine unit (Lundstrom et al., 2005)  
• A delirium e-learning course had significant positive effect on percent of patients screened for delirium & nurses’ delirium knowledge (van de Steeg et al., 2014)  
• In intervention phase of study, a decreased number of older patients were diagnosed with delirium (van de Steeg et al., 2014) |

1-Cluster RCT  
1-Prospective intervention RCT  
1-Stepped wedge cluster randomized trial
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<tr>
<td><strong>Level II</strong> Quasi-experimental:</td>
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<tr>
<td>4-pre-intervention/post intervention</td>
<td>8</td>
<td>A/B</td>
<td>• Use of a multifaceted education intervention reduced early and overall incidence of delirium and improved staff knowledge of delirium and management of risk factors (Wand et al., 2013)</td>
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<tr>
<td>2-controlled trials</td>
<td></td>
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<td>• Weekly education to nursing and the interdisciplinary team regarding the delirium clinical practice guideline reduced percent of pts. discharged with delirium and reduced mortality and falls (Mudge et al., 2012)</td>
</tr>
<tr>
<td>1-single blind case-control</td>
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<td>• An education intervention improved ICU nurses’ knowledge and risk factor identification scores (Speed, 2015)</td>
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<tr>
<td>1-Meta-analysis of interventional studies—RMT and non RMT (randomized or matched)</td>
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<tr>
<td>Level II Quasi-experimental: 4-pre-intervention/post intervention</td>
<td>8</td>
<td>A/B</td>
<td>• An education program decreased point prevalence of delirium (Tabet et al., 2005) &lt;br&gt;• Education program increased nursing staff awareness and recognition of delirium (Tabet et al., 2005) &lt;br&gt;• A multicomponent intervention (education and specific non-pharmacologic measures) hardwired into daily clinical practice can help to prevent delirium in at risk patients (Vidan et al., 2009) &lt;br&gt;• An education program significantly increased knowledge and practice levels among nurses regarding identification and management of delirium (Varghese et al., 2014)</td>
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| Level II  | 8                 | A/B                    | • A multifaceted educational strategy enhanced clinician knowledge around a given (delirium) topic (Ramaswamy et al., 2011)  
• Multicomponent nonpharmacologic interventions are effective in decreasing delirium incidence and preventing falls (Hshieh et al., 2015) |
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| **Level III**                         | 15                | A/B                    | • An opportunity exists for nursing education regarding delirium screening, prevention and outcomes (Flagg et al., 2010)  
• Multifaceted education programs improved staff performance and recognition of adherence to delirium protocols (Gisin et al., 2012; Yanamadala et al., 2013)  
• Education improved nurses use and perception of importance of using tool to screen for delirium (Gisin et al., 2012)  
• A nursing knowledge of delirium questionnaire was developed and authors found inadequate delirium knowledge particularly in relation to risk factors for delirium and delirium management (Hare et al., 2008) |
<p>| 4-systematic review-exp./non-exp.     |                   |                        |                                                  |
| 1-Evaluative                          |                   |                        |                                                  |
| 1-non-experimental                    |                   |                        |                                                  |
| 2-Qualitative Phenomenological Grounded Theory |                   |                        |                                                  |
| 2-prospective Cohort- (1-comparative) |                   |                        |                                                  |</p>
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<tr>
<td><strong>Level III</strong></td>
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<tr>
<td>1- Cross-sectional non-experimental</td>
<td>15</td>
<td>A/B</td>
<td>• Education must be initial and ongoing and include knowledge and skill building related to cognitive assessment tools, delirium risk factors, and interventions to reduce risk (Hare et al., 2008)</td>
</tr>
<tr>
<td>4- Descriptive</td>
<td></td>
<td></td>
<td>• Narrative pedagogy helps practitioners reflect on ways to deliver quality care to delirious patients-thorough assessment, less restraint use, listening, family (Belanger &amp; Ducharme, 2015)</td>
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<td>• Education and training are needed for nurses regarding delirium detection and risk factor identification (Inouye et al., 2001)</td>
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<td>• Use of case vignettes may increase nurse detection of delirium superimposed on dementia (Fick et al., 2007)</td>
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</table>
| Level III    | 15                | A/B                    | • Education programs are needed to increase awareness of delirium in persons with dementia to fill nursing education gap (Fick et al., 2007)  
• Review of nurses’ documentation in EMR revealed that nurses did not recognize delirium or document delirium features—nurses would benefit from clinical and decision support coupled with education to help differentiate between common geriatric syndromes (Steis & Fick, 2012)  
• It is crucial to assess nurses’ delirium knowledge in order to quantify knowledge deficit prior to creating educational program (Baker et al., 2015)  
• Nurses must be taught to recognize nuances of delirium manifestations to recognize symptoms in patients (Steis & Fick, 2008) |
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| **Level IV 2-Clinical Practice guidelines** | 2                 | A                      | • Hospitals and health care systems should implement education programs with ongoing formal and or informal refreshers on delirium...to improve understanding of epidemiology, assessment, prevention, and treatment (American Geriatric Society Expert Panel on Postoperative Delirium in Older Adults, 2015)  
• Staff education programs are key priority in delirium clinical practice guidelines (NICE, 2010) |
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<td><strong>Level V</strong></td>
<td>5</td>
<td>A/B</td>
<td>• An educational program plus bedside coaching improved nursing practice and process of care – nurses reported 20% increase in confidence levels regarding ability to quickly and accurately recognize delirium (Gordon et al., 2013)</td>
</tr>
<tr>
<td>2 QI</td>
<td></td>
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<td>• Scripted unfolding cases were used to address delirium learning issues and needs-positive evaluation regarding gain of new information to recognize and manage delirium useful for practice (Page et al., 2010)</td>
</tr>
<tr>
<td>1 Program evaluation</td>
<td></td>
<td></td>
<td>• Simulation with improvisational actors increased knowledge regarding assessing for delirium (Paquette et al., 2010)</td>
</tr>
<tr>
<td>1 Case report</td>
<td></td>
<td></td>
<td>• Implementing a delirium prevention and treatment protocol can decrease incidence and negative delirium consequences (Allen et al., 2011)</td>
</tr>
<tr>
<td>1 Expert opinion</td>
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Based on the evidence, what are the practice recommendations?

RECOMMENDATIONS
Results: Best Practices Identified

Multifaceted education programs recommended in 10 studies:

- Didactic (In 4 studies, didactic education was the intervention)
- Resources—handouts, poster boards
- Resource person—bedside coach, geriatric nurse specialist
- Case studies (Intervention in 3 additional studies case studies; one study used simulation of cases)

Web based Education: 2 Level 1 A studies

- E-learning course helped nurses build on existing knowledge (McCrow et al., 2014; van de Steeg et al., 2014)
Results: Best Practices Identified

- Designate local delirium champion to improve effectiveness of education through presence and coaching to give ownership (Wand et al., 2013)

- Delirium coaching at the bedside will continue to support practice changes (Gordon et al., 2013)

- Use a delirium screening tool to improve nurses’ ability to evaluate patient for delirium risk (Gadreau et al., 2005; Gesin et al., 2012; Gordon et al., 2013; Steis & Fick, 2012)
Results: Best Practices Identified

• Survey tool to assess delirium knowledge and risk factor identification and identify clinical and educational implications was used in 4 studies (Gordon et al., 2013; Hare et al., 2008; Speed, 2015; Baker et al., 2015)

• Nurses are key to early recognition of delirium (Fick et al., 2007; Inouye et al., 2001)

• Daily monitoring of adherence to plan of care improves implementation (Vidan et al., 2009)
Results: Best Practices Identified

Implement nonpharmacological interventions to prevent and treat delirium:

- Cognitive reorientation
- Sleep enhancement
- Early mobility
- Sensory adaptations—glasses, hearing aids
- Adequate fluid and nutrition
- Adequate oxygenation
- Prevent constipation
- Recommend medication review

(AGS, 2015; Fong et al, 2009; Hshieh et al., 2015; Inouye et al., 1999; NICE, 2010; Rivosecchi et al., 2015; Vidan et al., 2009)
Results: Best Practices Identified

• Communicate assessment findings in meaningful manner to other health care providers (Steis & Fick, 2012)

• Notify physicians if signs and symptoms of delirium are recognized—This is a medical emergency!! (Allen et al., 2011)
Questions???
References


THE END