Evidence-Based Education Intervention to Improve Knowledge and Attitudes of Nurses’ Postoperative Pain Management for Improved Patient Satisfaction

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Disclosures
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Financial relationship:

Received the National Scholar Award from Beryl Institute and a partial funding for this project.

Nonfinancial relationships:

This research was a capstone project that partially satisfied the degree requirements for the Doctor of Nursing Practice at the University of Massachusetts Dartmouth.
Learner Objectives

- Understand how to identify gaps and potential barriers in nurses’ knowledge and attitudes regarding pain management.
- How to assess patient satisfaction regarding their pain management.
Background


1987 to present – Nurses’ knowledge base and attitudes may be a barrier.

1987 to present - “Knowledge Attitudes Survey Regarding Pain” tool (Ferrell and McCaffery 1987, 20008, 2012).

2010 – Affordable Care Act assigned pain management as one of its priorities (Affordable Care Act, 2010).

2011 – 635 billion dollars spent in the US (Institute of Medicine, 2011).

2011 – Increase demand for measuring and improving patient outcomes with “Always Events” not “Never Events” (Picker Institute, 2011).

Significance

2013 – Patient centered care model coordinates all care with respect to patient, fairly and without prejudice, upholding values of the patient and supporting patient and family.

2013 – Center for Medicare and Medicaid Services (CMS) now expects patient satisfaction to impact ratings and regulation of reimbursement with patient care including pain management.

2013 - Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) a nationally standardized survey for patient satisfaction results are publically reported and tied to reimbursement.

**Project Design:**

*Johns Hopkins Nursing Evidence Based Practice Model*

- **Practice Question:** Are there nurse practice deficiencies in postoperative pain management on a surgical unit in acute care and does this impact patient satisfaction?

- **Evidence:** Critical appraisal of evidence with scope of the problem, assessment tools for measuring knowledge, attitudes of nurses about postoperative pain management, and educational interventions.

- **Translation:** Educational intervention followed by a posttest generated results of statistically significant change in nurses’ knowledge and attitudes with pain management.

*Note:* (Newhouse, Dearholt, Poe, Pugh, & White, Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines (2007) © The Johns Hopkins Hospital/Johns Hopkins University. Reprinted with permission.)
Critical Appraisal of Evidence: Johns Hopkins Nursing Evidence Based Practice Model

- Needs Assessment: Observing and interacting with nurses on two surgical units and appraised evidence for scope of the problem.

- Concurrent to needs assessment: literature search for assessment tools prior to initiating phase one.

- Using pretest results following phase one, critically appraised evidence to develop an education intervention for content, length and interval of time.

- Reviewed the evidence to determine the significance of the results.

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# Summary of Evidence: Postoperative Pain Management

<table>
<thead>
<tr>
<th>Strength of Evidence</th>
<th>Assessment Tool</th>
<th>Education Intervention: Length</th>
<th>Education: Pharmacology</th>
<th>Education: Pain Assessment</th>
<th>Education: Addiction Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Level II</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Level III</td>
<td>12</td>
<td>9</td>
<td>11</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Level IV</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>16</td>
<td>19</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Consistent</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Recommendation</td>
<td>Strong</td>
<td>Weak</td>
<td>Strong</td>
<td>Strong</td>
<td>Strong</td>
</tr>
</tbody>
</table>

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Phase 1

- IRB filed and approved with expectation an amendment for education intervention to be filed for approval prior to phase 2.
- Pretest – posttest design
- Administered the 36 item Knowledge Attitudes Survey Regarding Pain (Ferrell, McCaffery 2012).
- Sixteen questions with mean scores below 75% identified as deficiencies.
- Low scoring questions placed into 3 categories from IASP content outline from professional nurse behaviors for pain management.
- Postoperative patients surveyed using HCAHPS pain management questions.

Educational Intervention Development

Education intervention developed from the International Association Study of Pain (IASP) curriculum content based on pain management practice for nurses.

1. Describe the physiological mechanism of pain with different modalities to treat pain.

2. Discuss the clinical assessment pain and measurement.

3. Discuss inadequately managed pain and nurses’ misbeliefs.

IASP (2013); Institute of Healthcare Improvement (2013); Agency for Healthcare Research and Quality (2012)
Phase 2

- Education intervention PowerPoint prepared.
- IRB amendment filed for education intervention and approved.
- CEU MARN application filed.
- Evaluated nurse participant schedules.
- One hour sessions.
- Offered eleven sessions.

Gunnardottir, Gretardottir (2011); Michaels et al. (2007); Vallerand et al, (2010)
Phase 3

- Posttest
- Readministered the 36 item Knowledge Attitudes Survey Regarding Pain (Ferrell, McCaffery 2012).
- Data analyzed using paired $t$-test to assess significant changes in mean between pretest and posttest scores.
- Open response questions were collected from the nurses about their perceived barriers to pain management.
- Postoperative patients surveyed using the same HCAHPS pain management questions during phase one.

Ferrell, McCaffery (2012); IASP (2013)
Results

Comparison of low scoring pre test questions to post test (n=15)
(Scored below 75% on pre test)
## Nurse Participant Pre and Post Survey: Group Means by Unit

<table>
<thead>
<tr>
<th>Unit</th>
<th>Mean Pre Survey</th>
<th>Mean Post Survey</th>
<th>Change in Mean Score</th>
<th>SD</th>
<th>% Change</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit A (n=3)</td>
<td>70.37</td>
<td>86.13</td>
<td>15.76</td>
<td>5.83</td>
<td>22.4%</td>
<td>.043</td>
</tr>
<tr>
<td>Unit B (n=12)</td>
<td>71.53</td>
<td>81.26</td>
<td>9.73</td>
<td>7.54</td>
<td>13.6%</td>
<td>.001</td>
</tr>
<tr>
<td>Unit A &amp; B (n=15)</td>
<td>71.29</td>
<td>82.23</td>
<td>10.94</td>
<td>7.46</td>
<td>15.3%</td>
<td>.018</td>
</tr>
<tr>
<td>#</td>
<td>Patient Participant Pain Question</td>
<td>Answer Choices</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>During your hospital stay, did you need medicine for pain?</td>
<td>Yes  No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>During this hospital stay, how often was your pain well controlled?</td>
<td>Never Sometimes Usually Always</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?</td>
<td>Never Sometimes Usually Always</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HCAPHS (2013); American Pain Society (2013)
Patient participant reports by unit pre and post survey timeframe.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Mean Pain Score</th>
<th>Mean time in minutes from last dose</th>
<th>Question 2 % of always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit A pre survey n=9</td>
<td>4.1111</td>
<td>63.3333</td>
<td>55.6%</td>
</tr>
<tr>
<td>Unit A post survey n=4</td>
<td>6.0000</td>
<td>37.5000</td>
<td>50%</td>
</tr>
<tr>
<td>Unit B pre survey n=3</td>
<td>6.6667</td>
<td>40.0000</td>
<td>66.7%</td>
</tr>
<tr>
<td>Unit B post survey n=4</td>
<td>2.5</td>
<td>90.0000</td>
<td>75%</td>
</tr>
</tbody>
</table>

Allegri (2012); Bregman et al (2012); Salinas (2011); White (2010); Horbury (2005)
Nurse participants open responses: barriers to pain management

- Patient Factors:
  - Unrealistic pain expectation/knowledge deficit: n=8
  - Cultural differences/language barriers: n=7
  - Pain tolerance issues/chronic pain issues: n=7
  - Interplay of anxiety and pain: n=19

- Provider Factors:
  - Lack of time/pain not a priority: n=4
  - Lack of cultural competence: n=7
  - Attitudes about "drug seeking" and addiction: n=5
  - Lack of knowledge: individualized dosing and co-morbid chronic pain: n=4

- Systems Factors:
  - Nurse-patient ratio: n=4
  - Unavailability of interpreters: n=4
  - Underutilization of pharmacy consults: n=4
  - Staff education/nursing/MDS: n=4
  - Underprescribing - inappropriate agent selection: n=4
  - Availability of medications: n=4

Allegri et al, 2012; Al-Shaer (2011); Salinas (2011); Ostlund et al, 2011; Bozimowski, 2010; Gordon, 2010; Bell (2009)
### Patient Participants Open Response to Their Pain Management

<table>
<thead>
<tr>
<th>Patient Participant (n=20)</th>
<th>Open Responses Pain Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 7</td>
<td>Too many providers taking care of them and added to confusion.</td>
</tr>
<tr>
<td>n = 7</td>
<td>Satisfied with the nursing care</td>
</tr>
<tr>
<td>n = 2</td>
<td>Adequate pain management depends on the nurse.</td>
</tr>
</tbody>
</table>
Recommendations: Nurse Providers

- Ferrell, McCaffery Survey (2012) was very accurate in assessing knowledge and attitudes of postoperative pain management.
- Repeat intervention system wide.
- One CEU offered for education intervention only. Should have included the time spent with pre and posttests for 2.5 CEUs and given at the completion of the project.
- Nurse participation open responses to include barriers and successes to pain management.

Ferrell, McCaffery, 2012; Salinas, Abdoirasulnia, 2011; Vallerand et al, 2010; Gunnarsdottir, 2011; Ravaud et al, 2004; Rejeh et al, 2009; Young et al, 2006
Recommendations:
Patient Factors

- Survey patients in house with American Society Patient Outcome Questionnaire (APS-POQ) regularly assessing expectations, activity, emotions, side effects, treatments.

- “Pain-Out”

- Revisit the pain scales and assess for a revised pain scale that includes pain crisis (Vargas-Schaffer, 2010).

Gordon et al, 2010; Vargas-Schaffer, 2010
Recommendations: System Factors

- Qualitative study to assess behaviors system wide for Evidence Based Practice Model for management and clinical practice.
- Pain committee multidisciplinary representation and regular meetings.
- Repeat intervention throughout system to all healthcare team to continually evaluate for evidence based education intervention.

Limitations

- Lack of nurse participation resulted in smaller sample size than predicted.
- Management transitioning to different positions and lacked administration continuity.
- Difficulty to find the appropriate timing of the interview with patients in postoperative period.
- Layoffs and bumps of staff caused uncertainty.
- Study took three and half months for all three phases. Too many schedule issues over that span of time and may need a tighter time table to capture more participation.

Samuels, Fetzer, 2009; Cohen, Arieli, 2011
Thank you

References upon request