Title:
Cognitive and System Factors Impacting Nurses Postoperative Pain Management

Laura Cullen, DNP
Department of Nursing Services and Patient Care, University of Iowa Hospitals and Clinics, Iowa City, IA, USA

Toni Tripp-Reimer, PhD
University of Iowa College of Nursing, Iowa City, IA, USA

Session Title:
Cognitive and System Factors Impacting Nurses' Postoperative Pain Management

Slot:
J 02: Saturday, 29 July 2017: 1:30 PM-2:45 PM
Scheduled Time:
1:50 PM

Keywords:
cognitive work load, human factors and pain management

References:


Abstract Summary:
Pain, a common patient experience has complex recommendations to guide practice. A qualitative study used observations, interviews and focus group to analyze cognitive and system factors during nurses’ pain management when caring for post-operative total knee replacement patients.

Learning Activity:

<table>
<thead>
<tr>
<th>LEARNING OBJECTIVES</th>
<th>EXPANDED CONTENT OUTLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss cognitive and system factors impacting nurses’ pain management practices</td>
<td>Consideration of human factors principles including cognitive and system factors that impact nurses’ work.</td>
</tr>
<tr>
<td>Describe nurses' post-operative pain management</td>
<td>Identification of nurses’ work contributing to stacking and work blocks in pain management. Recommendations for opportunity to improve nurses’ cognitive work</td>
</tr>
</tbody>
</table>

Abstract Text:
Pain is a common patient experience with evidence available to guide practice. Inadequate pain control contributes to poor functional recovery. This feasibility study aimed to identify cognitive and system factors that impact nurses’ postoperative pain management practices. Complex patient conditions and nurses’ workload create significant challenges for effective pain management. Nurses’ increased cognitive work (e.g., cognitive shifts and interruptions, cognitive stacking, lack of care coordination) and system factors (e.g., environment, technology, social and organizational aspects) may hinder evidence-based pain assessment and pain management practices. Observations targeted nurses’ pain practices for adult postoperative total knee replacement (TKR) patients who often experience severe pain. Human factors engineering, nursing, and pain experts collaborated to study the complexity in nurses’ pain practices.

Human factors engineering and ethnography methods were used to identify cognitive and system factors affecting nurses’ postoperative pain practices. A nurse-engineer pair conducted shadowing, interviews, workload assessments and a focus group using contextual inquiry techniques. Observers shadowed five nurses (observer pair, four hours each nurse) for a total of 40 hours during the patients’ first full postoperative day. Facility design impacting nurses’ work was captured using movement analysis. Coding of themes was inductive and integrated nurse and engineer observations to create a coding framework built upon human factor engineering and the nursing process. Consensus was achieved using multi-step analysis.

Postoperatively, nurses prioritize patient care for pain and used evidence-based recommendations. However, the most frequent nursing activities included computer use, paperwork or charting/documentation, care coordination, and then care for pain. Nurses caring for surgical patients postoperatively frequently adjust and reprioritize care as a result of cognitive and system factors along
with the unit layout. Stacking was a recognized norm that interfered with nursing care. Workflow blocks affected nurses’ ability to provide care and meeting colleagues’ needs created work stoppages. Work blocks increased both stacking and cognitive load. Unit design and organizational procedures (e.g., double checks, documentation) impact work pace, while creating work blocks. Interruptions and distractions were less influential than anticipated. These nurses rated workload with ratings lowest for pain reassessment and highest for overall pain management.

Millions of patients have surgery every year across the globe. Nurses caring for post-operative patients consistently prioritize pain management. Evidence-based recommendations are available and were designed to improve pain practice for all postoperative patients. Nurses’ work is highly complex and influenced by cognitive work and system factors. c offers considerable opportunity to improve pain management for this patient population.