Pursuing Best Practice: Improving Pain Measurement and Interventions for Non-verbal Adults in the Intensive Care Unit

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UPMC Pinnacle
• Multi-site system includes 8 Acute Care Hospitals in Central Pennsylvania
  • 1,360Licensed Beds
• 3 NICHE Hospitals
  • UPMC Harrisburg
  • UPMC Community Osteopathic
  • UPMC West Shore
• Similar Medical ICU’s at two Community Hospital Sites, each with
  • 12 beds
  • 30 staff

UPMC Pinnacle: West Shore Campus

Community Osteopathic Campus
Objectives

• Discuss application of the IOWA EBP Model to implement practice change

• Discuss the efficacy of the CPOT tool compared to the FLACC in non verbal adult patients in the ICU

Description of the Clinical Problem

• Pain in nonverbal critically ill patients is common, and often unrecognized and untreated.

• Rapidly growing ICU population is >85

• Community and West Shore ICU population > 65yo is 61.6%

• Nurses have a pivotal role in pain management

• Accurate pain assessment is essential

Introduction

• Nurses questioned the current pain scale for non-verbal patients
  • FLACC (Faces, Legs, Activity, Cry, and Consolability)

• Concerned that a tool designed for infants/children was not adequate

• Pain reassessment documentation was inconsistent and only completed 33-60% of the time
Introduction

• Nurses on the pain committee requested a best practice investigation

• They also noted the Critical Care Pain Observation Tool (CPOT) was available in the new EMR but was not in our policy

• The CPOT did not correlate with pain scoring in the MAR

• 2 Clinical Nurse Specialists (CNSs) developed this into a doctoral project

Why the CPOT was chosen for investigation

• Nurses had noticed the Critical Care Pain Observation Tool (CPOT) was available in the new EMR but was not in our policy
  • Some nurses found they were able to access the tool and use it

• The literature was full of current information evaluating the CPOT against other pain assessment tools for non-verbal patients
  • The CPOT compared to many other scales was shown to be a better tool

• The CPOT has been shown to be valid and reliable for intubated and extubated patients that can’t use a numerical scale.
  • Many ICU scales address intubated patients, but not necessarily cognitively limited patients; extubated patients and some intubated patients can communicate enough to use standard numerical pain scales

The IOWA EBP Model

UPMC Pinnacle
IOWA Model

• Problem focused triggers + Knowledge focused triggers

<table>
<thead>
<tr>
<th>Problem</th>
<th>Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool used for non-verbal pain assessment</td>
<td>Is there a better tool researched in literature?</td>
</tr>
<tr>
<td>Accurate pain assessment essential</td>
<td>What do national standards and guidelines say?</td>
</tr>
<tr>
<td>Pain reassessment data below benchmark</td>
<td>What do we believe about patient care/re: pain?</td>
</tr>
<tr>
<td>Improve the process of pain assessment</td>
<td>What do our organizational standards say?</td>
</tr>
</tbody>
</table>

• Priority
  • Appropriate pain management

• Form a team
  • Initial team was the CNS and the CNS/DNP student
  • Pain Committee/unit pain champions
  • And later collaboration with EMR team

IOWA Model

• Literature was reviewed

• The CPOT was found to be a valid and reliable tool

• Information was brought back to the pain committee

• CPOT worked for others; will it work for our organization?

PICO Question

Will implementation of the CPOT by nurses caring for nonverbal patients in the intensive care unit improve pain assessment, documentation, and implementation of recommended nursing interventions as measured by pain scores and documented interventions before, during, and one hour after repositioning when compared to current practice/use of the FLACC tool?
Goals were Established

1. Implementation of the CPOT by nurses caring for nonverbal patients in the intensive care unit to improve pain assessment
2. Assess the impact of the use of CPOT to nurses’ work flow
3. Assess nurse’s satisfaction with CPOT
4. Recommend a nonverbal pain scale that might be adopted by the organization to assess pain in nonverbal Intensive Care Unit Patients

Kouzes & Posner

Leadership - The Five Practices®
Jym Kouzes and Barry Posner

Presence/ Modeling the Way

• CNSs, mangers, and pain champions encouraged staff participation by being actively on the unit and engaged.
• Updates on how close we were to completion were regular
Methods

• Outcomes:
  • pain assessment/ reassessment
  • feasibility and reliability

• Two similar ICUs were chosen in 2 community hospitals.
  • Community Osteopathic served as the control
  • West Shore was the intervention unit

• Project plan and teams created
  • Baseline data collected
  • CNSs, pain champions, unit committees, nurse educators

• Education on pain and pain reassessment

Baseline

$X^2$ Pre and Post Tests for Pain Education on Similar Units Supports Similarity at Baseline

<table>
<thead>
<tr>
<th>Unit</th>
<th>Pre-test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Implementation</td>
<td>83%</td>
<td>90%</td>
</tr>
<tr>
<td>Control/ Community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementation</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td>Intervention/ West Shore</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$X^2 = .001$

Degree of freedom = 1

$p = .911635$

Pain Assessment

• Pain assessments were done on 75 patients in each of the 2 units

• Assessments were done:
  • At rest
  • During turning and repositioning
  • One hour after any intervention
  • To align with pain reassessment times
Data Collection - Control

- FLACC tool/ scoring
  - Date and time
    - Before turning with
    - During turn and reposition
    - One hour after turning
  - Pain intervention and time
    - Medication
    - Non-pharmacological
- Pain and pain reassessment data tracked by the unit

Data Collection - Intervention

- FLACC tool/ scoring
  - Date and time
    - Before turning with
    - During turn and reposition
    - One hour after turning
  - CPOT tool/scoring
    - Date and time
      - Before turning with
      - During turn and reposition
      - One hour after turning
  - Brief Questionnaire
  - Pain and pain reassessment data tracked by the unit.

Tools utilized/ FLACC

<table>
<thead>
<tr>
<th>FLACC Scale</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>Score before turn and reposition</th>
<th>Score during turn and reposition</th>
<th>Score one hour after turn and reposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total score</td>
<td></td>
<td></td>
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</tbody>
</table>

Tools utilized/ CPOT

<table>
<thead>
<tr>
<th>CPOT Scale</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>Score before turn and reposition</th>
<th>Score during turn and reposition</th>
<th>Score one hour after turn and reposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total score</td>
<td></td>
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</table>
Results Goal 1:

Implementation of the CPOT by nurses caring for nonverbal patients in the intensive care unit improves pain assessment.

FLACC group medicated 41/80 or 51.25% of the time.
FLACC/CPOT (implementation group) medicated 62/75 or 82.66% of the time.

<table>
<thead>
<tr>
<th></th>
<th>Medicated</th>
<th>Not Medicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLACC</td>
<td>41</td>
<td>39</td>
</tr>
<tr>
<td>FLACC/CPOT</td>
<td>63</td>
<td>13</td>
</tr>
</tbody>
</table>

\( \chi^2 = 17.5628 \)
\( \text{df} = 1 \)
\( p = 0.000028 \)

Results: Goal 1

- WS Unit Monthly Compliance Data for Reassessment of Pain

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<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>100</td>
<td>60</td>
<td>33</td>
<td>100</td>
<td>90</td>
<td>80</td>
<td>70</td>
<td>100</td>
<td>80</td>
</tr>
</tbody>
</table>

*Further Develop Champion*
*Counsel Staff*
*Meet with Manager*
*Attend Steering*
*Increase Visibility*
*ENCOURAGE THE HEART*

Results Goal 2:

Assess the impact of the use of CPOT to nurses’ workflow.

- Create a space in the unit for nurses to give feedback on the process.
- Bulletin board with the following areas: Barrier, Suggested Improvement, Resolution.
- Daily response to nurses’ comments for first 2 weeks, then every other day, then weekly as needed.
Goal 2

<table>
<thead>
<tr>
<th>Barrier/Concern</th>
<th>Response/Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>• &quot;2 sided form long, easy to mis&quot;</td>
<td>• Form placed on one page</td>
</tr>
<tr>
<td>• &quot;Written form is too much work&quot;</td>
<td>• End goal is for one, easy electronic tool</td>
</tr>
<tr>
<td>• &quot;But I use the CPOT&quot;</td>
<td>• Not policy, indirect access</td>
</tr>
<tr>
<td>• &quot;My patient is paralyzed&quot;</td>
<td>• Not for paralyzed patients</td>
</tr>
</tbody>
</table>

Other feedback Goal 2

RN Response

• "I like that it accounts for the patient bucking the vent..."
• "I like that CPOT includes ventilation ease."
• "It measures activity better, like rigidity..."
• "Better recognition of pain with CPOT due to sedation/intubation"
• "CPOT is easy."
• "CPOT is easier to work with! Preferred over FLACC."
• "...seems easier to use, organize..."

Results Goal 3:
Assess nurse’s satisfaction with CPOT

**Nurses’ CPOT Feasibility/Satisfaction: Brief Questionnaire**

Please rate the following questions. Choose a “yes” or “no” response for each question. THANK YOU!

1) Is the CPOT easy to complete?
2) Do you believe the CPOT improved your ability to manage your patient’s pain compared to FLACC/Faces?
3) I prefer using the CPOT compared to the FLACC

Goal 3

- Was the CPOT easy to complete?
  70/73 or 95.89% of the time

- Did it subjectively improve nursing practice when compared to current practice?
  56/73 or 76.71% of the time

- Were the nurses satisfied with the use of CPOT in ICU?
  63/73 or 86.30% of the time

Results Goal 4:
Recommend a nonverbal pain scale that might be adopted by the organization to assess pain in nonverbal Intensive Care Unit Patients

- Results disseminated

- CPOT recommended

- Rolling out house wide March 2018

Presence/Presents

- Staff on both the control unit and the intervention unit were rewarded for their efforts at the conclusion of this project.
### Cost/Benefit Analysis

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials: Misc. Supplies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Paper, ink, markers... one unit</td>
<td>$200.99</td>
<td>$200.99</td>
</tr>
<tr>
<td>Education of Staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 5 hr. x 30 @ $27.00/hr.</td>
<td>$405.00</td>
<td>$405.00</td>
</tr>
<tr>
<td>Additional Team Meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Champion 6hr. x 2 @ $27.00/hr.</td>
<td>$54.00</td>
<td>$54.00</td>
</tr>
<tr>
<td>Leadership Costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Planning/Time on Unit CNS rate 155 hr. at $45.00/hr.</td>
<td>$6,975.00</td>
<td>$6,975.00</td>
</tr>
</tbody>
</table>

**Total Cost/Unit = $7,904.00**

<table>
<thead>
<tr>
<th>Description</th>
<th>Savings</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. 10/11-1 days in rescued out patients</td>
<td>$6,212.00</td>
<td>$6,212.00</td>
</tr>
<tr>
<td>x 6 = $31,272.00</td>
<td>$39,780.00</td>
<td>$39,780.00</td>
</tr>
</tbody>
</table>

**CPOT reduced LOS by half**

<table>
<thead>
<tr>
<th>Description</th>
<th>Savings</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>x 3 = $9,216.00</td>
<td>$11,934.00</td>
<td>$11,934.00</td>
</tr>
<tr>
<td>Total = $1,312.00</td>
<td>$4,030.00</td>
<td>$4,030.00</td>
</tr>
</tbody>
</table>

**Potential Savings for 6 patient LOS=**

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost = $6,144.00 - $7,956.00</td>
<td>$1,812.00</td>
</tr>
<tr>
<td>x 6 = $10,872.00</td>
<td>$13,128.00</td>
</tr>
</tbody>
</table>

**References**


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