Validity and Reliability of the Moline-Roberts Pharmacologic Sedation Scale®

Presented by:
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No conflicts of interest to disclose

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OBJECTIVES

• Describe the method used to establish validity and reliability of the Moline-Roberts Pharmacologic Sedation Scale®, (MRPSS)

• Relate the value of the Moline-Roberts Pharmacologic Sedation Scale®, to clinical practice.

Poudre Valley Health System
Magnet Hospital since 2000

Beacon Award for Critical Care Excellence
Poudre Valley Health System

- Service area: Northern Colorado, Wyoming & Nebraska
- 4,200 employees, 778 providers & 800 volunteers

**History of MRPSS**

- Fall 1999
  - Original scale developed
  - Established validity and reliability
- Spring 2001
  - Revised for compliance with JCAHO definitions
- Fall 2007 - 2009
  - Scale revisions
  - IRB approved R/V study
  - Data collection/analysis

**MRPSS Conceptual Blueprint**

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Auditory Stimulation</th>
<th>Tactile Stimulation</th>
<th>Response</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awake, aware, alert</td>
<td>None</td>
<td>None</td>
<td>Speech activities, sustained interaction</td>
<td>None is required</td>
</tr>
<tr>
<td>Sedation</td>
<td>Soft voice or ambient noise</td>
<td>Light touch, rubbing, or tapping</td>
<td>Sustained interaction</td>
<td>1 Anxiolysis</td>
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<tr>
<td>Moderate Sedation</td>
<td>Normal to loud voice</td>
<td>Light touch, rubbing, or tapping</td>
<td>Follows simple commands</td>
<td>4 Moderate Sedation</td>
</tr>
<tr>
<td>Deep Sedation</td>
<td>Loud voice, ventilation likely impaired</td>
<td>Persistent or noxious stimuli</td>
<td>Unarousable</td>
<td>6 General Anesthesia</td>
</tr>
</tbody>
</table>

**3**

**4**

**5**

**6**
Content Validity

- Multidisciplinary expert panel
- Questionnaire packet included
  - Letter requesting participation
  - Conceptual blueprint representing the continuum of sedation
  - Sedation definitions
  - Revised scale and Instructions for use
  - Questionnaire
  - Return envelope
- 72% Response Rate

<table>
<thead>
<tr>
<th>ID</th>
<th>Blueprint reflects concept</th>
<th>Presence</th>
<th>Auditory</th>
<th>Tactile</th>
<th>Response</th>
<th>Scale reflects blueprint</th>
<th>Profession</th>
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</tbody>
</table>

No = 0                   Yes = 1   Period = No response
Physician = 1            RN = 2    Pharmacist = 3

Interrater Reliability

- Study design
  - Randomized assignment
  - 3 to 4 assessments per patient
- Setting
  - 260 bed non-profit hospital
  - Inpatient and outpatient units included
  - Primarily peri-operative and peri-procedural patients
Interrater Reliability

- Sample
  - 86 patients with 329 assessments
- Two nurse raters
  - One nurse provided stimulus if needed
  - Simultaneous evaluation
  - Blinded documentation

### Interrater Reliability

<table>
<thead>
<tr>
<th>Component</th>
<th>Cohen's Kappa</th>
<th>p value</th>
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<tbody>
<tr>
<td>Presentation</td>
<td>76.4% - 92.2%</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Auditory Stimulus</td>
<td>81.0% - 87.8%</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Tactile Stimulus</td>
<td>77.2% - 88.5%</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Response</td>
<td>84.1% - 97.4%</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sedation Level</td>
<td>90.6% - 97.0%</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Statistical analysis provided by Janet Houser PhD, RN

Internal Consistency

- Cronbach’s alpha scores ranged from .983-.996
  - The instrument demonstrated high internal reliability.

Statistical analysis provided by Janet Houser PhD, RN
Moline-Roberts Pharmacologic Sedation Scale®

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<tr>
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<th>Tactile</th>
<th>Response</th>
<th>Sedation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awake, aware, alert</td>
<td>None</td>
<td>None</td>
<td>Spontaneous interaction</td>
<td>Score 1 = Mild Sedation</td>
</tr>
<tr>
<td>Restful, drowsy, dozing, lightly sleeping</td>
<td>Soft voice or ambient noise</td>
<td>Light touch, rubbing or tapping</td>
<td>Limited or brief interaction</td>
<td>Score 2 = Moderate Sedation</td>
</tr>
<tr>
<td>Sleeping</td>
<td>Loud voice</td>
<td>Intense to noxious</td>
<td>No response, unarousable</td>
<td>Score 5 = General Anesthesia</td>
</tr>
</tbody>
</table>

Value to Clinical Practice

- Sedation proceeds respiratory depression
  - Sedation is a continuum
  - Many agents induce/potentiate sedation
- Scale provides standardized method for
  - Assessing patients
  - Monitoring and trending over time
  - Communicating across the care continuum

Value to Clinical Practice

- Advantages for staff
  - Color coded
  - Used throughout system
  - Incorporated into order sets
- Limitations
  - Tool – not decision maker
  - Not for patient with neurologic impairment
Guiding Nursing Practice

- Two additional columns were added to the scale to guide nursing action:
  - Attentive Pain Management
  - Moderate Sedation/Analgesia
- Specific to PVHS organization
- Content not part of the research study
- Video created to ensure consistent education
  - Concept of scale
  - Patient scenarios
  - Validation scenarios

Guiding Nursing Practice

- Scale instructions include
  - Purpose of tool
  - How to use tool
  - Limitations of tool
  - Information to assist in assessing patient risk
    - Physiologic factors
    - Pharmacologic factors
    - Monitoring factors
    - Sleep factors

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Moline-Roberts Pharmacologic Sedation Scale
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Questions