Progressive Mobility in the ICU: Improving the Patient Experience

Rachel Lewis-Bayliss BSN, RN
Theresa M. Davis PhD, RN, NE-BC
Early Progressive Mobility Team

- Jason Vourlekis MD, MBA: Medical Director Critical Care
- Svet Djurkovich MD: Intensivist MSICU
- Jennifer Thomas, PT, DPT: Physical Medicine and Rehab
- Sonia Astle MS, RN, CNS: Critical Care
- Sara Davis BSN, RN: Charge RN MSICU
- Lindsay Clevenger AGACNP-BC, BSN, RN, CCRN
- Theresa Davis PhD, RN, NE-BC: Clinical Operations Director eICU
- Bob Myers RN, MPA, Fache: Nurse Manager MSICU
- Rachel Lewis-Bayliss BSN, RN: Sr. Lean Consultant
Objectives

- Describe benefits of early progressive mobility
- Identify best practice models
- Explain essential elements of a successful mobility program
- Display early progressive mobility outcomes
Background

Studies show early progressive mobility of ICU patients:

- Prevents neuromuscular degeneration
- Decreases ventilator days
- Decreases ICU Length of stay
- Decreases cost
- Improves patient outcomes

MSICU at Inova Fairfax Medical Center is piloting a mobility program using lean principles and an interprofessional team approach.
Literature Review

- ICU mobility pioneered at Hopkins, Wake Med, and UCSF
- Average 1.4 – 2.1 decrease in ICU LOS and 2 – 3.3 decrease in hospital LOS
- Wake demonstrated $500,000 net reduction in costs of care
- Hopkins financial model predicted up to $3.7 million annual savings
- Additional benefits:
  - Decreased ICU sedation usage by 70%
  - Decrease ICU delirium, >50% reduction
  - Decrease hospital readmissions

Purpose

To increase early progressive mobility to prevent complications and improve patient outcomes

Vision

Enhance and sustain mobility for all ICU patients through optimization of standards outlined in Inova’s Progressive Mobility Protocol
Methods

Lean methodology was used to promote incremental improvements of an established mobility program to create significant change over time using interprofessional team collaboration.

Education and standardization of:

- Communication and documentation processes
- Mobility equipment availability
- Benefits of early mobilization
- Affirmative cultural attitudes regarding mobility as a priority in critical care
Essential Elements

- Engaged Interdisciplinary Team
- Leadership
- Skilled Communication
- Standardized Processes
- Essential Equipment
- Well Defined Roles
Clinical Transformation

Nurses as leaders at the bedside

• Influencing the team

• Creating a culture of mobility

• Mobility as a standard of care

• Skilled Communication
Relational Coordination Theory

rcrc.brandeis.edu
Havens, Vasey & Gittell, Relational Coordination among nurses and other providers: Impact on the quality of care.
J Nur Management 2010; 18,926-937
Mobility Experience - 2013

Time frame = 7 months during 2013
Total encounters = 309
Average encounters/day ~ 2
Average mobility step reached = 3.2
## Lean Processing – A3 Corrective Actions

<table>
<thead>
<tr>
<th>Test of Change</th>
<th>When</th>
<th>Who</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nursing Education Implement CLRT guidelines for staff</td>
<td>April 2(^{nd}), 2014</td>
<td>Sara</td>
<td>Complete</td>
</tr>
<tr>
<td>2. MD Role re: PMP on admit. Hardwire use during pre-rounds</td>
<td>May 5, 2014</td>
<td>Dr. V and Dr. D</td>
<td>Complete</td>
</tr>
<tr>
<td>3. Implement standard for charge RN/MD mobility discussion during pre-rounds</td>
<td>May 20, 2014</td>
<td>Sara, Dr. D, Dr. V</td>
<td>In Progress</td>
</tr>
<tr>
<td>4. Equipment: Install pt lifts in each room</td>
<td>June 2, 2014</td>
<td>Bob, Terry</td>
<td>Complete</td>
</tr>
<tr>
<td>5. Standardize daily huddle between MD and PT</td>
<td>June 7, 2014</td>
<td>Jenn, Bob</td>
<td>In Progress</td>
</tr>
<tr>
<td>6. Standardize roles per Step of mobility</td>
<td>June 30, 2014</td>
<td>Jenn, Dr. V, Sara</td>
<td>Complete</td>
</tr>
<tr>
<td>7. ICU Techs to shadow PT – teach appropriate interventions</td>
<td>July 17, 2014</td>
<td>Bob, Jenn, Techs</td>
<td>In Progress</td>
</tr>
</tbody>
</table>

### MSICU PMP Utilization 2014

- % patients with PMP scored within last 24 hours
- Target
IFMC: Sedation reduction
## Description of Activity Level by PMP Step

<table>
<thead>
<tr>
<th>PMP Step</th>
<th>Activity</th>
<th># Patients by PMP Step</th>
<th>Minutes per Step</th>
<th>Min*Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Passive ROM</td>
<td>18</td>
<td>10</td>
<td>180</td>
</tr>
<tr>
<td>Step 2</td>
<td>Supine Exercise</td>
<td>10</td>
<td>22</td>
<td>220</td>
</tr>
<tr>
<td>Step 3</td>
<td>Assisted Rolling</td>
<td>20</td>
<td>12</td>
<td>240</td>
</tr>
<tr>
<td>Step 4</td>
<td>Dangle at Bedside</td>
<td>22</td>
<td>19</td>
<td>418</td>
</tr>
<tr>
<td>Step 5</td>
<td>Up to Chair</td>
<td>4</td>
<td>19</td>
<td>76</td>
</tr>
<tr>
<td>Step 6</td>
<td>Walk in Room</td>
<td>10</td>
<td>25</td>
<td>250</td>
</tr>
<tr>
<td>Step 7</td>
<td>Walk in Hall</td>
<td>16</td>
<td>35</td>
<td>560</td>
</tr>
</tbody>
</table>

**Total Min*Pts: 1944**

*82% capture of mobility on PMP
Current Distribution of Mobility by PMP Step

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
<th>Step 5</th>
<th>Step 6</th>
<th>Step 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedrest:</td>
<td></td>
<td>Passive ROM</td>
<td></td>
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<tr>
<td>Passive ROM</td>
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<td>Supine Exercises</td>
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<tr>
<td>ROM</td>
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<td>Assisted Rolling</td>
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<tr>
<td>Rolling</td>
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<td>Dangle at bedside</td>
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<tr>
<td>Assisted</td>
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<tr>
<td>Rolling</td>
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<tr>
<td>Ambulated</td>
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<tr>
<td>Down</td>
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<tr>
<td>Hallway</td>
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</tbody>
</table>

6 days in early June
51 encounters
70% capture on PMP
Ave mobility reached = 2.42

6 days in early August
78 encounters
84% capture on PMP
Ave mobility reached = 2.7
Mechanical Ventilator Days

**All ICUs: Mechanical Ventilator Days 2010 - 2014**

- 2010: 4.88 Days
- 2011: 4.31 Days
- **2012**: 4.20 Days
- 2013: 3.78 Days
- 2014 (YTD): 3.75 Days

**Epic**

- 2010: 5.70 Days
- 2011: 4.30 Days
- **2012**: 4.00 Days
- 2013: 3.90 Days
- 2014: 3.40 Days

**H1N1**

**MSICU: Mechanical Ventilator Days 2010 - 2014**

- 2010: 4.98 Days
- 2011: 4.13 Days
- **2012**: 4.45 Days
- 2013: 3.98 Days
- 2014 (YTD): 4.05 Days

**MSICU: Mechanical Ventilator Days Comparison of Q2 2010 - 2014**

- Q2 2010: 6.30 Days
- Q2 2011: 4.10 Days
- **Q2 2012**: 4.50 Days
- Q2 2013: 3.80 Days
- Q2 2014: 3.40 Days
IFMC ICU Discharge Disposition: All ICUs

- Home or Self Care: 69%
- Rehab: 1%
- SNF: 1%
- Hospice: 2%
- Short Term Hospital: 3%
- Long Term Care: 3%
- Psych: 5%
- Other: 5%

CVICU
- Home or Self Care: 71%
- Rehab: 3%
- SNF: 3%
- Hospice: 6%
- Short Term Hospital: 1%
- Long Term Care: 1%
- Psych: 1%
- Other: 2%

NSICU
- Home or Self Care: 81%
- Rehab: 5%
- SNF: 2%
- Hospice: 1%
- Short Term Hospital: 1%
- Long Term Care: 2%
- Psych: 5%
- Other: 1%

MSICU
- Home or Self Care: 56%
- Rehab: 12%
- SNF: 12%
- Hospice: 11%
- Short Term Hospital: 4%
- Long Term Care: 4%
- Psych: 7%
- Other: 2%

TICU
- Home or Self Care: 70%
- Rehab: 1%
- SNF: 1%
- Hospice: 7%
- Short Term Hospital: 1%
- Long Term Care: 2%
- Psych: 2%
- Other: 2%
Patient gets out of bed

PMP Mobilization:
Expected v. Actual Step Reached

- PMP Actually Received
- PMP Score Expected

Steps:
- ROM & Supine Exercises
- Assisted rolling
- Dangle at Bedside
- Up To Chair
- Ambulate in Room
- Ambulate in Hall
Timeline of Process Improvement

April 2013

Consistent PT involvement

June 2013

Efforts to impact sedation reduction

March 2014

Begin to measure mobility frequency

April 2014

Kaizen efforts to begin standardization

• PMP added to workflow
• PMP visible to MDs
• Roles per step of mobility

July 2014

Standardize communication between charge RN and PT

Sept 2014

Journey Continues!
Challenges

Address current barriers

• Consistent availability of staff
• Ability to coordinate timing
• Competing priorities
• Patient acuity
• Frequent turnover of staff
• Outcome data
Program Expansion

- Mobility presentation March 2015
- Hopkins Best Practice Model
- Inova’s Early Progressive Mobility Program
- Expansion across Inova Critical Care
This mobility initiative highlights the value of interprofessional team collaboration to improve patient outcomes.
Thank You!!!

Before... Kickoff!

After? TOUCHDOWN!!!