EARLY MOBILITY IN THE NEUROSCIENCE ICU

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HARBORVIEW MEDICAL CENTER
University of Washington Medicine

• Level 1 Trauma Center for Washington, Alaska, Montana, and Idaho region
• TJC Comprehensive Stroke Center
• 413 beds, 93 ICU beds
NEUROSCIENCE INTENSIVE CARE UNIT (NICU)
Harborview Medical Center

• The NICU specializes in complex neurological injuries
• We serve adult patients with severe head and spinal cord injuries, diseases/disorders of the brain, spine and peripheral nerves
• Our growing elective neurosurgery population spans the United States and worldwide
• 30-bed ICU with approximately 100 staff members
• We are the largest ICU at Harborview, and proud of it!
PURPOSE: EARLY MOBILITY IN THE NICU

Our purpose is to advance early mobility in the critically ill neuroscience patient to promote functional recovery.
GOALS: EARLY MOBILITY IN THE NICU

Our Early Mobility project goals are to:

• Mobilize 75% of the eligible patient population by 6 months
• Decrease NICU length of stay (LOS) 1 day
• Decrease NICU ventilator days 20%
• Decrease NICU urinary catheter utilization days 20%
KEY ACTIVITIES AND DATES

October 2014-November 2014
• Preliminary planning: identified topic, conducted literature review
• Defined specific outcome measures, collected baseline data

November 2014-December 2014
• Specified our problem statement using baseline data
• Conducted preliminary staff survey
• Conducted ogo/slogan contest, chose a winner!
• Continued planning with Logic Model and Drill Down Plan
KEY ACTIVITIES AND DATES

January 2015

• Developed Mobility Tracking Tool, Charge RN Tool, educational items
• Purchased posters, kickoff items, prizes for contest winners
• Developed in-service curriculum, formalized training, and reached out to the physicians and key stakeholders.

February 2015

• Kickoff week: February 23 – 27
• Included free food, giveaways, and unitwide in-servicing!
KEY ACTIVITIES AND DATES

February 2015–March 2015
• Evaluation of project rollout
• Met with analyst to reestablish goals, streamlined data collection
• Instituted process changes at the bedside
• Awarded weekly Mobility Champions!

March 2015–Current
• Midpoint data collection
• Continue to inservice, present staff with current data
• Continue sustainability efforts
• Keep mobilizing!
EARLY MOBILITY IN THE NICU ALGORITHM
EVERY PATIENT, EVERY DAY, THE ENTIRE TEAM!

RN shift change report: shift to shift RN handoff

Mobility rounds: charge RN, bedside RN, PT/OT

Daily patient rounds: multidisciplinary team

Review current mobility status: reference completed daily shift change report sheet

Assess for mobility barriers: clinical instability or planned procedures?

Assess for possible advancement of mobility status: are current orders adequate?

Team discussion and mobility plan development

NO

YES

Continue to assess for status improvement

DON'T BE A BEDHEAD!
HELP YOUR HEAD, GET OUT OF BED!

MOBILIZATION!
AT THE BEDSIDE: MOBILITY ELIGIBILITY

Who did we mobilize?

**ELIGIBLE**

All NICU patients are considered for mobility every 24 hours

**INELIGIBLE**

- Bed rest order
- Clinical instability
- Spine precautions
- Sheath precautions
- tPA precautions
- Active seizures
- Moderate to severe vasospasm
- Uncontrolled intracranial pressure
- Alcohol/substance withdrawal
- Confusion/severe delirium
- Uncooperative behavior
- Uncontrolled pain
MOBILITY DEFINED

What constitutes mobilization?

mo·bil·i·ty
/mōˈbilədē/

for the purposes of this project, mobility is defined as dangling, sitting up in a chair/cardiac chair, getting up to the bedside commode, standing, or ambulating.*.

*However, due to limitations in how “bed in chair position” is charted in the electronic medical record, this was not possible to include in data collection.
# MOBILITY DASHBOARD & DATA COLLECTION

<table>
<thead>
<tr>
<th>ELIGIBLE</th>
<th>CAUTION</th>
<th>INELIGIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCS 13-15</td>
<td>GCS 9-12</td>
<td>GCS ≤ 8</td>
</tr>
<tr>
<td>RASS -1 to +1</td>
<td>RASS -3 to -2</td>
<td>RASS -4 to -5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Full spine precautions</td>
</tr>
<tr>
<td>HR sustained &gt; 150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBP sustained &lt; 90 and &gt; 180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAP sustained &lt; 65</td>
<td>MAP sustained &lt; 55</td>
<td></td>
</tr>
<tr>
<td>SpO2 sustained &lt; 88%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vasopressor in use</td>
<td>Increasing vasopressor dose</td>
<td></td>
</tr>
<tr>
<td>Respiratory rate ≥ 35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ventilator and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• FiO2 ≥ 70%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PEEP ≥ 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Minute volume ≥ 15</td>
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- Patients must be in the NICU for 12 hours prior to the test point of 7:30 am
- Patients on comfort care orders are not included in data capture
- Green and yellow categories are included in data capture, red is NOT
NICU MOBILIZATION RATE

NICU Monthly Percentage Eligible Patients Mobilized

• Mean monthly percentage pre-initiative: 50%
• Mean monthly percentage post-initiative: 61%

Project goal: 75%

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Mean monthly percentage pre-initiative 50%
Mean monthly percentage post-initiative 61%
NICU BRAIN INJURY SEVERITY DURING MOBILITY INITIATIVE

GCS Scores 6 months pre- & post-initiative

- Patient acuity is challenging to extrapolate from charting
- Patients with worse Glasgow Coma Scale (GCS) scores are more challenging to mobilize and may benefit less
NICU LOS

NICU Monthly LOS – Observed vs Expected

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</thead>
<tbody>
<tr>
<td>Observed</td>
<td>3.23</td>
<td>3.61</td>
<td>3.08</td>
<td>3.31</td>
<td>4.69</td>
<td>4.31</td>
<td>6.94</td>
<td>2.9</td>
</tr>
<tr>
<td>Expected</td>
<td>5.95</td>
<td>6.2</td>
<td>5.8</td>
<td>5.15</td>
<td>6.9</td>
<td>7.76</td>
<td>7.28</td>
<td>5.11</td>
</tr>
</tbody>
</table>

- Mean monthly LOS pre-initiative: 3.3 days
- Mean monthly LOS post-initiative: 4.7 days
- While LOS is trending up, observed LOS remains lower than expected
NICU VENTILATOR DAYS

NICU Monthly Ventilator Days

- Mean monthly utilization days pre-initiative: 157
- Mean monthly utilization days post-initiative: 188
NICU VENTILATOR ASSOCIATED PNEUMONIA (VAP) RATE

NICU Monthly VAP Rate

- Mean monthly rate pre-initiative: 16.5
- Mean monthly rate post-initiative: 11.4
NICU FOLEY CATHETER UTILIZATION DAYS

NICU Monthly Foley Catheter Utilization Days

- Mean monthly days pre-initiative: 441
- Mean monthly days post-initiative: 482
NICU CATHETER ASSOCIATED URINARY TRACT INFECTION (CAUTI) RATE

NICU Monthly CAUTI Rate

- Mean monthly rate pre-initiative: 5.5
- Mean monthly rate post-initiative: 5.5

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UNINTENDED POSITIVE OUTCOMES

NICU Monthly Hospital Acquired Pressure Ulcer Rate

- No pressure ulcers in the NICU post-mobility initiative!
UNINTENDED POSITIVE OUTCOMES

NICU Fall Events Rate per 1,000 Patient Days

- Mean monthly fall rate pre-initiative: 1.9
- Mean monthly fall rate post-initiative: 1.5

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Early Mobility in the NICU Project Outcomes

<table>
<thead>
<tr>
<th>Targeted project measure</th>
<th>Percent change over 6 months</th>
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<tbody>
<tr>
<td>LOS</td>
<td>↑42%</td>
</tr>
<tr>
<td>Ventilator Days</td>
<td>↑20%</td>
</tr>
<tr>
<td>Ventilator Associated Pneumonia Rate</td>
<td>↓30%</td>
</tr>
<tr>
<td>Catheter-Associated Urinary Tract Infections</td>
<td>Unchanged</td>
</tr>
<tr>
<td>Hospital Acquired Pressure Ulcers</td>
<td>↓100%</td>
</tr>
<tr>
<td>Fall Event Rate</td>
<td>↓18%</td>
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However...
- Data collection period not sufficient
- Patient acuity increased as indicated by GCS
- Targeted measures are multifactorial

Financial impact is unclear, and further study is needed
BARRIERS

Creating a Culture of Early Mobility

• Staff dissatisfied with extra work and burden of documentation
• Staff found the initial tracking forms confusing
• The charge RN did not have the time to round with the therapist. Both teams were frustrated
• Low staffing levels and high census/acute
SOLUTIONS TO BARRIERS
Creating a Culture of Early Mobility

• Discontinued paper tracking tools
• Data collection from Electronic Medical Record
• Repeat in-services focused on correct charting
• Modified the Daily Shift Handoff Report Sheet
• Pilot trial of Rehabilitation Mobility Technician in the ICUs for 1 year to help with mobility events
• Continue AM rounding with physical and occupational therapists
SUSTAINABILITY PLAN

- **Educate**
  - repeat in-services
  - March & September

- **Audit**
  - compliance and progress

- **Advocate**
  - early mobility, every patient, every day

- **Reward**
  - Mobility Champions, food & swag

- **Update**
  - key stakeholders & physician partners

- **Share**
  - designated display board at unit entrance

**Smart Move: MOBILITY FOR ALL**

*Prepared by wakesport@uwm.edu*
SUSTAINABILITY PLAN

Meeting UW Medicine Organizational Pillar Goals

1. Focus on Serving the Patient/Family
   Early Mobility promotes the highest level of functional recovery possible for each patient.

2. Provide the Highest Quality Care
   Early Mobility is the new standard of quality care and will enhance patient outcomes.

3. Become the Employer of Choice
   High standards of care attract quality employees and foster staff satisfaction.

4. Practice Fiscal Responsibility
   Our goal is that a sustained mobility initiative will lead to lasting cost savings.
REFERENCES


REFERENCES


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• Data synthesis: Abdelhak Abdou, Clinical Data Analyst

• Grant funds access: Catherine Sullivan, Clinical Education

• Mobilization consultation: our Physical and Occupational Therapists

• Winning graphic design and slogan: Ariel Rogozinski, RN & Kurt Fujitani, RN

• And above all, the NICU Staff, for their hard work and dedication!

THANK YOU!