Aligning Patient Mobilization with Early Mobility Initiatives

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Occupational & Environmental Safety Office
Duke University & Duke Health
Topics

• Background and history of SPHM at Duke
• The move toward early mobilization and SPHM
• Strategies used to gain buy-in from management and staff for patient handling solutions
• Challenges and how we overcame them
• Challenges we have yet to conquer!
Background Duke

- 3 Hospitals (~1700 beds)
  - Level 1 Teaching Hospital - Durham
  - 2 community hospitals - Raleigh and Durham
Background

• Nearly 400 clinics statewide
• >3.6 million outpatient visits
Nursing Workforce Profile

• Nursing shortage
• 1.2 million vacancies, 2014-2022
• Average age → 46 years old

(BLS)
Patient Profile

• > 50% of adults → chronic illness
• > 30% of adults → obese
• > 20% of youth → obese (BMI>30)
• > 7.4 million people → mobility issues
• 2020 all Baby Boomers > age 55
Nursing Injuries

ANA (2000)

– 30% more sick leave due to back pain
– 38% affected by back injury
– under-reporting common
– 12% leave annually due to back injuries
SPHM at Duke

• 2004 Implementation
• 2015 Enhancements
  – Patient-Centered vs. Equipment-Centered
    • Falls/Pressure Injuries
    • Early mobilization
    • Care Plan, EMR/EHR
ANA SPHM Interprofessional National Standards

1. Establish a Culture of Safety
2. Implement and Sustain a SPHM Program
3. Incorporate Ergonomic Design Principles to Provide a Safe Environment of Care
4. Select, Install, and Maintain SPHM Technology
5. Establish a System for Education, Training and Maintaining Competence
6. Integrate Patient Centered Assessment, Care Planning, and Use of SPHM Technology
7. Include SPHM in Reasonable Accommodation and Post Injury Return to Work
8. Establish a Comprehensive Evaluation Program
Mobilizing patients earlier results in positive patient outcomes:
• reduced length of stay
• fewer ICU readmissions
• decreased ventilation duration
• fewer days of bed rest
• improved walking distance

Complications of Immobility

**Respiratory:** respiratory tract infections, atelectasis, and pulmonary embolism

**Cardiovascular:** postural hypotension, cardiac muscle atrophy, orthostatic intolerance, and deep vein thrombosis

**Hematologic:** anemia

**Metabolic:** glucose intolerance

**Skin:** pressure ulcers

**Neurological:** depression, anxiety, forgetfulness, and confusion

**Musculoskeletal:** osteoporosis, muscle atrophy and weakness, and contractures

**Renal:** calculi

**Gastrointestinal:** constipation and fecal impaction

Current state of Mobility Assessments?

Benchmarking Survey Conducted by Duke Nursing and Ergonomics (2015)
### Do you have an early mobilization program in place?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes (If yes, please describe the program or tools used.)</td>
<td>65</td>
<td>66%</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>33</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>98</strong></td>
<td><strong>100%</strong></td>
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Do you use SPH equipment as part of your early mobilization program?

<table>
<thead>
<tr>
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<th>Answer</th>
<th>Response</th>
<th>%</th>
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<tbody>
<tr>
<td>1</td>
<td>Yes (If yes, what type of equipment?)</td>
<td>55</td>
<td>98%</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>1</td>
<td>2%</td>
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<tr>
<td></td>
<td>Total</td>
<td>56</td>
<td>100%</td>
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Do you use any patient mobility assessment tools in your organization?

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<thead>
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<th>Answer</th>
<th>Response</th>
<th>%</th>
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<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>64</td>
<td>67%</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>32</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>96</td>
<td>100%</td>
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<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>Response</th>
<th>%</th>
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<tbody>
<tr>
<td>1</td>
<td>Berg Balance Scale</td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>2</td>
<td>de Morton Mobility Index (DEMMI)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>Modified Elderly Mobility Scale (MEMS)</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>4</td>
<td>Timed Up &amp; Go Test</td>
<td>7</td>
<td>11%</td>
</tr>
<tr>
<td>5</td>
<td>Banner Mobility Assessment Tool (BMAT)</td>
<td>8</td>
<td>13%</td>
</tr>
<tr>
<td>6</td>
<td>Tinetti Assessment Tool: Balance</td>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>7</td>
<td>Barthel Index</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>8</td>
<td>Egress Test</td>
<td>10</td>
<td>16%</td>
</tr>
<tr>
<td>9</td>
<td>Functional Independence Measure (FIM) and Functional Assessment Measure (FAM)</td>
<td>21</td>
<td>34%</td>
</tr>
<tr>
<td>10</td>
<td>Performance Orientated Mobility Assessment Other</td>
<td>5</td>
<td>8%</td>
</tr>
<tr>
<td>11</td>
<td>Other</td>
<td>32</td>
<td>52%</td>
</tr>
</tbody>
</table>
1 SIT & SHAKE

- From a semi-reclined position, ask the patient to sit upright and rotate to a seated position at the side of the bed.
- Ask patient to reach across midline to shake your hand.

PASS PROCEED TO STEP 2

FAIL MOBILITY LEVEL 1

*If your patient is on strict bed rest or has weight bearing restrictions, do not proceed with assessment = MOBILITY LEVEL 1

MOBILITY LEVEL 1

- Total lift equipment should be used.
- Consider a total lift, friction reducing slide sheets or repositioning sheets.
2 STRETCH & POINT

- Ask patient to extend leg forward until it is straight at the knee.
- Ask the patient to point and flex his foot.
- Repeat with other leg.

PASS  PROCEED TO STEP 3

FAIL  MOBILITY LEVEL 2

MOBILITY LEVEL 2

- Powered stand-aid or total lift should be used. Total lift may be needed.
- Lateral transfer aids like roll board or slide sheet for bed mobility.
# Equipment and Assistive Device Options for Mobility Interventions and Fall Prevention

<table>
<thead>
<tr>
<th></th>
<th>Blue Liners 300 lbs/136 kg</th>
<th>Hovermatt 1000 lbs/455 kg</th>
<th>MaxiSky 600/1000 lbs 273/455 kg</th>
<th>Loop, Reposition Slings 600/1000 lbs 273/455 kg</th>
<th>MaxiMove 500 lbs/227 kg Opera/Tempo 440 lbs/200 kg</th>
<th>SaraPlus/Encore 420 lbs/191 kg</th>
<th>RoWalker UltraMove 400 lbs/182 kg</th>
<th>SaraStedy 400 lbs/182 kg</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Strict Bedrest</th>
<th>Mobility Level 1</th>
<th>Mobility Level 2</th>
<th>Mobility Level 3</th>
<th>Mobility Level 4</th>
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<tr>
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<td>X</td>
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<td>X</td>
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</tbody>
</table>

Always default to the safest patient handling equipment if there is any doubt in patient's ability to perform task.
Move Often
Very Early
Safely
Strategies Used to Gain Buy-in
1. Nursing Led Program

- Nursing vs. Safety role
- Peer leader model/champions
2. American Nurses Association Standards

- Roadmap
- Compliance
ANSA SPHM Interprofessional National Standards

1. Establish a **Culture of Safety**
2. Implement and Sustain a SPHM Program
3. Incorporate Ergonomic Design Principles to Provide a Safe Environment of Care
4. Select, Install, and Maintain SPHM Technology
5. Establish a System for Education, Training and Maintaining Competence
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7. Include SPHM in Reasonable Accommodation and Post Injury Return to Work
8. Establish a Comprehensive Evaluation Program
3. Equipment/Supplies

• New inpatient equipment ($1.2M)
  • FGI (PHAMA) White Paper
  • Focus on mobility
• Expansion to clinics
  • Focus on falls reduction

All readily available - easy to access/use
Air-assisted Transfer Devices
Friction Reducing Devices
Active Standing Devices
Stand Assist
Powered Lifts

800 lbs
Total Assist Powered Lift
Floor-based
Total Assist Powered Lift
Ceiling-mounted
Exam Tables

650 lbs
Stretchers/Recliners/Stretcher-Chairs
Car Lifts
Lifts in Decedent Care and Pathology
<table>
<thead>
<tr>
<th>Devices and Lifts</th>
<th>Available Supplies - Sizes, SAP #, Ordering info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue liner - 300 lbs/116 kg</td>
<td>SAP 317453, Liners, patient transfer blue plastic.</td>
</tr>
<tr>
<td>Steady 265 lbs/120 kg</td>
<td>N/A</td>
</tr>
<tr>
<td>Saratoga or Ultramove 400 lbs/182 kg</td>
<td>N/A</td>
</tr>
<tr>
<td>Rollator 400 lbs/182 kg</td>
<td>N/A</td>
</tr>
<tr>
<td>SaraPlus or Encore 420 lbs/191 kg</td>
<td>Wipeable &amp; Reusable Belts - color-coded loops on belt</td>
</tr>
<tr>
<td>Maximove 500 lbs/227 kg</td>
<td>Tempo/Opera - 440 lbs/200 kg</td>
</tr>
<tr>
<td>Disposable Sling: CLIP attachments; single patient use</td>
<td>Size - color-coded edge on sling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>SAP #</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>M Red</td>
<td>346206</td>
<td>Sing, Clip Lift Arp S. Pds</td>
</tr>
<tr>
<td>M Green</td>
<td>313289</td>
<td>Sing, Clip Lift Arp M</td>
</tr>
<tr>
<td>L Green</td>
<td>313220</td>
<td>Sing, Clip Lift Arp L</td>
</tr>
<tr>
<td>XL Blue</td>
<td>513341</td>
<td>Sing, Clip Lift Arp XL</td>
</tr>
<tr>
<td>XL Red</td>
<td>555565</td>
<td>Sing, Clip Lift Arp 2XL</td>
</tr>
</tbody>
</table>

| Battery - Opera | Charger - Opera | To replace or purchase, contact entity's Clinical Engineering & provide CE tag # on lift. |
| Battery - Maximove | Charger - Maximove | |

Order replacement belts by submitting a requisition to Procurement in 3 ways: 1) electronically thru SRM; 2) scan & email to procurement@eduks.edu, or 3) fax 219-684-4344.
Parking for MaxiMove Only

- 500 Pound Maximum
- Uses clip, single patient use, disposable slings (S, M, L, XL, XXL)
- Space Required: 31” W x 45” L
4. Systems approach
Built environment
  • Center for Health Design Safety Risk Assessment (SRA) Tool
  • FGI PHAMA White Paper
MOBILITY LEVEL

B  Strict Bedrest
1  Bedfast/Dependent
2  Chairfast
3  Stand/Pivot
4  Walk/Independent

FALL RISK: YES
<table>
<thead>
<tr>
<th>Sort #</th>
<th>What is being discussed? (Design Consideration)</th>
<th>Green Risk Estimate</th>
<th>Your Risk Estimate</th>
<th>Your Priority</th>
<th>Cost Magnitude</th>
<th>Why should this be considered? (Rationale) (This cell hyperlinks to references)</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>Locate departments and units that patients are frequently transported from/to as close to each other as possible (e.g., ED and imaging if ED-imaging is a most frequent patient transport route).</td>
<td>Mod-Low</td>
<td></td>
<td></td>
<td></td>
<td>Patient transport or movement between hospital departments and units are frequently associated with complications causing harmful effects on patients. Research has found that longer transport duration cause more frequent and serious complications and harms (Ulrich &amp; Zhu, 2007). Physical proximity of destination points on frequent patient transport routes may help facilitate the patient movement and reduce transport duration, therefore improve safety by reducing risk of patient complications and staff injuries during transportation, and improve efficiency by reducing staff time spent on patient transport.</td>
</tr>
<tr>
<td>402</td>
<td>Provide patient elevators to accommodate patient beds/stretchers for the transportation of special patients such as bariatric patients.</td>
<td>Highest</td>
<td></td>
<td></td>
<td></td>
<td>The trend of more bariatric patients being seen in hospitals presents a challenge to healthcare. The availability of elevators has been found to significantly impact the movement of patients, especially bariatric patients. It is important to consider the weight and size limits of patient elevators so that special patients and equipment can be accommodated (Muir &amp; Archer-Heese, 2003).</td>
</tr>
<tr>
<td>403</td>
<td>Minimize the time, physical effort, and risks associated with transporting patients between departments and units through building design (e.g., ample corridor width, minimal turns, wide doorways without thresholds, open layout, elevators with ample spaces to accommodate bariatric beds etc.).</td>
<td>Highest</td>
<td></td>
<td></td>
<td></td>
<td>Patient transport or movement between hospital departments and units are frequently associated with complications causing harmful effects on patients. Longer transport duration was found in research to cause more frequent and serious complications and harms (Ulrich &amp; Zhu, 2007). Beside the physical proximity (see #401), certain building elements (e.g., design of corridors, ramps, doorways) may facilitate or hinder patient movement between units and department within a hospital thus impact the time, physical effort, and risks associated with transporting patients.</td>
</tr>
<tr>
<td>Sort #</td>
<td>What is being discussed? (Design Consideration)</td>
<td>Generic Risk Estimate</td>
<td></td>
<td></td>
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<tr>
<td>407</td>
<td>Designate enough conveniently located storage spaces for patient handling equipment and accessory supplies (e.g., slings, lateral transfer devices, slide boards) in each area where patient handling occurs, including rooms for patient care (This consideration is also relevant under the following category: unit layout.)</td>
<td>Med-High</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>408</td>
<td>Optimize locations of electrical supply for charging and/or using patient handling equipment so they are easily accessible for the users.</td>
<td>Med-Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>409</td>
<td>Ensure the safe and easy movement and use of patient handling and mobility equipment (e.g., patient rooms as well as diagnostic / operating / holding area / rehabilitation rooms) when designing the room layout in all areas where patient care is provided.</td>
<td>Highest</td>
<td></td>
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</tr>
<tr>
<td>410</td>
<td>Design the patient bathroom layout to facilitate safe and effective use of patient handling and movement equipment. (<a href="#">See also falls items 308.</a>)</td>
<td>Highest</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>411</td>
<td>Make patient room and bathroom doors wide and tall enough for the use of patient handling and movement devices. (<a href="#">See also falls items 308.</a>)</td>
<td>Highest</td>
<td></td>
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</tbody>
</table>
5. Resources

- 1.75 dedicated FTEs in Ergonomics
- 3 Facility coordinators
- Monthly oversight committee meetings
- One champion for each unit/clinic
- Quarterly champion meetings
- Annual champion workshop
- Falls consolidation
Duke MOVES BMAT (Bedside Mobility Assessment Tool)

BMAT (Bedside Mobility Assessment Tool)

The BMAT is a tool designed for nurses to assess patient mobility in acute care. The BMAT allows nurses and other health care workers to determine the appropriate patient handling and mobility equipment or device to safely move or reposition the patient.

(Duke would like to acknowledge and thank Banner Health in Colorado for developing, validating and sharing the original BMAT)

General information:

- Purpose of BMAT (Patient Assessment Level)
- DMAH Health & Safety (by Nursing Process, Assessment, Data Collection, Planning, Implementation and Evaluation)

BMAT Documents:

- BMAT Quick Reference Guide
- BMAT Program
- BMAT Software
- BMAT Algorithms
- Required Equipment and Assisted Device Options
- Equipment Care and Maintenance
- BMAT Pre Assessment Form
- BMAT Post Assessment Form
- BMAT Action Plan

BMAT 1.0 Action Plan:

- Step-by-Step Instruction
- Level 1: Sit to Stand Assessment
- Level 2: Sit to Standing Assessment
- Level 3: Bed Assessment
- Level 4: Wash

Duke MOVES Program Links:

- Duke MOVES Program Information
- Training Resources
- BMAT FAQs (Bedside Mobility Assessment Tool)
- Equipment and Supplies
- General Resources
- Contact Information
Where do we go from here?

• Leapfrog Report
• Alliance with patient safety
• Care redesign project
  • Falls vs. Mobilization
  • Early mobilization measures
Questions?

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Safe Patient Handling