AHA Age Friendly Health System Action Community

Mobility Assessment and Action

Mary Tinetti

February, 2020
AFHS Safe Mobility: Hospital

• **Screen for mobility** - If you do not have an existing tool, try Timed Up & Go (TUG)

• **Ensure early and safe mobility**
  • Assess & manage impairments (e.g. pain; strength, balance, or gait)
  • Physical therapy if needed
  • Avoid high risk medications;
  • Remove tethers (e.g. catheters, IV lines, telemetry as soon as possible)

• Set and meet a daily mobility goal with each older adult
AFHS Safe Mobility: Ambulatory

- **Screen for mobility**: If don’t have an existing tool, try Timed Up & Go (TUG)
- Assess & manage impairments (e.g., pain; strength, balance, or gait)
- Avoid high risk medications; remove catheters, including
- Physical therapy if needed
- Support a home environment that is safe for mobility
- Support older adults to identify a daily mobility goal that supports What Matters
- Review and support progress toward the mobility goal
Mobility Assessment and Action

• Why (Safe) Mobility is one of the 4Ms
• Hospital setting
  • Ways to assess
  • Interventions
  • Our experiences and challenges
• Ambulatory setting
• Your approaches, challenges, questions, suggestions
Why is mobility assessment and action important?

- Overwhelming evidence of negative consequences of decreased mobility
- Central to ability to perform activities of daily living and basic needs
- Assessments can be performed without adding significant burden that will allow institutions to assess mobility
- Interventions that can be done without significant burden that can encourage mobility
Why mobility assessment & action important in hospital

• Spend 95% of time in bed or chair Brown, JAGS 2009; Brown CJ, 2004

• ↓ muscle mass & strength → deconditioning → most common cause of delay in discharge

• ↓ ADLs and ↑ NH admission adjusting for illness severity

• Linked to pressure ulcers, venous stasis, ↓ function & mobility, ↑ LOS, early readmission

• 30 to 60% older adults lose function during hospital stay
  • 1/3 not recover ADL function at 1 year Boyd, JAGS 2008
  • Leads to post-acute and long-term institutionalization
Why safe mobility rather than fall prevention?

• Unintended consequences of (CMS) focus on fall (injury) (Growden, JAMA Int Med 2017)

• Foster “simple” but ineffective, harmful, unethical interventions
  • Alarms restrict mobility → can lead to aggression & infringes upon rights and dignity

• Most effective fall prevention include ↑ mobility

• Adverse effect of immobility > benefits of fall injury prevention
Examples of Mobility Assessments in Hospital

- AMPAC
- Banner Mobility Assessment Tool
- Hierarchical Assessment of Balance and Mobility (HABAM)
- de Morton Mobility Index (DEMMI)
- TUG or Get Up and Go
# Johns Hopkins Highest Level of Mobility (JH-HLM)

<table>
<thead>
<tr>
<th>Level</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lying in bed</td>
</tr>
<tr>
<td>2</td>
<td>Bed activities/dependent transfer</td>
</tr>
<tr>
<td>3</td>
<td>Sit at edge of bed</td>
</tr>
<tr>
<td>4</td>
<td>Move to chair/commode</td>
</tr>
<tr>
<td>5</td>
<td>Standing (1 or more minutes)</td>
</tr>
<tr>
<td>6</td>
<td>Walk 10 steps or more</td>
</tr>
<tr>
<td>7</td>
<td>Walk 25 feet or more</td>
</tr>
<tr>
<td>8</td>
<td>Walk 250 feet or more</td>
</tr>
</tbody>
</table>

Hoyer, J Hosp Med 2016
Banner Mobility Assessment Tool (BMAT)

- Assessment Level 1 – **Sit and Shake**
- Assessment Level 2 – **Stretch and Point**
  - stretch leg, straighten knee, bend the ankle, point toes
- Assessment Level 3 – **Stand**
  - Rise from bed or chair to standing position
  - Can use assist device
- Assessment Level 4 – **Walk**
  - March in place and advance step

Boynton, American Nurse Today 2014
Banner Mobility Assessment Tool for nurses

Nurses have found that the Banner Mobility Assessment Tool (BMAT) is an effective resource for performing a bedside assessment of patient mobility.

<table>
<thead>
<tr>
<th>Test</th>
<th>Task</th>
<th>Response</th>
<th>Fail</th>
<th>Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Level 1</td>
<td>Assessment of: • Tunkt strength • Seated balance</td>
<td>Sit and stand: From a semi-reclined position, ask patient to sit upright and sit up to a seated position at side of bed; may use hand rail. Note patient's ability to maintain seated position. Ask patient to reach out and grab your hand and chair, making sure patient reaches across his/her midline.</td>
<td>Sit: Patient is able to follow commands, has some trunk strength, caregivers may be able to try weight-bearing if patient is able to maintain seated balance longer than 2 minutes (without caregiver assistance). Shaky: Patient has significant upper body strength, awareness of body in space, and grasp strength.</td>
<td></td>
</tr>
</tbody>
</table>

   | MOBILITY LEVEL 1 | Use total lift with sling and/or repositioning sheet and/or strap. Use lateral transfer device, such as roll board, friction-reducing device (slide sheet/tube) or air-assisted device.  
   | Note: If patient has strict bed rest or bilateral non-weight-bearing restriction, do not proceed with the assessment; patient is MOBILITY LEVEL 1. |
|------|------|----------|------|------|
| Assessment Level 2 | Assessment of: • Lower extremity strength • Stability | Stretch and stand: With patient in seated position or side of bed, have patient place both feet on floor (or stool) with knees no higher than hips. Ask patient to stretch one leg and straighten knees, then bend ankle/foot and point toes. If appropriate, repeat with other leg. | Patient exhibits lower extremity mobility, strength and control. May test only one leg and proceed accordingly (e.g., stroke patient, patient with ankle in cast). | Passed Assessment Level 1 — Proceed with Assessment Level 2. |
| Assessment Level 3 | Assessment of: • Lower extremity strength for standing | Stand: Ask patient to slowly rise from bed or chair (standing) using assistive device (cane, walker). Patient should be able to raise buttocks off bed and hold for a count of five. Repeat.  
   | Note: Consider patient’s cognitive ability, including orientation and CAM assessment if applicable. | Patient exhibits upper and lower extremity mobility and strength. May test with weight-bearing on only one leg and proceed accordingly (e.g., stroke patient, patient with ankle in cast). | Passed Assessment Level 3. |
| Assessment Level 3 | Assessment of: • Standing balance • Gait | Walk: Ask patient to march in place at bedside. Then ask patient to advance step and return such four steps. Patient should display stability while performing tasks. Assess for stability and safety awareness. | Patient exhibits steady gait and good balance while marching and when stepping forward and backward. Patient can maneuver necessary turns in place or in room mobility. Patient exhibits safety awareness. | Passed Assessment Level 3. |

Always default to the safest lifting/transfer method (e.g., total lift) if there is any doubt about the patient’s ability to perform the task.

Boynton, American Nurse Today 2014
Hierarchical Assessment of Balance and Mobility (HABAM)

- Balance
- Transfers
- Mobility
Evidence from mobilization programs

• RCT: Mobility Program; Brown, JAMA Int Med, 2016
• Intervention: Twice daily assisted ambulation (15-20 minutes) + goal setting + mobility barriers
• Outcome: 1-month post hospital Life Space Assessment* (frequency, duration, distance)
• Results:
  • LSA: MP (52.5) vs. UC (41.6) (P = .02)
  • Falls: 0 in MP group vs. 3 in UC group

*predicts death, nursing home admissions, hospitalization
## Evidence from mobilization programs

<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial RCT; Mundy Chest, 2003</td>
<td>Early mobilization</td>
<td>↓ LOS 1.1 day vs. UC</td>
</tr>
<tr>
<td>Follow-up RCT: STRIDE; Hastings, JAGS, 2014</td>
<td>Supervised walking program (early mobility)</td>
<td>% DC home, 92% vs. 74% UC; p=.007</td>
</tr>
<tr>
<td>Scale to 8 VAs; Hastings, Geriatrics, 2018</td>
<td>Buy-in of leaders &amp; staff; fidelity (early mobility; ≥ 20 min./day)</td>
<td>Lessons learned: Flexible staffing; competency checklist for staff training; EHR template (patient enrollment, walk distance &amp; time, monitor progress, troubleshoot)</td>
</tr>
</tbody>
</table>
Evidence from mobilization programs

• Review: 26 studies; Smart et al. Gerontol Geriatr Med, 2018
  • 6 nurse led, 5 PT led, 14 interdisciplinary (nurse, MD, PT, CNA)

• Conclusion: Mobility programs involving multiple disciplines, monitoring, & documentation of patient activity most effective
### Evidence from Fall Prevention Programs

#### Systematic Review (Cochrane): 24 Studies, Cameron, 2018

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Fall risk reduction</th>
<th>Quality (No. trials)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional physiotherapy (supervised exercises)</td>
<td>0.36 (95% CI 0.14 - 0.93)</td>
<td>Very low-quality → uncertain effect (2)</td>
</tr>
<tr>
<td>Bed &amp; chair alarms</td>
<td>0.93 (0.38-2.24)</td>
<td>Very low-quality → uncertain effect (3)</td>
</tr>
</tbody>
</table>
### Evidence from Fall Prevention Programs

<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-PACK</td>
<td>Care bundle: alarms, alerts, etc. no mobility</td>
<td>Fall Rate: 1.04 (0.78-1.37) Injury Rate: 0.96 (0.72-1.27)</td>
</tr>
<tr>
<td>Systematic review</td>
<td>Bedrails</td>
<td>No studies found, Marques, JBI Database 2017</td>
</tr>
<tr>
<td>FallSafe:QI Sustainability,</td>
<td>Care bundle: Postural BP; ↓ night time sedation, fall risk assessment; footwear, medication review</td>
<td>Fall rate: 0.75 (0.68–0.84) Injurious fall rate: 0.86 (95% CI 0.71–1.03)</td>
</tr>
<tr>
<td>Healey Age and Ageing, 2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meta-analysis: Multicomponent</td>
<td>Cognition, early mobility, hearing, sleep hygiene, vision, hydration</td>
<td>Fall rate: 0.38 (0.25-0.60) (2/4 early mobility) Hshieh. JAMA Int Med. 2015</td>
</tr>
</tbody>
</table>
Are these approaches cost effective?

• FallSafe: multifactorial approach is cost-effective if costs are <£100 per patient & ≥ 15% reduction in fall rate. Fall Safe costs <£700 / unit / month (well within threshold)

• Delirium prevention: very cost effective so addition of ↓ falls & ↑ mobility only enhances their cost effectiveness

• Doesn’t require many hospital days saved to pay for mobilization
YNHH Mobility Story

• Pre AFHS
  • Overwhelming emphasis on fall prevention with focus on alarms, slippers, placards, bedrest orders, Fall Committee
  • Early mobility in ICU

• Peri and post AFHS
  • Began measuring on ACE unit
  • Institute AMPAC on 4 units
  • Avoid bedrest order as default
  • Gradual….. spread of early mobility across units
  • Change falls committee to safe mobility committee
YNHH Ace unit Jan/ Feb 2018 vs Jan/ Feb 2019 Mobility

<table>
<thead>
<tr>
<th></th>
<th>January ’18</th>
<th>February ’18</th>
<th>January ’19</th>
<th>February ’19</th>
</tr>
</thead>
<tbody>
<tr>
<td>oob for meals</td>
<td>48%</td>
<td>46%</td>
<td>46%</td>
<td>58%</td>
</tr>
<tr>
<td>ambulated in hall</td>
<td>26%</td>
<td>24%</td>
<td>34%</td>
<td>40%</td>
</tr>
<tr>
<td>ambulated in room</td>
<td>64%</td>
<td>59%</td>
<td>73%</td>
<td>78%</td>
</tr>
</tbody>
</table>

Graph showing the comparison of mobility metrics between January and February for 2018 and 2019.
Mobility/Safety Technician

Mobility Assessment & Action: My suggestions

Hospital:
- Pick a screen that is quick & easy (and staff will do)
- Measure, track, and display mobility (frequency & distance)
- Earlier mobility the better
- Multicomponent delirium prevention (Sensory, mobility, avoid meds, remove tethers, sleep promotion) = fall prevention & safe mobility (all 4Ms in 1)
- Need culture change
  - Falls Committee becomes Safe Mobility Committee
  - Champions on every inpatient unit
  - Education for nursing and technicians
  - Patients & families demand
AFHS Safe Mobility: Ambulatory

- **Screen for mobility**: If don’t have an existing tool, try Timed Up & Go (TUG)

- Assess & manage impairments (e.g. pain; strength, balance, gait)

- Avoid high risk medications; remove catheters, including

- Physical therapy if needed

- Support a home environment that is safe for mobility

- Support older adults to identify a daily mobility goal that supports What Matters

- Review and support progress toward the mobility goal
Examples of Assessment of Mobility in Community

• Extent of mobility
  • Life Space Assessment
  • Parker

• Assess balance & gait
  • Get up and Go; Timed up and Go
  • Performance oriented mobility assessment
Life-space assessment (LSA)
# UAB study of aging life-space assessment

These questions refer to your activities just within the past month.

<table>
<thead>
<tr>
<th>Life-space level</th>
<th>Frequency</th>
<th>Independence</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the past four weeks, have you been to...</td>
<td>How often did you get there?</td>
<td>Did you use aids or equipment? Did you need help from another person?</td>
<td>Level X</td>
</tr>
<tr>
<td>Life-space level 1...</td>
<td>Yes</td>
<td>No</td>
<td>Less than 1 /week</td>
</tr>
<tr>
<td>Other rooms of your home besides the room where you sleep?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Score:</td>
<td>x</td>
<td>x</td>
<td>=</td>
</tr>
<tr>
<td>Life-space level 2...</td>
<td>Yes</td>
<td>No</td>
<td>Less than 1 /week</td>
</tr>
<tr>
<td>An area outside your home such as your porch, deck or patio, hallway (of an apartment building) or garage, in your own yard or driveway?</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Score:</td>
<td>x</td>
<td>x</td>
<td>=</td>
</tr>
<tr>
<td>Life-space level 3...</td>
<td>Yes</td>
<td>No</td>
<td>Less than 1 /week</td>
</tr>
<tr>
<td>Places in your neighborhood, other than your own yard or apartment building?</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Score:</td>
<td>x</td>
<td>x</td>
<td>=</td>
</tr>
<tr>
<td>Life-space level 4...</td>
<td>Yes</td>
<td>No</td>
<td>Less than 1 /week</td>
</tr>
<tr>
<td>Places outside your neighborhood, but within your town?</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Score:</td>
<td>x</td>
<td>x</td>
<td>=</td>
</tr>
<tr>
<td>Life-space level 5...</td>
<td>Yes</td>
<td>No</td>
<td>Less than 1 /week</td>
</tr>
<tr>
<td>Places outside your town?</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Score:</td>
<td>x</td>
<td>x</td>
<td>=</td>
</tr>
</tbody>
</table>

Total score (add) = Sum of levels

Peel C, Phys Ther. 2005
## Parker Mobility Score

**Table I.** Assessment of mobility before the fracture. Score is the total, 0 to 9

<table>
<thead>
<tr>
<th>Mobility</th>
<th>No difficulty</th>
<th>With an aid</th>
<th>With help from another person</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to get about the house</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Able to get out of the house</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Able to go shopping</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Mobility Assessment & Action: My suggestions

Ambulatory:

• Pick a screen that is quick & easy (Annual wellness visit)
• Multicomponent (e.g. STEADI [www.cdc.gov/steadi/index.html])
  • PT-balance, gait, strength, assistive device, environment
  • Nurse/MD- risk medications, postural BPs, chronic conditions
• Tie mobility goal to What Matters (if you were able to walk, get around more safely, what would you want to do more of?; what would you most want to do more as a result of your therapy?)