Driving Patient Functional Improvement and Mobility
Agenda Today

- Define Mobility and Functionality
- Risks Associated with Immobility
- Present Mobility Assessments
- Protocols and Guidelines to Get Your Mobility Program Started
- Barriers to Overcome
Why Mobility?

- Minimize complications of bed rest
- Improve overall patient functions
- Promote early ventilator weaning
- Improve overall strength and endurance
- Decrease length of stay (LOS) in ICU and hospital
- Decrease hospital costs
- Psychological benefits: positive outlook for recovery
Hospitals have known about the positive effects of mobilization and at first started implementing mobilization in the ICU due to the dependency of the patients.

Today we now know mobilizing all patients can decrease complications and reduce LOS.

Despite what we know, hospitals are failing at mobilizing patients.
Historical Background

- Early ambulation first introduced in WW II – Expedited recovery for soldiers to return to war
- Rheums Dis Clinic NA 1990;16:791–801
"Early Rising After Operation"

- NEJM 1942; 14:576–577 –

*Benefits* of early mobility were clear

- "First, morale is greatly improved…General health and strength are better maintained & convalescence is more rapid"
Mobility is defined as:

"ability to move freely, easily, rhythmically, and purposefully in the environment.

It is an essential part of living. People must be able to move to protect themselves from trauma and to meet their basic needs.

Mobility is vital to independence; a fully immobilized person is as vulnerable and dependent as an infant" (Berman and Synder, 2012).
FUNCTIONAL STATUS - - DEFINITION

- An individual's ability to perform normal daily activities required to meet basic needs, fulfill usual roles, and maintain health and well-being.
- Functional status includes functional capacity and functional performance

Functionality
• Immobility and complete bed rest can lead to life threatening physical and psychological complications and consequences.
The nursing care team and other health care professionals like physical therapists should promote client mobility and prevent immobility whenever possible.
• Immobility can adversely affect all physiological bodily systems
Complications of Immobility
Urinary system

- Immobility can lead to urinary retention, urinary stasis, renal calculi, urinary incontinence and urinary tract infections.
Gastrointestinal System

- Constipation, impaction and difficult to evacuate feces can occur as the result of immobility and the lack of exercise that is needed to promote normal bowel functioning. In addition the condition is compounded when the patient does not get adequate fluid intake.
Musculoskeletal System

- The bones lose calcium as a result of the lack of weight bearing activity and this can lead to disuse osteoporosis, hypercalcemia, and fractures.

- The joints are affected with stiffness, pain, impaired range of motion and contractures including foot drop which is a plantar flexion contracture.

- Muscles are adversely affected with weakness and atrophy as the result of immobility.

- **Muscle groups that lose the most strength are involved in maintaining posture, transferring and ambulation**

Respiratory System

- Some adverse respiratory system effects relating to immobility include the thickening of respiratory secretions, the pooling of respiratory secretions and an increased inability of the patient to mobilize and expectorate these secretions, which can lead to atelectasis, hypostatic pneumonia, and respiratory tract infections.
The metabolic system alterations associated with immobility are a decreased rate of metabolism which can lead to unintended weight gain, a negative calcium balance secondary to the loss of calcium from the bones during immobilization, a negative nitrogen balance secondary to an increase in terms of catabolic protein breakdown, and anorexia.
Integumentary System

Immobility places patients at risk for skin breakdown, pressure ulcers, and poor skin turgor.

Immobility – #1 risk factor for pressure injuries
Psychological Alterations

- Some of the psychological hazards of immobility can include apathy, isolation, frustration, a lowered mood, and depression.
Simple Mobility Assessments are Needed

Mobilization Test in ICU

- Description:
  - A series of mobilization tests that can help determine whether the patient has the motor control and adequate oxygen delivery to support activity

Photo Credit: www.geisinger.kramesonline.com
Mobilization Test in ICU:

1. Can the patient raise each leg against gravity in supine?

2. Can the patient sit on the side of the bed with minimal support?

3. With the walker and assistance, can the patient stand?

4. With the walker and assistance, can the patient shift weight laterally?

5. With the walker and assistance, can the patient take steps in place?

6. Progressive walking with walker and assistance if appropriate

Timed Up and Go (TUG)

Description:

1. Equipment: arm chair, tape measure, tape, stop watch.

2. Begin the test with the subject sitting correctly (hips all of the way to the back of the seat) in a chair with arm rests. The chair should be stable and positioned such that it will not move when the subject moves from sit to stand. The subject is allowed to use the arm rests during the sit–stand and stand–sit movements.

3. Place a piece of tape or other marker on the floor 3 meters away from the chair so that it is easily seen by the subject.

4. Instructions: “On the word GO you will stand up, walk to the line on the floor, turn around and walk back to the chair and sit down. Walk at your regular pace.

5. Start timing on the word “GO” and stop timing when the subject is seated again correctly in the chair with their back resting on the back of the chair.

6. The subject wears their regular footwear, may use any gait aid that they normally use during ambulation, but may not be assisted by another person. There is no time limit. They may stop and rest (but not sit down) if they need to.

7. Normal healthy elderly usually complete the task in ten seconds or less. Very frail or weak elderly with poor mobility may take 2 minutes or more.

8. The subject should be given a practice trial that is not timed before testing.

9. Results correlate with gait speed, balance, functional level, the ability to go out, and can follow change over time.

Egress Test:

Description:

– A series of 3 tests that can be completed at the bedside prior to the patient transferring or ambulating

The 3 Tests:
– 3 Reps of Sit to Stand
– 3 Steps of Marching in Place
– Advance Step and Return Each Leg

Tinetti Performance Oriented Mobility Assessment – POMA

**Description:** The Tinetti assessment tool is an easily administered task-oriented test that measures an older adult’s gait and balance abilities.

**Equipment needed:** Hard armless chair
Stopwatch or wristwatch
15 ft walkway

**Completion:**

**Time:** 10–15 minutes

**Scoring:** A three-point ordinal scale, ranging from 0–2. “0” indicates the highest level of impairment and “2” the individuals independence.
Total Balance Score = 16
Total Gait Score = 12
Total Test Score = 28

**Interpretation:** 25–28 = low fall risk
19–24 = medium fall risk
< 19 = high fall risk

## Banner Mobility Assessment Tool for Nurses

Note: Always default to the safest lifting/transfer method (eg, total lift) if there is any doubt in the patient’s ability to perform the task.

### Assessment Level 1 – Sit and Shake

**Task:** From a semi reclined position, ask patient to sit upright and rotate to a seated position at the side of the bed; may use the bed rail. Note patient’s ability to maintain bedside position. Ask patient to reach out and grab your hand and shake, making sure patient reaches across his/her midline.

- **Pass** = complete Assessment Level 2
- **Fail** = Patient is Mobility Level 1; use total lift with sling and/or positioning sheet and/or straps, and/or use lateral transfer devices such as rollboard, friction-reducing (slide sheets/tube) or air-assisted device.

If patient has “strict bed rest” or “bilateral non-weight-bearing” restrictions, do not proceed with the assessment; patient is Mobility Level 1.

### Assessment Level 2 – Stretch and Point

**Task:** With patient in seated position at the side of the bed, have patient place both feet on the floor (or stool) with knees no higher than hips. Ask patient to stretch one leg and straighten the knee, then bend the ankle/flex and point the toes. If appropriate, repeat with the other leg.

- **Pass** = complete Assessment Level 3
- **Fail** = Patient is Mobility Level 2; use total lift for patient unable to weight-bear on at least one leg; use sit-to-stand lift for patient who can weight-bear on at least one leg.

### Assessment Level 3 – Stand

**Task:** Ask patient to elevate off the bed or chair (seated to standing) using an assistive device (cane, bed rail). Patient should be able to raise buttocks off bed and hold for a count of five. May repeat once.

- **Pass** = complete Assessment Level 4
- **Fail** = Patient is Mobility Level 3; use nonpowered raising/stand aid (default to powered sit-to-stand lift if no stand aid available) or use total lift with ambulation accessories or use assistive device (cane, walker, crutches).

If patient passes Assessment Level 3 but requires assistive device to ambulate or cognitive assessment indicates poor safety awareness, patient is Mobility Level 3.

### Assessment Level 4 – Walk (march in place and advance step)

**Task:** Ask patient to march in place at bedside, then ask patient to advance step and return each foot. Patient should display stability while performing tasks. Assess for stability and safety awareness.

- **Pass** = Patient is Mobility Level 4/modified independence = no assistance is needed to ambulate; use your best clinical judgment to determine need for supervision during ambulation.
- **Fail** = Patient is Mobility Level 3
What is early mobilization

- Early mobilization includes activities such as sitting, standing and ambulation as well as range of motion exercises.

- Mobilization in the ICU is generally considered early.


- Only 27% of patients who CAN walk DO walk in the hospital (Callen 2004)

• Average time between manual turns in ICU 4.85 hrs (Goldhill 2008)

• In an 8 hour period only 3% of the ICU patients were turned according to the 2 hour standard and close to 50% of the patients had no change in body position (Krishnagopalan 2002)


Early Progressive Mobility Protocol

**Step 1 – Safety Screening**

Evaluate Daily

(Patient must meet all criteria)

- **M** – Myocardial stability
  - No evidence of active myocardial ischemia x 24 hrs.
  - No dysrhythmia requiring new antidysrhythmic agent x 24 hrs.

- **O** – Oxygenation adequate on:
  - FiO2 < 0.6
  - PEEP < 10 cm H2O

- **V** – Vasopressor(s) minimal
  - No increase of any vasopressor x 2 hrs.

- **E** – Engages to voice
  - Patient responds to verbal stimulation

Fails: Re-evaluate in 24 hours

Passes

WHAT IS PROGRESSIVE MOBILITY

Progressive mobility is defined as a series of planned movements in a sequential matter beginning at a patient's current mobility status with goal of returning to his/her baseline (Vollman 2010).


PPROM = passive range of motion  
AROM = active range of motion  
CLRT = continuous lateral rotation therapy
STEP 2 – PROGRESS MOBILITY

Level 1:
- Passive ROM TID
- Turn Q 2 hrs.
- Active resistance PT
- Sitting position 20 mins. TID
- Sitting on edge of bed

Level 2:
- Passive ROM TID
- Turn Q 2 hrs.
- Active resistance PT
- Sitting position 20 mins. TID
- Sitting on edge of bed
- Active transfer to chair 20 mins./day

Level 3:
- Passive ROM TID
- Turn Q 2 hrs.
- Active resistance PT
- Sitting position 20 mins. TID
- Sitting on edge of bed
- Active transfer to chair 20 mins./day
- Ambulation (marching in place, walking in halls)

Level 4:
- Passive ROM TID
- Turn Q 2 hrs.
- Active resistance PT
- Sitting position 20 mins. TID
- Sitting on edge of bed
- Active transfer to chair 20 mins./day
- Ambulation (marching in place, walking in halls)

Able to move arm against gravity

Able to move leg against gravity

PROGRESSIVE MOBILITY OUTCOMES

- Decreased Pressure Injuries
- Decreased time on Ventilator
- Decreased VAP rate
- Decreased days of sedation
- Decreased delirium
- Increased ambulatory distance
- Decreased LOS

Staudinger T, Crit Care Med 2010
Abroung F, Crit Care Med 2011
Pohlman MC, Crit Care Med 2010
Thomsen GE, CCM 2008
Winkelman C, CCN 2010
Measurement of Outcomes

- **Process evaluation**
  Percentage of patients who received the intervention of early mobility

- **Outcomes evaluation**
  Ventilator LOS
  ICU LOS
  Hospital LOS
  Incidence and duration of delirium
  Adverse events

AHRQ Safety Program for Mechanically Ventilated Patients
Obstacles

Facts:
– Mobility interventions are regularly missed

• Nursing perceptions
  – Lack of time
  – Ease of omission
  – Belief it is PTs responsibility

• Survey results
  – Concern for patients level of weakness, pain and fatigue
  – Presence of devices – IVs and Urinary Catheters
  – Lack of staff to assist

Nursing focus in the phases of hospitalization:
— Acute illness – focus is on VENTILATOR ASSOCIATED PNEUMONIA, HOSPITAL ACQUIRED PRESSURE ULCER prevention through turning
— Recovery period – concern for DEEP VEIN THROMBOSIS
— Getting ready for D/C – Functional Ambulation

FACTORs INFLUENCING NURSES MOBILIZING PATIENTS

Unit or Organizational Factors
- Availability of resources
  - CNAs
  - Equipment

- Unit activity
  - High activity / acuity shifts interfere with getting patients up

- Unit or Organizational Expectations
  Is expectation explicitly communicated to staff and patients
  - White boards
  - Handoffs

FACTORS INFLUENCING NURSES MOBILIZING PATIENTS

• RN Skill / Experience
  – Size matters
  – Rehab and LTC experienced RNs more likely to ambulate

• Patient “label”
  – Nursing Home residents ambulated less or not at all
  – Anticipated d/c to community – more likely to ambulate

• Accountability
  – Documentation of mobilization activities
  – Visibility of ambulation

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<th><strong>Go</strong>: determine the resources in your institution and how you will implement a mobility program.</th>
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<td>E</td>
<td><strong>Evaluate</strong>: (patient capabilities): Which scale/tool/evaluation method will you standardize on?</td>
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<td><strong>Team up for progressive mobility</strong>: rehab, nursing, and respiratory join to implement the mobility plan.</td>
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<td><strong>Unite</strong>: Engage patients, families and friends in mobility progression.</td>
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<td><strong>Promote progress</strong>: Measure and report unit mobility performance.</td>
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**GET UP WEBINAR**: “MOVE IT OR loose IT” CROSs-CUTTING INTERVENTIONS TO ACCELERATE IMPROVEMENT ASHNA
GO – DETERMINE THE RESOURCES NEEDED

• Assess current state of nursing skill and confidence in mobilization
• Mobility Aid
  – PTA or CNA
  – Instead of “low census days” pilot mobility aid
  – Ambulate patients twice a day

• Unit based PT/OT staff – Bedside treatment
  – Involve nursing in transfers and ambulation to build skill and confidence.

• ICU Mobility Team – Critical Care RN, CNA, PT
• Equipment
  – Gait belts in rooms
  – Sit to stand transfer device
• Select or develop a tool to assess patient readiness for early mobilization

– Exercise / Mobility Safety Screen Parameters
TEAMS UP

• Develop the mobility protocol as a team
  – MD
  – NP, ClinSpec
  – Nursing –RN, CNAs
  – Physical Therapy
  – Occupational Therapy
  – Respiratory

• Consider ICU and Med Surg
  – Decide where to start
• For individual patients
  – Document progression towards baseline in medical record
  • Current mobility level
  • Activities performed
  • Patient tolerance
  • Required support and assistance
  • Education Given

– Use whiteboard to document current level and activity goals

• Celebrate the Team’s Progress
Questions?