FUNCTIONAL MOBILITY FOR THE GERIATRIC POPULATION

The Meat and Potatoes!
Food for thought.....

Kathy Adkins, OTR
Leta Kant, PT, ATP
Judy Freyermuth, PT

OBJECTIVES

1. Identify common and potential issues related to seating and mobility
2. Determine possible interventions and solutions
3. Proper documentation for skilled and medically necessity of rehab services

STATISTICS

According to US bureau of statistics 2010
3.6 million wheelchair users in US
In 2009, 39.6 million individuals 65 and older which represented 12.9% of the U.S. population (1 in 8 Americans). By 2015 86.7 million > 65 years old. By 2030, geriatric population is expected to grow to 19% of the population which means 1 out of 5 individuals will be 65 and older.

Baby boomers in 2013 there are 76 million. Every 7 seconds another baby boomer turns 50 (12,500 daily). 2/3 have one chronic disability. 93% report some form of activity limitation. 2/3 report severe enough limitations to render them unable to perform their major activity.

WHO ARE OUR PATIENTS?
**MEDICAL & COGNITIVE ISSUES**
- Physical changes related to aging
- Medically complex
- Multiple co-morbidities
- Progressive diseases
- Cognitive deficits
- Behaviors
- Depression
- Pain
- Balance disorders
- Falls
- Bariatric
- Visual impairments

**CHRONIC DISABILITIES AFFECTING FUNCTIONAL MOBILITY**
- Arthritis
- Hypertension
- Heart Disease
- Cancer
- Diabetes
- Respiratory Disorders
- Stroke
- Asthma
- Fixed scoliosis
- Kyphosis
- Multiple Sclerosis
- Obesity
- Joint Replacements
- Amputation
- Contractures
- Dementia/AD

**PAIN**
*Root of the Problem or Result of Intervention?*
- Pain
  - Identify presence through thorough assessment and observation
  - Medical management
  - Therapeutic interventions
    - Modalities
    - Therapeutic exercise/activity
    - Orthotics
  - Need for change in position
    - Back in bed
    - Positioning plan and schedule both in and out of bed
  - Equipment contributing to discomfort
COGNITION

- Behaviors
  - Ability to make needs known
  - Attempts at communication
    - discomfort, hunger, thirst, toileting need for movement or attention
  - Anxiety
  - Boredom
  - Cognitive level
    - Would be a “wanderer” if could walk!
  - Restraint
    - Via use of equipment (geri-chair, positioning belt, lap tray or angles will only add to the problem

FALLS

- From the wheelchair
  - Related to restraint
  - Related to medication
  - Postural issues
    - Poor alignment
    - Improper fit
    - Poor trunk control
  - Lack of stability
    - Seating surface, back and extremity support etc.
  - Fatigue
  - Pain
    - Patient attempting to find position of comfort
  - Cognition
    - Seeking activity
    - Attempting to make needs known

ENVIRONMENT

- Living situation
  - Home, assistive living, skilled nursing facility
  - Mobility challenges while in the home
  - Mobility challenges entering/exiting home
- Community
  - Transportation
    - Need to transfer into car and transport wheelchair
    - Travel, remaining in wheelchair (van, public transportation etc.)
  - Mobility outdoors
EQUIPMENT ISSUES

- Funding
  - Community dwelling
  - Skilled Nursing Facility
    - Facility Responsibility
    - Medicare
    - Medicaid
      - Funding in limited states for long term care residents
  - Availability

EQUIPMENT ISSUES

- Configuration
  - Limited adjustability and equipment that can be added/modified/removed easily
    - Angle adjustments (seat-back, leg rests and footplates)
    - Armrest adjustability
    - Solid seat
  - Availability of light weight
  - Size
    - Seat to floor height
    - Width (Bariatric or very small and frail)

EQUIPMENT ISSUES

- Psychological impact
  - Self image
    - Limited choices
  - Dignity
  - Depression
EQUIPMENT ISSUES

- Restraints
  - Necessary to follow regulations/federal guidelines specific to the setting

BEHAVIORS

- Ability to make needs known
- Discomfort/Pain
- Medication
- Decrease Activities---falls, contractures

Shifting focus.....

Patient first.....
Positioning is a DYNAMIC PROCESS involving:
- thorough evaluation
- investigation/observation
- communication with IDT
- treatment
- re-assessment
- modification
- teaching and training

COMMON SEATING AND POSITIONING ISSUES & INTERVENTIONS
### COMMON SEATING AND POSITIONING ISSUES

- **Leaning**
  - Right and left
  - Forward with neck flexed
  - Backwards with neck extension
- **Sliding**
- **Attempts at rising**
  - Falls
- **Skin Integrity**
  - Pressure/pain
- **Contractures**
- **Spinal deformities**
- **Poor trunk control**
- **Poorly fitted wheelchair**
  - Armrests are too high or too low
  - Wheelchair too narrow or too wide
  - Seat depth issues

### INTERVENTIONS

- Remember doing one thing to a person sitting in wheelchair can cause another problem/issue to occur
- Remember not to over correct
- Listen to your patient

### LEANING
LEANING

- Are they leaning right/left/forward/backward?
- **PELVIS IS THE KEY!!!!**
- What is the cause?

SOLIOSIS

- Curvature of the spine
- Limited ROM
- Pelvis not level
- Pain
- Incontinence
- Poorly positioned in the chair
- Improper cushion
- Cushion in chair improperly
- Brief/pad or clothing need adjustment
- Patient is fatigued and needs change in position...bed perhaps. The more tired they get, the more they will lean....
HEAD LEANING BACKWARD... TRUNK EXTENDED
- Backrest-height too short
- Poor trunk control
- May need thoracic support to correct leaning
- Vision
- Instability of the head on trunk (weak neck muscles)
- Asleep??
- Use reclining (high back) wheelchair
- UE support
- Head rests

LEANING INTERVENTIONS
- TREAT THE PATIENT
  - Provide appropriate therapeutic interventions based on the impairments, impacting posture, identified in the evaluation
  - Position pelvis
  - Assess and address pelvic obliquity and rotation
  - Provide firm surface under cushion
  - Support Trunk
    - Lateral support
    - Support Convex/Concave using 3 point system
    - Thoracic Lateral Supports
    - Back support
  - Head rest if needed
  - Upper and lower extremity support
  - Hip guides/lateral thigh support
  - Adequate support of feet

LEANING INTERVENTIONS
- Upper extremity Supports
  - Wider arm rests
  - Half lap tray
SLIDING

SLIDING - POSSIBLE CAUSES

Patient Related

- PAIN
- Skin integrity issues
- Weakness/poor trunk control
- Limited hip flexion
- Posterior Pelvic Tilt
- Limited hip abduction and external rotation
- Kyphosis
- Knee flexion contracture
- Incontinence
- Cognitive deficits
- "Old Habit" always sat "slouched"

SLIDING - POSSIBLE CAUSES

Equipment Related

- Improper transfer and positioning in chair by caregiver
- Wedge cushion in chair backwards
- Uncomfortable brief/pad
- Improper seat to floor height
  - Lacking foot support
  - Propulsion (feet or upper extremities)
- "Sagging" wheelchair seat
- Poorly positioned headrest
- Improper armrest height
- Seat too deep
- Back support too upright or too low
- Improper seat-back angle
TREAT THE PATIENT
- Appropriate therapeutic interventions to address underlying impairments noted in the comprehensive evaluation.

CONSIDER BACK PAIN
- STABALIZE THE PELVIS
- Contoured back to accommodate spinal deformity
- Seat depth to long
  - Accommodate seat depth
- Seat to wide
  - Provide appropriate sized wheelchair
- Tight hamstrings/knee flexion contracture
  - Modify seat to calf angle

SLIDING INTERVENTIONS

SKIN INTEGRITY

SKIN INTEGRITY PRESSURE
- Back to seat angle to “closed”
  - Tilt in space
  - Manually reclining wheelchair
- Solid seat
- Fatigue
  - Scheduled position changes and rest periods in bed.
- Caregiver Education
SKIN INTEGRITY
PRESSURE

- Areas at risk for pressure in wheelchair
  - Scapula
  - Spinous processes
  - Posterior aspect of head
  - Rib hump
    - Upper extremities
      - Often see skin tears as well
  - Lateral knee/thigh
  - Posterior thigh
  - Lateral malleolus/border of the foot
  - Ischial tuberosities
  - Sacrum
  - Coccyx

SKIN INTEGRITY – PRESSURE
CONSIDER......

- When is pressure occurring
- Is it from position or shearing/friction?
- Is it from deformities?
- Is it from overall health/nutrition?

SKIN INTEGRITY
PRESSURE

- TREAT THE PATIENT
  - Appropriate therapeutic interventions to address underlying impairments noted in the comprehensive evaluation. Consider modality utilization.
  - Even distribution of pressure (with appropriate device)
    - Seat cushion
    - Back support
    - Head support
    - Upper and lower extremity support
    - Protect integrity of shoulder girdle
  - Stabilization of trunk and pelvis - Optimal alignment
  - Educate all caregivers in proper/safe transfer in/out of wheelchair
  - Splinting and orthotics
  - Repositioning – tilt in space, manually reclining wheelchair
  - Teach self pressure relief
  - Positioning schedule
    - Time in/out of wheelchair
CONTRACTURES

- Risk area
  - Hamstring tightness – knee flexion contracture
  - Ankle – equinovarus
  - Hip abd/add, IR/ER
  - Limited hip flexion
  - Lumbar spine
  - Cervical
- Fixed or flexible
- Treatment of area(s) with modalities and therapeutic interventions as indicated.
- Orthotics
- Address bed positioning as well as seating
- Ongoing assessment of skin related to limited mobility and potential pressure

POTENTIAL ISSUES ARISE IF THE PATIENT IS NOT PROPERLY POSITIONED

- Skin integrity issues
  - Infection
  - Decreased respiration
  - Aspiration
  - Pneumonia
- Contractures
- Deformities
- Falls
- Pain
- Behavioral issues
- Decreased ADL
- Decreased socialization
- Isolation
- Depression
- Decreased functional mobility
- UTI
- Quality of life
  - Self image
  - Dignity
IDEAL SEATED POSTURE FOR FUNCTION AND COMFORT

- Buttocks back in the chair
- Pelvis level
- Thighs level
- Thighs not rotated outward
- Support of low back in normal curve
- Trunk upright and aligned
- Level shoulders, squarely positioned over hips
- Head centered

THE ESSENTIAL MAT ASSESSMENT

MAT ASSESSMENT

The mat assessment addressed the following:
- You have to address pelvis and stability, then position of extremities
- Position that activates the trunk muscles is key
- Try to get trunk where muscles are activated
- Open up back seat angle
- Use gravity to assist
- Get them out of wheelchair and on the mat
MAT ASSESSMENT

- A hands-on assessment in supine and sitting positions
  - ESSENTIAL to get to the root of the problem.
  - Patient must be on a firm surface for accurate assessment.
- Benefits: It is easier to assess musculoskeletal status and take measurements without the complicating effects of gravity.
- The mat assessment reveals what the patient’s potential for optimal alignment with gravity eliminated.
- The mat assessment aides in the identification of treatment areas to be included in the comprehensive plan of care.

MAT ASSESSMENT

- To assess individual’s muscle tone, postural patterns, skeletal deformity and range of motion limitations as they relate to seating
- More specifically, to observe and note how active movement or passive change in limb position in one body segment can effect the posture, tone and/or level of control of another body segment, especially the pelvis/spine.
- To obtain patient measurements, both angular and linear

MAT ASSESSMENT

- Assists in determining the following:
  - Frame-type and size
  - Primary support surfaces
  - Secondary support surfaces
  - Seating angles
  - Condition of frame and seating system
  - Concerns regarding seating system
CONSIDER POSTURE IN CURRENT SEATING SYSTEM

- Sitting posture in current wheelchair
  - Position of pelvis, trunk, lower and upper extremities, head and neck
  - Postural control
  - Function in wheelchair, including mobility, ability to reposition, ability to transfer in and out, and management of components such as PPD and locks

DOCUMENTATION

- Key is to perform very thorough evaluation to include:
  - Past medical history
  - Diagnosis
  - Prior level of function
  - Social history
  - Mat evaluation must be completed
  - Postural alignment
  - AROM/PROM
  - Muscle Tone
  - Skin Integrity
  - Sensation
  - Activity Tolerance
  - Functional Evaluation (transfers, ADL's, functional mobility)
  - Perception
  - Memory
  - Cognition/Judgment/Safety Awareness
  - Motivation
  - Reflexes
DOCUMENTATION

- Daily progress notes must have joint measurements-specific
  - Document length of time in the wheelchair, pain, comfort, functional activities they are able to perform while in wheelchair
- Must be skilled and medically necessary
- Document trials of adaptive equipment, types of wheelchairs, etc.
- Document what does not work and why
- Document all training provided, who was trained and how they responded to training

DOCUMENTATION

Goals must be functional and measureable
1. Patient will be positioned in good alignment with appropriate adaptations in wheelchair for up to 3-4 hours/day with c/o low pain 3/10.
2. Patient will tolerate sitting in appropriate seating device without sliding out of w/c for 3-4 hours/day to prevent falling.
3. Patient tolerate sitting in midline 100% of the time for at least 4 hours without signs of skin breakdown and improved breathing efficiency.
4. Patient will sit upright at 90 degree angle in w/c during all meals without any s/s of aspiration.
5. Patient will be positioned in good alignment in high back reclining w/c for greater than 4 hours without any signs of symptoms of skin breakdown and no c/o pain.
6. Patient will be achieve good handgrip of wheel rims without demonstrating an increase in posterior pelvic tilt and pain for w/c propulsion of 10 feet.

ESSENTIAL "TAKE AWAYS"

- Remember focus on the patient!
- Consider diagnoses + history + meds + impairments as you develop a comprehensive plan and referral to Rehab for more in depth evaluation and treatment.
- Consider pain, cognition, skin, incontinence etc.
- Address positioning in wc, bed and alternate arrangements
- Be sure all patients have a firm seat under their cushion
- Never give out equipment "on the fly"
- Remember focus on the patient!
REFERENCES

- Stinnett, Ms, OTR/L, Kelly A. Issues in Geriatric Settings: Health, Comfortable Seating.