Wheelchair Assessment/Positioning to Reduce Restraints and Improve Posture

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Objectives

- Identify the critical aspects of a seating assessment.
- Discuss the importance of correct anatomical measurements and how they influence equipment selection.
- Learn how to apply seating and mobility principles and solutions when assessing and treating common seating issues seen among the elderly.
- Provide visual examples of actual patients who have benefited from proper seating and restraint removal.
Why Is Individualized Seating Important?

“Inadequate or inappropriate wheelchair positioning can contribute to pressure ulcers, skin tears, bruising, skeletal deformities, dysphasia, impaired respiration and digestion, contractures, discomfort, agitation, inability to self propel, visual impairment, incontinence, social isolation, unsafe transfers, falls and injuries to both residents and caregiving staff.”

—Dr. Deborah Gavin-Dreschnack
Who Is Involved?

It takes a team:
- Residents
- Caregivers
  - CNA, housekeeping, maintenance, etc.
- Family
- Therapists
  - Occupational, Physical and Speech Therapists
- Funding person
  - Social worker, Case manager
- Equipment vendor
- Nursing representative
What Is the Process?

1. Referral
   - Who is appropriate for a seating assessment?
   - Nursing staff refers residents to therapy.

2. Observations of
   - Leaning or sliding
   - Use of restraints
   - Behaviors
   - Skin problems due to pressure
   - Falls from wheelchairs
What Is the Process? (cont.)

3. Assessment Procedure

- Interview
  Staff, resident and family

- Resident chart review

- Observation of patient
  Different times of the day, in various situations

- Mat evaluation
  Involve therapy

- Equipment simulation
  Request trial use from vendors
  Use equipment in the facility
What Is the Process? (cont.)

4. Funding and procurement of equipment
   *Family, DHS, donations, fundraising and facility*

5. Fitting
   - Each resident will have similar and different needs.
   - Fitting needs to meet resident’s seating requirements, not necessarily 90/90.

6. Follow-up, maintenance and repair

7. Outcome measurement
   *Celebrate and share successes with other residents, families and entire staff.*
Assessment Procedure
Interviewing

Much can be learned by interviewing the resident while they are in the wheelchair.

- Do you have any pain?
- Do you like this wheelchair?
- What would you like to be able to do?

Repeat these questions after new seating requirements have been established to ensure all needs are met.
Performing a Mat Evaluation

Why do I need to do a mat evaluation?

- By positioning in supine, you can better assess range of motion (ROM).
- By positioning in sitting you can
  - observe effects of gravity,
  - determine needed support for desired posture by using hand for support in this position and
  - determine resident’s balance.
Fitting
Measuring the Resident

- Use a firm, flat surface with resident’s feet supported.
- Using mat evaluation results, adjust to the optimal sitting position.
- Use a measuring tape.
- Use a measurement form for ease.
- Measure right and left sides, if needed.
- Record the resident’s measurements, then use those to set the equipment measurements.
Fitting
Resident Measurement Form
Fitting
Hip Width (A)

- Determine seat width.
- Position lower extremities (LEs) in neutral or slightly abducted.
- Measure widest point of seated anatomy.
- Accommodate for any fixed deformities.
Fitting
Upper Leg Length (B)

- Position resident in most optimal upright posture.
  - *If they have a fixed Posterior Pelvic Tilt (sacral sitting) or kyphosis, accommodate for that with your measurements.*

- Measure back of buttocks to back of knee.
Fitting
Special Considerations (B)

- Remember to accommodate for the loss of seat depth.

- If the patient sits sacral, then they have empty seat space behind them that needs to be added to the measurement for seat depth.

- Usually a 20” seat depth will accommodate for the sacral sitting posture.
Fitting
Lower Leg Length (C)

Determines the seat-to-floor height of the chair

- Position resident in optimal hip/knee position with foot well supported.
- Measure from the back of the knee to the bottom of the foot.
- Consider if the wheelchair is to be tilted in measurement.
Fitting
Foot Length/Width (D)

- Measure with typical footwear, orthotics or prosthetics.

- Record footplate dimensions and width needed for feet between front hangers or side frames. \((D_1 \ & \ D_2)\)

- Determine if the patient will need calf and foot support due to adduction of lower extremities.
Fitting
Back Height (E&F)

Used for height of back support

- Measure seat surface to inferior angle of the scapula (E).
- Measure seat surface to top of shoulders (F).
Fitting
Head Height (G&H)
Used for size and length of headrest hardware

- Measure from seat surface to occipital ledge (G).
- Measure from seat surface to top of the head (H).
Fitting
Trunk and Acromion Width (J&K)

Used for lateral trunk support

- Measure across resident’s chest at desired height (J).

Used for back support

- Measure from one acromion process to the other acromion process (K).
Fitting
Chest Depth (L)
For lateral trunk support

- Measure depth of the chest at the appropriate height.
Fitting
Armrest Length and Height (M&N)

- Position upper extremities (UE) in functional position for height and angle.
- Consider where support is needed.
- Measure from elbow or back support to end of forearm or fingers depending on needs (M).
- Measure from seat support to underside of forearm (N).
Fitting
Wheelchair Measurement Adjustments

CORRECT SEAT WIDTH

1" hip width 1"

Hip width + 2 in = _____

CORRECT SEAT DEPTH

2"

Thigh length - 2 in = _____

CORRECT ARMREST HEIGHT

1" higher than elbow = _____

Quality Improvement Organizations
Sharing Knowledge. Improving Health Care.
CENETERS FOR MEDICARE & MEDICAID SERVICES
Assessment Procedure
Observing the Resident

- There is more to positioning than 90 degrees at the hip and knees.

- One size does not fit all...a standard wheelchair, which does not have adjustable parts, does not work for everyone.
Assessment Procedure (cont.)

Observing the Resident

- Observe from all angles (e.g., front, side).
- Observe at different times of the day and during different activities:
  - Eating
  - Participating in activities
  - Residing in room
  - Moving within facility

Questions to ask:

- How does the patient sit naturally?
- How is current seating not meeting resident’s needs?
- How old is the wheelchair? Can it be repaired or modified?
Assessment Procedure (cont.)
Observing the Resident – Poor Positioning

Common Physical Causes

- Kyphosis
- Limited hip flexion
- Tight hamstrings
- Contractures
- Weakness
- Desire to sit in a certain position (e.g., sacral sitting)
Assessment Procedure (cont.)
Observing the Resident – Poor Positioning

Common Equipment Causes

- Seat
- Footplates too low or too far forward
- Arm rests too high or low
- Inadequate back support
- Wheel not correctly positioned for propulsion
- Incorrect width and height
- Incorrect length of seat
- Lack of a tilt-in-space
Seating Postures
The Big Three

- **Forward flexion.** Patient leans forward, picks up items from floor, takes off socks, etc.; possible falls forward

- **Sacral sitting.** Patient slides out of seat and staff repeats sit up; possible falls onto footrests or in front of wheelchair

- **Lateral leaning.** Patient leans over to the side of the chair or onto armrests; possible pressure points on arms and torso
Seating Postures

Forward Flexion

- This patient will benefit from tilting the wheelchair or providing a tilt-in-space wheelchair.

- This tilt utilizes gravity to position the patient upright and in the center of the chair.

- This patient may also benefit from an activity apron, rice baby or weighted blanket.
Seating Postures
Fixed-Tilt Frame Wheelchairs

- Use for forward flexion leaning residents unable to maintain an upright posture or continually reaching for the floor or their feet.

- Slight tilt increases comfort as it decreases pressure on the coccyx, using gravity to assist in upright posture.

- Any adjustable-height wheelchair can be tilted.
Seating Postures
Fixed-Tilt Frame Wheelchairs

Modify the back seat-to-floor height (STFH) lower than the front STFH to make it easier for the resident to maintain an upright posture against gravity.

- Observe if the resident can still propel the chair and get out of the chair without assistance
Seating Postures
Fixed-Tilt Frame Wheelchairs

To tilt, lower the back by placing wheel on the highest attachment and raise front casters by placing on the lowest or middle attachment.
Seating Postures
Fixed-Tilt Frame Wheelchairs

- Most high-back wheelchairs can tilt, but take care to avoid chair flipping backwards by using anti-tippers on the back of the wheelchair.
Seating Postures
Fixed-Tilt Frame Wheelchairs

Resident has kyphosis, limited vision and does not propel with her feet or hands.
Seating Postures

Fixed-Tilt Frame Wheelchairs

Facility placed lap belt restraint used to prevent falling forward and out of the wheelchair.

Notice how the patient is holding tight to the wheelchair.
Seating Postures
Fixed-Tilt Frame Wheelchairs

Resident provided a 20” deep seat, K-special back, leg rests with calf pad and a proper cushion.
Seating Postures
Fixed-Tilt Frame Wheelchairs

Resident now has plenty of leg support and armrests are at appropriate level.
Seating Postures

Forward Flexion – Example Intervention

An activity apron or vest can keep the resident’s focus on their lap and not the floor.
Seating Postures
Kyphosis Solution

A K-special back was placed on the wheelchair to accommodate for the patient’s spinal curve, allowing her to sit comfortably further back in the wheelchair.
Seating Posture
Sacral Sitting

Reasons:
- Preferred sitting posture
- Tightness in muscle groups
- Weakness
Seating Posture
Sacral Sitting Tightness

Involve in a stretching program for tight hamstrings.
Seating Posture
Lateral Leaning

Reasons:
- Pelvic obliquity
- Scoliosis
- Weakness in trunk
- Sided weakness
- Fit of wheelchair
Seating Posture
Sacral Sitting and Lateral Leaning - Example Resident
**Seating Posture**

**Sacral Sitting and Lateral Leaning - Example Resident**

- Patient prefers sacral sitting and is using lateral lean to accomplish desired position.
- Patient could not propel wheelchair with her legs or hands.
Seating Posture
Sacral Sitting and Lateral Leaning - Example Fitting

Corrected
Seating Posture
Sacral Sitting and Lateral Leaning - Example Fitting

Patient was provided a 20” deep seat, tilted frame, leg rests with calf pad and a roho cushion.

This photo was taken 2 hours after the patient had been up and attended an activity in the facility.
Equipment Ideas

Cushion

Think outside the box by taking a 16” deep x 20” wide cushion and turning it sideways. Will work for:

- High-back wheelchair
- Standard wheelchair
- Tilt-in-Space wheelchair

*It has to be a zero elevation cushion.*
Equipment Ideas
Cushion

Use leg supports.
**Equipment Ideas**

**Seating Cushions**

- **Saddle Cushion** for increased comfort for most general seating; it is always good to get a cushion with a belt for attaching to wheelchair

- **Anti-thrust cushion** for mild sacral sitting

- **Safety saddle cushion** for frequent unassisted transfers and extreme forward flexion patients
Equipment Ideas
Wheelchair Equipment

Use hemi-height or pediatric wheelchairs for petite residents or when using tilt frame.
Equipment Ideas
Wheelchair Equipment

Use Rock ‘N Go® wheelchairs for residents who would benefit from the rocking motion and a tilt-in-space.
Equipment Ideas
Wheelchair Equipment

Use Broda® chairs for tilt-in-space options.
Equipment Ideas
Wheelchair Equipment

Use the Dyn-Ergo tilt-in-space chair.
Equipment Ideas
Wheelchair Equipment

One-way glide

• Prevents forward thrusting when resident is placed in chair correctly.

• Dycem® matting or pads under the seat cushion assist.
Equipment Ideas
Wheelchair Equipment

Automatic brake locks
Equipment Ideas
Wheelchair Equipment

Lateral supports
Equipment Ideas
Wheelchair Equipment

Bright brakes that are easier to see and grip
Equipment Ideas
Wheelchair Equipment

A recliner in the resident’s room or in a sunshine room to provide another seating surface.
Sunshine Room

An area in the facility where residents with high level dementia can be supervised, hydrated and provided with snacks and activities they enjoy.
Thank you. Questions?
Contact Us

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