REF EDU/0107-107, Rev A (2HR)

CLINICALLY SPEAKING:

A PRACTICAL GUIDE TO
EVALUATION AND DOCUMENTATION
FOR POWER TILT, POWER RECLINE
AND POWER LEG ELEVATION

PROFESSIONAL EDUCATION PARTNERSHIP
THE FOUNDATION OF SMART BUSINESS

REF EDU/0107-107, Rev A (2HR)

AGENDA

- Medicare coverage criteria for power tilt, power recline and elevating legrests
- RESNA position paper on tilt, recline and elevating legrests
- Evidence Based Practice: evaluating and documenting the patient – product match

QUANTUM

REF EDU/0107-107, Rev A (2HR)

Satisfactory Completion Requirements
As a learner….

1) **Sign-in.**
2) **100% Attendance requirement**
3) **Sign-out**
4) **Required to complete an evaluation form on the day of the event.**

- **Failure to abide by any of these will result in no credit.**
- **A learner must sign-in, sign-out, and complete an evaluation form to get a Certification of Completion**
- ***If one item is missing, it will be treated as if the learner was never in attendance***

No partial credit will be awarded

QUANTUM

REF EDU0107-107, Rev A (2HR)

LEARNING OBJECTIVES

1. Name at least 4 considerations involved in the selection of seating and power positioning options
2. State the clinical benefits of tilt and recline related to Pressure Management
3. List 2 contraindications for using power recline
4. Discuss and utilize evidenced based research and apply to clinical decisions in the selection of power positioning systems

QUANTUM

4

REF EDU0107-107, Rev A (2HR)

CLINICAL CONSIDERATIONS

- Power Tilt

- Power Recline

- Power Tilt and Recline

QUANTUM

5

REF EDU0107-107, Rev A (2HR)

MEDICARE COVERAGE CRITERIA

A power seating system – tilt only, recline only, or combination tilt and recline – with or without power elevating legrests will be covered if criteria 1, 2, and 3 are met …

1. The patient meets all the coverage criteria for a power wheelchair described in the Power Mobility Devices LCD; and
2. A specialty evaluation that was performed by a licensed/certified medical professional, such as a physical therapist (PT) or occupational therapist (OT) or physician who has specific training and experience in rehabilitation wheelchair evaluations documents the patient's seating and positioning needs. The PT, OT, or physician may have no financial relationship with the supplier; and
3. The seating system is provided by a supplier that employs a RESNA-certified Assistive Technology Professional (ATP) who specializes in rehabilitation wheelchairs and who has direct, in-person involvement in the selection of the seating system for the patient; and

QUANTUM

6

MEDICARE COVERAGE CRITERIA

and if criterion 4, 5, or 6 is met:

4. The patient is at **high risk for development of a pressure ulcer** and is **unable to perform a functional weight shift**; or
5. The patient **utilizes intermittent catheterization for bladder management** and is **unable to independently transfer** from the wheelchair to bed; or
6. The power seating system is needed to **manage increased tone or spasticity**.

If these criteria are not met, the power seating component(s) will be denied as not reasonable and necessary.

POSITION PAPERS

RESNA Rehabilitation Engineering and Assistive Technology Society of North America

- The Application of **Tilt, Recline** and Elevating Legrests for Wheelchairs (2010)
- The Application of **Tilt, Recline** and Elevating Legrests for Wheelchairs (2015)

http://www.resna.org

TILT / RECLINE AND ELEVATING LEGS

It is RESNA's position that these features are often medically necessary, as they enable certain individuals to:

- Re-align posture and enhance function
- Improve physiological processes such as:
  - Orthostatic Hypotension
  - Respiration
  - Bowel and bladder function
- Enhance visual orientation, speech, alertness and arousal
- Improve transfer biomechanics
- Regulate spasticity
- Accommodate and prevent contractures and orthopedic deformities
- Manage edema
- Redistribute and relieve pressure
- Increase seating tolerance and comfort
- Independently change position to allow dynamic movement

REF EDU/0107-107, Rev A (2HR)

POSTURAL RE-ALIGNMENT AND FUNCTION

- Increased independence with gravity-assisted positioning
- Improve head and trunk control
- Gain balance and stability
- Adjust angles for functional reach and completion of ADLs
- Safe negotiation of obstacles
- Safe negotiation of inclines

QUANTUM

10

REF EDU/0107-107, Rev A (2HR)

POSTURAL RE-ALIGNMENT AND FUNCTION

Supported in Literature

- Alter center of gravity by altering angles to gain balance & stability (Kreutz, 1997; Lange, 2006)
- Important for children or adults with progressive or static scoliosis (Lange, 2000)
- **New clinical guidelines recommend incorporating seat functions into daily activities of people with various disabilities**
  (Bushby et al, 2010; Calhoun, Schottler & Vogel, 2013; Mcnamara & Casey, 2007)

QUANTUM

11

REF EDU/0107-107, Rev A (2HR)

PHYSIOLOGIC IMPLICATIONS

- Maintain vital organ capacity
- Manage Orthostatic Hypotension
- Maximize breathing and speaking ability
- Improve chewing/swallowing – risk for aspiration
- Independent management of tone
- Maintain muscle length and joint mobility
- Bowel and bladder management
- Improve visual orientation and line of sight
- Increase alertness/arousal

QUANTUM

12

ORTHOSTATIC HYPOTENSION

- Also known as postural hypotension
- This is a condition in which the blood vessels do not decrease in size, in response to lowered blood pressure, due to altered function of the autonomic nervous system

- The blood pools in the legs and pelvic region resulting in a feeling of "light-headedness" or "fainting“

ORTHOSTATIC HYPOTENSION

Supported in Literature

- High prevalence in the general population
  (Bradley & Davis, 2003)
  - Cardiac Disease, Spinal Cord Injury (SCI), Diabetes, Neuropathy, Multiple Sclerosis, & Parkinsonism
- Management - **assume a recumbent/semi-recumbent position**
  (Claydon, Steeves, & Krassioukov, 2006)
  - **Combination of tilt, recline, & power legrests to achieve the position**
    (Kreutz, 1997)
- Sleeping in bed (supine / recline) with the **head elevated at 10° to 20°** improves symptoms
  (Ten Harkel, Van Lieshout, & Wieling, 1992)

BOWEL AND BLADDER FUNCTION

- Another problem that may occur as a result of the lowered blood pressure is a decrease in the amount of urine produced by the kidneys
- After the individual reclines their leg bag may fill quickly as a result of the increase in blood pressure that occurs

REF EDU/0107-107, Rev A (2HR)

BOWEL AND BLADDER FUNCTION

- Individuals with indwelling catheters may experience backflow of urine when using a tilt system
- Recline may allow an individual to perform their care independently and reduce the need for caregiver assistance OR eliminate the need to transfer from the chair when caregiver assist is required for B & B management

QUANTUM

16

REF EDU/0107-107, Rev A (2HR)

BOWEL AND BLADDER FUNCTION

Supported in Literature

- Reduce assistance needed
  (Wyndaele, 2002)
- Increase compliance
  - **reduce urinary tract infections and morbidity**
  (Salomon et al., 2006)

QUANTUM

17

REF EDU/0107-107, Rev A (2HR)

VISUAL ORIENTATION, SPEECH, ALERTNESS, AROUSAL, RESPIRATION & EATING

- Tilt and recline systems can be used to:
  - Orient the trunk and head position
  - Stimulate the vestibular system
  - Improve line of sight
  - Allow for better communication
  - Maximize breathing by maintaining vital organ capacity
  - Reduce risk for aspiration

QUANTUM

18

RESPIRATION

Supported in Literature?

- Little research exists specifically evaluating the effect of tilt, recline or tilt and recline on respiratory function
- Widely accepted that the position of the skeletal system and internal organs and the impact of gravity effect the individual's ability to perform diaphragmatic breathing effectively

TRANSFERS AND BIOMECHANICAL POSITION

- Improve transfer biomechanics
  - Use tilt and recline to stabilize the trunk in order to position themselves properly for a transfer
  - Recline may be used in combination with elevating legrests to enhance sliding transfers with a person in supine position
- Reduce the number transfers needed
- Reduce the risk for injury to patient and caregiver(s)

TRANSFERS AND BIOMECHANICS

Supported in Literature

- Better positioning = Reduced Loading on Shoulders
  (Herberts, Kadefors, Hogfors, & Sigholm, 1984)
- Reduce need for assistance & caregiver injury
  (Edlich, Heather, & Galumbeck, 2003; Fragala & Bailey, 2003)

SPASTICITY AND TONE

- Maintain or change joint angles?
  - Tilt maintains static joint angles and muscle fiber length
  - Recline changes joint angles and increases muscle fiber length
- Independent management of spasticity and tone

NOTE: Clinically, recline systems should be considered on a case by case basis for management of spasticity since it has been noted that in some individuals recline can increase tone, especially in the spine extensors

REF EDU/0107-107, Rev A (2HR)

SPASTICITY AND TONE

Supported in Literature

- Tilt systems maintain static joint angles
  - muscle fiber length
  - positional changes w/out increasing tone

  (Kreutz, 1997)
- Judiciously prescribe recline systems
  - can increase tone, especially in spine extensors

  (Lange, 2006)

REF EDU/0107-107, Rev A (2HR)

CONTRACTURES & ORTHOPEDIC DEFORMITY

- Static seating systems can lead to contractures, especially in the hamstrings
- When contractures are present seat to back and legrest position should be set to the appropriate accommodative angle(s)
- Elevating legrests, in combination with recline, allows hip extension with knee extension and prevents undue tension on the hamstrings, hip and knee joints

CONTRACTURES & ORTHOPEDIC DEFORMITY

Supported in Literature

- Static seating systems = contractures, hamstrings
  (Lange, 2006)
- Power elevating legrests;
  - manage contractures or orthopedic deformities
    (Levy, Berner, Sandhu, McCarty, & Denniston, 1999)
  - passive movement to the knee joints
    (Lange, 2006)
  - **adjusted to prevent undue tension on the hamstrings and hip joints**
  - combination with recline when passive extension is limited
  - extending near end range can elicit reflex spasticity
- Tilt and/or recline systems used for limited hip flexion, with seat to back angle appropriately configured
  (Kreutz, 1997)

EDEMA

- Elevation of the legs 30 cm (≈ 12 in.) above the left atrium is generally recommended as part of the management of edema
- Reduce venous pressure and increase capillary flow
- Leg elevation can be effective when used in combination with tilt but may be inadequate due to the flexion of the hip
- A combination of tilt and recline may be necessary for adequate leg elevation above the heart

EDEMA

Supported in Literature

- Power elevating legrests help manage edema
  (Levy et al., 1999)
- Lower limbs of wheelchair users may act as a reservoir (Kinzer & Convertino, 1989)
- Elevate the legs above the heart
  (Abu-Own, et al., 1994; Douglas & Simpson, 1995; O'Brien, et al., 2005)
  - reduction in venous pressure
  - increases arterio-venous pressure and capillary flow
  - combined with tilt and recline systems for adequate elevation of legs
- **Using elevating legrests and tilting more than 30° in combination with full recline significantly improves lower limb hemodynamic states**
  (Fujita et al., 2010)

REF EDU/0107-107, Rev A (2HR)

PRESSURE RELIEF

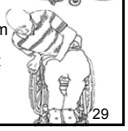
- Best practice is to provide a combination of cushion technology and a means for position change to prevent/treat ulcers
- Tilt, when used alone, must be greater than 25° to achieve pressure relief and/or perfusion at the ischial tuberosities
  - Significant ischial pressure relief with 65˚ tilt
  - ≤15˚ of tilt provides no pressure reduction
- Recline, when used alone, may provide reduction in pressure at the ischial tuberosities at angles greater than 90° - 100°.
  - 120˚ of recline with leg elevation reduces seating surface pressure
- Tilt and recline provides the most pressure relief when used in combination
  - Either 35° of tilt with 100° recline OR 15-25° tilt with 120° recline
  - 45˚ of tilt with 120˚ of recline provides a 40% load reduction

REF EDU/0107-107, Rev A (2HR)

PRESSURE RELIEF

Supported in Literature

- **Pushups often done every 15-30 seconds**
  (Coggrave & Rose, 2003)
  - recommendations ranging from 1/min to 1/hr
    (Boninger & Stripling, 2007)
  - each lift should last nearly 2 minutes, regardless of frequency
    (Coggrave & Rose, 2003)
  - predispose to repetitive strain injuries
    (Bayley et al., 1987; Reyes, Gronley, Newsam, Mulroy, & Perry, 1995)
- **Forward or side to side leaning**
  - Can be effective
    (Coggrave & Rose, 2003; Henderson et al., 1994; Hobson, 1992; Vaisbuch et al., 2000)
  - not all have the UE strength or trunk control to perform
    (Lacoste et al., 2003)
  - autonomic dysreflexia or neurogenic bladder can limit
    (Vaisbuch et al., 2000)
  - may not be effective with some cushions
    (Koo, Mak, & Lee, 1996)



REF EDU/0107-107, Rev A (2HR)

PRESSURE RELIEF

Supported in Literature

- Higher pressure focused over smaller surface areas in those w/ disabilities
  (Aissaoui, Kauffmann, Dansereau, & de Guise, 2001; Hobson, 1992; Vaisbuch, Meyer, & Weiss, 2000)
- Cushions inadequate if the individual sits too long
  (Lacoste et al., 2003)
- Provide cushion AND means for position changes
  (Henderson, Price, Brandstater, & Mandac, 1994)
- **Performing tilt of 35° with recline of 120° for a duration of 3 min. is more effective than a duration of 1 min. in enhancing skin perfusion**
  (Yih-Kuen Jan, et al., 2012)

REF EDU0107-107, Rev A (2HR)

PAIN, FATIGUE, SITTING TOLERANCE

- Seating systems should not be based on static postures, sitting tolerance is based on a dynamic phenomenon
- Individuals who have high interface pressures may seek alternative postures to prolong sitting tolerance but that are poor for overall postural alignment, skeletal development, or function or that may hasten the onset of fatigue or pain
- Power wheelchair users stated they primarily used power seat functions to promote comfort and reduce back and joint pain

REF EDU0107-107, Rev A (2HR)

PAIN, FATIGUE, SITTING TOLERANCE

Supported in Literature

- Comfort may be very different from what anthropometry predicts (Kolich, 2003)
- Seating should not be configured based on static postures (Porter, Gyi, & Tait, 2003)
- More than 2 hours are needed to observe critical postures an individual assumes (Gyi & Porter, 1999)
- Higher pressure may be related to seating tolerance (de Looze, Kuijt-Evers, & van Dieen, 2003; Goossens, Teeuw, & Snijders, 2005)
- Users primarily use features to promote comfort (Lacoste et al., 2003; Dewey et al., 2004; Ding et al., 2008; Sonenblum et al. 2009 & 2011)
- **About 25% (of PWC users) feel that their wheelchair can be used to treat their pain by allowing position changes** (Frank et al., 2012)

REF EDU0107-107, Rev A (2HR)

DYNAMIC MOVEMENT

- Power tilt, recline, and elevating legrests can provide individuals who use wheelchairs with a means of providing and assisting with dynamic movement
- Dynamic movement is healthy for the spine
  - The loading and unloading of intervertebral discs that occur during dynamic repositioning of the spine may increase nutrient supply to the discs
- In order to perform a variety of functional tasks comfortably and safely, most users will need varying degrees of recline

REF EDU/0107-107, Rev A (2HR)

DYNAMIC MOVEMENT

Supported in Literature

- People are usually in constant motion (Branton, 1969)
  - Cannot tolerate unsupported and static sitting (S. Reinecke, Bevins, Weisman, Krag, & Pope, 1985)
  - Need to change position constantly (Lueder, 2005)
  - Change postures up to 30 times per hour while sitting (Graf, Guggenbuhl, & Kreuger, 1991)
- Static seating restricts the variety of postures that are natural (Bendix & Biering-Sorensen, 1983; Bhatnager, Drury, & Schiro, 1985; Kroemar, 1994)
- **Encouraging periodic movement improved posture and productivity, and it decreased pain** (Cardon et al., 2004)

QUANTUM

34

REF EDU/0107-107, Rev A (2HR)

DYNAMIC MOVEMENT

Supported in Literature

- **Dynamic movement is healthy for the spine**
  (S. M. Reinecke, Hazard, & Coleman, 1994)
  (Andersson, 1981)
  (Kolditz, Kramer, & Gowin, 1985)
  (Holm & Nachemson, 1983)
  (M. Adams & Hutton, 1983)
  (M. A. Adams, Green, & Dolan, 1994)
  (M. Adams & Hutton, 1985)
  (Kumar, 2004)
  (M. Adams & Hutton, 1985)
  (Bendix & Biering-Sorensen, 1983)
  (Andersson, Murphy, Ortengren, & Nachemson, 1979)
  (Keegan, 1953; Lueder, 2005; Nachemson, 1981)
- **Most need varying degrees of recline to maintain function**
  (Lueder, 2005)
  (Grandjean, Hunting, & Pidermann, 1983)
  (Engstrom, 1993)

QUANTUM

35

REF EDU/0107-107, Rev A (2HR)

POWER TILT – MEDICARE

A power tilt seating system (E1002) includes:

- a solid seat platform and a solid back;
- any frame width and depth;
- detachable or flip-up fixed height or adjustable height armrests;
- fixed or swingaway detachable legrests;
- fixed or flip-up footplates;
- a motor and related electronics with or without variable speed programmability;
- a **switch control** which is independent of the power wheelchair drive control interface;
- any hardware that is needed to attach the seating system to the wheelchair base.

It does not include a headrest

It must have the following features:

- **ability to tilt to greater than or equal to 20 degrees from horizontal**;
- back height of at least 20 inches;
- ability for the supplier to adjust the seat to back angle;
- ability to support **beneficiary weight of <u>at least</u> 250 pounds**.

QUANTUM

36

POWER TILT ACTIVITY – 10 MINUTES

Tilt the chair, FEEL and discuss the Clinical Benefits

- Significant ischial pressure reduction with 65˚ tilt
- Maintain optimal joint angles and position
- Tilting 10° - 15° reduce the effects of gravity to accommodate poor trunk balance/poor head control
- Improve visual field for individuals with kyphosis
- Gravity assisted swallowing and/or aide in digestion

Disadvantages

- Tilt must be greater than 25° - 30° to see some tissue perfusion at the ITs

POWER RECLINE – MEDICARE

A power recline seating system (E1003-E1005) includes:

- a solid seat platform and a solid back;
- any frame width and depth;
- detachable or flip-up fixed height or adjustable height arm rests;
- fixed or swingaway detachable legrests;
- fixed or flip-up footplates;
- a motor and related electronics with or without variable speed programmability;
- a **switch control** which is independent of the power wheelchair drive control interface;
- any hardware that is needed to attach the seating system to the wheelchair base.

It does not include a headrest

It must have the following features:

- **ability to recline to greater than or equal to 150 degrees from horizontal**;
- back height of at least 20 inches;
- ability to support **beneficiary weight of at least 250 pounds**.

POWER RECLINE ACTIVITY – 10 MINUTES

Recline the chair, FEEL and discuss the Clinical Benefits

- 120° of recline with leg elevation reduces seating surface pressure
- Catheterization, bladder and/or bowel care in WC or decrease risk of backflow of urine into bladder
- Promote supine transfers
- Changes in joint angles and to promote orthopedic health
- Achieve a recumbent positio without transferring

Disadvantages

- Increased risk of shear
- May increase spasticity and/ reflex activity

CAUTIONS/CONSIDERATIONS FOR RECLINE

- Shear – force between the patient's back and buttocks and the back of the wheelchair
- Shear reducing systems for power recline
  - **Low** Back to seat hinge is above the union of the back and seat, above the cushion
  - **Zero** Back of seating system is attached to a sliding mount, back lowers during the recline phase
- Patients tend to slide forward when reclined only - contraindicated if they cannot be repositioned (with tilt, and/or caregiver assist)
- **Watch for changes in spasticity and reflex activity during recline**
- Supportive back with lateral trunk supports don't work well – laterals migrate with back and can compress the axilla

POWER TILT & RECLINE – MEDICARE

A power tilt/recline seating system (E1006-E1008) includes:

- a solid seat platform and a solid back;
- any frame width and depth;
- detachable or flip-up fixed height or adjustable height arm rests;
- fixed or swingaway detachable legrests;
- fixed or flip-up footplates;
- a motor and related electronics with or without variable speed programmability;
- a **switch control** which is independent of the power wheelchair drive control interface;
- any hardware that is needed to attach the seating system to the wheelchair base.

It does not include a headrest

It must have the following features:

- **ability to tilt to greater than or equal to 20 degrees from horizontal**;
- **ability to recline to greater than or equal to 150 degrees from horizontal**;
- back height of at least 20 inches;
- ability to support **beneficiary weight of <u>at least</u> 250 pounds**.

POWER TILT AND RECLINE ACTIVITY – 10 MINUTES

Tilt AND Recline, FEEL and discuss the Clinical Benefits

- 25°- 45° Tilt with 110°- 150° Recline provides the **greatest pressure relief** when used in combination
- 45° of tilt with 120° of recline provides a **40% load reduction**
- Tilt before recline **decreases shear**
- Multiple angles provide ease of independent or caregiver assisted repositioning
- 30° of tilt with full recline improves lower limb hemodynamic states (**edema**)
- Dynamic seating allows a variety of postures throughout the day to participate in or perform **ADLs**

Disadvantages?

CLINICAL CONSIDERATIONS

- Power Tilt and/or Power Recline with **Power Leg Elevation**

MEDICARE COVERAGE CRITERIA

Elevating legrests (E0990, K0046, K0047, K0053, K0195) are covered if:

1. The beneficiary has a musculoskeletal condition or the presence of a cast or brace which prevents 90 degree flexion at the knee; or
2. The beneficiary has significant edema of the lower extremities that requires an elevating legrest; or
3. The beneficiary meets the criteria for and has a reclining back on the wheelchair.

NOTE: E1010 – ADDITION TO POWER SEATING SYSTEM, POWER LEG ELEVATION SYSTEM, INCLUDING LEG REST, PAIR is not included in the above list of HCPCS codes; however, the criteria applies

POSITION PAPERS

RESNA Rehabilitation Engineering and Assistive Technology Society of North America

- The Application of Tilt, Recline and **Elevating Legrests** for Wheelchairs (2010)
- The Application of Tilt, Recline and **Elevating Legrests** for Wheelchairs (2015)

http://www.resna.org

POWER LEG ELEVATION

- Manage edema and/or pain associated with edema
- Manage orthostatic hypotension episodes
- Manage episodes of autonomic dysreflexia when used with tilt / recline
- Treatment and management of lower extremity decubitus ulcers
- Raise the feet to negotiate various environmental terrains

POWER LEG ELEVATION – MEDICARE

A power leg elevation feature (E1010) involves:

- a dedicated motor and related electronics with or without variable speed programmability which allows the legrest to be raised and lowered independently of the recline and/or tilt of the seating system;
- a switch control which may or may not be integrated with the power tilt and/or recline control(s);
- either articulating or non-articulating legrests.

The unit of service of code E1010 is a **pair**.

POWER ELEVATING LEG REST ACTIVITY – 10 MINUTES

Elevate each Legrest, FEEL & discuss the Clinical Benefits

- Allows independent positioning of each lower extremity
- Accommodates positioning components for postural asymmetries (contractures, hip ABduction, tone or reflex involvement)
- Allows for unilateral foot supports and/or positioning components
- Swing laterally out of the way for safe transfers

Disadvantages

- Not available on all PWC configurations (FWD)
- Increase turning radius
- Not intuitive to operate

POWER ELEVATING FOOT PLATFORM ACTIVITY – 10 MINUTES

Elevate Platform, FEEL & discuss the Clinical Benefits

- Smaller turning radius = more maneuverable
- Footplate flips up for a 1 step operation to transfer
- Allows for lower extremity positioning at or near 90° for increased postural stability
- Open area at the front of the seat accommodates adipose tissue
- Increased access to functional surfaces

Disadvantages

- Not available on all PWC configurations (RWD)
- Can cause some users to sit with LE ABduction and/or a windswept posture

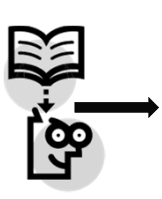
POWER TILT AND RECLINE

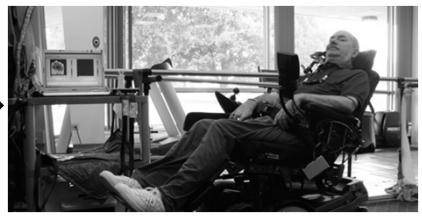
It is RESNA's position that tilt, recline and elevating legrests are medically beneficial for wheelchair users by:

- Improving functional reach and access to enable participation in ADLs;
- Managing posture and fatigue;
- Improving mobility and lower limb function;
- Improving ROM and reduced risk for contractures;
- Promoting vital organ capacity;
- Promoting bone health;
- Improving circulation;
- Reducing abnormal muscle tone and spasticity;
- Reducing the occurrence of pressure ulcers and skeletal deformities; and,
- Providing numerous psychosocial and quality of life benefits

"EVIDENCED BASED PRACTICE"

Clinical research and **solid documentation**



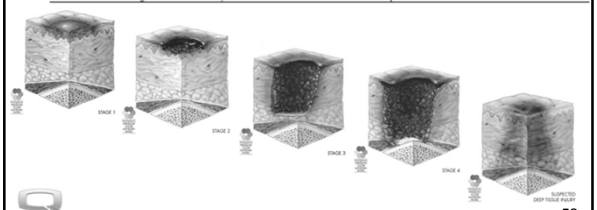


N = 1

REF EDU0107-107, Rev A (2HR)

"EVIDENCED BASED PRACTICE"

4. Does the comprehensive medical record confirm that the beneficiary is at high risk for the development of a decubitus ulcer (over the seating surface)?		Addressed ☐	Implied ☐	Omitted ☐
Does the beneficiary currently have a decubitus ulcer on the seated surface?	Yes ☐ No ☐ Comment:			
Does the beneficiary have a history of a decubitus ulcer on the seated surface?	Yes ☐ No ☐ Comment:			
Does the beneficiary have a documented risk for the development of a decubitus ulcer?(Braden Score <,12, Waterlow Score 15+, Norton Score < 13, etc.)	Yes ☐ No ☐ Comment:			
Does the beneficiary have absent or impaired sensation?	Yes ☐ No ☐ Comment:			
Other evidence of high risk for the development of a decubitus ulcer?	Comment:			



QUANTUM

52

REF EDU0107-107, Rev A (2HR)

Braden Risk Assessment Scale

NOTE: Bed and chairbound individuals or those with impaired ability to reposition should be assessed upon admission for their risk of developing pressure ulcers. Patients with established pressure ulcers should be reassessed periodically.

Patient Name: _____ Room Number: _____ Date: _____

Sensory Perception	1. Completely Limited	2. Very Limited	3. Slightly Limited	4. No Impairment	Indicate Appropriate Numbers Below
Ability to respond meaningfully to pressure-related discomfort	Unresponsive (does not moan, flinch or grasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body surface.	Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness. OR has a sensory impairment which limits the ability to feel pain or discomfort over 1/2 of body.	Responds to verbal commands, but cannot always communicate discomfort or need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.	
Moisture	**1. Constantly Moist**	**2. Very Moist**	**3. Occasionally Moist**	**4. Rarely Moist**	
Degree to which skin is exposed to moisture	Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.	Skin is often, but not always, moist. Linen must be changed at least once a shift.	Skin is occasionally moist, requiring an extra linen change approximately once a day.	Skin is usually dry. Linen only requires changing at routine intervals.	
Activity	**1. Bedfast**	**2. Chairfast**	**3. Walks Occasionally**	**4. Walks Frequently**	
Degree of physical activity	Confined to bed.	Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair.	Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair.	Walks outside the room at least twice a day and inside room at least once every 2 hours during waking hours.	

QUANTUM

www.bradenscale.com

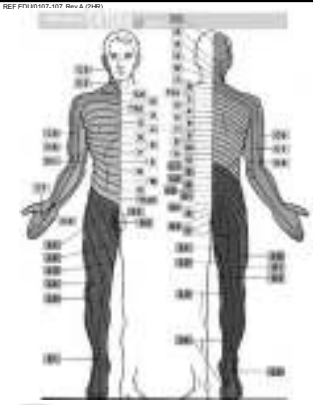
53

Mobility	1. Completely Immobile	2. Very Limited	3. Slightly Limited	4. No Limitations	
Ability to change and control body position w/o power seating	Does not make even slight changes in body or extremity position without assistance.	Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.	Makes frequent though slight changes in body or extremity position independently.	Makes major and frequent changes in position without assistance.	
Nutrition	**1. Very Poor**	**2. Probably Inadequate**	**3. Adequate**	**4. Excellent**	
Usual food intake pattern	Never eats a complete meal. Rarely eats more than 1/3 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement. OR, is NPO and/or maintained on clear liquids or I.V.'s for more than 5 days.	Rarely eats a complete meal and generally eats only about 1/2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. OR, receives less than optimum amount of liquid diet or tube feeding.	Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered. OR, is on a tube feeding or TPN regimen which probably meets most of nutritional needs.	Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.	
Friction and Shear	**1. Problem**	**2. Potential Problem**	**3. No Apparent Problem**		
w/o power seating	Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation lead to almost constant friction.	Moves feebly or requires minimum assistance. During a move, skin probably slides to some extent against sheets, chair restraints, or other devices. Maintains relatively good position in chair or bed most of the time, but occasionally slides down.	Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair at all times.		

NOTE: Patients with a total score of 16 or less are considered to be at risk of developing pressure ulcers. (13 or 14 = low risk; 13 or 14 = moderate risk; 12 or less = high risk) **Total Score:**

QUANTUM

54



Absent

Impaired

Intact

Lee MW, McPhee RW, Stringer MD. An evidence-based approach to human dermatomes. Clin Anat. 2008 Jul;21(5):363-73

"EVIDENCED BASED PRACTICE"

AND

Does the comprehensive medical record confirm that the beneficiary is unable to perform a functional weight shift?	Addressed ☐	Implied ☐	Omitted ☐
Does the beneficiary have ≤ FAIR sitting balance such that they cannot shift their weight from side to side and unweight the ischial tuberosities without risk of falling?*	Yes ☐ Comment:	No ☐	
Does the beneficiary have limitations of strength, range of motion, endurance, coordination or pain that precludes or limits their ability to perform a w/c push-up a sufficient #of times/hour (4) or of sufficient duration (15* sec.) for reperfusion?*	Yes ☐ Comment:	No ☐	
Does the beneficiary require ANY assistance to come to stand, or a partial standing position from the PWC?	Yes ☐ Comment:	No ☐	
Other evidence of the inability to perform a functional weight shift (i.e., pressure mapping)?	Comment:		

Balance Range & Motion Pain Strength Coordination Endurance

Functional Balance Grades

Normal	**Static:** Patient able to maintain steady balance without handhold support **Dynamic:** Patient accepts maximal challenge and can shift weight easily within full range in all directions
Good	**Static:** Patient able to maintain balance without handhold support, limited postural sway **Dynamic:** Patient accepts moderate challenge; able to maintain balance while picking object off floor
Fair	**Static:** Patient able to maintain balance with handhold support; may require occasional minimal assistance **Dynamic:** Patient accepts minimal challenge; able to maintain balance while turning head/trunk
Poor	**Static:** Patient requires handhold support and moderate to maximal assistance to maintain position **Dynamic:** Patient unable to accept challenge or move without loss of balance

O'Sullivan, S.B. and Schmitz T.J. (2007). Physical rehabilitation: assessment and treatment (5th ed.). Philadelphia: F. A. Davis Company. p.254

REF EC

MANUAL MUSCLE TESTING PROCEDURES

Key to Muscle Grading

	Function of the Muscle	Grade		
No Movement	[illegible]	0	0	Zero
	[illegible]	T	T	Trace
	MOVEMENT IN HORIZONTAL PLANE			
Test Movement	Moves through partial range of motion	1	2-	Poor
	Moves through complete range of motion	2	2	Poor
	ANTIGRAVITY POSITION			
	Moves through partial range of motion	3	3+	
Test Position	[illegible]	4	4	Fair-
	Holds test position with added pressure	5	5	Fair
	Holds test position against slight pressure	6	6+	Fair+
	Holds test position against slight to moderate pressure	7	7	Good-
	Holds test position against moderate pressure	8	8	Good
	Holds test position against moderate to strong pressure	9	9+	Good+
	Holds test position against strong pressure	10	10	Normal

Modified from - Kendall, F.P., E.K. McCreary, and P.G. Provance, *Muscles: Testing and Function.* 1993, Baltimore: Williams & Wilkins

58

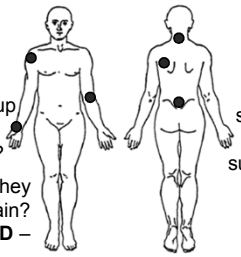
REF EDU0107-107, Rev A (2HR

0–10 Numeric Pain Rating Scale

0 No pain 1 2 3 4 5 Moderate pain 6 7 8 9 10 Worst possible pain

IF the individual *CAN* do a wheelchair push-up ask yourself – **AT WHAT COST**?

How are they managing the pain? **AND** –



Are they able to perform the maneuver a sufficient # of times per day, for a sufficient duration to allow for capillary perfusion on the seated surface?

Melzack R, (1975) The McGill Pain Questionnaire: major properties and scoring methods, Pain, Vol 1, 277-299

59

REF EDU0107-107, Rev A (2HR)

Berg Balance Scale

SITTING TO STANDING

( ) 4 able to stand without using hands and stabilize independently
( ) 3 able to stand independently using hands
( ) 2 able to stand using hands after several tries
( ) 1 needs minimal aid to stand or stabilize
( ) 0 needs moderate or maximal assist to stand

STANDING TO SITTING

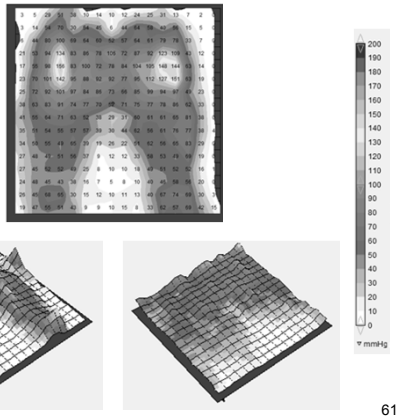
( ) 4 sits safely with minimal use of hands
( ) 3 controls descent by using hands
( ) 2 uses back of legs against chair to control descent
( ) 1 sits independently but has uncontrolled descent
( ) 0 needs assist to sit

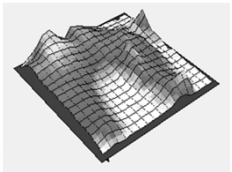
Berg, K. O., Maki, B. E., et al. (1992). "Clinical and laboratory measures of postural balance in an elderly population." Arch Phys Med Rehabil 73(11): 1073-1080

60

REF EDU/0107-107, Rev A (2HR)

What position provides the greatest reduction in pressure over the seated surface?





QUANTUM

61

REF EDU/0107-107, Rev A (2HR)

"EVIDENCED BASED PRACTICE"

5. **Does the comprehensive medical record confirm that the beneficiary requires intermittent catheterization?**	Yes ☑ **Comment:**	No ☐		
AND **Does the comprehensive medical record confirm that the beneficiary is unable to transfer independently to/from the bed?**	**Addressed** ☐	**Implied** ☐	**Omitted** ☐	
Does the beneficiary use a mechanical lift to transfer?	Yes ☐ **Comment:**	No ☐		
Does the beneficiary require assistance (maximal, moderate, minimal, stand by, contact guard or supervision) to transfer to/from the PWC to bed?	Yes ☐ **Comment:**	No ☐		

Dependent: The transfer requires 100% caregiver assist, or a mechanical lift.

Maximal Assist: Another person performs about 75% of the transfer and the patient performs 25%.

Moderate Assist: The patient performs about 50% of the work necessary to move to/from the wheelchair and a caregiver performs about 50%.

Minimal Assist: The patient performs 75% of the work to move and the caregiver provides about 25% of the work.

Contact Guard Assist: The caregiver needs to have one or two hands on the patient, but provides no other assistance to perform the transfer. The contact is made to help steady the patient or help with balance.

Stand-by Assist: The caregiver does not touch the patient or provide any physical assistance, but he or she needs to be close by for safety. **NOTE: This is NOT independent**

Independent: The patient can perform the entire transfer with no help and is safe performing it.

QUANTUM

62

REF EDU/0107-107, Rev A (2HR)

"EVIDENCED BASED PRACTICE"

6. **Does the comprehensive medical record confirm that the beneficiary manages their increased muscle tone/spasticity with power tilt, power recline or a combination of power tilt and recline?**	**Addressed** ☐	**Implied** ☐	**Omitted** ☐
Does the beneficiary have spasticity documented?	Yes ☐ **Comment:**	No ☐	
Does the comprehensive medical record document HOW the beneficiary will manage their spasticity with the power seating function?	Yes ☐ **Comment:**	No ☐	

Modified Ashworth Scale

0	No increase in muscle tone
1	Slight increase in muscle tone, manifested by a catch and release or by minimal resistance at the end of the range of motion when the affected part(s) is moved in flexion or extension
1+	Slight increase in muscle tone, manifested by a catch, followed by minimal resistance throughout the remainder (less than half) of the ROM
2	More marked increase in muscle tone through most of the ROM, but affected part(s) easily moved
3	Considerable increase in muscle tone, passive movement difficult
4	Affected part(s) rigid in flexion or extension

QUANTUM

Bohannon, R. and Smith, M. (1987). "Interrater reliability of a modified Ashworth scale of muscle spasticity." Physical Therapy 67(2): 206.

63

HOW?

"EVIDENCED BASED PRACTICE"

Finding the "SWEET" Spot

- ☐ Postural alignment/re-alignment (head control, trunk control and/or postural stability)
- ☐ Orthostatic hypotension or autonomic dysreflexia
- ☐ Respiratory system function (vital organ capacity)
- ☐ Digestive system function (including chewing/swallowing)
- ☐ Bowel and bladder management (indwelling catheter, protective undergarments)
- ☐ Visual orientation/line of site
- ☐ Manage fatigue/physiological rest periods
- ☐ Contractures and/or orthopedic deformity (joint angles, muscle length)
- ☐ Lower extremity edema
- ☐ Pain management
- ☐ Safe negotiation of obstacles and/or inclines

THINKING OUT LOUD

- What are two things you learned and how can you relate it to your practice?
- How does this course relate to your practice setting?
- How will this course change your behavior in the future?

REF EDU/0107-107, Rev A (2HR)

THANK YOU FOR YOUR TIME – ANY QUESTIONS?