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Physical Therapists and Safe Patient Handling and Mobility: Optimum Outcomes and Safety for Everyone

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Physical Therapy.com Seminar
June 2, 2017

Learning Objectives

- Upon completion of this session, the participant will be able to:
  - List at least three of the concepts of RC 29-12 APTA Position regarding the Role of Physical Therapy in Safe Patient Handling.
  - Describe at least two of the roles and at least two of the responsibilities of various health professionals as it relates to safe patient handling concepts.
  - Describe the role and at least two of the responsibilities of the physical therapist and physical therapist assistant as it relates to safe patient handling.
  - List at least three common interventions employed by physical therapy professionals in safe patient handling.
  - Identify at least three of the concepts of safe patient handling within the context of clinical education and academic entry-level training of the physical therapist and physical therapist assistant.

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Housekeeping Info

- All presented materials are examples and should not supersede medical decision making in the best interest of individualized patient safety and care
- All patients in the videos have signed a release for use of their images for educational purposes; their identities are still obscured for anonymity
- All patient mobility equipment from different manufacturers are unique with specific features, instructions, procedures and safety techniques.
- This presentation is only an introduction to different *types* of safe patient handling equipment and IS NOT INTENDED TO REPLACE OR SUPPLIMENT THE MANUFACTURERS INSTRUCTIONS OR PROCEDURES.
- All equipment should be inspected before initial use and on a regular basis as indicated by your facility's equipment maintenance policy.
- Although certain examples are depicted here; the speaker does not endorse any particular brand or model of equipment and has strived to represent a variety of companies and equipment

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safe patient handling and mobility (SPHM) program. A formal, systematized program for reducing the risk of injuries and MSDs for healthcare workers, fostering a culture of safety while improving the quality of care and reducing the risk of physical injury to healthcare recipients.

ANA
AMERICAN NURSES ASSOCIATION

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What do our patients need/expect?

- Safety first then clinical competency
- First, do no harm…
- Consistency…ALWAYS providing the same level of care
- Explaining how we are being safe and compassionate
- We are not judged on the quality of our technical medical care, but on the compassion and safety

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Effects of Prolonged Inactivity and Bed Rest on Body Systems

Body System Affected	Effects
Cardiac	• Decreased plasma volume • Cardiac atrophy • Orthostatic intolerance
Respiratory	• Dorsal atelectasis • Slowed respiratory rate • Decreased movement of secretions • Decreased chest compliance • Decreased tidal volume
Musculoskeletal	• Muscle atrophy • Decreased muscle mass • Decreased contractibility • Joint and muscle contractures • Bone demineralization
Metabolic	• Increased insulin resistance • Altered triglycerides
Gastrointestinal	• Decreased peristalsis and fecal impaction • Increased risk of renal calculi • Increased hypercalciuria
Psychological	• Depression and anxiety • Decreased motivation • Decreased participation in activities

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Current Climate of Healthcare

- Medicare will no longer pay for care for preventable iatrogenic conditions
- *Iatrogenic - a state of ill health or adverse effect or complication caused by or resulting from medical treatment.*
  - Blood Clots
  - Pressure Ulcers
  - Injuries from falls in hospital
  - Urinary Tract Infections

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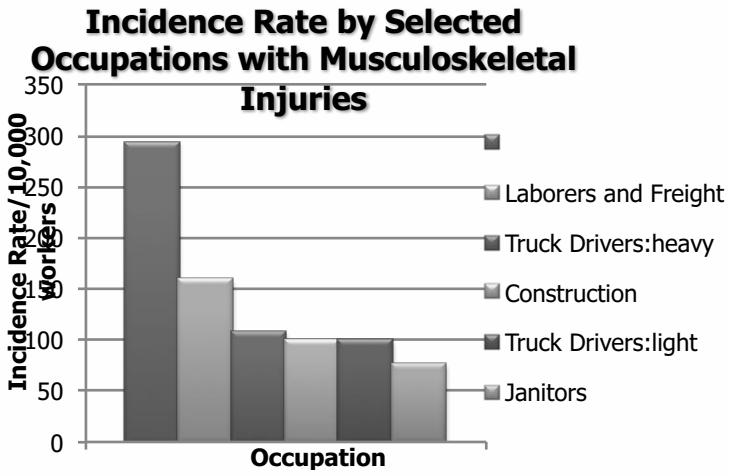
OSHA Examples of Cost Savings



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Work-Related Musculoskeletal Disorders (WMSDs)

- Glover et al.[2005] reported 32% of physical therapists (n= 3,661) with WMSDs lost work time
  - Career prevalence of injury was 68%
  - Low back was most commonly affected (44%)
  - Nearly one-third (32%) of injured respondents first experienced their worst injury within 5 years of graduation

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Work-Related Musculoskeletal Disorders (WMSDs)

- Molumphy et al.(1985) reported that 18% of physical therapists (n= 344) with WMSDs of the low back changed their work setting and 12% reduced their patient care hours
- Cromie et al.(2000) reported that 1 in 6 (n=821) changed settings or left the profession due to WMSDs

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Risk Factors for WSMDs

- Awkward positions
- Confined workspace
- Unpredictable patient behavior
- Patient's weight
- Transfer distance

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Safe Patient Handling Legislation and Rehabilitation Professionals

- Legislation may affect or alter the care we provide
  - Duty as autonomous professionals to have input into the process
- Not consistently solicited for input when new legislation, policies, or programs regarding safe patient handling are being developed or enacted
- Uniquely placed to lend insights into the development, implementation, evaluation of technology and education of Safe Patient Handling techniques.

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Why Therapists are SPHM Experts

- Neuromusculoskeletal experts
- Rehabilitation
- Fall prevention
- Wellness
- Injury prevention
- Technology use in patient handling
- The knowledge and background of ergonomics
- Integrally involved with the care of the most physically challenging patients

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American Physical Therapy Association endorses the following concepts:

- 1. Involvement and Leaders
- 2. Role Modeling
- 3. Teaching others
- 4. Promote flexibility in policies
- 5. Access to equipment
- 6. Orientation and Training
- 7. Entry level education

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Role of Interdisciplinary Team in Mobility

- Nursing – Day to day care involving movement of the patient for prevention and maintenance.
- Often purposeful movement for the patient to achieve ADL's (bathing, toileting, dressing, grooming, maintaining skin integrity, prevention of deconditioning)
- To take what is gained in PT and OT and use daily for the patients health benefit
- Chance to talk each other up and show collaboration and coordination of care – patients want to know that we are talking to each other as to how to best care for them

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Effect of a Safe Patient Handling Program on Rehabilitation

– Marc Campo, PT, PhD,a Mariya P. Shiyko, PhD,b Heather Margulis, PT, MS,c Amy R. Darragh, OTR/L, PhDd. Archives of Physical Medicine and Rehabilitation 2013;94:17-22

- Abstract
  - Participants: Consecutive patients (N=1291) over a 1-year period without an SPH program in place (n=507) and consecutive patients over a 1-year period with an SPH program in place (n=784).
  - Interventions: The SPH program consisted of administrative policies and patient handling technologies. The policies limited manual patient handling. Equipment included ceiling- and floor-based dependent lifts, sit-to-stand assists, ambulation aides, friction-reducing devices, motorized hospital beds and shower chairs, and multihandled gait belts.
  - Results: Patients rehabilitated in the group with SPH achieved similar outcomes to patients rehabilitated in the group without SPH. A significant difference between groups was noted for patients with initial mobility FIM scores of 15.1 and higher after controlling for initial mobility FIM score, age, length of stay, and diagnosis. Those patients performed better with SPH.
  - Conclusions: SPH programs do not appear to inhibit recovery. Fears among therapists that the use of equipment may lead to dependence may be unfounded.

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Summary of Findings with Early and Progressive Mobility Studies	
Increased	**Decreased**
Functional independence[27]	ICU and hospital length of stay[32-35]
Sleep quality[28]	Time on a ventilator[34,36,37]
Muscle strength[29]	DVT[38]
Likelihood of discharge to rehab or home[30]	Pressure ulcers[39]
Quality of life[31]	Ventilator-associated pneumonia[38]
	Cost of care[38]
	Hyperglycemia[40]
	Inflammation[31]
	Delirium[30]
	Readmission and death[27]

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Safe Patient Handling Basics

Protect your patient and yourself

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UNITED STATES DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Manual lifting of patients be minimized in all cases and eliminated when feasible

– Employers should put an effective ergonomics process in place that provides management

- Key Tenets:
  - Program involves employees
  - Identifies problems
  - Implements solutions
  - Addresses injury reports
  - Provides training
  - Evaluates ergonomic efforts

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Principles of Safe Patient Handling[2]

- Injury can have multiple causes with contributing factors from the caregiver, patient and the environment
- Moving, transferring, and repositioning patients repetitively can lead to fatigue, pain, and injury
- Safe patient handling programs can modify the risk factors of the patient, caregiver, and the environment when applied properly

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Principles of Safe Patient Handling[2]

- Laboratory and clinical research:
  - SPHM programs can greatly reduce risk of injury to caregivers
  - regardless of their age, length of employment, or job duties
- *Do not underestimate or lose focus of the fact that SPHM programs can protect patients by reducing their risk of injury, skin tears, bruising, pressure ulcers, and being dropped*

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Principles of Safe Patient Handling[2]

- A SPHM program is multifaceted
- It consists of:
  - Mechanical equipment to lift and reposition patients
  - A safe lifting policy
  - Employee training on lift device usage
  - Patient care assessment protocols and algorithms
  - Department-based safety leaders
  - Administrative support

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Locations that SPHM are Appropriate For

- Inpatient rehab unit
- Acute care setting
- Intensive care unit
- Surgical department
  - Pre Op/Post op
- Spinal cord injury unit
- Brain Injury unit
- Nursing home
  - Subacute rehab
  - Extended Care facility
- Home care
- Outpatient clinic
  - Generally neuro based clinic
- Pediatric clinic
- School system

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Principles of Safe Patient Handling

- Appropriate screenings for injury/fatigue to staff and prompt medical follow up
- Administrative support and department based safety leaders are required to coordinate the resources and activities necessary for an effective SPHM program

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Paradigm Shift in Thinking

- Although entry level PT/OT programs still teach manual patient handling methods, SPHM should be incorporated into the profession to move away from manual patient lifting and the over-reliance on body-mechanics to multifaceted SPHM Programs
- ***Body mechanics is not enough…***

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Barriers to Rehab Professionals Adoption of SPHM

- "Its what we have always done"
- "Stopping to get the equipment is a hassle"
- "The equipment never works and is broken"
- "The equipment does all the work for the patient and doesn't allow them to rehabilitate"
- "The equipment doesn't allow me to cue or instruct my patient correctly"
- "Not enough room to use equipment"
- Internal guilt or external peer pressure about demonstrating how hard you are working

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WORK SMARTER NOT HARDER

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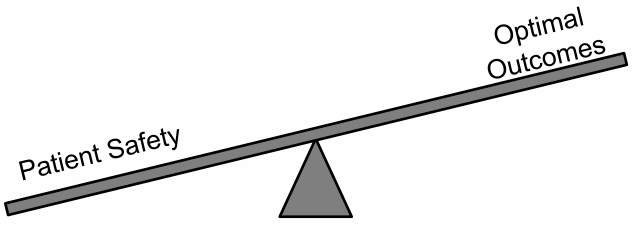
False Paradigm



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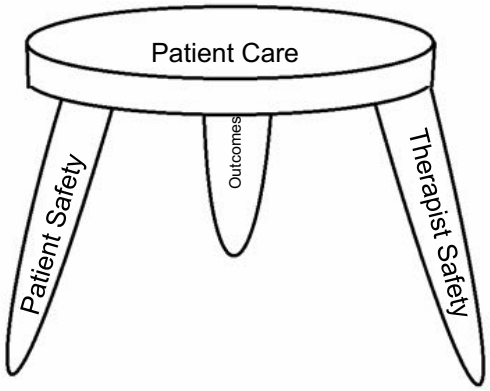
Balancing Act



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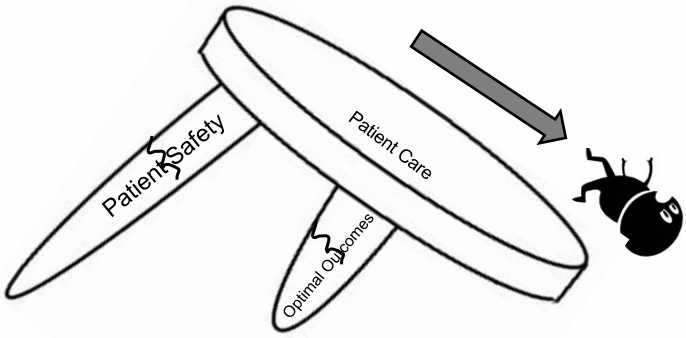
Off Balance!



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Scope of the Problem

- Hospitals, nursing homes and personal care facilities had one of the highest rates of injury and illness among industries for which lost workday injury and illness[1]
- Rehab specialists work with the most debilitated, weakest, "unsafest" of all of the patient population

35

Myth: Education and training are effective in reducing injuries[3]

- ***Facts:***
  - training alone is not effective, including the following:
    - 1) Body mechanics training is based on research that is not likely generalizable to practice.
    - 2) It is difficult to translate classroom content to direct patient care.
    - 3) No consensus on what proper body mechanics are
    - 4) Manual patient lifting tasks are unsafe as they are beyond the capabilities of the average clinician
    - 5) Most lab research is done on young healthy males, not reflective of our healthcare workforce

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Myth: Back braces are effective in reducing risks to caregivers[3]

- ***Facts:***
  - Back belts were widely used in the 1990's as a strategy to prevent job-related injuries
  - There is no evidence these belts are effective
  - Common therapy thought process on core strength and back braces may cause disuse atrophy
  - Other body parts vulnerable to injury too!

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"Myth: Mechanical lifts are not affordable[3]

- ***Facts:***
- The long-term benefits of proper equipment far outweigh costs related to work-related injuries.
  - The incidence of injuries decreased from 60 – 95%
  - Workers' compensation costs decreased by 95%
  - Insurance premiums dropped 50%
  - Medical and indemnity costs decreased by 92%
  - Lost work days decreased by 84% – 100%
  - Absenteeism due to lifting and handling was reduced by 98%"

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"Myth: Use of mechanical lifts eliminates all the risk of manual lifting[3]

- ***Facts:***
  - While lifting devices minimize risk, unfortunately the risk cannot be eliminated altogether.
  - Even when using lifting equipment, the patient must first be rolled in order to insert the sling.
  - Human effort is still needed to move, steady, and position the patient.
  - Since most injuries in mobility are cumulative, any steps to minimize risks in key tasks will offer substantial benefits."

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"Myth: Lifting a patient is the only high risk task we do[3]

- 1) Gait training with patients with unstable gait
- 2) Helping to make an occupied bed
- 3) Assisting with dressing a patient in bed
- 4) Transferring a patient from bed to stretcher
- 5) Transferring from bed to wheelchair or a chair
- 6) Pushing heavy equipment
- 7) Repositioning a patient in a chair or bed
- 8) Assisting a patient with bathroom ADLs
- 9) Assisting with lower body dressing"

40

"Myth: If you buy equipment and devices for safe patient handling and movement, therapists will use them[3]

- Several reasons why patient-handling equipment has failed in the past
- Staff won't use equipment that is:
  - neither patient- nor user-friendly
  - is unstable
  - hard to operate
  - difficult to store
  - not easily accessible or available
  - poorly maintained"

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Body Mechanics

- Mentally and physically plan for the activity before attempting it
- Position yourself close to the person and use short lever arms
- Wide base of support and no twisting
- Hold the gait belt instead of the patient's limbs
- Don't let them grab around your neck – forearms are okay
- Don't do it for the patient – let them do as much as they can and you do the rest
- Get help!
- Make sure the patient is prepared

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Back Injuries during Patient Handling

- Almost all back injuries during routine patient transfers can be prevented by planning and proper preparation.
- Rushing into a situation increases the risk of back injuries and injury to the patient
- Most injuries occur during lifting and performing a twisting motion at the same time
- Recruit your stomach muscles and get into a "Neutral Spine" position with some "lordosis" (backward curve)
- If possible should be standing in front of the subject to avoid torqueing your spine

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Knowing your Patient and Required Assistive Equipment

- Prior functional level?
- What are your goals for that session?
  - Evaluate current status
- Maybe less equipment based
- Patient size
- Muscle strength not always indicative of functional capacity

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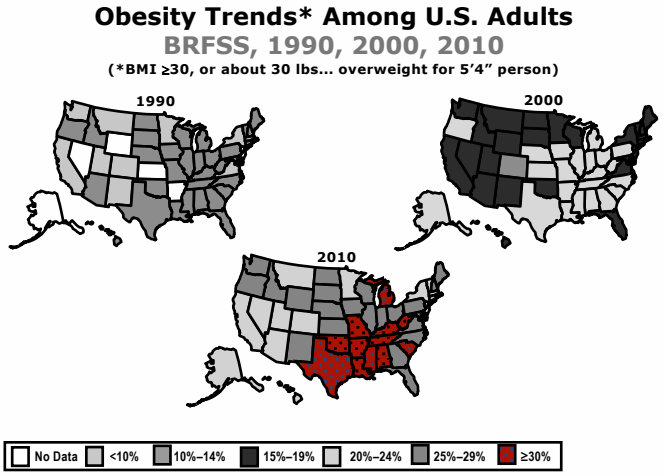

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Obesity Facts from the CDC

- **Obesity is common, serious and costly**
  - More than one-third of U.S. adults (35.7%) are obese. [Read data brief [PDF-528Kb]]
  - Obesity-related conditions include heart disease, stroke, type 2 diabetes and certain types of cancer, some of the leading causes of preventable death. [Read guidelines]
  - In 2008, medical costs associated with obesity were estimated at $147 billion; the medical costs for people who are obese were $1,429 higher than those of normal weight. [Read summary]
- **Obesity affects some groups more than others**
  - Non-Hispanic blacks have the highest age-adjusted rates of obesity (49.5%) compared with Mexican Americans (40.4%), all Hispanics (39.1%) and non-Hispanic whites (34.3%) [See *JAMA*. 2012;307(5):491-497. doi:10.1001/jama.2012.39].

46

Differences with Patient of Size

- Healthcare worker perceptions
- Slower healing
- Slower progression
- Same physical capability vs disabilities

47

Best Practices with Patients of Size (Barr 2001)

- Administrative support and backing
- Careful review of physical environment and patient care equipment
- Know weight capacity of equipment and furniture
- Sensitive care
- Adaptable physical assessment equipment
- Assuring safety if traditional physical assessment not achievable

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Patient of Size Mobility Barriers

- Further impacted by:
  - Staffing shortages
  - Unclear processes
  - Unfamiliarity with equipment
  - Unavailability of equipment
  - Medical Comorbidities

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Healthcare Worker Injuries

- 8.8/100 full time hospital workers, and 13.5/100 workers in nursing and personal care facilities injured
- High rates of musculoskeletal disorders among health care workers, most commonly back injuries/pain
- Musculoskeletal injuries are often the result of the frequent patient lifting and transferring required of health care workers

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Patient of Size Committee

- Hospital group designed to evaluate entire spectrum of aspects of having patients / clients / visitors of size
- Supported by hospital administration and medical administration
- Included both IP and OP staff
- Large focus with 4 different subgroups
- Examined entire scope of care from entry to discharge from various points of service

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Persons of Size Patient Care Aspects

- Log of weight capacities/ bore sizes of all imaging/surgical equipment
- Increased awareness
- Unified process for cleaning equipment / lifts / slings
- Consultation process for PT / OT / CWOCN / Dietary / etc.
- Bariatric kit
- Sensitivity training
- Back care training
- Support / proliferation of SPHM training course
- Physician education
- Bed management procedures

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Dignity and Sensitivity

- Online training module for obesity sensitivity
- Obesity bias is real
- Potential to affect:
  - Clinical judgments of HCW
  - May deter individuals with obesity from seeking healthcare
  - Disclosing health choices

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HCW and Obesity(Maiman 1979)

- 88% - obesity was a form of compensation for lack of love or attention
- 70%- attributed the cause to emotional problems

- Percent of HCW believed the following about persons with obesity:
  - 87% - are indulgent
  - 74% - have family problems
  - 32% -they lack willpower

54

Health Professionals Attitudes

- Hoppe and Ogden(1997)
  - Found that HCW believed that:
    - Obesity more related to lifestyle than biological factors
    - Viewed obesity as preventable or treatable
    - Viewed failure of weight loss as a compliance issue
    - Confident in their skills in advising in weight loss
    - Not confident in outcomes of their advice

55

Attitudes toward Obese Patients

- Zuselo and Seminara(2006)
  - Surveyed 119 RNs
  - Common themes:
    - Expressing sympathy or astounded
    - Very concerned to provide equal treatment and respectful care
    - Also concerned about avoiding injuring themselves
    - Overwhelmed by increased time required for patient care activities
    - Rehab nurses concerned about transfers and physical care needs

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Administrative Controls Cont.

- ***Patient lift teams:***
  - "Two physically fit people, competent in lifting techniques, who work together to perform high-risk patient transfers"
  - Selected based on lack of injury history, strength, training
  - Effective in decreasing the lost days, restricted workdays, and compensable injury costs
- "Code Heavy"

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Administrative Controls Cont.

- ***Patient care ergonomic assessment protocols:***
  - Patient handling tasks vary widely from one institution to another and is often dependent upon available lifting aids
  - Due to lack of equipment, caregivers sometimes use these aids inappropriately and fail to match specific patient characteristics to the equipment

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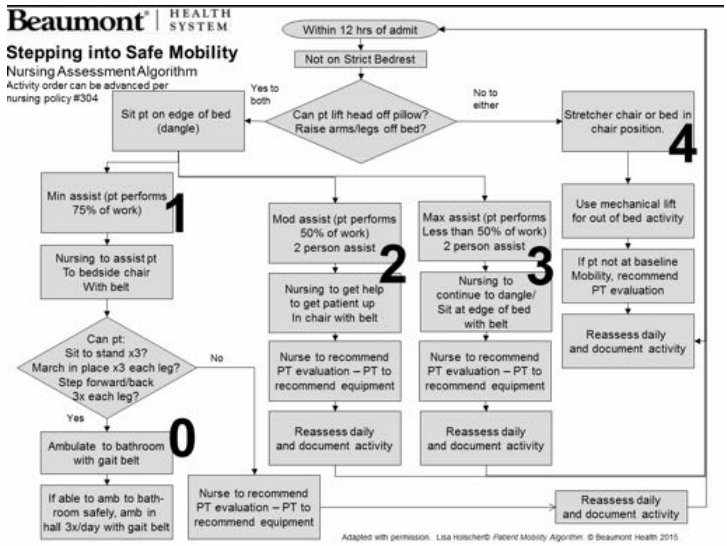
Beaumont HEALTH SYSTEM
Stepping into Safe Mobility
Nursing Assessment Algorithm
Activity order can be advanced per nursing policy #304
Within 12 hrs of admit
Not on Strict Bedrest
Sit pt on edge of bed (dangle)
Yes to both
Can pt lift head off pillow? Raise arms/legs off bed?
No to either
Stretcher chair or bed in chair position.
4
Min assist (pt performs 75% of work)
1
Nursing to assist pt To bedside chair With belt
Can pt: Sit to stand x3? March in place x3 each leg? Step forward/back 3x each leg?
No
Yes
Ambulate to bathroom with gait belt
0
If able to amb to bath-room safely, amb in hall 3x/day with gait belt
Mod assist (pt performs 50% of work) 2 person assist
2
Nursing to get help to get patient up In chair with belt
Nurse to recommend PT evaluation – PT to recommend equipment
Reassess daily and document activity
Max assist (pt performs Less than 50% of work) 2 person assist
3
Nursing to continue to dangle/ Sit at edge of bed with belt
Nurse to recommend PT evaluation – PT to recommend equipment
Reassess daily and document activity
Use mechanical lift for out of bed activity
If pt not at baseline Mobility, recommend PT evaluation
Reassess daily and document activity
Nurse to recommend PT evaluation – PT to recommend equipment
Reassess daily and document activity
Adapted with permission. Lisa Holscher© Patient Mobility Algorithm © Beaumont Health 2015

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Stepping in to Safe Mobility
Date:
Nurse Initials:
STRICT BEDREST
BED/CHAIR ALARM
Patient Name:
0 Amb to bathroom and in halls with assist
1 Min assist 1 person Up in Chair
2 Mod assist Need 2 people Up in chair
3 Max assist Need 2 people Dangle at EOB
4 Unable to lift head off pillow or raise arms or legs off bed
Bariatric Equipment
Other Needs:
Remember to use Gait Belts

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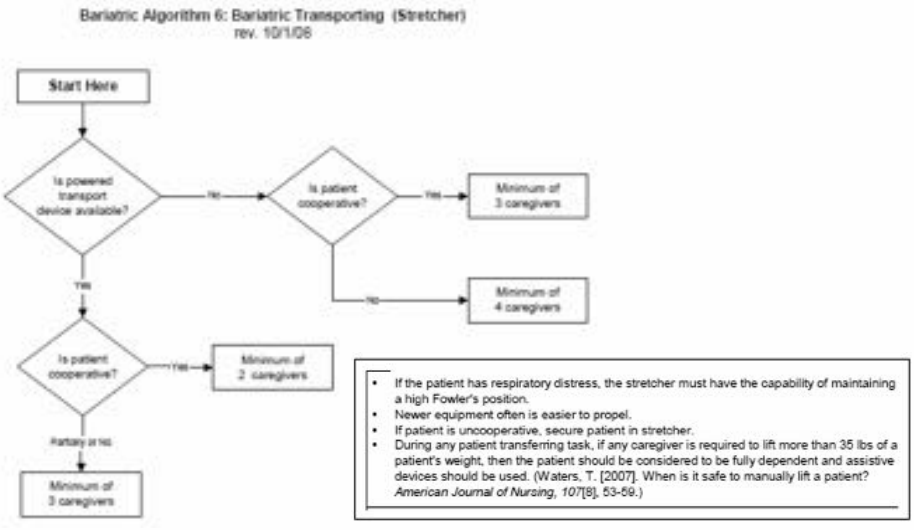
Role of Algorithms

- VA Bariatric Mobility Algorithms
  - http://www.visn8.va.gov/visn8/patientsafetycenter/safePtHandling/toolkitBariatrics.asp



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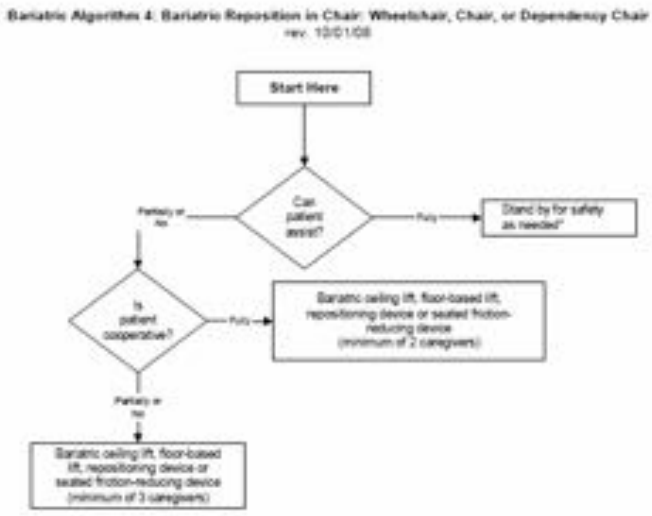
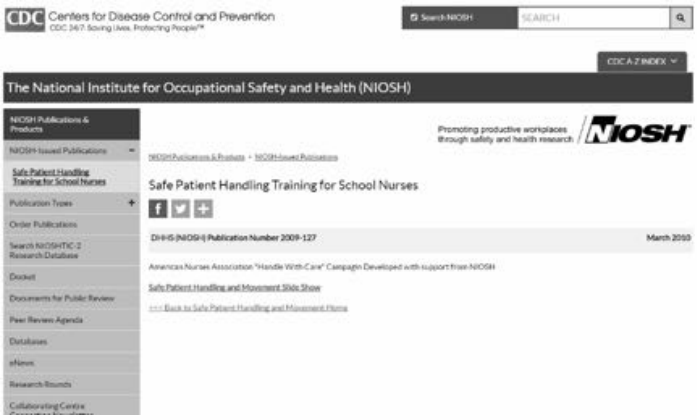


NIOSH Web Based Training

- http://www.cdc.gov/niosh/docs/2009-127/safe.html



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Gait/Transfer Belts

- A solid, secure belt or other device closest to the patient's center of gravity to control their weight
- Prevent the need to grab at limbs or clothes
- Rolls of gait belt material is available on hospital floor – contact your nurse manager if you are not sure where it is
- Twist up a sheet as a gait belt and tie it
- How might it look to a family member if a gait belt was available and wasn't used and a patient fell?
- Explaining why we use the gait belts – we ALWAYS use gait belts to make sure that you are safe - like a seat belt in the car

65

Can you tell the difference?

- Which of the following equipment is for a Patient of Size?
- A or B

66

A

B

67

A

B

68

A

B

69

Color coding of Bariatric Equipment

- Recommend a color coding hospital wide for equipment
- Debate on placing weight capacities on equipment
- Sensitivity vs safety

70

Bariatric Kit

- Upon Admission
- Nurse order initiated
  - BP cuff
  - Gown
  - Socks
  - Pamphlet on diet
  - List of available equipment

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Daily Report of Patients of Size

Run Date/ 11/20/2012 5:11 am
EDM Report I

William Beaumont Hospitals - Troy
BMI Greater Than 35 Daily Detail
Patients Admitted From: 11/19/2012 To: 11/19/2012

Hsp. Acco	Patient Na	Admission D	BMI	Height	Weight	Room Number
3 EAST PROGRESSIVE CAR						
[redacted]	[redacted]	11/19/2012 9:30:00PM	41.6	5' 1"	99.79	3385
3 WEST MOTHER BABY CAI						
[redacted]	[redacted]	11/19/2012 12:18:00AM	36.5	5' 0"	84.73	3941
4 WEST						
[redacted]	[redacted]	11/19/2012 3:04:00PM	35.5	5' 6"	99.79	4909/10
[redacted]	[redacted]	11/19/2012 6:28:00AM	35.2	5' 4.016"	92.99	4901/02
1 WEST SURGICAL ICU TR						
[redacted]	[redacted]	11/19/2012 1:57:00PM	46.6	5' 5"	127.01	1903
4 SOUTH PROGRESSIVE CA						
[redacted]	[redacted]	11/19/2012 3:52:00PM	40.7	5' 1"	97.60	4439/40
5 MEDICAL SURGICAL TR						
[redacted]	[redacted]	11/19/2012 7:43:00PM	83.0	5' 2"	205.90	5565/66

72

EQUIPMENT	WEIGHT CAPACITIES (LBS)						
	0-250	251-300	301-350	351 – 400	401 – 500	501 – 800	> 800 lbs
Beds	Standard Stryker bed: 500 lbs. Assess for weight distribution (width)					Specialty bed: 800 lbs Contact Inventory Control	Specialty bed: 1000 lbs Contact Inventory Control
	Hill-Rom Total Care and Sport bed: 500 lbs. Assess for weight distribution (width)						
Stretchers	Standard (MidMark): 350 lbs			Hillrom: 500 lbs Stryker: 500 lbs		Stryker stretcher: 700 lbs	Motorized Stryker: 1500 lbs
Wheelchairs	Standard chair: 250 lbs	Larger wheelchair: 400 lbs			For Physical Therapy Only. Contact Inventory Control		
Electric Scooter	Electric Scooter: 400 lbs						
Lifts	Argo MAXI Lift: 500 lbs					Contact Inventory Control for Tenor Lift: < 704 lbs or for Rental Lift: > 1000 lbs	
Trapeze	Single trapeze set up for less than 250 lbs	Double trapeze set-up for 250-400 lbs			Double trapeze with reinforcement > 400 lbs		
Crutches	Standard Crutch: 250 lbs	Crutch: 550 lbs, up to 5'10"				650 lbs & over 5'10"	
Walkers	Standard: 300 lbs		Larger walker: 400 lbs		Contact Inventory Control for rental walker		
Scales	Standard Scaletronix: 440 lbs					2002 model Sling Scale: 550 lbs	5002 model Stand-up Scale: 880 lbs
Transfer Board	Allen Transfer Board: 800 lbs (silver/metallic roller board)						
Portable Commode	Equipment obtained before 2004: 250 lbs	Standard BSC – Medline: 500 lbs (equipment ordered 2004 and after)				Contact Inventory Control for rental equipment	

Bari-Rehab Platform2™

- "Comes standard with pressure redistribution mattress
- Retractable deck
- WISEGUARD™
- Head Angle Indicator (V.A.P.)
- Scale included
- Power drive available
- Full Frame Trapeze available
- 1,000 lb. capacity"

74

Total Care® Bariatric

- Made by Hill-ROM
- Pressure redistribution air mattress
- Temperature control to relieve heat production
- 200-550 lbs...
- Width - 40 inches

75

TotalCare® P500 Mattress surface

- Also from Hill-ROM
- More useful for less mobile bariatric patients
- Better for prevention of pressure sores
- Turn assist using bed inflation mode

Hill-Rom

76

Burke Tri Flex

- 1000 lbs.. capacity
- Extra width capability from 37" to 48" to 54".
- "Fold & Roll" design for 1 person delivery system and easy storage
- Fully electric with Hi-Lo, Tredelenberg/ Reverse Trendelenberg and Cardio Chair
- Full Head and Knee Gatch Adjustment.
- CPR Release & Battery Back Up

77

Renting or Owning Equipment

- 2010
  - Cost to hospital for renting beds was $33,273 for Beaumont Hospital Troy.
    - 400 bed hospital in metro Detroit
  - 97 instances of rental
  - Average cost per case = $343 just for bariatric beds

78

Decision to Buy or Rent Bariatric Equipment (VA 2012)

- Factors considered when purchasing or renting bariatric equipment:
  - Number and frequency of bariatric admissions
  - Equipment purchase cost
  - Rental cost
  - Space demands: including fit through doorways/hallways, etc.
  - Patient care needs: bedroom, bathroom
  - Equipment storage needs
  - Length of stay
  - Equipment cleaning and maintenance needs

79

Front Egress Examples

80

Utilizing UE Strength

81

Who has seen? Who has used?

82

Bed Mobility: The Lateral Transfer

- High risk task:
  - Horizontally reach across to the patient's bed to hold the draw sheet prior to pulling the patient
  - Posture adopted during task
  - Weight of patient
  - Lack of handles-poor coupling

83

Friction Reducing Devices

- Common Brands:

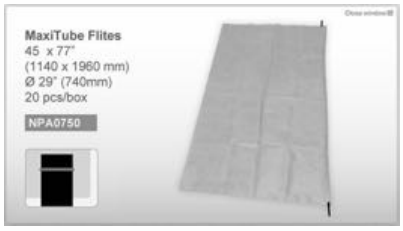
1. Maxislide
2. Lateral transfer Aid
3. Flat sheet set
4. Hovermatt
5. Airpal

- There are 3 types :
  1. Air Assisted
  2. Lateral sliding aids
  3. Bed assisted transfers
     1. I.E. fully inflating bed
     2. Trendelenburg position
     3. Assisted positioning bed to roll side to side

84

Patient Assist Equipment for Bed Mobility

- Lateral Transfer devices
- Generally designed to reduce friction when going from surface to surface



- Assists with bed to stretcher type transfers-transfer boards or fabric
- Not often used in OT/PT because of "lack of functional carryover"
- Positioned under the patient providing a smooth surface to slide the patient

85

86

Air Assisted Lateral Sliding Aids

- A flexible mattress placed under patient; inflates by portable air supply.
- Patient is moved on a cushioned film of air
- This reduction in friction makes the lateral transfer much easier for the caregiver
- Cost: $1200-$1600

86

87

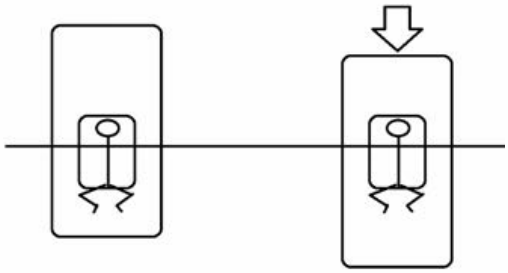
Air assisted lateral sliding aid

- A waterproof, anti-bacterial anti-stain, nylon mattress that allows for lateral transfers.
- No weight limit
- Max inflate the hospital bed

87

Don't forget about Lifts when doing Bed Mobility

- Overhead lift and track systems are not just for moving a patient from surface to surface



88

Mechanical Lift Systems

Let technology do the lifting for you.

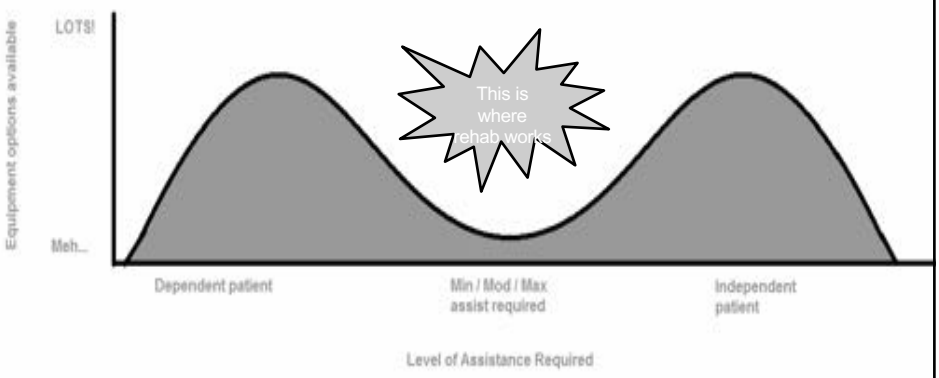
89

General Principles of Mechanical Lifts

- Need appropriate space in room
- Move as much furniture out of way
- Need clearance on bottom of bed
- Electrical and cordless better than manual elevation
- Lifts in OT/PT should be a means to an end in most cases
  - Positioning for treatment

90

Rehabilitating the Debilitated Patient



91

Examples of Purposes of Lifts

- Positioning for ADLs
- Assisting a patient from the floor
- Positioning for wheelchair activities
- Assisting with upright tolerance training

92

Criteria for Selection of Lifting and Transferring Devices[5]

- The devices should be appropriate for the task that is to be accomplished.
- The device must be safe for both the patient and the caregiver. It must be stable, strong enough to secure and hold the patient, and permit the caregiver to use good body mechanics.
- The device must be comfortable for the patient. It should not produce or intensify pain, contribute to bruising of the skin, or tear the skin.
- The device should be understood and managed with relative ease.

93

Criteria for Selection of Lifting and Transferring Devices[5]

- The device must be efficient in the use of time.
- Need for maintenance should be minimal.
- Storage requirements should be reasonable.
- The device must be maneuverable in a confined workspace.
- The device should be versatile.
- The device must be able to be kept clean easily.
- The device must be adequate in number so that it is accessible.
- Cost.

94

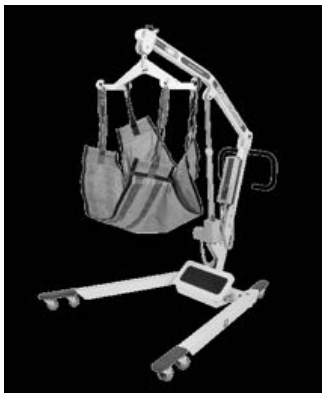
Types of Lift Systems

- Overhead Track system
  - Common Models capacity are either 600# or 1000#

95

Mechanical Lift Systems

- Regular and bariatric models
- Can be used to:
  - Transfer a patient to and from a chair/WC
  - Transfer a patient to and from a BSC
  - Transfer a patient to and from the floor
  - 750 or 1000#



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Mechanical Lift Systems

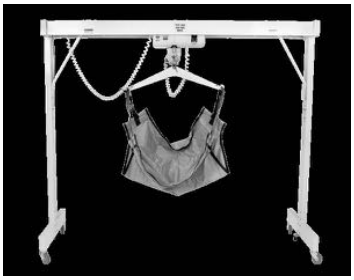
- Get the appropriate sling size for the patient
- 2 options for placing sling on:
  - Laying down
  - Sitting
- When lifting generally do NOT lock brakes, this will allow the lift to adjust under the patient for balance
- Depends on manufacturers specifications
- Bariatric Lifts do not always allow for sling placement in sitting, only laying

97

Portable overhead lift

- **Bari-Lift & Transfer™**

- May be applicable in ICUs or longer term residents
- Bed clearance issues
- Need more space
- Variety of slings available
- Scale available
- 750 or 1,000 lb. capacity



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Limitations with Equipment Use

- Patient aversion
- Unstable equipment/operationally difficult to use
- Storage issues/inconvenience
- Poor maintenance and cleaning
- Time constraints
- Inadequate number of available lifts

99

Limitations with Equipment Use

- No training on device on floors with high turnover levels
- Space restrictions to control equipment
- Incompatible equipment purchased
- Weight limitations

100

A WORD ABOUT THE *THERAPEUTIC* USE OF PATIENT HANDLING EQUIPMENT[2]

101

Mechanical assistance[2]

- Using mechanical advantage to replace or assist patient-initiated movement or caregiver initiated movement
- May have to have 2 mobility processes for one patient:
  1. To accomplish nursing care or current ADL level
     Role of Rehab: Consultant to demonstrate and prescribe mobility recommendations and equipment use for nursing during ADLs
  2. Treatment intervention for rehabilitative process

     Dynamic and changing based on patient progression or regression

102

Therapist safety AND rehab potential[2]

- Should **not** be mutually exclusive
- Equipment can be used as assistive devices during rehab
- Increases patient familiarity with lifting equipment during nursing-assisted ADLs

103

Therapist Safety AND Rehab Potential[2]

- Policies should have the following objectives:
  - ALL staff should know how to use ALL equipment
  - When able, develop algorithms or present case studies on unique uses of equipment
  - Encourage patient participation when using machinery (ex, use standing frames as walking aides as well)
  - Collaborate with PT, PM&R, nursing, SLP for optimal outcomes and utilization of equipment
  - Provide consistency in use of equipment for OT/PT/Nursing

104

Clinical Applications of Non-Mechanical Standing Aid

- Contraindications:
  - Restricted WB UEs or LEs
  - Poor/no trunk control
  - Dizziness and hypotension
- Indications:
  - Intractable back pain
  - Lower extremity weakness/partial paralysis with good trunk strength and sitting balance
  - Patients who can pivot transfer with help and using UEs

105

Mechanical Standing Aid

- Can be used as a mechanical lift aid for transfers and progress to walking
- Can work on standing level ADLs in conjunction with standing balance and strength/gait with PT

106

WALKING AIDS

107

Standing Platforms as Gait Training Devices

- Not just for transfers
- Remove footplate
- Walking sling
- Depending on risk of buckling of knees, may want to leave shin plate in.
- Weight capacity 420#

108

LiteGait

- Lite gait often used in PT for advanced gait retraining
- Has applicability to OT uses outside of treadmill with unweighting during ADL task performance
- Standing level ADLs where balance or fatigue would be an issue
- Frees OTs hands to cue, assist, remediate ADL task
- Weight capacity up to 500#

109

Gait training to prevent overshooting of foot placement

110

Ataxia after B cerebellar infarct and excision

111

Facilitating a L Hemiparetic leg

112

Summary

- Mobility is an essential care portion of any patient's care – just as important as bathing, grooming, toileting and eating.
- Safety first and practice makes perfect
- Know your equipment and don't be afraid to experiment in a controlled fashion for the best interest of the patient's rehab and safety

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