Safe Patient Handling and Falls Prevention: Reducing Risk through Evidence-Based Interventions

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September 2018

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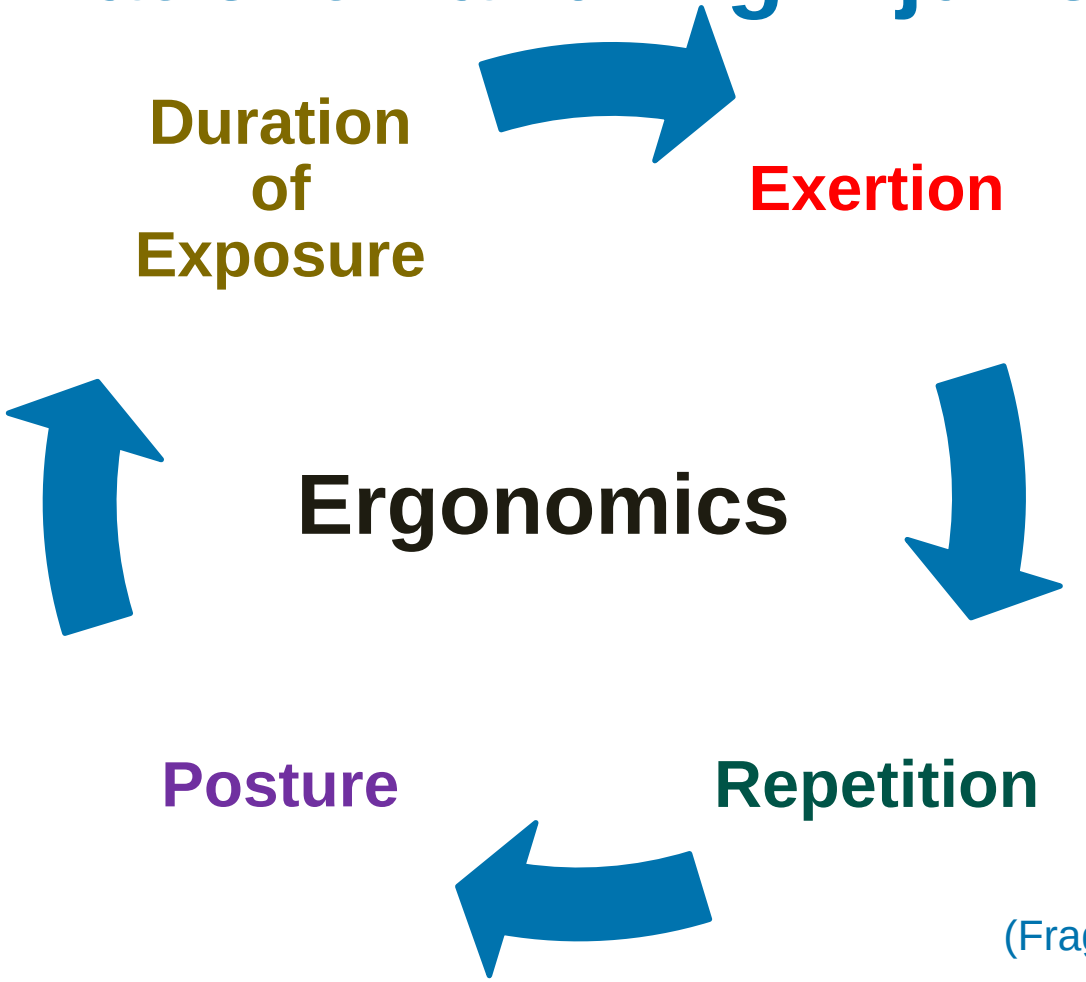
Objectives

1. Identify the relationship between caregiver safety and patient safety.
2. Discuss evidence that supports recommendations for safe patient handling and falls prevention.
3. Identify strategies for falls prevention and safe patient handling.

Safety Culture:
Patient and Healthcare Worker

(Black, Salsbury and Vollman, 2018)

What are Ergonomic Risk Factors for Patient Handling Injuries?



(Fragala et al., 2016)

Work-Related Musculoskeletal Disorders (WMSDs)

- Injuries to muscles, nerves, tendons, joints, cartilage and intervertebral discs
- Work environment contribute to the condition
- Condition made worse or persists due to work condition
- WMSDs **<u>are not</u>** slips, trips or falls

Centers for Disease Control and Prevention. (2013, October 23). Work-related musculoskeletal disorders (WMSD) prevention. Retrieved from: http://www.cdc.gov/workplacehealthpromotion/implementation/topics/disorders.html

Occupational Health Safety Network Injuries Among Workers in US Healthcare Facilities 2012-2014

- 112 US facilities reported 10,680 OSHA recordable injuries
- 4,674 injuries from patient handling and movement
- Rate of patient handling injuries 11.3 per 10,000 worker months
- Patient handling injuries highest among nurse assistants and nurses
- Most frequent injury task were positioning/repositioning in bed followed by lifting/transferring to bed or chair

(Gomaa et al., 2015)

Injury Statistics

- Healthcare workers are one of the most at risk occupations for musculoskeletal injuries (BLS, 2013)
- Patient handling tasks- boosts/turns/repositions are leading causes of injury (BLS, 2013)
- 2013 Bureau of Labor and Statistics – the rate of musculoskeletal disorders for health care workers was 56% higher then the rate for all private industries (BLS, 2013)
- More than 1/3 of back injuries in nurses are associated with manual patient handling (ANA website, Nursing World, July 2008)

What is the Incidence & Cost?

Body Part	Incidence	Cost
Back	51.3%	$8700 Avg
Shoulder	20.1%	$13,400 Avg
Wrist	6.7%	
Arm	4.2%	$8500 Avg
Knee	4.0%	$11,300 Avg
Neck		$12,700 Avg

www.aon.com/wcbarometer 2016

Contributing Factors to Injury

- Health care is the only industry that considers 100 pounds to be a ‘light’ weight
- Other professions use assistive equipment when moving heavy items
- On average, nurses and assistants lift 1.8 tons per shift (Toughy, 1999)
- Nursing assistants had the 2nd highest and RNs had the 6th highest number of musculoskeletal disorders in the U.S. (BLS, 2014)

American Nurses Association. (n.d.). Safe Patient Handling Movement. Retrieved from http://nursingworld.org/DocumentVault/GOVA/Federal/Federal-Issues/SPHM.html

U.S. Department of Labor, Bureau of Labor Statistics. (2014). Table 16. Number, incidence rate, and median days away from work for nonfatal occupational injuries and illnesses involving days away from work and musculoskeletal disorders by selected worker occupation and ownership, 2014. Retrieved from http://www.bls.gov/news.release/osh2.t16.htm

Oh, My Aching Back!

Back Pain Incidence in Nursing:

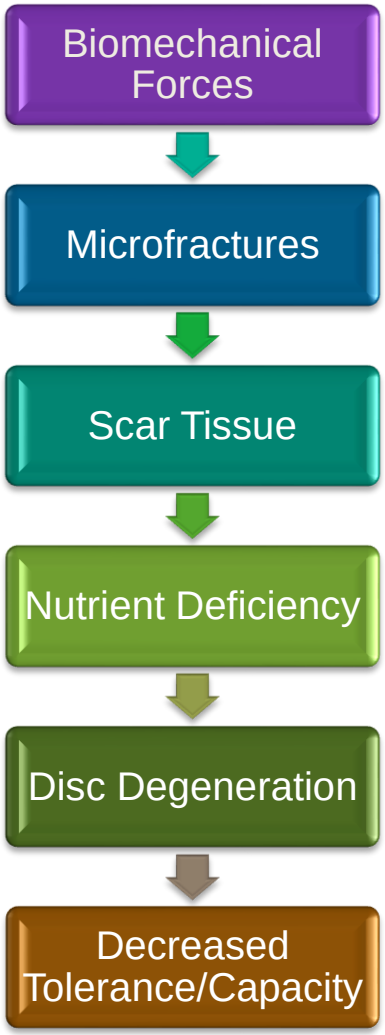
- 8 out of 10 nurses work despite experiencing musculoskeletal pain (ANA, 2013)
- 62% of nurses report concern regarding developing a disabling musculoskeletal injury (ANA, 2013)
- 56% of nurses report musculoskeletal pain is made worse by their job (ANA, 2013)
- Nursing assistants and RNs experience the highest rate of non-fatal occupational injuries and illnesses of ANY industry sector (including manufacturing and construction) (BLS, 2014)

American Nurses Association. (2013). ANA Health and Safety Survey. Retrieved from http://www.nursingworld.org/MainMenuCategories/WorkplaceSafety/Healthy-Work-Environment/Work-Environment/2011-HealthSafetySurvey.html

Contributing Factors to Injury: Persons of Size

- 2014- 67%-80% of people in the US were morbidly obese, obese or overweight (Flegal et al., 2014)
- Overweight: Body mass index (BMI) of 25.0 to 29.9
- Obesity: BMI of 30.0 to 39
- Morbid Obesity: BMI 40 or higher

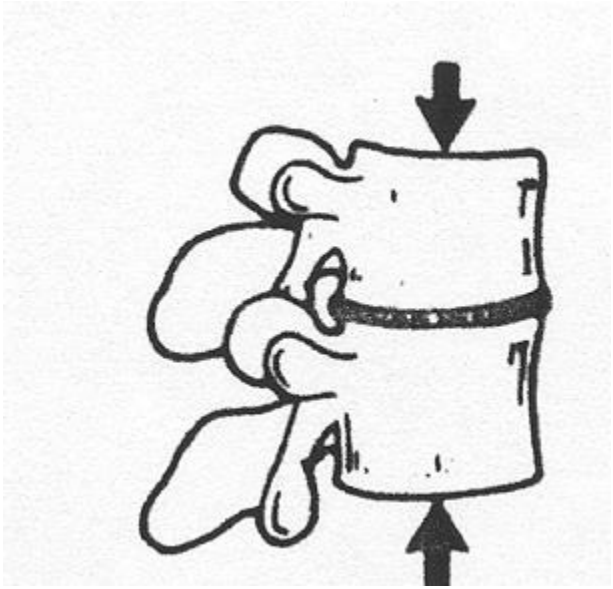
Development of Low Back Disorders (LBD)



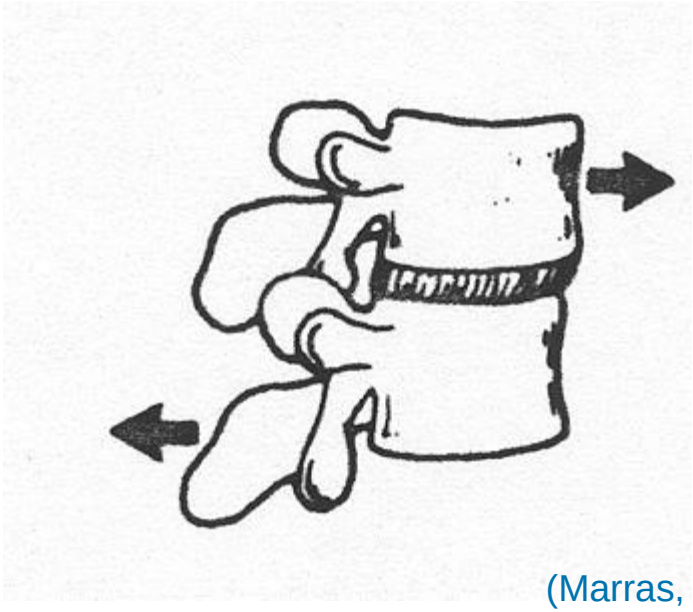
(Chaffin and Anderson, 1984)

Types of Force

Compression

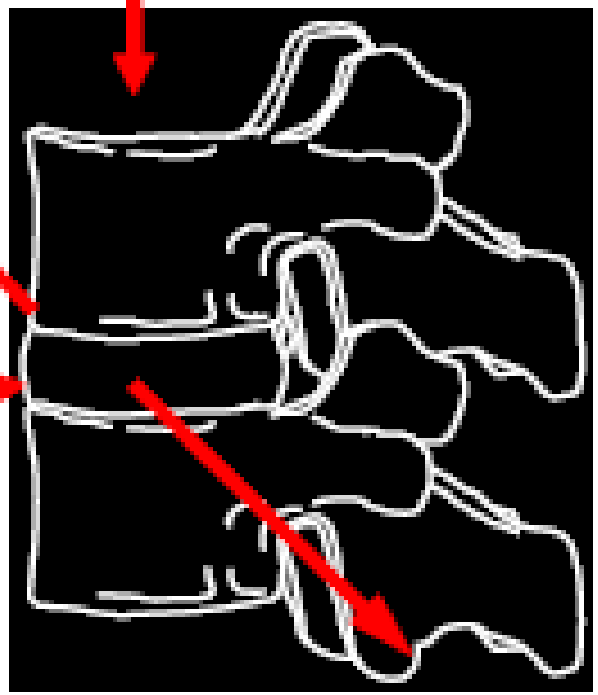


Shear



(Marras, 2012)

Spine Force Limits



(Marras, 2012)

BIODYNAMICS LABORATORIES

NIOSH (National Institute of Occupational Safety and Health) Recommendations for Safe Patient Handling

- Maximum recommended weight limit set for patient handling conditions (Waters, 2007)
  - The weight being lifted can be estimated
  - When patient is cooperative
  - The lift is smooth and slow
- Maximum recommended limits set for patient push/ pull activity
- Proper body mechanics alone **will not** prevent patient handling injury (Hignett, 2003)
- **IT IS NOT SAFE TO MANUALLY MOVE PATIENTS**

National Institute for Occupational Safety and Health NIOSH

Safe Patient Handling and Mobility (SPHM) and its Impact on Retention in the Nursing Profession

- The nation is facing an impending shortage of nurses, which is expected to peak by 2020
- Average age of nurses in the US is 46
- We must improve our ergonomic environment to accommodate older nurses (Buerhaus, 2004)

Industry vs. Healthcare: How do we compare?

Definition of a Fall

A sudden, unintentional descent, with or without injury to the patient, which resulted in the patient coming to rest on the floor, on or against some other surface, another person or on an object.

Health Research & Educational Trust (2016, October)

Significance of Patient Falls

- Falls are the leading cause of hospital –acquired injury and can frequently prolong or complicate hospital stays (Degelau et al., 2012)
- Between 700,000 and 1 million patients suffer a fall in U.S. hospitals each year (Dupree et al., 2014)
- 30-35% of those patients sustain an injury, and approximately 11,000 falls are fatal (Health Research & Educational Trust. 2016, October)
- Falls have been identified by the Centers for Medicare and Medicaid Services as an acquired condition that should not occur. (Dupree et al., 2014)

The Joint Commission Center for Transforming Healthcare Preventing Patient Falls Project

- 7 U.S. Hospitals
- Report describes risks for falls, root causes for those risks and solutions
- Results 62% reduction in falls with injury and 35% reduction in falls rate
- Keys for success
  - Measure and analyze contributing factors
  - Address culture change

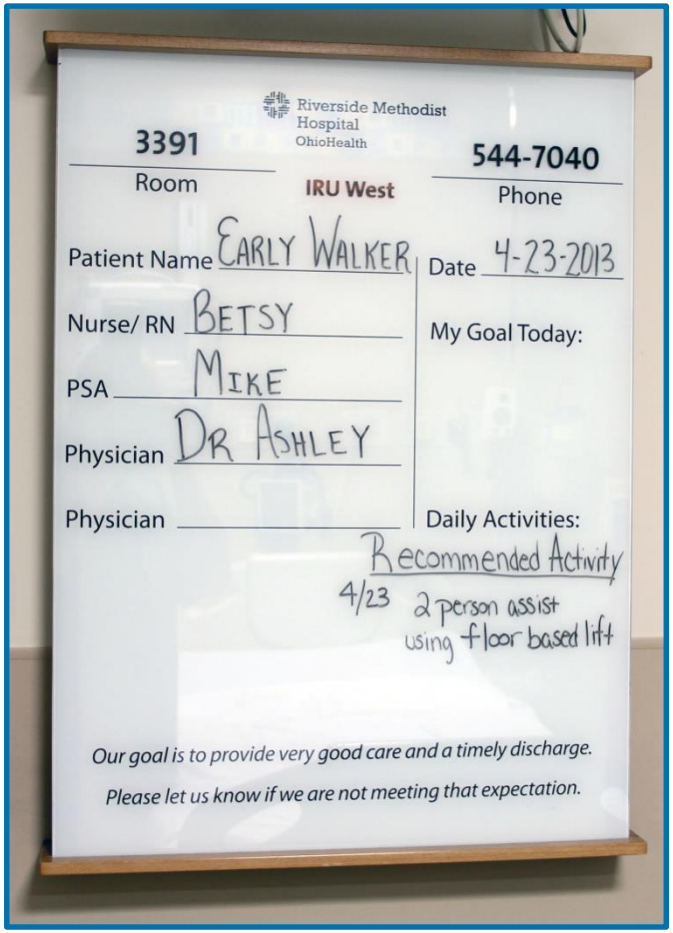
Health Research & Educational Trust. (2016, October)

Top Factors/Issues that Contribute to Patient Falls

- Fall risk assessment
- Handoff communication
- Toileting
- Call light
- Education and organizational culture
- Medication

Health Research & Education Trust. (2016, October)

Visual Cues



- Write mobility assessment on white board using consistent language:
  - Independent
  - Up with supervision
  - Up with 1 or 2 person assist with gait belt
  - Stand assist device
  - Floor based lift
  - Bed into chair position

(Hursh, A. et al., (2013)..

Patient and Family Fall Education

- Provide fall risk education for every patient
  - Review on admission and through out stay
  - Place “Fall Prevention” handout in patient education folder
  - Signage “Call don’t fall” in room and bathroom
- Review patient’s fall risk with patient and family because some falls occurred with family present/assisting

Best Practices for Falls Prevention

- Complex and multifactorial **NO MAGIC BULLET**
- Organizational support for falls reduction across departments and disciplines
- Transparency of fall rates
- Accountability through auditing compliance with fall risk assessments and interventions (Degelau, et al., 2012)

Summary: Best Practices for Falls Prevention

- Fall risk assessment (many different instruments)
- Visual identification of patients at high risk for falls
- Falls risk factor directed interventions
- Standardized multifactorial education with visual tools for staff, family and patients
- Teach back with patient education
- Interdisciplinary collaboration

(Degelau, et al., 2012)

What is Safe Patient Handling?

Manual Patient Handling

- The transporting or supporting of a patient by hand or bodily force, including pushing, pulling, carrying, holding, and supporting of the patient or a body part. (Nelson & Baptiste, 2006)

Safe Patient Handling

- Evidence-based approach to reducing risk to caregivers. Includes risk assessment, use of equipment, patient assessment, algorithms, peer safety leaders, and after-action reviews. (Nelson et al., 2009)

Why SPHM?

Potential Patient Benefits:

- Improved quality of care
- Improved mobility
- Reduced risk of pressure ulcers
- Increased satisfaction

(The Facility Guidelines Institute, 2012)

Potential Healthcare Worker Benefits:

- Improves the quality of work life for healthcare staff by decreasing the risk of musculoskeletal injury
- Reduces injury rates among healthcare staff
- Retain healthcare staff at the bedside
- Decrease workers' compensation costs

Evidence Based Strategies for a Comprehensive SPHM Program

1. Ergonomic Assessment Protocol
2. Patient Handling Assessment Criteria and Decision Algorithms
3. Peer Leaders
4. State-of-the-art Equipment
5. After Action Reviews
6. No Lift Policy

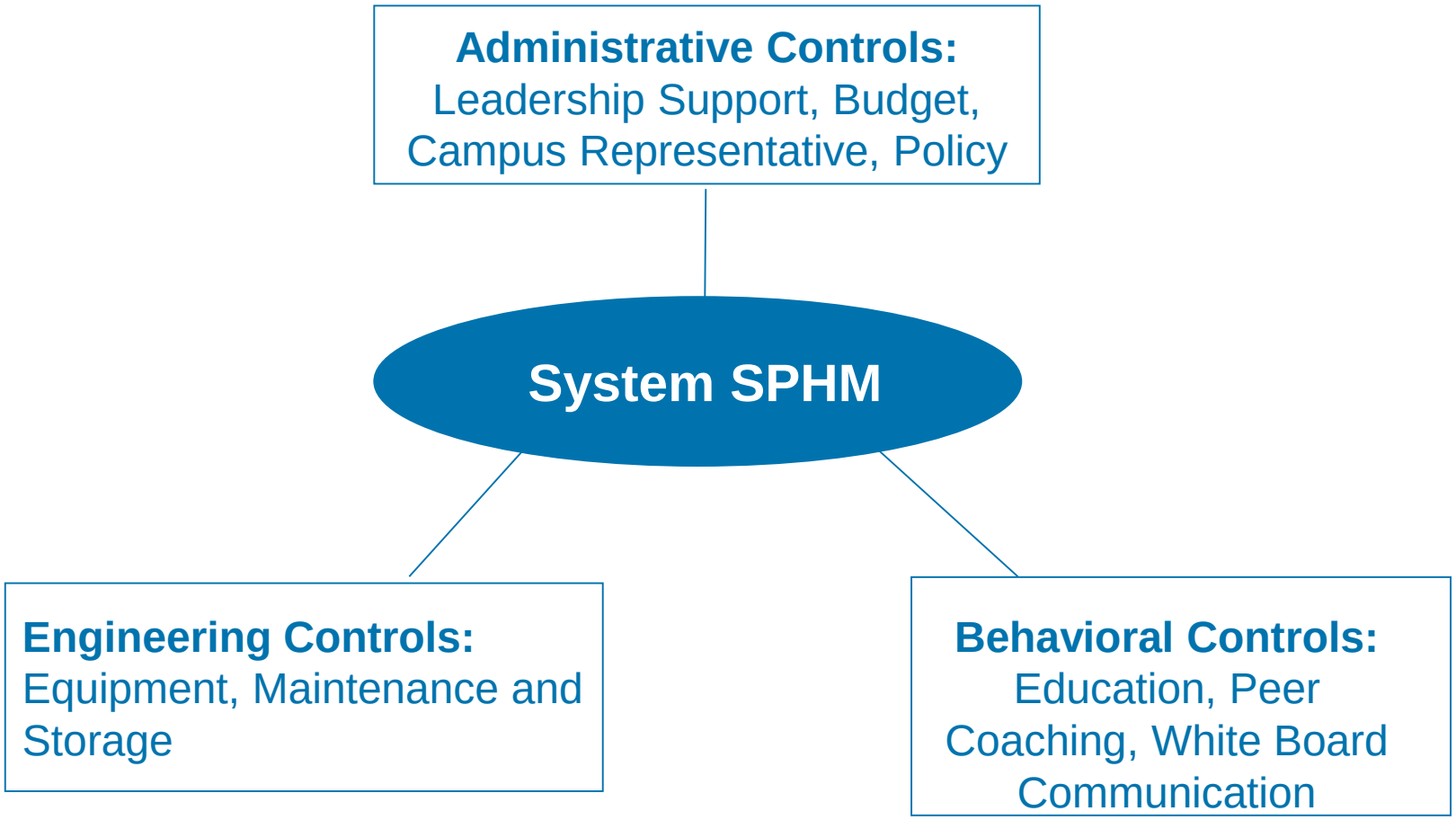
(Nelson, et al., 2006)

ANA Interprofessional Standards of SPHM

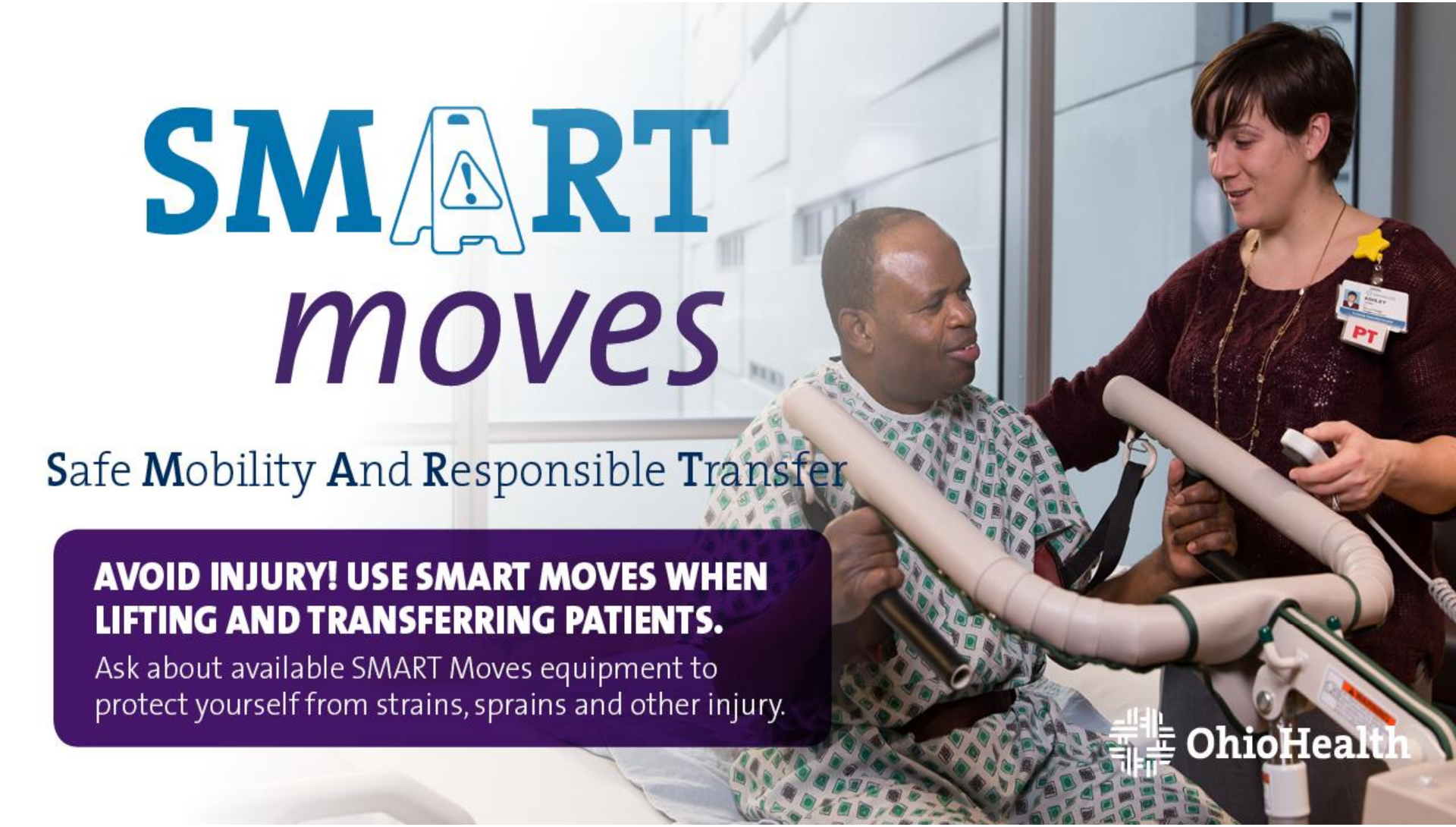
1. Establish a Culture of Safety
2. Implement and Sustain a Safe Patient Handling and Mobility (SPHM) Program
3. Incorporate Ergonomic Design Principles to Provide a Safe Environment of Care
4. Select, Install, and Maintain SPHM Technology
5. Establish a System for Education, Training and Maintaining Competence
6. Integrate Patient-Centered SPHM Assessment, Plan of Care, and Use of SPHM Technology
7. Include SPHM in Reasonable Accommodation and Post-Injury Return to Work
8. Establish a Comprehensive Evaluation System

(ANA, 2013)

Evidence Based Approach for Safe Patient Handling



Zadvinskis, I., Salsbury, S., (2010) Effects of a Multifaceted Minimal-Lift Environment for Nursing Staff: Pilot Results. *Western Journal of Nursing Research, 32 (1) 47-63.*


SMART
moves
Safe Mobility And Responsible Transfer
AVOID INJURY! USE SMART MOVES WHEN LIFTING AND TRANSFERRING PATIENTS.
Ask about available SMART Moves equipment to protect yourself from strains, sprains and other injury.
PT
OhioHealth

SPHM Unit Based Peer Coaching

- PSAs and RNs
- Unit champions
- Reinforce safety culture
- 4 hour class
- Experiential learning

Zadvinskis, I., Glasgow, G., and Salsbury, S.,(2011) Developing Unit- Focused Peer Coaches for the Clinical Setting. *Journal of Continuing Education in Nursing.*42, 260-269.

Bedside Mobility Assessment Tool (BMAT)

- Nurses can use BMAT to objectively assess patient mobility
- BMAT tests the patient's functional mobility by observing tasks with increasing levels of difficulty
- Safe patient handling and mobility (SPHM) technology recommendations are based on task completion

BMAT Benefits

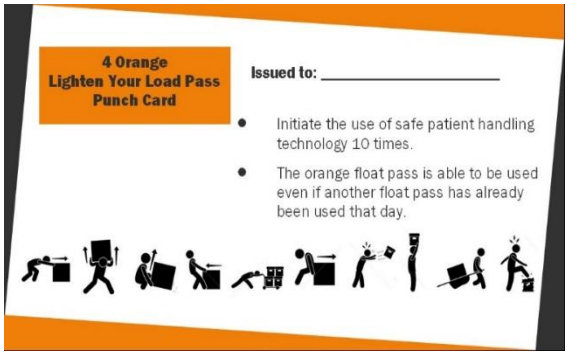
- Reduce patient falls
- Communicate the patient's mobility to all staff
- Increase early mobility
- Improve patient discharge disposition via early mobility
- Decrease patient complications from immobility
- Decrease staff injury related to patient handling

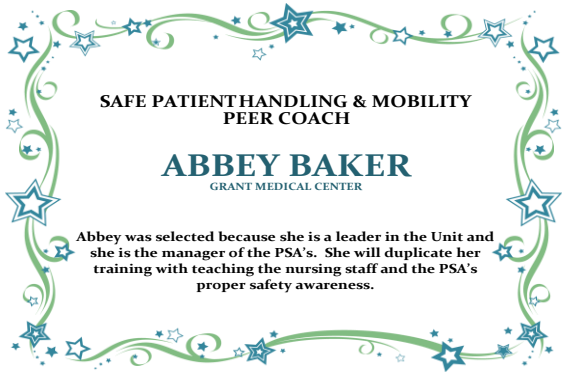
(Boynton, Kumpar and Trudgen, SPHM Conference 2015)

BMAT – Safe Mobility Technology Options

Mobility Level 1	Mobility Level 2	Mobility Level 3	Mobility Level 4
 Floor-Based Mechanical Lift	 Floor-Based Mechanical Lift	 Non-Powered Stand Assist Device	 Gait Belt
 Air-Assisted Lateral Transfer Device	 Powered Stand-Assist Device	 Appropriate Assistive Device	 **CALL, DON'T FALL!**

SPHM Incentives





Patient Handling Technologies & SPHM Equipment

In-bed Mobility

	Equipment Name	Indications for Use	Product Specs	Chargable to patient?
 Single pt use only	**TAPS 2.0 System** (includes positioning wedges & 6 disposable pads) People Soft Numbers: Whole system: 30078782 Replacement glide sheet only: 30094567 Pk of 5 replacement pads: 30078783	Patients who are debilitated and unable to assist with in bed transfers/turns.	**Weight Capacity: 550 lbs** Use with disposable microfiber pads	Y-System N-Glide Sheet only
 Single pt use only	**TAPS XXL (Bariatric TAPS)** (includes positioning wedges, fitted sheet, glide sheet & 6 disposable pads) People Soft Numbers: Whole system: 30078785 Pk of 5 XXL replacement pads: 30078784	Bariatric patients who are debilitated and unable to assist with in bed transfers/turns	**Weight Capacity: 800 lbs** Fitted sheet in kit goes over entire mattress; use with disposable XXL microfiber pads	Y
 Single pt use only	**AirTAPS** (includes positioning wedges and 1 disposable pad) People Soft Numbers: Whole system: 30117968 Replacement glide sheet only: 30117969 Pk of 5 replacement pads: 30078783	Patients who are debilitated and unable to assist with in bed transfers/turns	**Weight Capacity: 550 lbs** Use with air booster pump and disposable microfiber pads	Y-System Y-Glide Sheet only
  Single pt use only	**MATS** (includes 1 disposable pad) People Soft Numbers: System: 30140369 Pk of 5 replacement pads: 30078783	Dependent patients weighing >200lbs going to diagnostics and will need lateral transfer(s).	**Weight Capacity: 1000 lbs** Use with air booster pump and disposable microfiber pads	Y
 May be green or blue	**Air-Assisted Lateral Transfer Device**	Raises patient in one smooth motion. Helps reduce shear and friction forces on the patients skin during transfers.	Weight Capacity: 1200 lbs	N/A Reusable

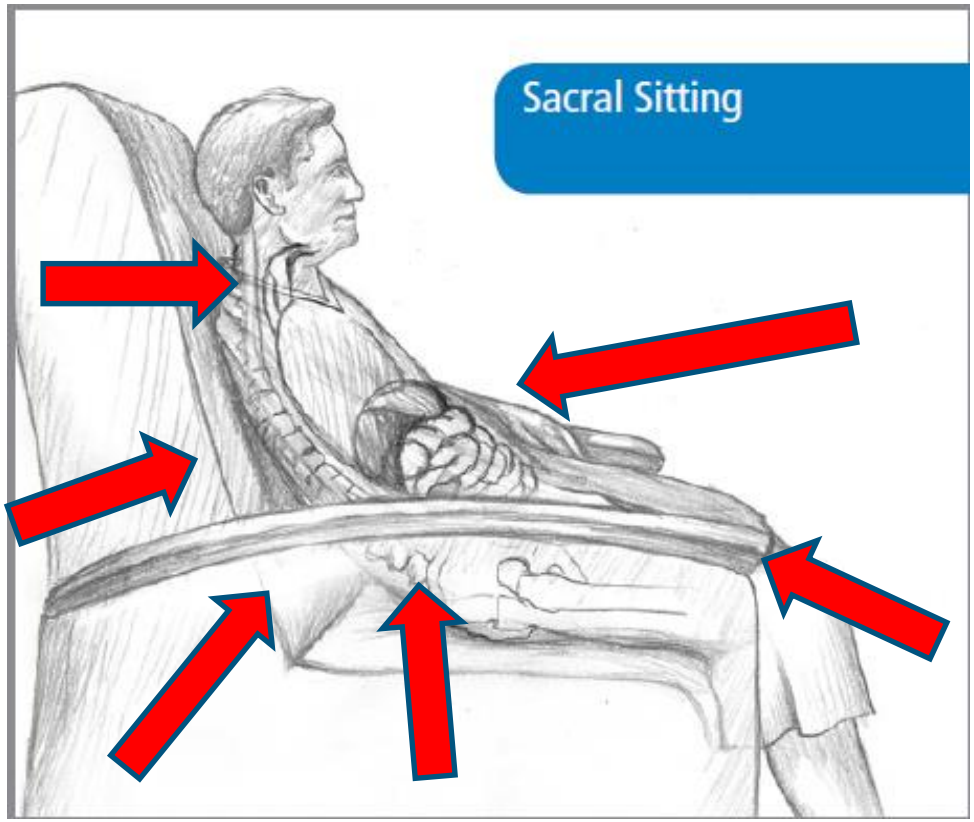
ALL OF THESE PRODUCTS CAN BE LEFT UNDER PATIENT FOR DURATION OF STAY, THEY HAVE BEEN APPROVED BY NPUAC Updated 9/29/17

Out of Bed Mobility				
	**EZ Way Floor Based Lift**	Mechanical device for transfering patient from multiple surfaces whom are debilitated, also can be used for weighing patients	**Weight Capacity: 500 & 1000 lb devices available**	N/A Reusable
 **Single pt use only**	**Floor Based Lift Slings** (option to obtain single use sling) People Soft Numbers: Medium: 30076909 Large: 30076907 XL: 30109225	Sling is used to assist with lifting patients from floor, bed-chair, and with self care transfers	**Weight Capacity: 1000 lbs M-XL**	N/A Reusable
	**EZ Way Stand Assist Device**	Mechanical device to facilitate toileting, changing briefs, or completing pivot transfers for weight bearing patients. Has additional features that can be used as an ambulation aid.	**Weight Capacity: 500 & 800 lb devices available**	N/A Reusable
 **Single pt use only**	**Stand Assist Device Harness** (option to obtain single use sling) People Soft Numbers: Medium: 30076906 Large: 30076911 XL: 30076910	Sling is used to assist with changing briefs, conducting pivot transfers for weight-bearing patients	**Weight Capacity: 660 lbs M-XL**	N/A Reusable

Current Seating Positioning Challenges

Airway & Epiglottis compressed

Body Alignment

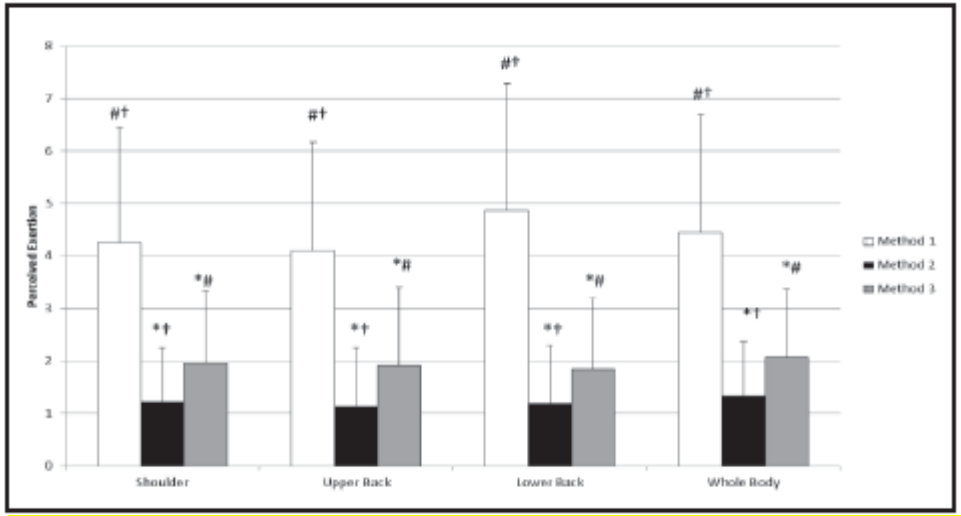


Frequent repositioning & potential caregiver injury injury

Potential risk of sliding from chair

Repositioning Patients in Chairs: An Improved Method (SPS)

- Study the exertion required for 3 methods of repositioning patients in chairs
- 31 care giver volunteers
- Each one trial of all 3 reposition methods
- Reported perceived exertion using the Borg tool, a validated scale.



Method 1: 2 care givers using old method of repositioning
246% greater exertion than SPS
Method 2: 2 caregivers with SPS
Method 3: 1 caregiver with SPS
52% greater exertion than method 2

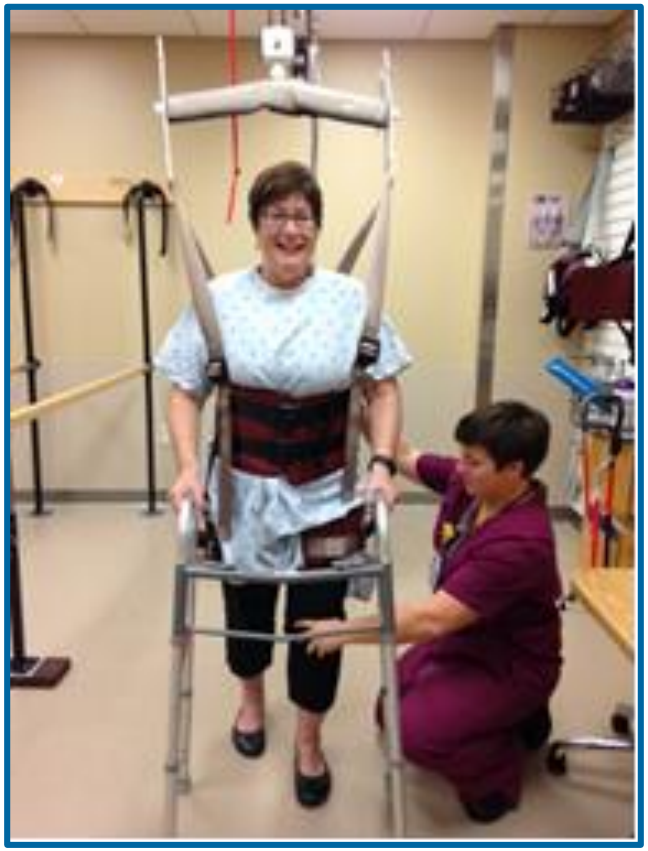
(Fragala, G., and Fragala, M., 2013)

Prevalon ™
Seated Positioning System (SPS)

- Reduces boosting
- Promotes proper ergonomics
- Redistributes pressure
- Manages moisture
- Enhances compliance for progressive mobility

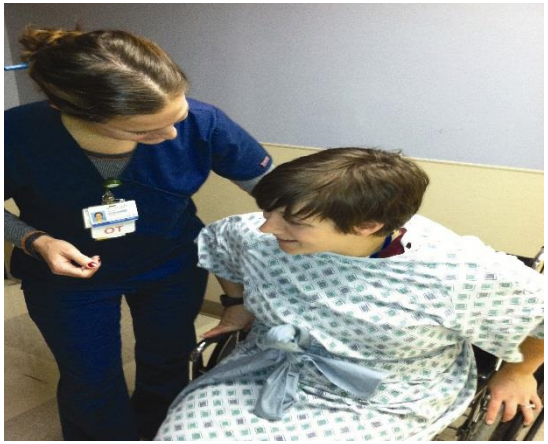
Ceiling Lifts

- Ceiling lifts require 50-75% less force to push or pull than floor based lifts (Rice et al., 2009)
- Torque required to move floor based lifts were10x more than ceiling lifts (Rice et al., 2009)
- Forces to move ceiling lifts generally safe (Marras et al., 2009)



Additional SPHM Technology

Friction Reducing Slide Sheet



Gait Belt

Lateral Transfer Board

Reusable Air Assisted Transfer Device

Early Mobility + Care Giver Safety + Skin Safety & Fall Prevention

Vollman, K. 2017)

Safety Culture: Patient & Healthcare Worker

↓ Repetitive motion injury
↓ Musculoskeletal injury
↓ Days away from work
↓ Staffing challenges
↓ Loss of experienced staff
Nursing shortage

↓ Hospital LOS
↓ ICU LOS
↓ Skin Injury
↓ CAUTI
↓ Delirium
↓ Time on the vent

↓ Skin Injury
↓ Costs
↓ Pain and suffering
↓ Hospital LOS
↓ ICU LOS

↓ Falls
↓ Falls with injury
↓ Hospital LOS

(Vollman, K. 2017)

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