

# Practice Safely: Nursing fundamentals for mobility

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26296

## Disclaimers

- Consultant-Michigan Hospital Association Keystone Center
- Consultant/Faculty for CUSP for MVP—AHRQ funded national study
- Subject matter expert for CAUTI, CALBSI, CDI, Sepsis, HAPI and culture of Safety for HIIN/CMS
- Consultant and speaker bureau for Sage Products, a business unit of Stryker
- Consultant and speaker bureau for Eloquest Healthcare

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## **Notes on Hospitals: 1859**

“It may seem a strange principle to enunciate as the very first requirement in a hospital that it should do the sick no harm.”

- Florence Nightingale

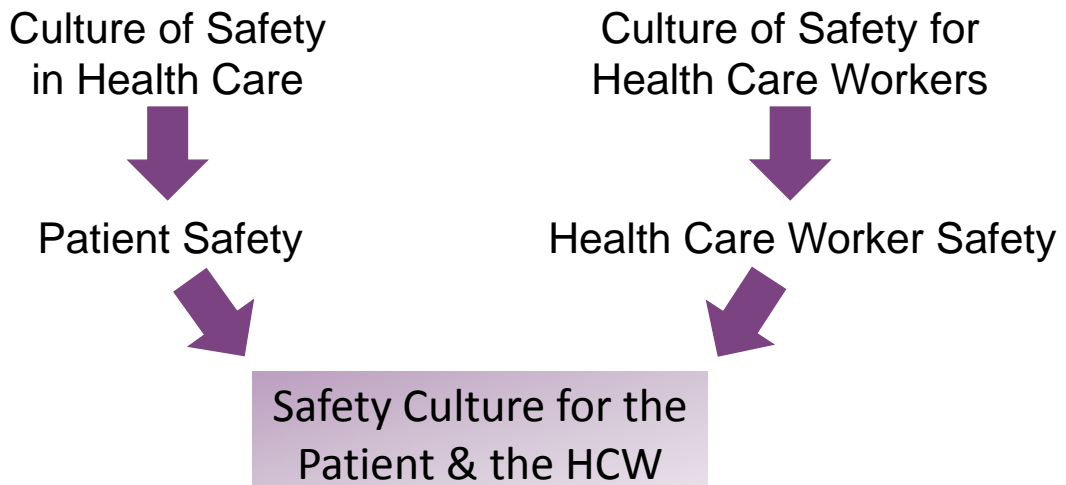
Advocacy = Safety

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**What Does it Mean  
to Be in A Safe  
Culture for You &  
Your Patient?**

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## Changing the Paradigm



## Changing the Perception of Safety on Your Unit

- Safety for the patient and healthcare worker are integrated
- Transcends individual improvement initiatives and departmental walls
- High reliable unit/organization: engaged leadership, culture of safety, organizational processes and infrastructure to support safe practices
- Implement and maintain successful worker and patient safety improvement initiatives within your unit & organization
- Create measurements that integrate patient safety and healthcare worker safety

# The Goal: Patient & Caregiver Safety



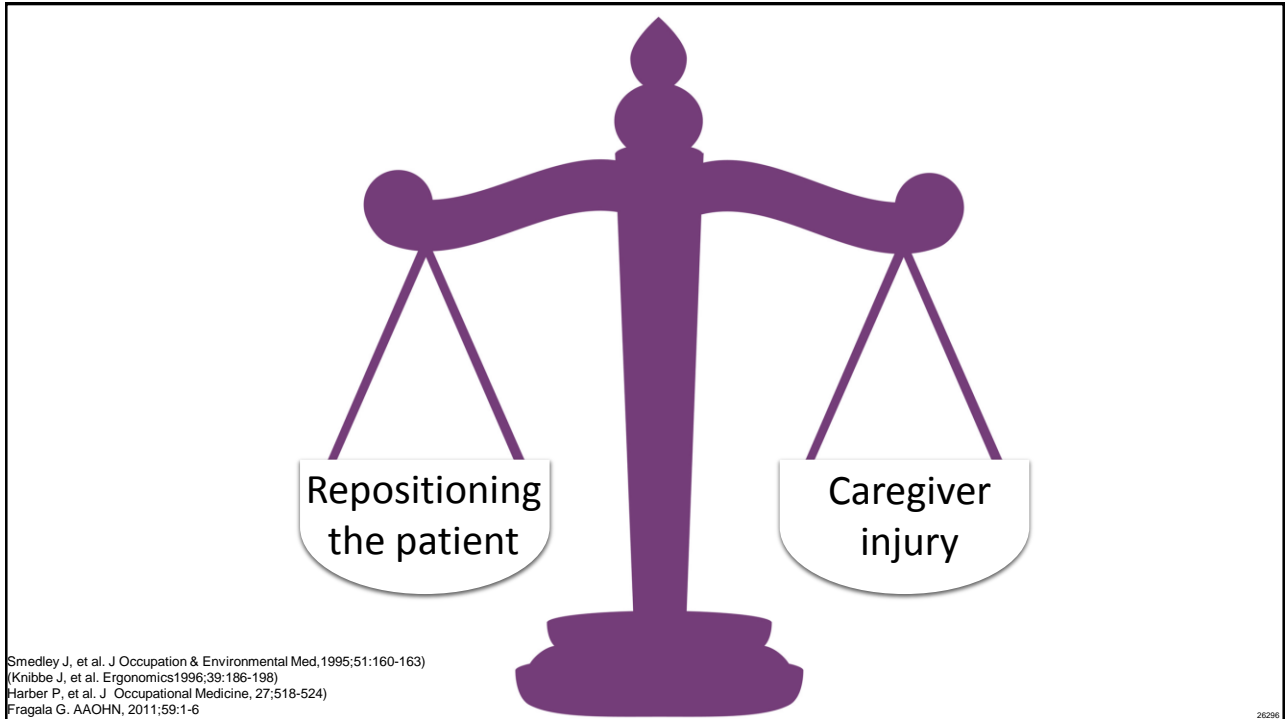
Eliminate Silo Solutions

Black J, et al. Crit Care Nurs Q. 2018;41(3):226-239.

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**How Well Are We Doing?**

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## Cumulative impact on quality of life



- “New Walking Dependence” occurs in 16-59% in older hospitalized patients<sup>1</sup>
- 65% of patients had a significant functional mobility decline by day 2<sup>1</sup>
- 27% still dependent in walking 3 months post discharge<sup>2</sup>

1. Hirsh 1990, Lazarus 1991, Mahoney 1998  
 2. Mahoney 1998

## Skeletal Muscle Deconditioning

- Skeletal muscle strength reduces 4-5% every week of bed rest (1-1.5% per day)
  - Recently seen as high as 3-11% for each day in bed
- Without activity the muscle loses protein
- Healthy individuals on 5 days of strict bed rest develop insulin resistance and microvascular dysfunction
- 2 types of muscle atrophy
  - Primary: bed rest, space flight, limb casting
  - Secondary: pathology
- 40 ICU patients, 2646 observations, patients spent 100% median time in bed, with 99% little or no activity (2017)
- One day of bed rest requires two weeks of reconditioning to restore baseline muscle strength

Siebens H, et al. J Am Geriatr Soc 2000;48:1545-5, Topp R et al. Am J of Crit Care, 2002;13(2):263-76, Wagenmakers AJM. Clin Nutr 2001;20(5):451-4, Fan E, et al. Crit Care Med, 2014;42:849-859, Connolly BA. J of Intensive Care Med, 2017; Jan 1:885066617716377, Candow DG, Chilbick PD J Gerontol, 2005;60A:148-155, Berg HE., et al. J of Appl Physiol, 1997;82(1):182-188, Homburg NM., Arterioscler Thrombo Vasc Biol, 2007;27(12):2650-2656, 26296

**Do We Even  
Achieve the  
Minimum Mobility  
Standard...  
“Q2 Hours..”?**

## Q 2 Hour Turning

### Body position: clinical practice vs standard<sup>1</sup>

- Study of 74 patients in which the change in body position was recorded every 15 minutes for an average observation time of 7.7 hours
- 49.3% of observed time showed no body position change for >2 hrs, and 2.7% had every-2-hour demonstrable body position change

### Positioning prevalence<sup>2</sup>

- Prospectively recorded, 2 days, 40 ICUs in the United Kingdom
- Average time between turns, 4.85 hours

1. Krishnagopalan S, et al. Crit Care Med. 2002;30:2588-2592.  
2. Goldhill DR, et al. Anaesthesia. 2008;63:509-515

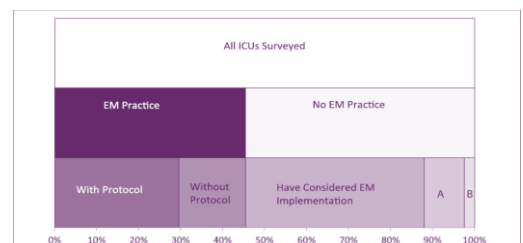
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## Environmental Scan of EM Practices

- 687 randomly selected ICU's stratified by regional density & size
  - 500 responded (73% response rate)

### • Demographics:

- 51% academic affiliation, mixed medical/surgical (58%) or medical (22%) with a median of 16 beds (12–24)
- 34% dedicated PT or OT for the ICU
- Performed a median of 6 days, 52% began on admission



### Factors associated with EMP:

- Dedicated PT/OT
- Written sedation protocol
- Daily MDR
- Daily written goals

Bakhru RN, et al. Crit Care Med 2015; 43:2360–2369

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**IF AT FIRST YOU DON'T SUCCEED,  
YOU'RE RUNNING ABOUT AVERAGE**



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## **Outcomes of Early Mobility Programs**

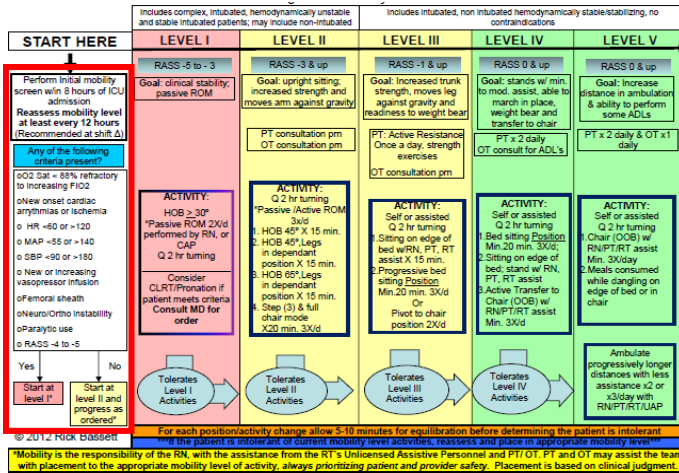
- ↓ incidence of VAP
- ↓ time on the ventilator
- ↓ days of sedation
- ↓ incidence of skin injury
- ↓ delirium
- ↑ ambulatory distance
- Improved function
- ↓ in hospital readmissions
- ↓ ICU & Hospital LOS



Staudinger t, et al. Crit Care Med, 2010;38., Abroung F, et al. Critical Care, 2011;15;R6, Morris PE, et al. Crit Care Med, 2008;36:2238-2243, Pohlman MC, et al. Crit Care Med, 2010;38:2089-2094, Schweickert WD, et al. Lancet, 373 (9678):1874-82., Thomsen GE, et al. CCM 2008;36:1119-1124, Winkelman C et al. CCN.2010;30:36-60, Azuh O, et al. The American Journal of Medicine, 2016, doi:10.106/jmjmed.2016.03.032, Corcoran JR, et al. PMR J, 2016 in press.



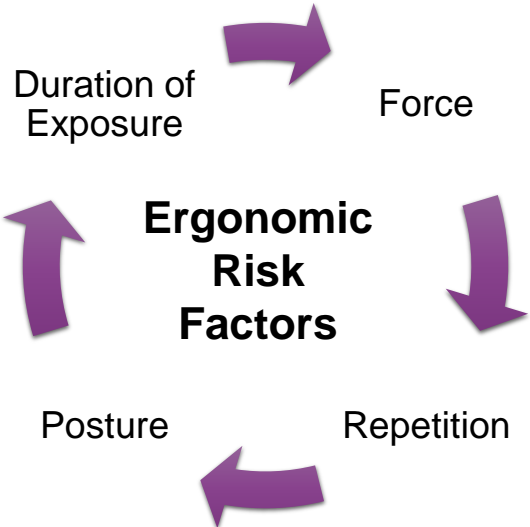
# Outcomes of Early Mobility Program



- ↓ incidence of skin injury
- ↓ time on the ventilator
- ↓ incidence of VAP
- ↓ days of sedation
- ↓ delirium
- ↑ ambulatory distance
- Improved function

Bassett R, et al. Intensive & Crit Care Nurs, 2012;28:88-97, Staudinger t, et al. Crit Care Med, 2010;38., Abrung F, et al. Critical Care, 2011;15:R6, Morris PE, et al. Crit Care Med, 2008;36:2238-2243., Pohman MC, et al. Crit Care Med, 2010;38:2089-2094, Schweickert WD, et al. Lancet, 373(9678):1874-82., Thomsen GE, et al. CCM 2008;36:1119-1124, Winkelman C et al, CCN,2010;30:36-60, Dickinson S et al. Crit Care Nurs Q, 2013;36:127-140

# What are Ergonomic Risk Factors?



## Oh, My Aching Back!

- Back pain incidence in nursing:
  - 8 out of 10 nurses work despite experiencing musculoskeletal pain<sup>1</sup>
  - 62% of nurses report concern regarding developing a disabling musculoskeletal injury<sup>1</sup>
  - 56% of nurses report musculoskeletal pain made worse by their job<sup>1</sup>
  - Nursing assistants and RNs experience the highest rate of non-fatal occupational injuries and illnesses of ANY industry sector (including manufacturing and construction)<sup>2</sup>



1. 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> 2. 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>

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## Oh, My Aching Back!



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

Flegal et al., 2014

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## Oh, My Aching Back!



- 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)

Buerhaus, 2004

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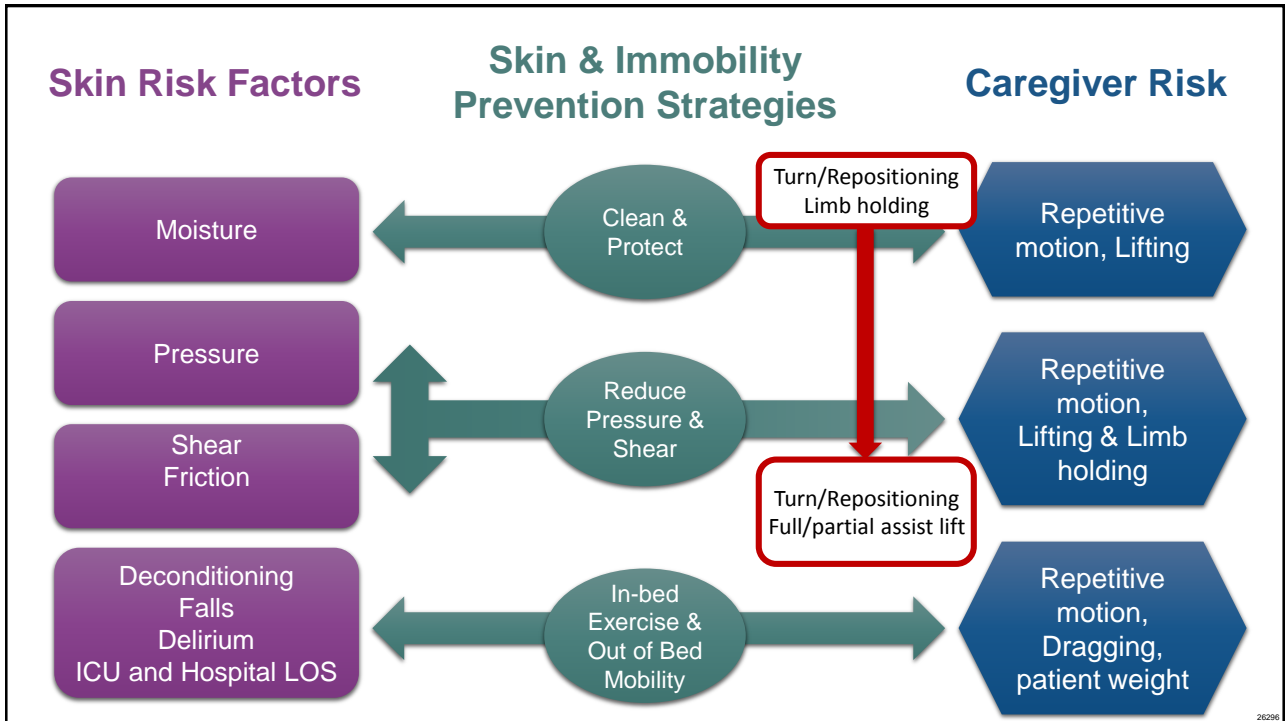
## What about Staff Harm?

- 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<sup>1</sup>

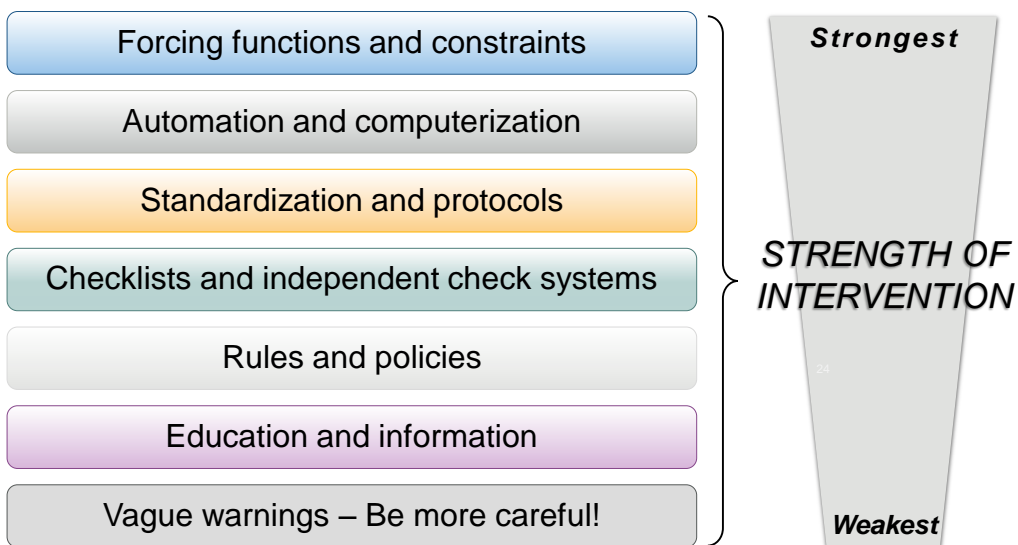


American Nurses Association. (n.d.). Safe Patient Handling Movement. Retrieved from <http://nursingworld.org/DocumentVault/GOVA/Federal/Federal-Issues/SPHM.html>

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## Building Resiliency Into Interventions



## The Goal: Patient & Caregiver Safety



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## EBP Recommendations to Achieve Offloading & Reduce Pressure



Prevention and Treatment of Pressure Ulcers: *Individuals in the Operating Room* – an extract from the Clinical Practice Guideline



### Turn & reposition every 2 hours

(avoid positioning patients on a pressure ulcer)

- Repositioning should be undertaken to reduce the duration & magnitude of pressure over vulnerable areas
- Consider right surface with right frequency
- Cushioning devices to maintain alignment /30 ° side-lying & prevent pressure on bony prominences
  - Between pillows and wedges, the wedge system was more effective in reducing pressure in the sacral area (healthy subjects)
- Assess whether actual offloading has occurred
- Use lifting device or other aids to reposition & make it easy to achieve the turn

Reger SI et al. OWM, 2007;53(10):50-58, [www.ihl.org](http://www.ihl.org), National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention & treatment of pressure ulcers :clinical practice guideline. Emily Haesler (Ed) Cambridge Media: Osborne Park: Western Austria:2014. \*McNichol L, et al. J Wound Ostomy Continence Nurse, 2015;42(1):19-37., Bush T, et al. WOCN, 2015;42(4):338-345

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# EBP Recommendations to Reduce Shear & Friction



Prevention and Treatment of Pressure Ulcers: *Individuals in the Operating Room* – an extract from the Clinical Practice Guideline



- Loose covers & increased immersion in the support medium increase contact area
- Prophylactic dressings: emerging science
- Use lifting/transfer devices & other aids to reduce shear & friction
  - Mechanical lifts
  - Transfer sheets
  - 2-4 person lifts
  - Turn & assist features on beds
- Do not leave moving and handling equip underneath the patient

National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention & treatment of pressure ulcers :clinical practice guideline. Emily Haesler (Ed) Cambridge Media: Osborne Park: Western Austria:2014.

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Specialty Bed



Disposable Slide Sheets



Breathable Glide Sheet

## Current Practice: Turn & Reposition

Draw Sheet/  
Pillows/Layers of Linen



Lift Device



Turn and  
Positioning Systems



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# Achieving the Use of the Evidence for Pressure Injury Reduction

## Resource & System

- Breathable glide sheet/stays
- Foam wedges
- Microclimate control
- Reduce layers of linen
- Wick away moisture body pad
- Protects the caregiver



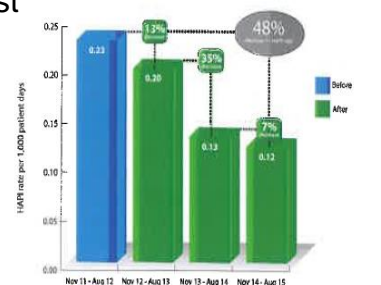
Vollman KM. Intensive Care Nurse. 2013;29(5):250-5

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## Reducing HAPI & Patient Handling Injuries

- Compared pre-implementation turning practice: pillows/draw sheet vs turn and position system (breathable glide sheet/foam wedges/wick away pad)
- Baseline: November 2011-August 2012
- Implementation period: November 2012 to August 2015
- 3,660 patients
- Compared HAPI rates, patient handling injuries, and cost

PATIENT HANDLING INJURY AND COSTS				74% reduction
	January 2012 to October 2012 (Before)	November 2012 to August 2013 (After)	November 2013 to August 2014 (After)	November 2014 to August 2015 (After)
Injuries/Cost	19/\$427,500	8/\$180,000	2/\$45,000	5*/\$112,500



Way H. Am JSPHM. 2016;6(4):160-165

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## Transition: In-Bed to Out-of-Bed & Back

- Tilt-table beds/full lay-to-stand
- Air lateral transfer device
- Turn and positioning systems
- Cardiac and full chair bed positioning
- Multifunction chairs/stretchers chairs
- Mobile and ceiling lifts



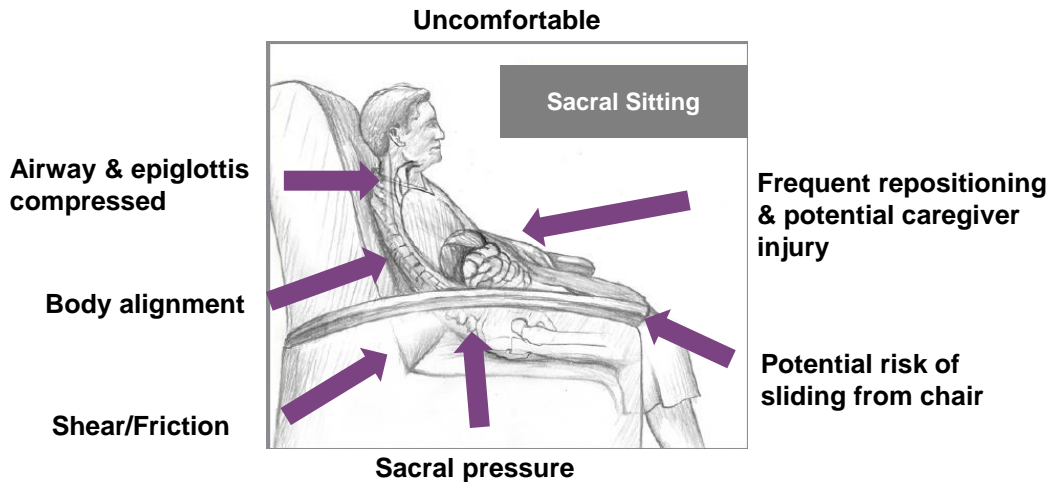
## Out-of-Bed Technology

- Tilt-table beds/full lay-to-stand
- Stand-assist lifts
- Multifunction chairs/stretchers chairs
- Mobile and ceiling lifts
- Seated positioning systems
- Equipment management/ambulation devices





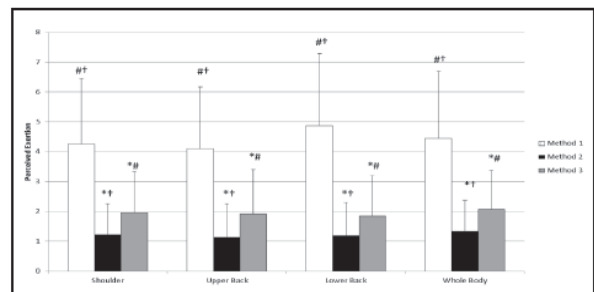
## Current seating positioning challenges



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## Repositioning patients in chairs: an improved method (SPS)

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



**Method 1:** 2 caregivers 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

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# Ambulation Assist Devices



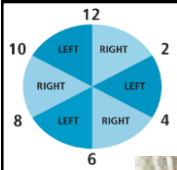
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A group of colorful 3D human figures in various colors (purple, blue, orange, green, red, yellow). Some figures are standing upright, while others are falling over or are already on the ground. This visual metaphor represents the quote about being on the right track but getting run over.

“Even if you are on the right track, you will get run over if you just sit there.”

Will Rogers

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# Practicing Safely: Patient Mobilization and Care Giver Safety



**Thank you!**

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