Thoughts About Safe Patient Handling

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What is Safe Patient Handling?

- Reducing Risk to the Caregiver
- Reducing Risk to the Patient
- Facilitating Mobility for the Patient
Safe Patient Handling Involves Facilitating Progressive Mobility
What is Progressive Mobility?

The term progressive mobility is defined as a series of planned movements in a sequential manner beginning at a patient’s current mobility status with a goal of returning to his/her baseline (©Advancing Nursing LLC).
Short-Term Adverse Outcomes From Immobility

- Ventilator-associated pneumonia
- Hospital-acquired pneumonia
- Delayed weaning off of mechanical ventilation due to muscle weakness
- Development of pressure ulcers
Major Long-Term Complication From Immobility

• Diminished quality of life after discharge due to the physical deconditioning that takes place during the patient’s stay in the intensive care unit (ICU).
Positioning and Mobility Techniques

- Elevation of the head of the bed
- Manual turning
- Passive and active range-of-motion exercises
- Continuous lateral rotation therapy
- Prone positioning
- Movement against gravity
- Bed egress
- Chair position
- Ambulation
Assisting Patients With Positioning Puts Caregivers at Risk
Traditional Manual Patient Repositioning Techniques

- Highest occupational risk task determined in biomechanics laboratory study (Marras 1999)

- Even with draw sheets and sliding sheets peak low back compression exceeded NIOSH action level of 3400 newtons in 25% OF 418 trials (Skotte &Fallentin 2008)
Nursing Injury Studies

- Lifting Patient Up in Bed
  - 48% Injury Rate
    (Harber 1985)
  - 29% Injury Rate
    (Vasiliadou 1995)

Both number one on list in studies
Frequency Demands

- Forty Percent of Critical Care Unit Caregivers Performed Repositioning Tasks More Than Six Times Per Shift (Harber et al)

- Highest Frequency Physically Demanding Task Reported (Vasiliadou et al)
Other Studies

- 50% of nurses required to do repositioning suffered back pain (Smedley 1995)

- High Physical Demand Task
  - 31.3% up in bed or side to side
  - 37.7% transfers in bed (Knibbe 1996)
Seven Hospital, Two-Year Study

- Number one injury causation activity: Repositioning Patients in bed (Fragala 2003)
Solution Strategies

- Eliminate the need to perform the high risk activity.
- Redesign the task to eliminate components of the high risk task.
- Minimize the frequency of the high risk task.
- Make Optimum Use of Equipment Features to Facilitate
- Reduce risk through application of an aiding device.
Solving Problems With The Ergonomic Approach

1. Identify jobs and job tasks which stress body parts beyond limits.

2. Develop solutions to change these task demands.

3. Implement these changes in the work place.
Does Ergonomics Make Sense for Healthcare?

Direction for the Future
Reducing Risk for Bed Positioning

- Seeking Solutions
- Input from Caregivers
- Minimize Impact of Risk Factors
Minimizing Impact of Risk Factors

- Force
- Repetition
- Posture
Investigating the Turn and Position System Solution
Staff Benefits

• Reduces force to turn and boost patients.
• Keeps patient positioned reducing frequency
• Allows better posture for caregiver
• Requires fewer nurses and less time to turn.
• Decreases strain on staff’s backs, wrists and shoulders.
• Helps staff more easily follow best practice prevention guidelines.
WORK REDUCTION

The diagram compares the work to turn and position (in-lb) between Standard Draw Sheet & Pillows and Prevalon® Turn and Position System. It indicates a 71% less effort with the Prevalon® system.
CONCLUSION

• It takes **71% LESS** effort to turn and position patients using TAP vs. draw sheets & pillows
Patient Benefits

• Helps prevent sacral pressure ulcers by offloading the sacrum.

• Manages moisture due to incontinence, creates an optimal microclimate for the skin.

• Helps minimize friction and shear.

• Keeps patient positioned at the appropriate angle.
TAP Clinical Case Study

Molly Persby - Presented at the 2012 ALTHA Conference (Dallas, TX)

**BACKGROUND**

Safe patient handling and appropriate repositioning can help enhance patient safety by preventing hospital acquired pressure ulcers (HAPU) and preventing caregivers' injuries. If:

- It is estimated over 1 million patients develop HAPU each year, which are associated with increased mortality, morbidity, decreased patient quality of life, and increased costs.
- Nursing is reported in the top 10 professions each year that experience injuries. In 2009, nurses, aides, attendants, and orderlies reported a total of 28,160 musculoskeletal disorders such as low back pain, rotator cuff injuries, and Achilles tendon.

With national campaigns focused on the importance of improving the health of the population, enhancing patient care experiences, increasing quality, access, and reliability, and reducing the per capita cost of care, it is time for healthcare improvement, health care organizations are implementing interventions to help improve both patient and caregiver safety.

**OBJECTIVE**

Our health care organization recognizes that effective HAPU prevention requires evidence-based nursing and adherence with prevention guidelines. Two HAPU guideline references, and the need to ensure compliance with evidence-based prevention such as frequent repositioning (Fryatt et al, 2012 reference). A multi-hospital quality improvement initiative combined HAPU prevention with a focus on wound care, utilizing an assistive device for turning and repositioning patients.

**METHODS**

**Clinical setting:** Three hospitals within the Select Medical system were included in the multi-hospital quality improvement initiative: Select Jackson, Lexington, and Madison.

**Intervention periods:** The three hospitals utilized the assistive patient repositioning device across different time periods during 2011.
- Select Jackson 03/04/11-11/11/11
- Lexington 07/13/11-11/07/11
- Madison 06/20/11-10/31/11

**Intervention:** Patients with an anticipated length of stay >5 days, risk-stratified on a 5 scale and repositioning device designed to offload the sacrum, manage pressure, reduce friction and shear, and decrease the effort required to repose patients within the bed.

**Matrix:** The effectiveness of the intervention was measured by comparing “before” and “after” average HAPU per 1,000 patient days and the number of repositioning-related patient injuries “before” and “after” each intervention period. Economic metrics were calculated through an internal, data-driven review of costs.

**RESULTS**

*Figure 1: Before and After Average HAPU*

- **Before**: 0.78
- **After**: 0.48
- **Select Jackson** decreased avg HAPU
- **Select Lexington** decreased avg HAPU
- **Select Madison** decreased avg HAPU

*Figure 2: Overall Employee Injury Claims Before and After Intervention*

- **Before**: 2.73
- **After**: 0.68

**CONCLUSION**

A unique system for turning and repositioning of patients combined with the use of a specific mobility and pressure reduction protocols may help in preventing the incidence of hospital-acquired ulcers and employee injuries.

**REFERENCES:**

Persby 2012:

- **Objective:**
  - Determine the effect of TAP on the incidence of sacral pressure ulcers
  - Determine the effect of TAP on the rate of HCW injuries

- **Data Collection**
  - Examined 3 LTAC facilities for various lengths of time
  - Gathered over 14,000 patients days worth of data

- **Results**
  - 79.6% reduction in the incidence of sacral pressure ulcers
  - 88.5% reduction in employee injury claims
Why Chair Repositioning Puts Caregivers at Risk

- Patient weight exceeds safe lifting limits
- Caregiver must assume awkward postures to pull the patient back up in the chair
- Forces on the musculoskeletal structure of caregivers beyond what the body can tolerate
- Strain and sprain type injuries can result
- To date good solutions not available
Investigating the SPS Solution
Building An Evidence Base

- Research study conducted to evaluate caregiver exertion for three different methods for chair repositioning

- Hypothesized that task of repositioning a slouching healthcare patient in a chair will require less perceived physical exertion using the SPS device which reduces risk.
Measuring Exertion

- Validated Borg Scale for Perceived Exertion
- 10-point scale
- 0=no exertion
- 10=extremely hard exertion
- Researchers found no differences using the Borg scale compared to using more complicated, time consuming, and labor intensive biomechanical model methods.
Promising Results

• Application of the Seated Positioning System (SPS) device significantly reduced exertion reported by caregivers while repositioning a slouching patient in a chair.

• Method 1, which was a traditional method performed by two caregivers, required overall, 246% more exertion than Method 2, which was the new SPS method performed by two caregivers.
Perceived exertion of repositioning using three methods of repositioning.
Reducing Risk

- Applying the SPS, risk is reduced for each of the primary ergonomic risk factors of force, repetition and posture.
- Force required to move the patient is reduced by the friction reducing properties of the SPS surfaces.
- Frequency is reduced since one way slide design of the SPS maintains proper postures for patient.
- Caregiver posture is optimized with lifting eliminated and reaching minimized.
Conclusions

- Research study indicates that through application of the SPS device the high occupational risk activity of repositioning a slouching patient in a chair can be made safer for the caregiver.
- Caregivers reported much less physical exertion was required to perform the repositioning task when using the SPS device.
- Less physical exertion means less exposure to risk of injury.
Considering Lifting Limits

- What is a safe weight to lift?
- Better to consider what is unsafe to lift?
- Because of the many variables involved it is difficult to have prescriptive limits.
- If we determine an unsafe condition, implement solution to reduce risk
- Understand that lifting limits differ from push/pull limits
Thank You