Enhancing Patient Safety and Outcomes: The Safe Patient Handling Connection

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Objectives

- Define the current evidence base that supports that safe patient handling (SPH) practices can enhance patient safety, satisfaction and clinical outcomes.

- Define at least 2 safe patient handling practices that prevent skin breakdown and tears and patient falls during mobilization and transfer tasks.

- Identify how to capture patient safety data as related to the impact of a SPH program.
Safety in Health Care

- **DHSS & AHRQ 2010-2013**
  - Some progress has been made to build a foundation to address patient safety - Hospital-acquired conditions declined by 17 percent over a three-year period 2010 to 2013. (HHS, 2014)

- **NIOSH & BLS 2010-2013**
  - Healthcare work force injuries are 30x greater than other industries
  - Nursing aides have highest rate of work related musculoskeletal injuries (MSDs) in the US – 6 x higher than the average for all occupations
  - 80% of RNs reported working despite experiencing frequent musculoskeletal pain
  - Numbers likely underreported by as much as 50%
Effective Safe Patient Handling (SPH) Programs

(NIOSH, 1997; OSHA 1991 & 2003; VAH 2014)

Culture (Behavior) Change & Program Sustainability

- Management Commitment (visible program champion)
- Employee Involvement (inc. labor)
- A Business Plan (strategic & tactical)
- Program Management (program facilitator)
- Worksite Analysis
- Hazard Prevention & Control (equipment & safe work practices)
- Education & Training
- Disability Management (‘After Action’ review)

Multifaceted programs are more effective than any single intervention
Safety in Health Care

- Work Environment and Culture
  - Organizational Culture
    - Patient Safety focus vs. employee safety
  - Employee Culture
    - Patient first - Getting hurt at work is just part of the job – work around behavior
Competing Demands in Health Care

- Health Care reform
- Patient Safety
- Reimbursement
- Readmission rates
- Primary medical home
- Changing patient population
- Staffing
- Workplace stress & violence
- Shift work & overtime; fatigue
- Aging workforce
- Lean, Six Sigma & other QI processes
- Indigent care
- Accreditation & CMS requirements
- Electronic charting/EMR
- New technology
- Other regulatory requirements (Fed, State, etc.)
- Provider taxes
- Increasing competition for customer segments (mergers and acquisitions)
- Emergency preparedness
- Infection control
- Green Design
- Liability and malpractice
- Culture & norms of professional & patient groups
“Workforce safety is inextricably linked to patient safety. Unless caregivers are given the protection, respect, and support they need, they are more likely to make errors, fail to follow safe practices and not work well in teams.”

Through the Eyes of the Workforce: Creating Joy, Meaning, and Safer Health Care. The Lucian Leape Institute at the National Patient Safety Foundation Feb 2013
SPH and Patient Safety

- **What should we measure?**
  - Non reimbursed hospital (health care) acquired conditions
  - Impact on readmission rates
  - Patient satisfaction

- **What can we measure and the evidence base?**
  - Missed nursing care
  - Skin care and pressure ulcer prevention
  - Falls prevention & early mobilization
  - Patient safety and SPH – other evidence based outcomes
Overall there is very little published research on the link between SPH and Patient outcomes

Data collection and study design challenges:

- Resources (staff, time, financial etc.)
- Multiple interventions are implemented at one time
Missed Nursing Care – Errors of Omission

Definition: Any aspect of required patient care that is omitted (either in part or in whole) or delayed by nursing staff.


- Ambulation
- Turning
- Patient Surveillance
- Delayed or missed feedings
- Patient education
- Discharge planning
- Emotional support
- Hygiene
- Input and output documentation
- Patient Surveillance

This is a world wide phenomenon in nursing
Consequences of Missed Nursing Care

- Consequence of failure to ambulate:
  - New-onset pneumonia e.g., ventilator acquired pneumonias
  - New-onset delirium
  - Increase length of stay/delayed discharge
  - Readmission
  - Increase pain and discomfort
  - Decline in performance of activities of daily living
  - Death

- Failure reposition and turn patients: increased risk of pressure ulcers

- Missed care or rationing of care associated with higher likelihood of patient death

- In hospitals with higher nurse work environment quality ratings there is a significantly lower likelihood of dying

Schubert et al. 2012
Missed Nursing Care

Why does it occur?

- Labor resources available to provide patient care
- Time to complete task
- Material resources accessible to assist in patient care activities
- Communication and various relationship factors that have an impact on nurses’ ability to provide care.

Kalisch et. al. 2009

Can SPH assist to reduce the rate of missed nursing care?
A pressure ulcer is a localized injury to the skin or underlying tissue, usually over a bony prominence (sacrum, heel, head scapula), as a result of unrelieved pressure.

Primary Risk Factors that increase Pressure Ulcer Development:

- Friction e.g., frequent use of heels to push self up in bed; manual boost up in bed
- Shear e.g. sitting in and sliding down a chair; manual boost up in bed
- Interface pressure e.g. uneven pressure over sacrum
- Impaired sensory perception e.g. diabetes
- Excessive moisture (urine feces; sweat high temp leakage from wounds edema limbs)
- Decreased activity
- Immobility
- Poor nutrition

Bluestein, 2008; Gerhert, E. et al.: , 2012
SPH and Pressure Ulcer Prevention

Cost:

- **For the Patient**
  - Death
  - Pain and reduced quality of life
  - Increased length of stay
  - Higher re-admittance rate (within 30 days of discharge)

- **For the Health care Organization**
  - Increased liability and loss of reimbursement (CMS never event)

Pressure Ulcers:

- CMS 2007—Average cost per case (stage III & IV ulcers) was more than $40,000 per hospital stay

Lyder 2012

Jorgensen, 2011
Prevention of Pressure Ulcers

- Multifaceted and variable by facility
- Evaluation/Risk Assessment (Braden Scale)
- Prevention/Management/Treatment - Common themes
  - Support surfaces that redistribute or alternate pressure
  - Limit linens
  - Turning patients at least every 2 hours
  - Utilizing turn-assist features of the bed
  - Head of the bed at the lowest possible position.

- Lateral rotation beds don't negate need for reposition and turning of patient
- May need to turn more on a non pressure redistributing mattresses

Lyder, 2008

Jackson, 2011
The National Pressure Ulcer Advisory Panel (NPAUP) and European PUAP

‘Use lift sheets or lift equipment to reposition or transfer patients to avoid pulling or dragging, which can cause friction injuries’
Opportunities to Prevent and Manage Pressure Ulcers Using SPH

- Promote repositioning of patient - if sling or device can stay under patient
- Patient comfort – reduce # of turns to apply sling
- Using equipment to access skin for assessment, wound care and hygiene etc..
  - E.g. ceiling lifts with repositioning sling
  - Limb and pannus slings
  - Sit to stand assist
- Application to Bariatric patients
Perceived Barriers to Leaving Slings Under a Patient

- Too many layers under patient – so hinders affect of pressure redistribution surface and/or air flow mattress, etc..
- Moisture related skin damage
- Staff resistance to change
- Patient comfort
Leaving Slings Under Patients: What’s the Evidence Base?

Christiana Care Health Care System, Delaware


Study 2007-2009: To determine if the practice of having a repositioning sling as part of the bed linen increases skin pressure, pH, and temperature - variables related to skin breakdown

180 volunteer subjects –randomized to 1 of 4 groups
Leaving Slings Under Patients: What’s the Evidence Base?

Groups:

1. Supine with flat turning sling
2. Head of Bed raised 30 degrees with 10 degrees leg elevation with sling
3. Supine no sling
4. Head of Bed raised 30 degrees with 10 degrees leg elevation no sling

Measured pressure, temperature on abdomen and sacrum and pH of skin at 1 and 20 minutes

- No statistical significance was found with skin temperature, pH and sacral pressure with or without sling
Leaving Slings Under Patients: What’s the Evidence Base?

The Impact of Hoist Sling Fabrics on Gluteal Interface Pressure while Sitting in Healthy Individuals: A Controlled Pre-post Test Study.

Mellson, 2012.

- 3 common types of hoist sling fabrics on gluteal interface pressure while sitting in healthy individuals

- Mean pressure at the ischial tuberosities was not increased and concluded that prolonged sitting on a sling may not increase pressure ulcer risk but further research should be conducted with people with restricted mobility
Leaving Slings Under Patients: What’s the Evidence Base?

- Alpha Modalities LLC, pressure mapping study of a turning repositioning sling performed by independent third party testing company in 2010.

No statistically significant differences were detected between interface pressure plots when placing the repositioning sling between study participants and either a non-powered foam mattress or a 20-cell air mattress (in static mode).
Leaving Slings Under Patients: What do the Experts Say?


- The decision regarding placement/removal of SPHM equipment between uses must balance the putative risk (decreased efficacy of a therapeutic support surface) and potential benefit (easier repositioning increasing frequency and/or efficacy) on pressure ulcer prevention. Without evidence regarding the effect of slings upon support surface performance, the clinical recommendation is based on expert opinion to be found within the Guidelines combined with clinical assessment and an individualized plan of care by the team of health care professionals at the bedside.
SPH and Fall Prevention

- Falls are the most frequently reported incident in adult inpatient units

- Rate of falls ranges from 1.7 to 25 falls per 1,000 patient days

- Geriatric psychiatry patients have the highest risk

- 30 to 51% of falls in hospitals result in some injury

- Falls are due to an interaction of multiple intrinsic and extrinsic risk factors

AHRQ, 2013
SPH and Fall Prevention

- **Cost:**
  - **For the Patient**
    - Injury/death; Increased length of stay
    - Higher rates of discharge to nursing homes, and loss of independence
  - **For the Health care Organization**
    - Increased liability and loss of reimbursement (CMS never event)

- Annual acute-care costs related to falls are estimated at $1.08 billion; Long-term care costs, at $4.9 billion

- By 2020, the annual direct and indirect cost of fall injuries is expected to reach $54.9 billion.  
  
  Jorgensen, 2011
Patient Falls - When do they occur?

- A majority (80%) of falls are unassisted and occur in the patient room during evening/over night
- Patient is trying to get to the toilet
- About 20% during ambulation
- Little data about falls during vertical transfers

*Hitcho, E.B., 2004*
Fall Prevention Programs

- Approximately 78 percent of the falls related to anticipated physiologic events can be identified early, and safety measures can be applied to prevent the fall. AHRQ, 2013

- Multifaceted, interdisciplinary program approach - similar to Safe Patient Handling Programs

- No one approach or system is best – all include (& vary by healthcare facility):
  - Medical assessment
  - Medication review and management
  - Environmental assessment
  - Education
  - Exercise and Safety
  - Communication
Fall Prevention Programs

Challenges:

- Incomplete or incorrect use of the Risk Assessment Tool
- Inconsistent hand-off communication between shifts and units on fall events
- Lack of recognition by staff of patient medications which could contribute to fall risk

- Lower/inadequate staffing levels are associated with higher rate of patient falls
  - Missed nursing care mediates the relationship between staffing levels and patient falls.

Gurican, 2008

Kalisch et. al., 2012
Opportunities to Prevent Falls Using SPH

In the 2013 Agency for Health Care Research and Quality's (AHRQ) *Preventing Falls in Hospitals Toolkit*,

Safe patient handling is considered “a critical element of universal falls precaution and especially important for patients who require assistance with transfers”.

Recommend use of clinical pathways that is, the VA SPH algorithms.
Opportunities to Prevent Falls Using SPH

Intermountain Healthcare Salt Lake City, UT

- After one year of SPH program implementation (2008–2009)
  - Employee injury rates were reduced by 42% and
  - Patient falls related to transfer were reduced by 45%.

- By year-end 2010:
  - 41% reduction in employee injuries compared to pre system rates and a
  - 49% reduction in patient falls related to lift and transfer activities.

- The estimated cost savings for employee injuries system wide is $500,000 per year across the hospitals.

- There was also a 15% increase in positive responses to the statement, “In my department, we have enough time and resources to safely care for our patients” on the annual employee opinion survey from 2008 to 2009 survey results.

Joint Commission, 2012
Opportunities to Prevent Falls Using SPH

- **During Vertical Transfer**
  - Bed to/from chair or commode
  - Wheelchair to/from vehicle
  - Wheelchair to/from exam tables

- **Ambulation (including post toileting)**

Using a well defined SPH assessment and mobility (level of assist) check tool and choice of appropriate equipment and slings.
Key to Effective Use of SPH in Fall Prevention Programs

Patient assessment and communication

- SPH assessment (SPHM algorithms) integrated with Falls assessment
  - On admission
  - During shift
  - Prior to patient mobility task

- Staff communication
  - Patient chart (SPH & Falls Assessment)
  - Patient white board
  - Other e.g. ticket to ride
Challenges to Effective Use of SPH in Fall Prevention Programs

Patient fall risk assessment and communication tools

- No common language and order set variability creates confusion
  - Therapy - Min; Mod; Max assist
  - SPH programs - Dependent; Semi Dependent; Supervised; Independent - SPH
  - Physicians - Out of bed with assist; bathroom privileges with assist; up ad lib

- Reliance on Therapy assessment of patient abilities or notes in patient chart - 1 or 2 hours previously
Challenges to Effective Use of SPH in Falls Prevention

- Falls prevention tools such as the ‘Get up and Go’ or ‘Timed Up and Go (TUG)’ test do not adequately patients weight bearing capabilities before having them stand and walk

- Not enough time to complete assessment and documentation

- Perception that ‘every moment is a rehab moment’ or that SPH equipment will impair patient’s ability for rehabilitation, etc.
Key to Effective Use of SPH in Fall Prevention Programs

Patient assessment and communication

Must be:

- Effective, **usable/functional** and concise e.g., well defined dependency levels (e.g., Dependent, Semi-Dependent, Supervised, Independent)

- Developed or customized by nursing, therapy and physicians (as applicable)

- Standardized facility wide
Patient assessment and communication

Examples:

- VAH Assessment Criteria and Care Plan for Safe Patient Handling and Movement (Algorithms)
  http://www.tampavaref.org/safe-patient-handling.htm

- Banner Mobility Assessment Tool for Nurses
  (Boynton, et. al., 2014)

- SPH Mobility Check – Enos, 2008-2015
Patient Mobility Check
For use when transferring a patient to and from a bed to chair, chair to toilet, chair to chair, or vehicle to chair

Does Patient consistently follow simple directions or is non-combative?

No

Patient is Dependent
Use Ceiling Lift or Floor Lift with correct Sling Type and Size* and a Minimum of 2 Caregivers**

Yes

Nurse or caregiver is required to lift no more than 35 lbs of a patient’s weight.

No

Patient is Semi-Dependent
Use a Sit to Stand Device or Walking Vest with Ceiling or Floor Lift (with correct sling type and size) or Stand-and-Pivot technique using a Gait/Transfer Belt if equipment is not accessible.

If Yes to 1,2,3, & 4 above

No

Patient is Supervised
Use Appropriate Assistive Device e.g. walker and gait belt with handles (Follow therapy protocols if applicable)

Yes

Can stand and perform mini march step with good balance with stand-by touch

No

Patient is Independent
Stand-by for safety as needed

Yes

Can step forward & back with balance & strength to maintain body weight requiring no more than stand-by assist, verbal cueing, or coaxing

No

The Nurse has assessed the:
1. Patient’s behavior
2. Cognitive function
3. Physical ability
4. Clinical constraints before a Patient Mobility Task is performed

Encourage the patient to assist (if clinically allowed) during the task using positioning aid or cues from the caregiver

Developed by therapist & nurses from 6 hospitals in Oregon.

Based on ‘Egress’ test used by therapists (Dionne, 2004)

Reviewed by the Oregon State Board of Nursing (OSBN) for use by CNAs

Customized by hospitals

Used in context of comprehensive SPH program

How to Guide to be published this year

Adapted from Dionne, 2004, VHA, 2008; Enos, 2013
Key to Effective Use of SPH in Fall Prevention Programs

Patient assessment and communication

- Using staff designed white boards to improve ‘Real Time’ communication

Communicating Patient Mobilization Status & Equipment Needs

Patient White Board for Within Shift Communication

Level of Dependency: D  SD  S  I

EQUIPMENT
- Ceiling/Floor lift
- Hovermatt
- Sit to Stand
- Walker/Gait Belt

SLING TYPE
- FLAT TURNING
- SEATED
- LIMB
- OTHER:

Safe Mobilization Environment
Key to Effective Use of SPH in Fall Prevention Programs

Buy-in and visible support from rehabilitation staff

- Physical Therapists - 30%-80% annual prevalence of musculoskeletal injury

- Barriers to use of SPH equipment

- Evidence Base to support use of SPH equipment by therapists:
  - Functional independence measure (FIM) ratings remained the same or improved when using SPH equipment. Arnold et. al., 2011; Mcilvane et. al., 2011; Campo M, et. al., 2013
  - SPH equipment has therapeutic applications in rehabilitation, especially for medically complex or bariatric patients. Darragh, et. al 2011; Rockefeller, K., 2008
SPH and Early Mobilization

- **Early mobility definition:**
  Planned movement in a sequential manner beginning at a patient’s current mobility status and returning them to baseline
  
  (Vollman KM, 2010)

- **Importance of Early Mobility** - Fewer cases of:
  - Ventilator associated pneumonia
  - Pressure ulcers
  - Delirium and shorter durations of delirium
  - Shorter length of stay in the ICU and the hospital
  - Fewer unplanned readmissions
  - Decreased mortality
SPH and Early Mobilization

- Role and benefit of SPH in early mobilization
  - Little published research
  - Lack of overhead lifts is a barrier to early mobilization
    Bassett et al, 2012
Effective use of SPH in Fall Prevention & Early Ambulation

SPH equipment or assistive device (and sling) & mobility continuum

Dependent       Semi-Dependent       Supervised       Independent
(Passive)         Cueing & Training        (Active)

Lifts & Friction
Stand Assist Aids
Gait/Ambulation
Walker/Crutches/Cane
No Device/Assist Aid/Fall Arrest Systems

Reducing Devices
Patient Safety and SPH – Other Evidence Based Outcomes

Improved quality of patient care

- Decrease in combativeness with use of lifting equipment (Collins et. al, 2006)

- Patients report feeling more comfortable and secure (Wen, B. D., 2000, Wicker, P., 2000)

- Increase in physical functioning and activity level, lower levels of depression, improved urinary continence, lower fall risk, and higher levels of alertness during the day. (Nelson et al 2008)
Patient Safety and SPH – Other Evidence Based Outcomes

- Positive impact on patient satisfaction

Patient satisfaction surveys at Good Shepherd HCS, Hermiston, OR
  - Conducted Jan 08-Jan 09 inclusive at discharge (SPHM program implementation Aug 1, 08)

1. Were you lifted/moved with equipment?
2. Did you feel safe
3. Did you feel comfortable?

98% of patients who were lifted/moved with equipment reported it felt safe and comfortable.
Patient Safety and SPH

Safe Use of SPH Equipment & Slings

- Factors that contribute to misuse of SPH equipment & slings
  - Lack of maintenance programs for equipment and slings
  - Inadequate user training
  - Omitted or incorrect patient assessment
  - Patient cooperation

Elnitsky et. al. 2014; AASPHM, 2015
Patient Safety and SPH

Safe Use of SPH Equipment & Slings


- Go to [www.aasphm.org](http://www.aasphm.org) to review and download the Guidelines. After reviewing the Guidelines, please go to [https://www.surveymonkey.com/r/sling](https://www.surveymonkey.com/r/sling) and provide your feedback.
Benefits of a SPH Program (Operational Gains)

...for Employees & Patients
(Reduced Risk of Falls; Pressure Ulcers & Pain etc.; Improved Mobility & Dignity)

Health Safety Comfort Satisfaction

Well-being of Employees & Patients

Less absenteeism and labor turnover. More involvement and commitment to change.

..for Health Care Organizations

Improved Quality Performance Efficiency Flexibility
Recruitment (Larger Labor Pool) & Retention
Reg. Compliance
Reduced WC Injury Costs & Liability

Well-being of organization

Adapted from: Corlett, 1995; Nelson 2008; Gallagher, 2009.