Enhancing Patient Safety and Outcomes: The Safe Patient Handling Connection
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Safe Patient Handling and Patient Safety: What Do We Know?

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Objectives

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

2. Describe safe patient handling practices that prevent skin breakdown and tears

3. Identify at least 2 safe patient handling interventions that can prevent patient falls during mobilization and transfer tasks

4. Define how to capture patient safety related data as related to the impact of a SPH program

Equipment brand names, manufacturers or vendors seen in this presentation do not constitute endorsement of the device, equipment, product or service by the presenters or their employers.
Safety in Health Care Session Outline

- Health Care Safety, Work Environment and Culture
- SPH and Patient Safety – What can we measure and the evidence base?
  - Missed nursing care
  - Skin care and pressure ulcer prevention
  - Falls prevention
  - Patient safety and SPH – Other evidence based outcomes

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
Current and Future Competing Demands and Trends in Health Care

- 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
- New technology
- Electronic charting/EMR
- Other regulatory requirements (Fed, State, etc.)
- Health Care reform
- Provider taxes
- Emergency preparedness
- Infection control
- Green Design
- Liability and malpractice
- Culture & norms of professional & patient groups
- Increasing competition for customer segments (mergers and acquisitions)

Creating a Culture of Safety in Health Care

“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
Can Patient and Health Care Worker Safety be Improved & Integrated?

- Yes, if health care orgs can shift to a culture that is
  - Just
  - Open
  - Promotes Reporting
  - Encourages Learning &
  - Stays Informed?

= High Reliability Organization

What is the Role of SPH in a HRO?

Safe Patient Handling and Patient Safety: What A - We Know?

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.

**What's being missed?** (Kalisch et. Al 2012; Wegmanm, 2011)

- #1 Ambulation missed
- Turning (Over 500 lbs not moved – Gallagher 2009)
- 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?**

**SPH and Pressure Ulcer Prevention**

- 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:
  - Interface pressure e.g. uneven pressure over sacrum
  - Friction e.g., frequent use heels to push self up in bed
  - Shear e.g. sitting in and sliding down a chair
  - 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)
    - Lyder 2012
  - **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
    - 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.
    - Lyder, 2008

- Lateral rotation beds don't negate need for reposition and turning of patient
- May need to turn more on a non pressure redistributing mattresses
  - Jackson, 2011
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
- Other?

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
- Other?
Leaving Slings Under Patients
What’s the Evidence Base?

Christiana Care Health Care System, Delaware

- Edupuganti, K and Price, C Repositioning slings: the effects on skin pressure, pH and temperature. Am journal SPHM vol 3(2) p48-54.

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

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).
What About Leaving Air Assist Devices Under Patients?

Biomechanical Evaluation of Pressure Distribution during Extended Use of HoverMatt™ Technology, 2010

John D. Lloyd, Ph.D., CPE, CBIS, Board Certified Ergonomics Consultant

- Quantify the pressure distributions created at the patient/mattress and with patient/HoverMatt® interface for a variety of institutional mattresses over an 8 hour period
- Results: Utilization of either the standard HoverMatt or the disposable HoverMatt did not cause increased pressure at the patient/matt interface
- Available at www.hcergo.org/equipment guide and resources

Leaving Repositioning Devices Under Patients

What’s the Evidence Base?


- Clients without pressure ulcers at the start of the trial did not develop them and the incidence of pressure ulcers of all grades was reduced
- The number of carers required for moving and handling procedures
- A projected saving ranging from 33-45% in terms of patient care costs was indicated for the effective use of an approved and flexible “in-bed” system.
- Note: Cost of frequently changing the ‘in bed system’ when used with incontinent patients was not noted nor was specific biomechanical injury reducing properties of the device
SPH and Falls 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

AHRQ, 2013

SPH and Falls 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.
Cause of Falls

Interaction of multiple risk factors

- **Intrinsic e.g.**
  - Advanced age
  - History of falls
  - Mobility problems
  - Mental Status
  - Poor vision
  - Medical conditions: postural hypotension, diabetes, arthritis, Parkinsons, foot issues etc..
  - Continence
  - Fear of falling

- **Extrinsic e.g.**
  - Lack of handrails, grab rails in toilets etc.
  - Floor surface—slippery, uneven
  - Obstacles, tripping hazards
  - Lighting
  - Medications
  - Attached to medical devices etc., IV poles, improper use of assistive device

Categories of Falls

- Accidental falls (extrinsic factors, such as environmental considerations)

- Anticipated physiologic falls (intrinsic physiologic factors, such as confusion & extrinsic e.g., medications), and

- Unanticipated physiologic falls (unexpected intrinsic events, such as stroke or seizure)

- 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.
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

*Eileen B Hitcho, 2004*

- Little data about falls during vertical transfers

Falls Prevention

- Multifaceted, interdisciplinary program approach - similar to Safe Patient Handling Programs
- No one approach or system is best – all include:
  - Medical assessment
  - Medication review and management
  - Environmental assessment
  - Education
  - Exercise and Safety
  - Communication
- Vary by hospital
Falls Prevention

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
  
  Gurican, 2008

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

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 presystem 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.

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 (inc. post toileting)
- Fall recovery –lifting from the floor

Using well defined SPH assessment and mobility check tool and choice of appropriate equipment and slings
Key to Effective Use of SPH in Falls Prevention

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

Challenges

- 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
Key to Effective Use of SPH in Falls Prevention

Challenges

- 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
  - [http://www.mnfallsprevention.org/professional/assessmenttools.html](http://www.mnfallsprevention.org/professional/assessmenttools.html)

- Perception that ‘every moment is a rehab moment’ or that SPH equipment will impair patient’s ability for rehabilitation, etc.

- Not enough time to complete assessment and documentation

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
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:

8”x11” laminated sheet in each patient room or treatment area

Key to effective use of SPH in Falls prevention

- Appropriate equipment or assistive device (and sling)

Dependent  Semi-Dependent  Supervised  Independent

Lifts  Stand and Amputation Aid  Walker Crutches Cane  No device
Raising Aids
SPH and Fall Recovery

- Equipment to lift patient from floor
  - Ceiling hoists with flat or seated sling
  - Powered Floor Lifts
  - HoverJack™
  - ELK & CAMEL (LTC)

- Post fall huddles

Patient Room Design Variables Associated with Lower Incidence of Falls

- Private bathroom with door that can remain open
- Toilet located on side wall (related to grab bars)
- # and location of grab bars (2 either side or toilet)
- Rooms with designated family area
- Floor pattern (avoid medium size)
- Vinyl composition flooring vs. linoleum
- Reduce noise (alarms and paging)

Contribution of the Designed Environment to Fall Risk in Hospitals Calkins et. al., 2012, IDEAS Institute
Evidence Base for SPH, Rehabilitation and Early Mobilization

- Bassett et al, 2012
  Lack of overhead lifts is a barrier to early mobilization

- Arnold et. al., 2011; Mcilvane et. al., 2011; Campo M, et. al., 2013
  Functional independence measure (FIM) ratings remained the same or improved when using SPH equipment

- Darragh, et. al 2011
  SPH equipment has therapeutic applications in rehabilitation, especially for medically complex or bariatric patients

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

Improved quality of patient care

- Decrease in “unsafe” patient handling practices performed
  
  (Evanoff et al, 2003 Collins et. al, 2006)

- Abrasions associated with falls - Dallas Retirement Village, Dallas, OR 2011
  - 5/year 2006-2008 (average)
  - None reported since implementing program in Jan 2010 – June 2011

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.
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

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

Well-being of Employees & Patients

..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.

Find SPH Resources at www.hcergo.org
Patient Safety and SPH References & Resources

- Please refer to the ‘SPH and Patient Safety Resource’ document provided