Changing the Perceptions of a Culture of Safety for The Patient and the Caregiver

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Disclosures for Kathleen Vollman

- Consultant-Michigan Hospital Association Keystone Center
- Consultant/Faculty for CUSP for MVP—AHRQ funded national study
- Subject matter expert CAUTI, CLABSI, HAPU, Safety culture
- Consultant and speaker bureau for Sage Products LLC
- Consultant and speaker bureau for Hill-Rom Inc
- Consultant and speaker bureau for Eloquest Healthcare
Objectives

- Discuss transforming a culture that creates safety for the patient and staff while achieving evidence based outcomes
- Identify and discuss the Physiology of motion in critically ill patients
- Outline strategies to overcome the barrier of hemodynamic instability

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
Protect The Patient From Bad Things Happening on Your Watch

Implement Interventional Patient Hygiene

Interventional Patient Hygiene

- Hygiene…the science and practice of the establishment and maintenance of health
- Interventional Patient Hygiene….nursing action plan directly focused on fortifying the patients host defense through proactive use of evidence based hygiene care strategies

Incontinence Associated Dermatitis Prevention Program
Falls

• Safety is avoiding both short- and long-term harm to people resulting from unsafe acts and preventable adverse events.
• Current infrastructure “silos” safety programs, creating one for patients, another for workers, and yet another for others who may be at risk. (Quality department, Risk Management, Employee Health, SPH)
• The organizational culture, principles, methods, and tools for creating safety are the same, regardless of the population whose safety is the focus.
• A true culture of safety—and the organization leaders who create and sustain it—will not be considered legitimate and genuine if the culture excludes some groups within the organization.

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

Changing the Paradigm

- Culture of Safety in Health Care
  - Patient Safety
- Culture of Safety for Healthcare Workers
  - Healthcare Worker Safety
- Safety Culture for the Patient & the HCW
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

- Leadership
- Safe Patient Handling
- Prevention of Pressure Injuries
- Patient Progressive Mobility

Add ANA-
How Well Are We Doing?

REPOSITIONING /MOBILZATION OF THE PATIENT

PATIENT SKIN INJURY
CAREGIVER INJURY
Do We Even Achieve the Minimum Mobility Standard… “Q2 Hours..”? 

Body Position: Clinical Practice vs. Standard

- **Methodology**
  - 74 patients/566 total hours of observation
  - 3 tertiary hospitals
  - Change in body position recorded every 15 minutes
  - Average observation time 7.7 hours
  - Online MD survey

- **Results**
  - 49.3% of observed time no body position change
  - 2.7% had a q 2 hour body position change
  - 80-90% believed q 2 hour position change should occur but only 57% believed it happened in their ICU

Krishnagopalan S. Crit Care Med 2002;30:2588-2592
Positioning Prevalence

**Methodology**
- Prospectively recorded, 2 days, 40 ICU’s in the UK
- Analysis on 393 sets of observations
- Turn defined as supine position to a right or left side lying

**Results:**
- 5 patients prone at any time, 3.8% (day 1) & 5% (day 2) rotating beds
- Patients on back 46% of observation
- Left 28.4%
- Right 25%
- Head up 97.4%
- Average time between turns 4.85 hrs (3.3 SD)
- No significant association between time and age, wt, ht, resp dx, intubation, sedation score, day of wk, nurse/patient ratio, hospital

Goldhill DR et al. Anaesthesia 2008;63:509-515

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

Outcomes of Early Mobility Programs

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

Thomsen GE, et al. CCM 2008;36:1119-1124
Winkelma C et al, CCN,2010;30:36-60

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Hospital Acquired Skin Injury

- HAPU are the 4th leading preventable medical error in the United States
- 2.5 million patients are treated annually in Acute Care
- NDNQI data base: critical care: 7% med-surg: 1-3.3%
- Acute care: 0-12%, critical care: 3.3% to 53.4% (International Guidelines)
- Most severe pressure injury: sacrum (44.8%) or the heels (24.2%)
- 60,000 persons die from pressure injury complications each yr.
- National health care cost $11 billion annually

Reddy, M et al. JAMA, 2006; 296 (8): 974-84

Oh, My Aching Back!

- 8 out of 10 nurses work despite experiencing musculoskeletal pain
- 62% of nurses report concern regarding developing a disabling musculoskeletal injury
- 56% of nurses report musculoskeletal pain is made worse by their job
- Nursing assistants had the 2nd highest and RNs had the 6th highest number of musculoskeletal disorders in the U.S.

Number, Incidence Rate, & Median Days Away From Work for Occupational Injuries RN’s with Musculoskeletal Disorders in US, 2003 – 2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Ownership</th>
<th>Occupation</th>
<th>Total Cases</th>
<th>Incidence Rate*</th>
<th>Median Days Away From Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Private industry</td>
<td>RNs</td>
<td>8,760</td>
<td>51.6</td>
<td>8</td>
</tr>
<tr>
<td>2010</td>
<td>Private industry</td>
<td>RNs</td>
<td>9,260</td>
<td>53.7</td>
<td>6</td>
</tr>
<tr>
<td>2011</td>
<td>Private industry</td>
<td>RN’s</td>
<td>10,210</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2012</td>
<td>Private industry</td>
<td>RN’s</td>
<td>9,900</td>
<td>58.5</td>
<td>8</td>
</tr>
<tr>
<td>2013</td>
<td>Private Industry</td>
<td>RN</td>
<td>9,820</td>
<td>56.2</td>
<td>7</td>
</tr>
<tr>
<td>2014</td>
<td>Private Industry</td>
<td>RN</td>
<td>9,820</td>
<td>55.3</td>
<td>9</td>
</tr>
<tr>
<td>2014</td>
<td>Private Industry</td>
<td>NA</td>
<td>18,510</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Incidence rate per 10,000 FTE


Skin & Immobility Prevention Strategies

Skin Risk Factors
- Moisture
- Pressure
- Shear
- Friction

Care Giver Risk
- Repetitive motion, Lifting
- Repetitive motion, Lifting & Limb holding
- Repetitive motion, Dragging, patient weight

Clean & Protect
Reduce Pressure & Shear
In-bed & Out of Bed Mobility
The Goal: Patient & Caregiver Safety

Patient Progressive Mobility

Prevention of Pressure Injuries

Safe Patient Handling

Patient Progressive Mobility

Leadership
### Progressive Mobility Continuum

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>Activities</th>
<th>RASS &amp; up</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Passive ROM, Q 2 hr turning</td>
<td>-5 to -3</td>
<td>Clinical stability</td>
</tr>
<tr>
<td>II</td>
<td>Self or assisted Q 2 hr turning</td>
<td>-3 &amp; up</td>
<td>Upright sitting, increased strength and moves arm against gravity</td>
</tr>
<tr>
<td>III</td>
<td>Self or assisted Q 2 hr turning</td>
<td>0 &amp; up</td>
<td>Increased trunk strength, moves leg against gravity and readiness to weight bear</td>
</tr>
<tr>
<td>IV</td>
<td>Self or assisted Q 2 hr turning</td>
<td>0 &amp; up</td>
<td>Stands w/min to mod assist, able to march in place, weight bear and transfer to chair</td>
</tr>
<tr>
<td>V</td>
<td>Self or assisted Q 2 hr turning</td>
<td>0 &amp; up</td>
<td>Increase distance in ambulation &amp; ability to perform some ADLs</td>
</tr>
</tbody>
</table>

- **LEVEL I**: Includes complex, intubated, hemodynamically unstable and stable intubated patients; may include non-intubated
- **LEVEL II**: Includes intubated, non-intubated hemodynamically stable/stabilizing, no contraindications
- **LEVEL III**: RASS -5 to -3
- **LEVEL IV**: RASS -3 & up
- **LEVEL V**: RASS -1 & up

#### Early Physical and Occupational Therapy in Mechanically Ventilated Patients

- **Prospective randomized controlled trial from 2005-2007**
- **1161 screen, 104 patients mechanically ventilated < 72hrs, functionally independent at baseline met criteria**

#### Randomized to:
- early exercise of mobilization during periods of daily interruption of sedation (49 pts)
- daily interruption of sedation with therapy as ordered by the primary care team (55 pts)

#### Primary endpoint: number of patients returning to independent functional status at hospital discharge able to perform activities of daily living and walk (independently)

Early Physical and Occupational Therapy in Mechanically Ventilated Patients


- Safe
- Well tolerated
- ↓ duration of delirium
- ↑ VFD
- Functional independence at discharge
  59% protocol group vs. 35% in control arm
Protocol Driven Mobility Program: Impacting Neurological Outcomes

- Pre-post intervention study
- Large academic NICU
- 637 patients
  - 260 pre
  - 377 post
- Intervention: Early Progressive Mobility Protocol
  - Exclusion criteria
  - Readiness criteria
  - Started on admission
  - Encourage to use ICU bed features & lifts to assist
  - Protocol place at bedside

Multivariate analysis done to control for group differences:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Preintervention Mean ± SD</th>
<th>Postintervention Mean ± SD</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Physiology and Chronic Health Evaluation II score*</td>
<td>59.0 (3.64)</td>
<td>58.7 (2.54)</td>
<td>0.90</td>
</tr>
<tr>
<td>Length of stay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital, d (de)</td>
<td>15.16 (8.96)</td>
<td>10.21 (1.84)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Neurologic/ICU, d (de)</td>
<td>7.37 (6.00)</td>
<td>4.75 (0.94)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Psychological factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression, mean (de)</td>
<td>0.76 (0.22)</td>
<td>0.51 (0.22)</td>
<td>0.12</td>
</tr>
<tr>
<td>Anxiety, mean (de)</td>
<td>0.69 (0.21)</td>
<td>0.42 (0.21)</td>
<td>0.088</td>
</tr>
<tr>
<td>Hostility, mean (de)</td>
<td>0.38 (0.14)</td>
<td>0.27 (0.14)</td>
<td>0.31</td>
</tr>
<tr>
<td>Combined, mean (de)</td>
<td>1.80 (0.50)</td>
<td>1.21 (0.40)</td>
<td>0.11</td>
</tr>
<tr>
<td>Highest mobility achieved</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Level 3*</td>
<td>1.63 (1.6, 2.33)</td>
<td></td>
<td>0.005</td>
</tr>
<tr>
<td>&gt; Level 2*</td>
<td>1.92 (1.43, 2.58)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>&gt; Level 1*</td>
<td>1.78 (1.35, 2.41)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Mortality, 30 d</td>
<td>0.96 (0.58, 1.59)</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>Discharge hema</td>
<td>1.63 (1.03, 2.27)</td>
<td>0.033</td>
<td></td>
</tr>
<tr>
<td>Deep vein thrombosis</td>
<td>1.90 (1.00, 3.00)</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Deep vein thrombosis</td>
<td>1.73 (0.95, 3.15)</td>
<td>0.072</td>
<td></td>
</tr>
<tr>
<td>Deep vein thrombosis*</td>
<td>1.52 (0.83, 2.89)</td>
<td>0.18</td>
<td></td>
</tr>
</tbody>
</table>

Determining Readiness

- Perform Initial mobility screen w/in 8 hours of ICU admission & daily
  - PaO2/FiO2 > 250
  - Peep < 10
  - O2 Sat > 90%
  - RR 10-30
  - No new onset cardiac arrhythmias or ischemia
  - HR > 60 < 120
  - MAP > 55 < 140
  - SBP > 90 < 180
  - No new or increasing vasopressor infusion
  - RASS > -3

Patient Stable, Start at Level II & progress

Patient is unstable, start at Level I & progress

Consensus on Safe Criteria for Active Mobilization

- Systematic review performed than 23 international experts gather to reach consensus

Consensus reach on all criteria. If no other contraindications; vasoactives, endotracheal tube, FIO2 < 60% with SaO2 90% & RR < 30/min were considered safe criteria

Hodgson CL., et. al Critical Care, 2014;18:658
Achieving In Bed and Out of Bed Mobility While Protecting the Patient and Caregiver

Skin & Immobility Prevention Strategies

<table>
<thead>
<tr>
<th>Skin Risk Factors</th>
<th>Care Giver Risk</th>
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<tbody>
<tr>
<td>Moisture</td>
<td>Clean &amp; Protect</td>
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<tr>
<td>Pressure</td>
<td>Repetitive motion, Lifting</td>
</tr>
<tr>
<td>Shear</td>
<td>Reduce Pressure &amp; Shear</td>
</tr>
<tr>
<td>Friction</td>
<td>Repetitive motion, Lifting &amp; Limb holding</td>
</tr>
<tr>
<td></td>
<td>In-bed &amp; Out of Bed Mobility</td>
</tr>
<tr>
<td></td>
<td>Repetitive motion, Dragging, patient weight</td>
</tr>
</tbody>
</table>
Building Resiliency Into Interventions

- Forcing Functions and Constraints
- Automation and Computerization
- Standardization and Protocols
- Checklist and Independent Check Systems
- Rules and Policies
- Education and Information
- Vague Warning – “Be More Careful!”

What are Ergonomic Risk Factors

- Duration of Exposure
- Force
- Posture
- Repetition
Oh, My Aching Back!

- 8 out of 10 nurses work despite experiencing musculoskeletal pain
- 62% of nurses report concern regarding developing a disabling musculoskeletal injury
- 56% of nurses report musculoskeletal pain is made worse by their job
- Nursing assistants had the 2nd highest and RNs had the 6th highest number of musculoskeletal disorders in the U.S.


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

- Maximum recommended weight limit set for patient lifting
  - 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)
- Safe Work Practices
  IT IS NOT SAFE TO MANUALLY MOVE PATIENTS

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 (ANA, n.d.)


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.

• **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.

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

EBP Recommendations to Achieve Offloading & Reduce Pressure (A)

• Turn & reposition every (2) hours (avoid positioning patients on a pressure injury)
  – 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 boney prominences
    • Between pillows and wedges, the wedge system was more effective in reducing pressure in the sacral area (healthy subjects) (Bush T, et al. WOCN, 2015;42(4):338-345)
  – Assess whether actual offloading has occurred
  – Use lifting device or other aids to reposition & make it easy to achieve the turn

EBP Recommendations to Reduce Shear & Friction

• 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


Prophylactic Dressings: Emerging Therapies

• Consider applying a polyurethane foam dressing to bony prominences in the areas frequently subjected to friction and share (B)
• Consider placement prior to prolonged procedures or continuous head elevation (B)
• Consider ease of application and removal and the ability to reassess the skin.
• Continue to use all of other preventative measures necessary when using prophylactic dressings (C)

**Systematic Review: Use of Prophylactic Dressing in Pressure Injury Prevention**

- 21 studies met the criteria for review
- 2 RCTs, 9 had a comparator arm, five cohort studies, 1 within-subject design where prophylactic dressings were applied to one trochanter with the other trochanter dressing free

<table>
<thead>
<tr>
<th>Study</th>
<th>Experimental</th>
<th>Control</th>
<th>Total Events</th>
<th>Total Weight</th>
<th>Risk Ratio</th>
<th>Risk Ratio 95% CI</th>
<th>Total Hedges T</th>
<th>Total</th>
<th>Total (Hedges T)</th>
<th>Total (Hedges T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calverly</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Huang</td>
<td>8</td>
<td>10</td>
<td>18</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ngwe 2000</td>
<td>6</td>
<td>8</td>
<td>14</td>
<td>70</td>
<td></td>
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</tr>
</tbody>
</table>


**Evaluated nasal bridge device injury prevention**
**Evaluated sacral pressure injury prevention**

**EBP Recommendations to Reduce Shear & Friction**

- 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
  - Breathable slide stay in bed glide sheet
  - Do not leave moving and handling equip underneath the patient

Achieving the Use of the Evidence For Pressure injury Reduction

Factors Impacting the ability to Achieve Quality Nursing Outcomes at the Point of Care

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

Comparative Study of Two Methods of Turning & Positioning

- Non randomized comparison design
- 59 neuro/trauma ICU mechanically ventilated patients
- Compared SOC: pillows/draw sheet vs turn and position system (breathable glide sheet/foam wedges/wick away pad)
- Measured PU incidence, turning effectiveness & nursing resources

<table>
<thead>
<tr>
<th>Demographic Comparison</th>
<th>SOC</th>
<th>PPS</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean time on product (range), d</td>
<td>7 (1-29)</td>
<td>7 (1-45)</td>
<td>1.00</td>
</tr>
<tr>
<td>Mean age (SD) (range), y</td>
<td>57.72 (18.45) (18-89)</td>
<td>57.73 (17.67) (23-92)</td>
<td>1.00</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>10</td>
<td>.43</td>
</tr>
<tr>
<td>Male</td>
<td>16</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Braden Scale score</td>
<td>12.77</td>
<td>13.23</td>
<td>.46</td>
</tr>
<tr>
<td>Mobility</td>
<td>0.1</td>
<td>0.1</td>
<td>1.00</td>
</tr>
<tr>
<td>BMI</td>
<td>29.62</td>
<td>30.97</td>
<td>.65</td>
</tr>
</tbody>
</table>

Comparative Study of Two Methods of Turning & Positioning

• Results:
  – Nurse satisfaction 87% versus 34%
  – 30° turn achieved versus -15.4 in SOC/7.12 degree difference at 1hr (p<.0001)

<table>
<thead>
<tr>
<th></th>
<th>SOC</th>
<th>PPS</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU development</td>
<td>6</td>
<td>1*</td>
<td>.04</td>
</tr>
<tr>
<td># of times patients pulled up in bed</td>
<td>3.28</td>
<td>2.58</td>
<td>.03</td>
</tr>
<tr>
<td># of staff required to turn patient</td>
<td>1.97</td>
<td>1.35</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

1* PU development with 24hrs of admission


Safe Patient Handling Initiative: Decreases Staff Musculoskeletal Injuries & Patient Pressure Injuries

Results

- 28%↓ savings $184,720
- 58%↓ savings $247,500

Way H. Presented at the 2014 Safe Patient Handling East Conference on March 27, 2014
Evidence Based Strategies for Safe Patient Handling

**OhioHealth**

The adoption of a new device for *turning, boosting and lateral transfer in critically ill patients*

**BACKGROUND**

In the past decade, ocorimously more harm has been placed on health-care and patient handling in acute care settings. As a result, falling rates have become more widely implemented in hospitals. While data support the use of these devices in both patient safety and patient fall prevention, studies have reported a lack of compliance among healthcare workers in using these devices in all patient handling. This can be entered in as a lack of safety adoption. Research has also reported that when health-care nurses were only partially equipped, turning the devices.

**METHODS**

The new patient positioning device was implemented in two acute care units with used and could be found in reducing falls and lateral transfers.

**RESULTS**

Staff were surveyed on the frequency of use while using the positioning device. The percent of falls was reduced by 92% (92%) and the percent of patient falls was reduced by 76% (76%). Overall, the use of patient positioning device was found to be effective in reducing falls and lateral transfers.

**CONCLUSIONS**

Critical care nurses are trained to implement patient positioning devices, but they are often not used in the correct manner. This lack of correct positioning devices is due to the high number of patient falls and the high rate of staff injuries.

Evidence Based Strategies for Safe Patient Handling

**OhioHealth**

Evaluation of a new procedure for *boosting critically ill patients in bed*

**BACKGROUND**

Patient handling is a widely recognized as a problem in acute care settings. Various studies have shown that patients who receive conventional positioning may be at a higher risk of complications, including falls and pressure ulcers. The use of a new device has been shown to reduce these risks.

**METHODS**

The purpose of this study was to evaluate the effectiveness of a new device designed to reduce the risk of falls and pressure ulcers. The device was evaluated in a randomized controlled trial involving critically ill patients in the ICU. The device was used for a period of 24 hours and the patient's position was assessed every 2 hours. The device was evaluated based on patient satisfaction and clinical outcomes.

**RESULTS**

Patient satisfaction was high, with 87% of patients stating they would recommend the device to others. The device was found to be effective in reducing falls and pressure ulcers. The risk of clinical complications was also reduced.

**CONCLUSIONS**

The use of the new device improved patient satisfaction and reduced the risk of falls and pressure ulcers. Further research is needed to evaluate the long-term benefits of using the device.

Evidence Based Strategies for Safe Patient Handling
Out of Bed Technology

Current Seating Positioning Challenges

Uncomfortable

- Airway & Epiglottis compressed
- Frequent repositioning & potential caregiver injury
- Body Alignment
- Potential risk of sliding from chair
- Shear/Friction
- Sacral Pressure
- Sacral Sitting
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


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

W. W. Rogers"
Progressive Mobility + Care Giver Safety + Skin Safety

Challenges to Mobilizing Patients

Potentially Modifiable Barriers

• Patient-related barriers (50%)
  – Hemodynamic instability, ICU devices, physical & neuropsychological

• Structural (18%)
  – Human or Technological Resources

• ICU culture (18%)
  – Knowledge/Priority/Habits

• Process related (14%)
  – Service delivery/lack of coordination
  – Clinician function

Decision-Making Tree for Patients Who Are Hemodynamically Unstable With Movement\textsuperscript{1,2}

Screen for mobility readiness within 8 hrs of admission to ICU & daily initiate in-bed mobility strategies as soon as possible

\begin{enumerate}
\item Is the patient hemodynamically unstable with manual turning?
\begin{itemize}
\item $\text{O}_2$ saturation $\leq 90\%$
\item New onset cardiac arrhythmias or ischemia
\item $\text{HR} < 60, >120$
\item $\text{MAP} < 55, >140$
\item $\text{SPB} < 90, >180$
\item New or increasing vasopressor infusion
\end{itemize}
\item Is the patient still hemodynamically unstable after allowing 5-10 minutes’ adaption post-position change before determining tolerance?
\item Has the manual position turn or HOB elevation been performed slowly?
\item Initiate continuous lateral rotation therapy via a protocol to train the patient to tolerate turning
\end{enumerate}

\noindent \text{HOB=head of bed; HR=heart rate; MAP=mean arterial pressure; SPB=systolic blood pressure.}
\noindent \text{Vollman KM. Crit Care Nurse. 2012;32:70-75.}
\noindent \text{Vollman KM. Crit Care Nurs Q. 2013;36:17-27.}

\section*{Clinical Findings Which Prevent Patient Turning}

\begin{enumerate}
\item Development of life threatening arrhythmia with symptomatic response (VFIB/VTACH/ISVT) This does not include asymptomatic AFIB.
\item Active Fluid Resuscitation: (i.e. no volume going in= no systemic blood pressure).
\item Active Hemorrhaging:
\begin{itemize}
\item Following Cardiac Surgery/Active Tamponade
\item Massive GI bleeding with use of Blakemore tube.
\item Active hemorrhage following Trauma.
\end{itemize}
\item Change in baseline hemodynamic parameters (BP, HR, Oxygen Saturation, RR, etc) that does not recover within 10 Minutes of position change and is not an expected result based on diagnosis.
\end{enumerate}

\section*{Recommended Interventions for the Unstable Patient}

\begin{enumerate}
\item A TRL TURN SHOULD BE ATTEMPTED AT LEAST EVERY 8 HOURS TO DETERMINE ABILITY TO RESUME FREQUENT TURNING AT LEAST EVERY 2 HOURS
\item Provide in-dwells
\item Elevate head and legs at least every 30 minutes
\item Elevate feet from surface of bed
\item Reposition patient’s head, arms and legs at least every hour, consider passive ROM
\item Consider use of Continuous Lateral Rotation Therapy to prevent development of "gravitational equilibrium." Begin SLOW AND LOW angles of turning to gauge patient’s response.
\end{enumerate}

\textbf{UNSTABLE FRACTURES}

\begin{itemize}
\item Patients with unstable fractures require controlled lateral rotation position with approval of attending MD. Consider wedges or pillows placed between legs to maintain proper alignment.
\item Consider use of Continuous Lateral Rotation Therapy (CLRT) with variable rotation angles: these patients should be positioned with multiple wedges to maintain proper alignment.
\end{itemize}

\text{Brindle TC, et al. WOCN, 2013;40(3): 254-267}
WHEN WOULD NOW BE A GOOD TIME TO DO THIS?

It is not enough to do your best, you have to know what to do and then do your best.
E Deming

How Do We Make It Happen?
Driving Change

- Gap analysis
- Build the Will
- Protocol Development

Structure

+ Make it
- Prescriptive
- Overcoming
- barriers
- Daily Integration

Process

Outcomes

The Goal: Patient & Caregiver Safety

↓ Hospital LOS
↓ ICU LOS
↓ Skin Injury
↓ CAUTI
↓ Delirium
↓ Time on the vent
↓ Repetitive motion injury
↓ Musculoskeletal injury
↓ Days away from work
↓ Staffing challenges
Loss of experienced staff
Nursing shortage
↓ Skin Injury
↓ Costs
↓ Pain and suffering
↓ Hospital LOS
↓ ICU LOS
Action Items

- Talk with local and departmental leadership about a more comprehensive safety culture
- Engage your peers in developing an action plan to address patient and caregiver safety
- Speak up as a leader whenever patient mobility, prevention of pressure injury and worker safety are addressed in silo's

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