**Pressure Ulcers: Putting Pressure on Prevention Across the Continuum**

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2013 Critical Care Nursing Symposium

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**Disclosures**

Mölnlycke Health Care, LLC, US. Consultant and Speaker’s Bureau

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**Session Objectives**

- Recap understanding of “what contributes to a pressure ulcer”
- Discuss strategies to identify patients at risk for skin injury among critically ill patients.
- Understand the NPUAP and EPUAP pressure ulcer classification system & correctly grade pressure ulcers.
- Examine the newest Randomized Clinical Trials, demonstrating cost effective PU prevention, using a Silicone Border Sacrum Dressing.
- Describe key processes or program components to a successful pressure ulcer prevention program to reduce skin injury in the ICUs.
- Discuss how direct care nurses can impact nursing’s sensitive indicators to improve and sustain outcomes among adult and pediatric critically ill patients.

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**It is Time to Change!**

- 44,000 to 98,000 preventable deaths in hospitals related to medical errors annually (ICM report, 1999)
- 92,888 deaths directly attributable to safety indicators between 2005-2007 (HealthGrades 2009)
  - Failure to rescue, pressure ulcers* and post-op infections
- Hospital Acquired infections the 5th leading cause of death nationally
- 2013-lowest percent improvement / 1% total Medicare cut
- ($50 billion) for preventable injury

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**Pressure Ulcer Facts**

- 4th Leading preventable medical error in U.S.
- NDNQI data base: Estimates of incidence of PUs range from 2.1% to 28% acute care hospitals, (5.0%-23%) ICUs and 4.4% to 33% for community care patients.
  - PUs in pediatric intensive care units (PICUs) 5% to 27%.
  - Neonatal intensive care units (NICUs) up to 23%.
- Treatment costs on PUs varies, with an estimated range between $37,800 and $70,000.
- National health Care annual costs in the U.S. as high as $11-17.8 billion dollars for 2010.

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**Medical Device Related PUs (MDRs)**

MDRs can occur under any medical device, and can become full thickness ulcers. MDRs are reasonably preventable with thin dressings under device (e.g. Meeples)
- Location (sacral, buttock, heel, occipital)
- Prevalence
  - 19.1% backs; 14.3% sacrum; 10.2% heels; 8.8% buttocks (1)
  - Back Boards: neck collars
  - Endotracheal tubes: trachea
  - Face and nasal bridge of patients
  - With non-invasive positive pressure ventilation (NIPPV) and CPAP

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9/18/2013
Pressure Ulcer Facts

- Mortality
  - Several studies show a 60% mortality for older persons with PU within 1 year of hospital discharge
  - Most often PU don’t cause death but may be a predictor of mortality
  - 60,000 patients die each year from PU complications

Pressure Ulcer Facts

- Lawsuits—More than 17,000 lawsuits related to pressure ulcers annually
  - 2nd most common claim after wrongful death and greater than falls and emotional distress

Pressure Ulcers

Pressure Ulcer

- Localized injury to the skin as a result of pressure, or pressure in combination with shear and/or friction.
  - NPUAP Guidelines, 2009
  - Moisture increases the impact of shear and friction coefficient
  - Adapted from B. Bette Jarem & NPUAP

What Causes PUs?

Mechanical loading

- Pressure
- Friction
- Shear

Tissue Tolerance

- Ability of skin and supporting structures to redistribute pressure
- Affected by extrinsic/intrinsic factors

The Impact of Pressure Ulcers

Patient suffering increases

- Increased pain and distress
- Creates body image disturbance (occupational wound – permanent alopecia)
- Reduced QoL
- Increased risk of infections
- Increased mortality risk

Cost of care increases

- Increased length of stay
- Increased nurse time
- Increased cost of consumables
- Increased cost of pharmaceuticals
- Stage III and IV and unable to stage pressure ulcers are state reportable
- One of CMS never events

Is This Familiar?

Skin exposed to pressure, friction and moisture

9/18/2013
**Mechanical Loading**

- **Strain:** Tissue layers slide against each other, disrupts or angulates blood vessels.

- **Friction:** Used to describe all phenomena that c/t interface properties & sliding of surfaces with respect to each other. This injury seen on elbows & heels (rubbing on sheets).

- **Pressure:** Pressure happens blind from getting to the tissue, causing cells to die and the skin to break down. Most common sites: the sacrum, heels, trochanters, and ischial tuberosity.

**Moisture Injury: Incontinence**

- **Inflammatory response to the injury on the water-protein-lipid matrix of the skin**
  - Caused from prolonged exposure to urinary and fecal incontinence.

- **Top-down injury**

- **Physical signs on the perineum & buttocks**
  - Erythema, swelling, oozing, vesication, crusting and scaling.

- **Patients with fecal incontinence 22 times more likely to have PUs than those without**

**Skin Assessment**

- **Assess skin regularly – inspect most vulnerable areas**
- **Frequency – based on vulnerability and condition of patient**
- **Encourage individuals to inspect their skin**
- **Look for:**
  - Persistent erythema
  - Non-blanching hyperemia
  - Blisters
  - Localized heat
  - Localized edema
  - Localized induration
  - Purplish/bluish localized areas
  - Localized coolness if tissue death occurs

**Nutritional Assessment**

- **Both poor nutritional intake and poor nutritional status have been shown to correlate with the development of PU’s as well as protracted healing of wounds.**
- **Malnutrition – status of nutrition in which a deficiency or excess, or imbalance of energy, protein and other nutrients causes measurable adverse effects on tissue, body structure, body function and clinical outcome.** In the guideline, malnutrition refers to a status of under-nutrition or undermendshment.
- **Dehydration –** common and under-recognized Nutritional risk and PU risk, consider enteral nutrition.
- **Nutritional support- assess, monitor, evaluate, and reassess**
- **Minimum of 35 kcal per kg body weight per day, with 1.5 g/kg/day protein and 1 ml per kcal/day fluid intake**

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**Prevention and treatment of pressure ulcers using new evidence based therapies**

- **Assess and Record Risk**
- **People vulnerable to pressure ulcers**
- **Patient with pressure ulcer**
- **Assess pressure ulcer**
- **Prevent pressure ulcer**
- **Treat pressure ulcer and prevent new ulcers**

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**Assess and record risk: Admission. Daily. Change in Patient Condition**

- **MANY RISK TOOLS:** Braden Scale (Sub-Scale more sensitive in ICU), PEDIATRIC: Braden-Q, Neonatal – NSRAS, • Grammer scale; • Starked Skin Scale
### Skin Changes as We Age

<table>
<thead>
<tr>
<th>Changes as We Age</th>
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<tbody>
<tr>
<td>• Less elasticity</td>
</tr>
<tr>
<td>• Easily traumatized</td>
</tr>
<tr>
<td>• Decrease in sebaceous glands</td>
</tr>
<tr>
<td>• Decrease in immune response</td>
</tr>
<tr>
<td>• Changes in thermoregulation</td>
</tr>
</tbody>
</table>

### Skin Failure in Critically Ill Patient's

- 18 month prospective descriptive study to describe ICU patients with skin failure and determine relationships to other factors
  - 100% had 1 or more organ failures
  - 95% albumin level <3.5 mg/dL
  - Time from arrival to skin failure 7.7 days
- Other factors in 78% of patients
  - Generalized edema, ventricular assist, weight >150 lbs, CI >1.5 mg/dL, MAP >75mmHg, use of sedatives/analgesics
- Correlations of paired variables
  - Seals & reed failure
  - Concurrent use of vasoactive agents

Defined as an event in which skin & underlying tissues die due to hypoperfusion concurrent with critical illness. It considered to be unavoidable.

Curtis, et al. Colony Wound Management. 2011.06.15

### Assessment of PUs

**Assess:**
- cause
- site/location
- dimensions
- stage or grade
- exudate amount and type
- local signs of infection
- pain
- wound appearance
- surrounding skin
- undermining/tracking, sinus or fistula
- odor

**Record**
- Document:
  - depth
  - estimated surface area
  - grade using NPIAP/EPUAP
  - Support with photography and/or tracings
- Report pressure ulcers stage II according to P & P and clinical incident system

**Evidence for Use of Wound Dressings for Pressure Ulcer Preventions Protocols**

2 Randomized Clinical Trials to Prevent Sacral and Heal Pressure Ulcers

- Peggy Kalowen RN, PhD, CNS, FAHA
- Nick Santamaria RN, PhD

Use of a Soft Silicone Bordered Sacrum Dressing to Reduce Pressure Ulcer Formation in Critically Ill Patients: A Randomized Clinical Trial

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Background of Problem:
• Development of pressure ulcers (PUs) is complex and multifactorial.
• In the intensive care unit (ICU), PUs serve as an additional comorbid threat in those who are already compromised.
• PUs harm patients, cause pain, infections and extend length of stay (LOS); increase health care cost and personal burdens.1
• Estimates of incidence of PUs range from 4.7% to 28% in acute care hospitals, (5.0% -25%) ICUs and 4.4% to 33% for community care patients.1 Data on treatment costs on PUs varies, with an estimated range between $37,800 and $70,000, with total annual costs in the US as high as $11 billion.2,3
• Our hospital-acquired PU incidence rate was 2.6% to 4.5 (all units); and ICUs (3.57-4.90) 2010-2011.

PRIMARY AIM
• Aim of this randomized controlled trial was to determine if prophylactic application of a *Silicone Border Sacrum dressing (Intervention) would reduce the incidence of PU formation in ICU patients, when compared to a group (Control) receiving usual care (Evidence Based SKIN™ Bundle)

Primary Endpoint:
• Incidence rates of PUs in ICU expressed as total number of pressure ulcers that develop among both groups.

SECONDARY AIMS
• Describe patient characteristics and examine the role of multiple variables (age, sex, condition related factors; treatment and patient related factors) as potential correlates to development of PUs.

Secondary Endpoints:
• Reduction in length of stay (LOS), resource utilization and incremental cost effectiveness.
• Evaluate the effectiveness of the Braden Scale® and our proposed skin care policy interventions for prevention.

Research Hypotheses / Ethics Review
• H1.1 The rate of pressure ulcer incidence will be significantly lower in the intervention group compared to the control group.
• H2.1 There will be a reduction in medical costs and resource utilization as measured by number of days of hospitalization.
• MemorialCare Institutional Review Board (IRB) approval was obtained, study project #908-11
**METHODOLOGY**

**Design**
- A prospective, experimental design was used to randomize (1:1 basis) total of 367 patients.
- (N=184) enrolled in the intervention group (IG) receiving the SKIN BUNDLE™ and application of the Silicone Border Sacrum dressing, and (N=183) Control Group (CG) receiving usual care, including SKIN BUNDLE™.

**Setting**
- 31-bed Medical/Surgical/Trauma ICU; and a 23-bed cardiac care unit (CCU).

**Inclusion Criteria**
- All adult patients admitted to the ICU/CCU with a Braden Scale score ≥13, and intact skin, were study eligible.

**Exclusion Criteria**
- Braden Scale score ≥14
- Existing sacral pressure ulcers or moisture related skin damage.
- Patients receiving end of life (EOL) care or withdrawal of life-sustaining treatments

**FLOW OF PARTICIPANTS THRU STUDY**

**Instruments and Measures**

1. **Demographic Recording Tool** – PI designed tool to record data on study variables extracted from electronic medical record (age, date of birth (DOB); race; language; religion; gender; co-morbidities; length of ICU and hospital stay; risk factors).

2. **Braden Scale** – used as enrolment index. Braden Scale is a clinically validated tool used to predict patients risk for pressure ulcers.

3. **Daily Skin Assessment** – study team evaluated subject’s skin condition daily for signs of breakdown and for use of SKIN Bundle and policy driven interventions. Sacrum dressing changed every 3 days per protocol & PRN.

4. **Acute Physiology and Chronic Health Evaluation (APACHE) II**
- APACHE II is a scoring system predicting severity of illness and prognosis of ICU patients, and is used for hospital mortality assessment for critically ill patients. Range (.65–.90%) is high risk for death.

**Study Characteristics**

**Preliminary Data**

<table>
<thead>
<tr>
<th>N=367</th>
<th>9/18/2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>67.5 (19.2)</td>
</tr>
<tr>
<td>Male</td>
<td>222 (60.3)</td>
</tr>
<tr>
<td>Female</td>
<td>147 (39.7)</td>
</tr>
<tr>
<td>% of Enrolled (367)</td>
<td>9/18/2013</td>
</tr>
<tr>
<td>% of Critical (90)</td>
<td>9/18/2013</td>
</tr>
<tr>
<td>% of Mechanical Ventilation (44)</td>
<td>9/18/2013</td>
</tr>
<tr>
<td>% of Intubated (140)</td>
<td>9/18/2013</td>
</tr>
<tr>
<td>% of Mortality (184)</td>
<td>9/18/2013</td>
</tr>
<tr>
<td>% of APACHE II (184)</td>
<td>9/18/2013</td>
</tr>
<tr>
<td>Mortality Co. Group (184)</td>
<td>9/18/2013</td>
</tr>
<tr>
<td>% of APACHE II</td>
<td>9/18/2013</td>
</tr>
</tbody>
</table>

**APACHE II**
- APACHE II is a scoring system predicting severity of illness and prognosis of ICU patients, and is used for hospital mortality assessment for critically ill patients. Range (.65–.90%) is high risk for death.
Results

### Pressure Ulcer Incidence

<table>
<thead>
<tr>
<th>Intention to Treat Analysis (N=335)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control Group</td>
</tr>
<tr>
<td>8 Pressure Ulcers in 16-month study period</td>
<td>7</td>
</tr>
<tr>
<td>(%) Incidence</td>
<td>4.21%</td>
</tr>
</tbody>
</table>

### Risk Factors Found to be Strong Correlates (r = 0.72) Among Patients Who Developed Pressure Ulcers:

- Altered Level of Consciousness (LOC)
- Increased Length of Stay (LOS)
- Vasopressors
- Mechanical ventilation
- p=Comorbidities

### Key Study Findings

- This RCT attempted to validate the effectiveness of the silicone sacrum dressing in the prevention of PUs. Our results showed an incidence of (4.21%) Control and (.6%). Intervention group which was statistically significant (p=.001).
- Overall the ICU incidence *(all patients)* was from 5.10% at baseline to 2.41% in the units at conclusion of the study. **Our current rate is zero to 1.2**
- Absence of fungal infection or dermatitis beneath the dressing throughout the study, and too date.

### Clinical Pearls The Nurses Shared at Study End

- The Mepilex® Border Sacrum Dressing provided superb absorption, and appears to reduce friction, shear, moisture, by providing a barrier between the patient and the bed.
- “Dressing remained in place, yet allowed for daily inspection and smoothed back down without wrinkles”
- “Adheres gently and securely to dry, intact surrounding skin”
- “Atraumatic to skin impermeable to stool and urine”
- “Patient’s reported less pain and trauma before, at and after dressing changes”
- We developed a Mepilex® Policy & Procedure and Clinical Practice Guidelines for use for all units.

### Recommendations

- The MemorialCare Six-Hospital System adopted this 5-Layered Silicone Border® Sacrum Dressing 1-year ago. Since adoption ($325,000+ cost savings in PU treatment) in our facility alone.
- Product cost annualized for prevention ($40,000).
- Our findings validate recent studies thus, adding more science to guide clinicians to become early adopters of this new wound technology.
- The findings from this RCT and translation of this work to practice (nationally / internationally) supported our journey to Magnet® designation in January 2013.
- In October, 2013 we’re receiving an Award from the Collaborative Alliance for Nursing Outcomes (CANA), an organization that collects and benchmarks nursing sensitive indicators, for making the most progress in reducing HAPIs and sustaining zero for the past year in Calif.
A randomised control trial of the effectiveness of soft silicone foam multi-layered dressings applied in the prevention of sacral and heel pressure ulcers in trauma and critically ill patients: The Border Trial.

Nick Santamaria RN, PhD
University of Melbourne & Melbourne Health

RMH Team

A prospective randomised control trial of the effectiveness of silicone dressings applied in ED in preventing ICU pressure ulcers (The Border Trial)

- Professor Nick Santamaria, University of Melbourne & Royal Melbourne Hospital
- A/Professor Marie Goelitz, Melbourne Health & University of Melbourne
- Sarah Sage, Clinical Nurse Consultant Wound Care, Royal Park Hospital
- Amy Freeman, Podiatrist, Royal Melbourne Hospital
- Jane McCann, Podiatrist, Royal Park Campus
- Theresa Vasilikiou, Research Nurse ED, Royal Melbourne Hospital
- Stephanie De Vincents, Clinical Nurse Consultant Wound Care, Royal Melbourne Hospital
- Al Wei Xing, Clinical Nurse Consultant Wound Care, Royal Park Hospital
- A/Professor Jonathan Knott, Deputy Director Emergency Department, Royal Melbourne Hospital & University of Melbourne
- Dr Wei Liu, Royal Melbourne Hospital

Background

- Pressure ulcer prevention in critically ill ICU patients is challenging with high incidence rates in some centres.
- Pressure ulcers increase mortality, costs, LOS and decrease bed availability.
- It is suggested that pressure ulcers in ICU trauma patients may have originated in the Emergency Department (ED) and/or Operating Room.
- There is emerging evidence that some foam dressings may decrease pressure, shear and friction (Brindle et al 2010, 2012).
- There are no RCTs reported in the literature that investigate the effectiveness of these types of dressings in the ED/ICU patient.

Hypothesis

Patients treated with Mepilex Border Sacrum and Mepilex Heel dressings will have a lower incidence rate of sacral and heel pressure ulcer development than patients receiving standard care.
Methods

Design
Prospective randomised controlled open label trial

Subjects and Sampling
All trauma and critically ill patients admitted to the Emergency Dept. and to be transferred to ICU

Sample size
Calculated to detect a decrease in the ICU pressure ulcer incidence rate of 3.5% (from 4% to 0.5%) in the intervention group, with power set at 80% and alpha of 0.05.
Total of 440 patients (220 patients per group).

Inclusion criteria
• ED and ICU admission for critical illness and/or major trauma
• Over 18 years old

Exclusion criteria
• Less than 18 years old
• Suspected or actual spinal injury
• Pre-existing sacral or heel pressure ulcer
• Trauma to sacral and/or heel area

Intervention: Mölnlycke Mepilex Heel dressings and retained with Tubifast applied on admission to ED, inspected daily and changed every 3 days in ICU

Primary endpoint
• Incidence rates of pressure injuries in ICU expressed as the total number of pressure ulcers developed in both groups

Secondary endpoint
• Cost/benefit of dressings to prevent pressure ulcers

Intervention: Mölnlycke Border Sacrum dressing applied on admission to the Emergency Department and inspected daily and changed every 3 days in ICU

Measurement: Sacrum and heels examined daily for duration of ICU stay or until endpoint reached

Pressure ulcers
• Pressure ulcer incidence
• Pressure ulcers staged according to the Australian Wound Management Association (AWMA) staging

Physiological data
• Physiological data collected in ICU
• Mechanical ventilation
• APACHE II
• Braden Score
• Mattress type
• Dressing changes
• BMI
Results n=313
Intention to treat analysis (ITT)

<table>
<thead>
<tr>
<th>Pressure ulcer development</th>
<th>Control N=312</th>
<th>Intervention N=311</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients who developed PU</td>
<td>20</td>
<td>5</td>
<td>0.001</td>
</tr>
<tr>
<td>Incidence (%)</td>
<td>13.1</td>
<td>11.1</td>
<td>0.02</td>
</tr>
<tr>
<td>Number of pressure ulcers</td>
<td>27</td>
<td>7</td>
<td>0.002</td>
</tr>
<tr>
<td>Sacral pressure ulcers</td>
<td>8</td>
<td>2</td>
<td>0.05</td>
</tr>
<tr>
<td>Heel pressure ulcers</td>
<td>19</td>
<td>5</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Conclusions

* Intervention and control groups were comparable on key demographics on Emergency Dept. admission and enrollment into the trial
* The intervention (dressing) group had significantly different outcomes to controls:
  - Less patients with a pressure ulcer
  - Less pressure ulcers in total
  - Took longer to develop a pressure ulcer
  - Lower PU incidence rate
  - Lower cost to treat intervention group (3.6 times less than controls)
* When applied in ED, Mepilex dressings offer protection against ICU-acquired sacral and heel PUs.

Results - Costs to discharge from RMH

<table>
<thead>
<tr>
<th>Cost components</th>
<th>Control N=312</th>
<th>Intervention N=311</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average treatment costs per PU</td>
<td>$110.52</td>
<td>$110.52</td>
</tr>
<tr>
<td>Weighted average treatment costs</td>
<td>$144.56</td>
<td>$34.21</td>
</tr>
<tr>
<td>Average marginal costs</td>
<td>-</td>
<td>$46.45</td>
</tr>
<tr>
<td>Total average costs per patient</td>
<td>$144.56</td>
<td>$80.66</td>
</tr>
<tr>
<td>Total costs per group</td>
<td>$35,373.20</td>
<td>$6,920.20</td>
</tr>
</tbody>
</table>

Pressure Ulcer Prevention

EBP Recommendations

- Offloading
- Repositioning
- Support Surfaces
- Reducing Moisture Related Injury
Offloading / Reposition to Reduce Pressure in Critically Ill Patients, Research

**Component of Prevention**
- Turn & reposition q3hr (avoid placing on a PU)
- Repositioning must take into consideration the condition of the patient and the support surface in use
- Repositioning frequency—Influenced by the pt.'s condition and support surface in use
  - Defloor (2000) study: turning every 4 hours on a visco-elastic foam mattress resulted in drastically less pressure ulcers compared to turning 2 or 3 hours on a standard hospital mattress.
- Cushioning devices to maintain alignment & 30 deg. Side-lying & prevent pressure on bony prominences.
- Use lifting device or other aids to reposition and make it easier to turn

**Surface Selection International Guidelines [NPQAP, 2009]**

- **Goal of Support Surfaces** -Facilitation of wound prevention/healing
  - Maximize blood flow
  - Minimize extrinsic risk
  - Pain management/Client comfort
  - Improve sleep patterns

**CATEGORIES OF SUPPORT SURFACES**
- Prevention (“Pressure reduction”)
  - Products reduce interface pressure to prevent PUs and treat partial thickness ulcers through stage II. Pain management.
- Therapeutic (“Pressure relief”)
  - Products reduce tissue deformation and redistribute interface pressure to treat full thickness pressure ulcers through stages IV and mycotic ulcerous flaps and grafts. May additionally be used for moisture and heat dissipation, comfort and pain management.

**Support Surfaces in Critically Ill Patients, Research**

- Comparison cohort study of 2 different support surfaces in ICU Pts.
  - 52 critically ill pts with anticipated 3 day LOS in a 12-bed CV Unit in univ. hospital in mid-west were included until DC ICU
  - 31 patients: low air-loss weight-based pressure redistribution-microclimate management bed (LAL-MCM)
  - 21 patients: integrated powered air redistribution (IP-AR) bed
- Measured: positioning, skin assessment, heel elevation
- Results:
  - Mean LOS 7 days (on the surface equal amount of days)
  - LAL-MCM bed > zero pressure ulcers
  - IP-AR bed > 4/21 or 18% (p=0.46)

**Offloading / Reposition to Reduce Pressure**

- Early mobilization and walking program was developed to provide guidelines for early mobility that would assist clinicians working in ICUs, especially clinicians working with patients who are receiving mechanical ventilation.
- Limit time sitting in a chair & use pressure relief
- Select position that is acceptable to the individual and minimizes pressure and shear exerted on skin and soft tissue
- Heel protection devices should elevate the heel completely (off-load) in such a way as to distribute weight along the calf
  - Use pillows to off-load if expected immobility < 8hrs
  - Use device if pt. expected to be immobile > 8 hrs
- Apply Mölnlycke Border Sacrum for heels

**Surface Selection International Guidelines**

- **Configurations**
  - Overlays
  - Mattress replacement
  - Full bed system

**Technologies**
- Non-powered
  - Air floatation
  - Fluid
- Powered
  - Low air loss
  - Alternating pressure
  - Powered air
  - Rotation beds
  - Air fluidized
  - Hybrid systems

**Support Surfaces**

- Continue to turn & reposition (LIFT TEAMs - ICU)
- Use a pillow under the calf to elevate the heels
- Heel protecting devices should elevate the heel completely so to distribute the weight of the leg along the calf without putting pressure on the Achilles tendon
- Seating surface need more repositioning than when in a lying position
EBP Recommendations to Reduce Shear & Friction

- Use lifting/transfer devices & other aids to reduce shear & friction
  - Mechanical lifts
  - Transfer sheets
  - 2-4 person lifts
  - Turn & assist features on beds
- Loose covers & increased immersion in the support medium increase contact area
- Use of Silicone Dressing to Reduce Shear & Friction (Sacrum, Heel, beneath medical devices)

EBP Recommendations to Reduce Injury from Incontinence & Other Forms of Moisture

- Use of an Evidence Based SKIN CARE BUNDLE
  - Clean skin as soon as it becomes soiled
- Use a protective cream or ointment on the skin to protect it from the skin
  - Disposible barrier cloth prevents unprotected episodes (www.3l.org 5 Million Lives Campaign)
  - Use an incontinence pad and/or briefs to absorb/wick away moisture from the skin.
- Consideration of pouching device or a bowel management system if no Foley catheter, or if FeC removed.
  - Ensure an appropriate microclimate & breathability
- <4 layers of linen

Building a Safety Culture of "zero" Pressure Ulcers

Key steps to prevent patient harm
- Overall organizational goal of "zero" preventable harm
- "TEAMWORK" - House wide Pressure Ulcer Prevention team, Multidisciplinary: Key Leadership
- Dashboards/Visibility Boards displaying data
- Quarterly house-wide prevalence study
- Skin care rounds/Daily Huddles in ICU / PICU / NICU
- Skin care champions
- Hourly Rounding (includes patient/family education)
- Report stage II and greater pressure injuries to our Preventable harm index
- Just Culture, but embrace accountable & safe care

References

8. Quinlan, J. Medical Center for Emergency Care (NCH), 2011, The Joint Commission on Accreditation of Healthcare Organizations, Chicago, IL.