**Introduction**

The impact of Pressure Ulcers on surgical patients varies depending on type of surgical procedure performed and patient intrinsic factors (nutrition, obesity, DM, ...).

Patients with hospital acquired pressure ulcers have a significant impact in healthcare expenditures (4).

In the U.S. peri-operatively acquired pressure ulcers cost $750 million to $1.5 billion per year on average (5).

Pressure ulcer incidence attributable directly to Operating Room ranges between 4%-45% (1-3)

**Study Design**

West Virginia University participates in a National Survey on Pressure Ulcer Prevalence quarterly.

On the survey performed on 5/21/2015, it assessed 446 patients and found 6 patients with hospital acquired pressure ulcers (1.34%) and 18 patients with pressure ulcers present on admission (5.38%).

The inpatient wound team consult data from November 2014 to Mid July 2015 showed 291 patients followed with diverse ulcers (pressure, venous, diabetic, arterial, surgical and mixed) and 15 hospital acquired pressure ulcers (5.15% - stage II and above, including deep tissue injury).

**Objective**

Reduce the numbers of hospital acquired pressure ulcers with implementation of a pressure ulcer prevention guidelines starting in the operating room.

**Proposed Guidelines**

Consideration for protective border dressings:
- Pre-op area:
  - Perform a thorough skin assessment
  - At handoff report high risk factors – location of existing pressure ulcers
  - Document any alterations of skin integrity
- Intra-operative Area:
  - Consider surgery type, table positioning and identify skin areas at risk
  - Prior to application of dressing write on dressing: “for prevention” and date it
  - Document dressing application on pre-op check list
- Lift and do not drag patient when transferring on and off OR table
- Post-Operative Area:
  - At handoff: peel back any protective dressing used for prevention, assess the skin area and re-adhere dressing
  - Document skin condition.
  - Notify wound team for suspected pressure ulcer development

High Risk inclusion criteria:
- Apply protective border dressing if the patient meets any of the following criteria:
  - Surgical procedure expected to last > 3hr
  - Previous history of a pressure ulcer
  - Quadriplegia or spinal cord injury
  - Vasopressors > 48hr
  - In shock, SIRS, MOID
  - Or 5 or more of the following:
    - Older than age 65
    - Diabetes
    - Liver Failure
    - Cardiac arrest on admission
    - Mechanical ventilation > 48hr
    - Malnutrition (BMI <20 or > 40; albumin < 2.5; NPC> 3 days)
    - Sedation/ paralytics > 8hr
    - Bed rest
    - Restraints
    - Weeping edema/ Anasarca
    - Drivelines (LVAD, RVAD, Balloon pump)
    - Traction
    - Nitric oxide ventilation

**Implementation**

Proposed guidelines were discussed with hospital administration with cost analysis for budget of dressings, presented in the surgical committee to the surgeon chairs, educational nurses and operating room administration. After approval of the guidelines, an education program was developed.

Nurses in the pre-operative, operating room and post-operative area received educational lectures on rationale for proposed guidelines and hands on education on manipulation and understanding of dressing

- 10/21 - Launch of Guidelines
- 11/05 - First Audit
- 11/10 - Survey Monkey
- 12/04 - Second Audit
- 01/2016 - Preoperative Nursing and CRNA education followed by Jan audit
- 03/16 - February audit

**Results**

1st Audit:
- from 10/26 to 11/5 - 49 patients qualified
- 20 followed guidelines - 40.8%
- 29 missed opportunities - 59.2%

Survey Monkey:
- 216 emails sent to peri-operative and operating room nursing staff.
- 71 answers
- 145 non-respondents

2nd Audit:
- from 11/05 to 12/04 - 214 cases met criteria for Guidelines
- 100 cases audit
- 55% followed guidelines
- 45% missed opportunity

**Conclusion**

The prevention of hospital acquired pressure ulcers in the operation room and intensive care units is a complex continuing mission for clinicians involving patient risk assessment, positioning, skin care and use of pressure redistribution surfaces.

Despite numerous interventions reported in the literature, it remains resistant to complete elimination. The use of dressings as a prophylactic measure to avoid pressure ulcers has been investigated in multiple acute settings.

There is a constant need to assess the barriers for guideline implementation at organizational level, assess staffing characteristics and staff cohesion, conduct regular evaluation of organizational performance in pressure ulcer prevention and treatment and regularly provide staff members pressure ulcer rates.

**References**

3. Pieper,B. National Pressure Urect dressing to Electronic Medical Records as part of pre-operative checklist.
5. Sanders W, Allen RD. Pressure Ulcer management in the Operating Room: Problems and Solutions managing Infection Control 2006/6(9): 63-72