Wounds Canada Pressure Injury Symposium:

Reducing the Risk of Pressure Injuries and Advancing Wound Management

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Jessica Pehrson is a senior application engineer at 3M in the Medical Solutions Division working with the acute and advanced wound care product portfolios. She has a master's degree in nursing education and 16 years' experience working as a bedside nurse, nursing educator and nurse manager in a level-one trauma hospital

A pressure injury (PI) is defined as localized damage to the skin and/or underlying tissue that results from pressure or pressure in combination with shear. PIs usually occur over a bony prominence but may also be related to a medical device or other object. While PIs are not a new concept in critical care, protocols associated with COVID-19 care have uncovered additional risks for patients developing the condition.

PIs can develop in as little as six hours and can add an additional three to seven days to a patient's hospital stay. In a global study of 90 countries, 59% of PIs were found to be acquired in intensive care units. Factors that contribute to pressure injuries include general factors like pressure, friction, shear, moisture and presence of a medical device, or ICU-related factors like mechanical ventilation, hemodialysis, lengthy procedures, vasopressors that reduce blood flow, and use of a blood pressure cuff.

Patients most at risk of developing PIs include those with spinal cord injuries, orthopedic conditions, diabetes, obesity, peripheral arterial disease, impaired perfusion or those at the extremes of age.

While ischemia (inadequate blood flow) plays a role, it is now known that the primary driver of PIs is deformation of soft tissue. Direct damage from sustained deformation (due to pressure and shear) can result in cell damage in a matter of minutes.

In some cases, because they share common risk factors, a PI and incontinence-associated dermatitis (IAD) can happen at the same time. Patients with IAD are four times more likely to experience a facility-acquired sacral PI than those without IAD.

While prevention is always the goal, there are several patient and provider challenges that can impede effective prevention protocols. Patient challenges include:

- Prone positioning in treating COVID-19 adds pressure on bony prominences of the chest and face.
- Repositioning ICU patients can be more complex and difficult due to attachments to critical devices and tubing.
- Non-invasive ventilation and nasal oxygenation can increase PI risk around the nose and mouth.
- Mechanical ventilation increases risk of ICU-acquired PIs.

Provider challenges include:

- No current risk assessment tools predict PI in all patients. Evidence-based practice tools should be used daily to determine risk, especially in ICUs where conditions can change quickly.
- Staffing shortages in ICUs may mean adding staff that may not have ICU training.

- Reducing the frequency and length of time at the patient bedside may limit observation and intervention.
- Evidence-based education programs for preventing PIs in the ICU may not be readily available.
- Prolonged use of personal protective equipment, like respirators and face shields, may contribute to clinician skin breakdown, including PIs.

Innovative 3M Products Help Prevent and Manage PIs

Currently available 3M products for helping protect patients from PI development include:

- 3M™ Cavilon™ No Sting Barrier Film
- 3M™ Cavilon™ Advanced Skin Protectant
- 3M™ Cavilon™ No-Rinse Skin Cleanser

3M products available to help manage patients with PIs include:

- 3M™ V.A.C.® Therapy
- 3M™ Veraflo™ Therapy
- 3M™ Promogran Prisma™ Wound Balancing Matrix
- 3M™ Tegaderm™ High Performance Foam Adhesive Dressing

3M™ Tegaderm™ Silicone Foam Dressings from 3M are available to both help protect from and manage PIs.

3M™ Cavilon™ No Sting Barrier Film is a terpolymer-based, alcohol-free barrier film designed for routine skin protection. It is fast-drying, long-lasting and waterproof, making it easy for clinicians to use. Its alcohol-free, sting-free, fragrance-free and preservative-free design makes it gentle, with a low dermatitis potential. The barrier film helps maintain a continuous positive coating; it is also sterile and compatible with chlorhexidine gluconate (CHG). It helps protect skin from friction and abrasion, which is an improvement over many creams, ointments and pastes that can increase friction at the skin surface.

3M™ Cavilon™ No-Rinse Skin Cleanser is a liquid cleanser that also moisturizes. It is a gentle, hypoallergenic, pH-balanced formula that contains gentle surfactants that condition and soothe skin. The easy-to-use spray does not require rinsing and helps control odour, making it ideal for incontinence cleansing.

3M™ Tegaderm™ Silicone Foam Dressings are shown to reduce tissue deformation, minimizing the effects of pressure, friction and shear, which can lead to the formation of pressure injuries. Its unique, multi-layer design absorbs and evaporates moisture, helping reduce the potential for skin maceration. This dressing has significantly longer wear time than other dressings, plus gentle adhesion, both of which may help save facilities time and money by eliminating unscheduled dressing changes.

3M™ Promogran Prisma™ Wound Balancing Matrix is used to provide collagen, which supports granulation tissue formation, maintains a moist wound environment and protects from bacterial bioburden in the dressing.

3M™ Tegaderm™ High Performance Foam Adhesive Dressings are used to manage exudate. The unique, multi-layer design provides high absorbency with high breathability. They adapt to changing levels of exudate while still remaining conformable to difficult body contours and not sticking to the wound bed.

3M™ V.A.C.® Therapy is a negative-pressure wound therapy (NPWT) device. NPWT is a well-known adjunctive therapeutic option between surgical debridement and final coverage that has shown promise in the management of stage 3 and 4 chronic sacral and ischial pressure injuries.

3M™ Veraflo™ Therapy combines the benefits of V.A.C.® Therapy with automated topical wound solution distribution and removal to help cleanse the wound, remove infectious material and provide a wound healing environment. This helps healing by allowing wounds to be repetitively cleansed without the need for dressing removal.

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