



## **Prevention of Perioperative Pressure Injuries in the Older Adult Information and Resources**

“The Perioperative Patient Focused Model is the conceptual framework for perioperative nursing practice and the Perioperative Nursing Data Set (PNDS).”<sup>1(p693)</sup> Perioperative RNs are responsible for providing individualized nursing care for each surgical patient, including patient assessment, diagnosis, outcome identification, planning, implementation, and evaluation.<sup>1</sup>

The domains of the Perioperative Patient Focused Model (ie, health system, safety, physiological responses, behavioral responses of the patient and designated support person[s]) can be used to guide nursing care and help achieve optimal patient outcomes.<sup>2,3</sup> For example, the PNDS safety domain identifies that changes in the integumentary system place older adults at greater risk for chemical burns, thermal injury, skin tears, bruising, and pressure ulcers.<sup>2,3</sup>

Perioperative RNs should individualize nursing care for each older adult surgical patient to prevent perioperative pressure injuries. A first step is for the perioperative RN to assess a patient’s risk for pressure ulcer development. The perioperative RN should then use his or her clinical judgment to develop and provide a plan of care to help decrease the incidence and/or prevent the development of perioperative pressure ulcers. The perioperative nurse should evaluate the patient during the perioperative period for signs and symptoms of physical injury to skin and tissue.

### ***Who is an older adult?***

The older adult is any person age 65 years or older. The US Census Bureau (2014) estimates that there are more than 45 million people in the United States older than 65 years of age. The US Census Bureau has also predicted that the number of older adults will increase to 80 million in 2050, which is projected to be 20% of the total population.<sup>4</sup>

### ***Why are older adults at risk for developing pressure ulcers?***

Older adult patients are at increased risk for developing pressure injuries for a number of reasons, including immobility, dehydration, comorbidities, impaired sensory perception, altered tissue perfusion, malnutrition, and anemia.<sup>5</sup> Older adults are at risk for pressure ulcers due to changes in the integumentary system. When an older adult loses subcutaneous adipose tissue, this can result in the loss of protective padding, which can increase the patient’s risk for pressure ulcer development.<sup>5</sup> Skin injuries in older adult patients may take longer to heal.<sup>6</sup> The older adult can have fragile skin and can experience skin tears, bruising, and pressure ulcers.<sup>6</sup> Preoperative fasting can compromise the patient’s nutritional status, which can lead to the development of pressure ulcers and poor wound healing.<sup>6</sup>

In addition, factors that increase the risk of pressure ulcer development include diabetes, having had a tumor that was treated with radiation, peripheral vascular disease, undergoing vascular surgery, older age, lower body weight, physical or cognitive impairment, poor nutritional status, and incontinence.<sup>7,8</sup>

### ***What are some examples of pressure injury risk-assessment tools?***

The three most widely used tools for assessing the patient’s risk for pressure injuries are the Braden scale, the Norton scale, and the Waterlow scale.<sup>8</sup> All three scales include items related to the patient’s activity, mobility, nutritional status, continence, and cognition.<sup>8</sup>

## **Prevention of Perioperative Pressure Injury Tool kit**

The Braden Scale for Predicting Pressure Sore Risk assesses a patient's level of risk for the development of pressure ulcers.<sup>9,10</sup> Six indicators are evaluated and assigned a numeric value. These indicators include sensory perception, skin moisture, activity, mobility, nutritional status, and friction and shear. The Norton Scale was developed in the United Kingdom and consists of five items including physical condition, mental condition, activity, mobility, and incontinence.<sup>8,11</sup> The Waterlow Scale includes these items: the patient's build/weight for height, a visual assessment of the skin in the area at risk, the patient's gender and age, continence, mobility, screening for malnutrition, tissue malnutrition, neurological deficit, and major surgery or trauma.<sup>11</sup>

It is important to remember that a risk score that indicates a patient is not at risk does not guarantee that the patient will not develop a pressure ulcer.<sup>12</sup> The decision to use a risk-assessment tool and which risk-assessment tool to use may include considerations such as a need to standardize and monitor clinical practices, ease of use, and preferences of nurses and other care providers.<sup>12</sup>

### ***Care Planning***

After a patient is assessed for risk of pressure injury development, an individualized plan of care should be developed and preventive interventions should be implemented and documented.<sup>12</sup>

Perioperative RNs and other health care professionals should use their clinical judgment, use risk assessment tools, and provide interventions as strategies for preventing the development of pressure ulcers.<sup>8</sup>

### ***Interventions***

Preventive intervention categories include using support surfaces (including mattresses, integrated bed systems, overlays, and cushions), repositioning the patient, providing skin care, and providing nutritional support.<sup>8</sup> Not all of these interventions may be feasible or practical during the intraoperative period when a patient is positioned for surgery and receiving anesthesia.

Perioperative RNs should coordinate with team members to move and position patients to avoid shearing.<sup>1</sup> It is important to verify the surfaces on the OR beds and transport vehicles are smooth and dry.<sup>1</sup> For example, wet sheets can hold moisture, which can increase a patient's risk for developing a pressure ulcer.<sup>1</sup> To prevent a shear injury, patients should be lifted and not dragged when being transferred to and from a transport vehicle.

Preoperatively and postoperatively, patients should be repositioned at frequent intervals. This can be done either by encouraging the patient to reposition, assisting the patient, or moving the patient. Repositioning a patient to prevent a pressure ulcer may not be a practical or feasible option when a patient is undergoing surgery.

Perioperative RNs should work with industry representatives to evaluate and select positioning equipment with support surfaces that are identified as helping to reduce or prevent pressure ulcers, including that the equipment is at low risk to retain moisture and is resistant to moisture, and there is evidence that the surface is able to disperse skin interface pressure.<sup>1</sup>

***What are the research findings related to surgical patients and the risks for pressure ulcer development?***

Researchers have reported that

- patients who are at higher risk for developing intraoperatively acquired pressure ulcers include critically ill patients, patients with a low Braden Scale skin assessment score, thin patients, and men who experienced at least a 1° F (0.6° C) drop in body temperature.<sup>13</sup>
- the type of positioning, the OR bed surface (ie, foam table pad), skin assessment scores in the postanesthesia care unit, and male gender were associated with pressure ulcer development.<sup>14</sup>
- the use of a foam pad and a lower day-one Braden score were predictive of pressure ulcers.<sup>14</sup>
- long surgical procedures, multiple surgeries, total surgery time, and high risk for mortality were significant predictors of pressure ulcers; age was not found to be associated with pressure ulcer development.<sup>15</sup>
- there is insufficient evidence to associate the use of risk-assessment instruments with reduction in pressure ulcer incidence.<sup>12</sup>

### ***What future research is recommended related to the prevention of pressure injuries?***

Researchers suggest that additional studies be conducted that

- evaluate the effectiveness of the standardized use of risk-assessment tools compared with clinical judgment or non-standardized use of tools in preventing pressure ulcers.<sup>12</sup>
- evaluate validated risk-assessment tools.<sup>12</sup>
- evaluate and compare the effectiveness of dynamic and other support surfaces.<sup>12</sup>
- compare the risk and severity of pressure ulcers across groups and report the effects of the use of preventive interventions on pressure ulcer development as well as other outcomes (eg, length of hospital stay, resource use).<sup>12</sup>
- assess and evaluate the effects of patient position and repositioning intervals related to pressure ulcer incidence.<sup>16</sup>
- support or refute the use of topical agents applied over bony prominences to prevent pressure ulcers.<sup>17</sup>

### **References**

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### **Additional resources related to the older adult and the prevention of perioperative pressure ulcers**

AORN members can review the case study of an older adult. Please access the Generic Preoperative Assessment at <http://www.aorn.org/education/staff-development/case-studies>

There is additional information about patient positioning on the AORN website.  
<http://www.aorn.org/guidelines/guideline-implementation-topics/patient-care/positioning-the-patient>

### **Other resources**

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**Complimentary Webinars:**

Pressure Ulcer Prevention in Vulnerable Elders

<http://www.npuap.org/resources/educational-and-clinical-resources/complimentary-educational-webinars/>

Operating Room Ulcers: Who is at Risk? Can They be Prevented?

<http://www.npuap.org/wp-content/uploads/2015/08/NPUAP-OR-Webinar-August-2015-Handouts.pdf>.

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