

Outpatient Surgery

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Prevent Patient Positioning Problems

Practical advice to reduce injuries from prolonged pressure and improper positioning.

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The chief aim of positioning a patient for surgery is to allow the surgeon and his staff sufficient access to the surgical site, the airway, IV lines and monitoring devices. But the prolonged pressure and shear force of improper positioning can compromise patient safety, resulting in deep tissue injuries such as circulatory interruption, perioperative pressure ulcers and nerve compression, even in routine surgical procedures. Here's how to avoid them.

Blame your table or your technique?

OR tables were built for utility, not for pressure redistribution. Many studies cite the standard OR table pad - two inches thick and covered with a laminate material - as a significant contributor to pressure ulcer development. Few studies have reviewed the newer padding options on the market for their efficacy, but it's safe to say that the standard pad doesn't in and of itself provide adequate prevention in high-risk cases.

Along with OR table pads, your staff should assess the use and possible misuse of positioning devices. Beware of positioning equipment that doesn't actually redistribute bodily pressure. For example, commonly used items such as towel rolls, sandbags and filled IV bags may actually increase pressure on certain points. You should replace these with other devices designed for the specific function of pressure redistribution.

In another instance, John Martin and Mark Warner's *Positioning in Anesthesia and Surgery* and AORN's guidelines make it clear that if you use candy cane stirrups at all, you should limit their use to very short periods of time. You must ask what exactly is meant by "short periods of time," and whether that is even acceptable knowing that there is equipment available that can reduce the positioning risk. Supplant the use of candy cane stirrups with the newer, boot-type devices that redistribute pressure and make sure that appropriate devices are available for high-risk cases.

Having the proper equipment on hand is only half the battle, though. Ensuring staff competencies in patient positioning and pressure injury prevention is equally important. Encouraging your perioperative staff to pursue continuing education with a competency-based component is the best way to achieve success. Also consider recording and tracking any positioning- or pressure-related adverse events, as it provides grounds for quality improvement.

Surgeons, anesthesia providers, nurses and techs should all take responsibility when it comes to positioning a patient for complex procedures. Nurses in particular need to be aware that even routine aspects of perioperative care can contribute to patient injury. During prepping and draping, for instance, special attention should be paid to avoid the pooling of fluids beneath the patient. Sufficient - and efficient - padding should be used on the table to provide adequate insulation of pressure points, stability of the body and reduction in vertical shearing forces. And transferring patients from one surface to another without the use of safety devices or adequate staff can result in increased frictional forces, tissue

bruising and pressure injury (see "Give Your Nurses a Lift" on page 43).

Bottom line pressures

When you're implementing a plan of action against pressure injuries, a risk-versus-benefit analysis may be beneficial in convincing your administrators and surgeons of the need for equipment and training. Let's face it, the costs of pressure ulcer treatment, lost reimbursement and litigation are rising.

In researching the issue at my center, I compared the costs of using a standard pad and the additional padding necessary versus a pressure redistribution pad of newer technology. We based the analysis on the number of cases they'd be used for each year and the depreciation of the costs of the padding over a five-year period. As it turned out, using extra foam padding for each case totaled an average cost of \$30 per case. The cost of replacing all seven of our OR table pads with the newer option would have cost us less than \$12,000, or an average cost-per-case of 80 cents. Over five years, that's a savings of \$438,000, with the new devices paying for themselves after 400 cases.

Costs aside, patients were also much more likely to develop a pressure ulcer on the standard padding than on the pressure redistribution pad, my research found. While we didn't factor the projected costs of post-surgical treatment and potential litigation into our cost analysis, the resulting reductions in expenses could also prove significant.

Don't wait for the evidence that your facility, your staff and, most of all, your patients have a problem with pressure injuries. The cost of upgrading your OR's equipment and your perioperative staff's skill set is likely far less than the cost of the alternative, and designating a wound, ostomy and continence care nurse to champion skin care and prevention is a proactive step toward promoting patient safety.

It's estimated that one in four patients is at risk for developing a perioperative pressure ulcer. The actual number of patients who suffer from perioperative ulcers is unknown, because the cause of these ulcers often isn't traced back to their roots in the OR environment but instead blamed on poor post-op patient care. Since the ulcers may present as late as five days after surgery, tracking them from ambulatory surgery facilities may be impossible because patients will be discharged home before they even appear.

Prolonged pressure and improper positioning can also result in post-op patients suffering from nerve injuries. Through interviews with women who have complained of lingering complications following dilatation and curettage, vaginal hysterectomy and other gynecological procedures, we've learned that those complications have ranged from "mild" hip and back pain and neuropathy to debilitating sciatic pain and drop foot.

Even though some such patient injuries require weeks of physical therapy, there's little comment in the literature that connects the injury to the use of candy cane stirrups, although some experts are beginning to recognize that hip, back, leg and joint pain following GYN procedures isn't just a normal part of surgery and may not spontaneously go away.

Known and unknown
Part of the problem of the incidence of pressure injuries is the combined lack of research, standardized practices and

<p>Who's At Risk to Develop Pressure Ulcers?</p> <p>While a validated risk assessment tool hasn't yet been developed for the OR, this set of perioperative triggers may be useful in identifying the at-risk population:</p> <ul style="list-style-type: none"> • patient age of over 62 years, • albumin level of less than 3.5 and • ASA score of three or greater. <p>When combined, these factors are statistically significant predictors of pressure ulcer development. 1</p> <p>- <i>Suzy Scott-Williams, MSN, RN, CWOCN</i></p>

proper OR equipment available to surgical personnel.

1. Scott-Williams S, Lummus A. Perioperative Pressure Ulcer Assessment and Prevention: Efficacy Study of a Multi-layer Pressure Relief Pad in the Operating Room. Unpublished research findings, 2005.

At the 2006 AORN Congress, more than 2,800 perioperative nurses were asked whether they'd ever seen a skin breakdown after a surgical procedure and whether they believed that pressure ulcers can originate from positioning on the OR table. An overwhelming majority of the respondents answered "yes" to both questions.¹

One thing we know to be true is that these types of injuries are unexpected outcomes of surgery and, like most unexpected outcomes, they are costly. Treatment can total as high as \$100,000 to heal one full-thickness pressure ulcer. It's also been estimated that the annual cost of OR-acquired ulcers to a 100-bed facility is an extra \$265,000 to \$525,000 on the bottom line.² Lost reimbursement and fines for healthcare-acquired pressure ulcers in Medicare patients are a high price to pay if they're avoidable.

In addition to treatment costs, pressure injuries can also bring risks to physician and facility reputations, if not outright litigation. More than 17,000 pressure ulcer-related lawsuits are filed every year, a number second only to wrongful death suits.³ The average settlement for suits involving healthcare-acquired pressure ulcers is \$250,000, although I've reviewed one case in which a male patient suffering post-op pressure ulcers and nerve injuries was awarded \$400,000 and heard about another case that resulted in a \$312 million judgment.⁴

In 2004, the Wound, Ostomy and Continence Nurses Society advised in its Guideline for Prevention and Management of Pressure Ulcers to "use pressure-relief devices in the operating room for individuals assessed to be at high risk for pressure ulcer development." AORN includes a similar statement in its 2006 Standards, Recommended Practices and Guidelines. Yet two questions remain: Who is at high risk, and what is proper pressure relief?

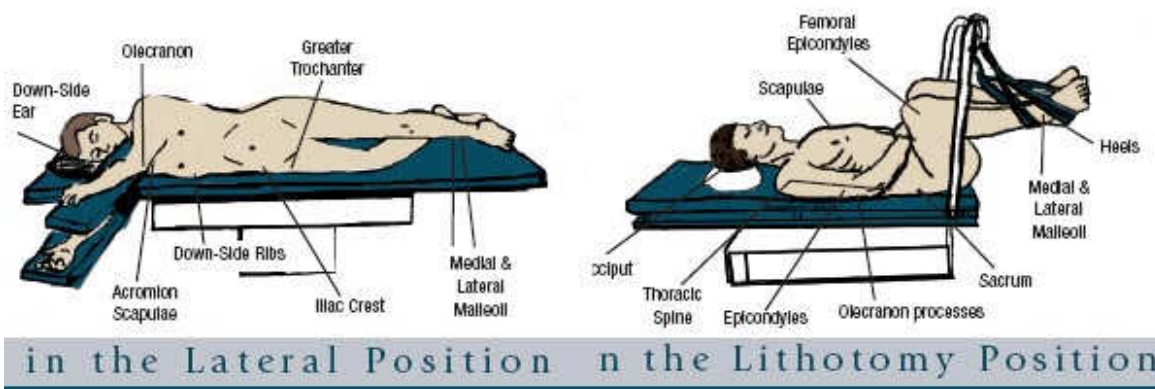
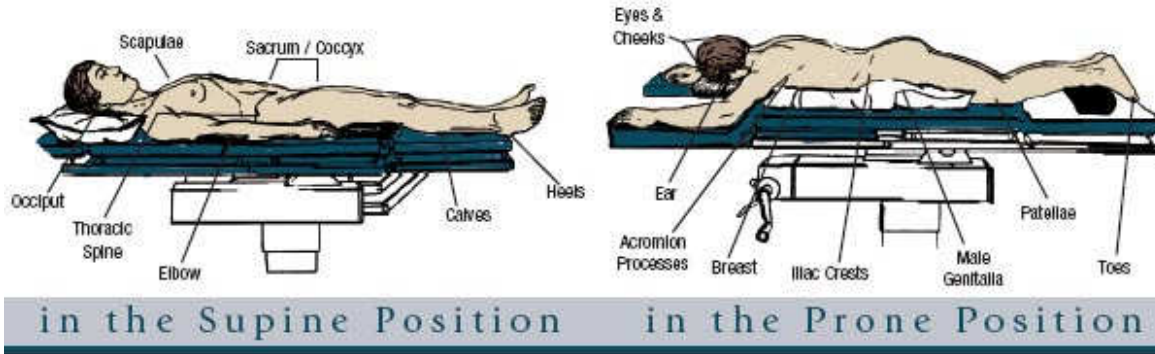
We created a system of patient and procedure assessments to help answer those questions. Our Perioperative Pressure Ulcer Prevention Program looked at our patient population and the potential risks they faced to determine their vulnerability. Our program examined the following issues

- What types of surgery do we perform here?
- How many of our procedures last more than three hours?
- Who comprises our patient demographic?
- Specifically, what percentage of our patient population is over age 62? Is malnourished? Suffers from more than one co-morbidity?
- When did we last purchase new OR table pads, positioning devices or other pressure redistribution equipment?
- If our stock of equipment is new, do we have enough for all cases? Are they actually used during cases, or just collecting dust?
- Do we track pressure ulcers in our acute care areas?
- Do we have a designated wound, ostomy and continence nurse on staff? Are they routinely involved with the perioperative population?
- Is our perioperative staff updated regularly on positioning competencies?

If more than two of these questions make you pause to think or raise a red flag, then a plan of action is recommended.

Several studies have identified cardiac, vascular, neurosurgical and orthopedic procedures as those that place patients at a particularly high risk for pressure ulcers. The length of a patient's time on the table is

another significant contributing factor, with surgeries lasting three hours or longer more likely to produce pressure ulcers.



References:

1. Survey conducted among participants of lecture, "Pressure and Positioning: Competencies for the Perioperative Nurse," by Susan Scott-Williams, RN, MSN, CWOCN, at the Association of Perioperative Nurses 53rd Congress in Washington, D.C., on March 20, 2006.
2. Beckrich K, Aronovitch S. Hospital-acquired pressure ulcers: A comparison of costs in medical vs. surgical patients. *Nursing Economics*. 1999; 17(5), 263-271.
3. Leila C. Knox, Mayo Foundation for Education and Research, 2004.
4. Courtney H. Lyder, ND, GNP, FAAN, University of Virginia Medical Center Professor of Nursing, Professor of Internal Medicine and Geriatrics, Chairman of the University of Virginia Department of Acute and Specialty Care of Adults, in lecture, "Quality of Wound Care in the United States," 2005.

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