

## Creating Healthy Work Environments 2019

### Reducing Perioperative Injury During Positioning of the Surgical Patient

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During the perioperative process, it is of the utmost importance to be aware of, and address, potential complications that the geriatric surgical patient may experience. With advanced-age, the patient develops exceedingly higher risks--patient-specific and procedural-specific--associated with the acquisition of intraoperative injury, such as the formation of pressure ulcers and development of neuropathic injuries. Without the employment of proper technique during the positioning process, and vigilant monitoring during the perioperative process, the patient is a significantly heightened risk for these aforementioned surgical complications. With increased education, employment of effective decision-making, encouraged patient-individualized assessment, and proper intervention (ie. the use of surgical positioning aids), the patient's quality of care and safety dramatically increases.

In the research process, information was gathered through various databases, primarily ClinicalKey and MEDLINE (PubMed). After the collection process, critical study was completed in order to choose the most fitting articles which best analyzed the [positive] effects perioperative positioning devices provided for patient safety. These scholarly articles were then submitted to critical appraisal using the Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) Research Evidence Appraisal Tool and the JHNEBP Evidence Level and Quality Guide (Dang & Dearholt, 2018).

Subsequently, the studies which were selected were then discussed, compared, and contrasted in their research. All articles exhibited that diligent, individualized assessments of the autonomous patient can ensure the proper employment of necessary interventions (ie. foam pads, RIK mattresses, gel rolls). With this review, many implications of procedural adjustments and decision-making in the surgical setting can be considered. Tactics, such as enhancing and continuing education, as well as requiring semi-annual competency verifications, could be employed to guarantee an individual's techniques (Spruce & Van Wicklin, 2014). Increasing capabilities in both [1.] proficient communication and [2.] assertiveness of advocacy can better encourage employment of imperative interventions, like assessing, positioning, and monitoring the patient. Understanding the uses for surgical devices, and the differences between them, in their effectiveness of decreasing pressure ulcer formation is essential for high-quality patient care. It is important for the prudent, competent circulating nurse to understand the need for intraoperative positioning aids when positioning the geriatric surgical patient. With increased distribution, or surface area, for the gravitational pressure during long procedures, patient safety is promoted. Conclusively, the vigilant nurse should, as follows: (1.) recognize the individualized needs of the autonomous patient; (2.) make precise pre-assessment judgments; (3.) adjust decision-making and interventions based on patient needs; and, (4.) continually monitor and evaluate effectiveness of interventions (ie. positioning aids).

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**Title:**

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**Keywords:**

Positioning aids, Surgical injuries and Surgical positioning

## References:

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- Spruce, L., & Van Wicklin, S. A. (2014). Back to basics: positioning the patient. *AORN journal*, 100(3), 298-305.

## Abstract Summary:

The geriatric surgical patient, due to lifespan considerations, is at a heightened risk for experiencing complications during the perioperative process. With employment of proper positioning technique, and diligent monitoring during the surgical continuity of care, the circulating nurse can significantly decrease the risk of surgical complications for the patient.

## Content Outline:

### TITLE:

REDUCING PERIOPERATIVE INJURY DURING POSITIONING OF THE SURGICAL PATIENT

### INTRODUCTION

The geriatric surgical patient, due to lifespan considerations, is at a significantly heightened risk for experiencing potential complications during the perioperative process. It is up to the decisive, competent nurse to be mindful and vigilant of necessary interventions, in order to reduce this prevalence. Due to both patient-specific and procedural-specific factors, it is important for the surgical team to accurately assess the patient's risk, determine a plan of intervention and implementation, as well as evaluate the success of complication prevention. Of surgical complications, there are two which are of extremely pervasive: (1.) pressure ulcerations and (2.) neuropathic injuries. With proficient employment of proper

positioning technique, and diligent monitoring during the surgical continuity of care, the circulating nurse can significantly decrease the risk of surgical complications for the geriatric patient. Thus, this project will provide greater perspective on the significance of perioperative positioning in influencing better patient outcomes. With increased awareness, education, individualized assessment and patient-care, and proper intervention, the patient's safety and quality of care consequently rises. In increasing these safety measurements during the perioperative process, the circulating nurse, and the rest of the surgical team, becomes a priceless advocate for the sedated (anesthetized) patient.

## **METHODS:**

This literature review was conducted through the use of two organization's access qualifications: the State College of Florida and Sarasota Memorial Hospital. Both of these affiliations provided access to a variety of different online databases, such as: Google Scholar; ClinicalKey; Association of Perioperative Registered Nurses (AORN); and, MEDLINE (PubMed).

The primary two databases which were selected for their information were ClinicalKey and PubMed. Research in these databases was refined using filters to narrow the selection for the most qualifying evidence-based research. The filters were chosen to maintain a 5-year relevancy [2013 - 2018], English language, human subjects, and adult patients (18 years of age and older).

Keywords used during the literature search were, as follows: surgery; perioperative; positioning aids; geriatric; surgical injuries; pressure ulcers; neuropathy; intraoperative positioning; anesthesia; and, various surgical positions (i.e. lithotomy, prone, lateral, supine).

## **RESULTS:**

Five studies had been selected during the literature review for analysis of effectiveness of perioperative positioning devices in reducing the prevalence of surgical injuries [pressure ulcerations and neuropathic injuries] in the geriatric surgical patient.

In Bouyer-Ferullo's (2013) non-research review on "Preventing Perioperative Peripheral Nerve Injuries (PNI)," it was found that factors which increase risk for perioperative injury include: lengthy procedures (>3 hours leads to increased risk of compromised tissue integrity), increased age, weight, and comorbid diseases. Increased, individualized pre-assessment by the surgical nurse in the patient will better determine risk factors, as well as influence positioning recommendations. The use of additional padding at nerves and nerve bundles, and between the patient and operative bedding under dependent knees diminish the occurrence of lithotomy position injuries.

In Kamel's & Barnette's (2014) systematic review, "Positioning Patients for Spine Surgery: Avoiding Uncommon Position-Related Complications," the prone position was researched. In this percentage, 0.5% of acquired ulnar neuropathy occurred in the older surgical patient--primarily males between 50-75 years of age. It had been shown, as well, that advanced age was a correlating factor. The use of a chest, or axillary, roll should be implemented in order to reduce the incidence of brachial plexus injury due to its compressible focal points. Usage of inflatable pillows beneath the chest shown greater decreases in pressure beneath the chest and shoulder than gel-pads. It is also desired to place foam pads at the elbows and wrist to prevent over-pronation of the ulnar nerves (Kamel & Barnette, 2014).

In a descriptive research study, conducted by Lopes, Haas, Dantas, de Oliverira, & Galvão (2016), findings suggested the creation of an assessment scale which could help influence the perioperative team's decision making styles for enhancing patient-care. Safeguards suggested were interventions, such as: surgical table foam mattresses and cushions; viscoelastic cushions and tables; and, so forth.

In a systematic review of 53 papers and 2 databases conducted by Kwee, Ho, & Rozen (2015), it was evidenced that the use of interventional padding for prone positioning reduced surgical complications, like

pressure ulcers, neuropathic injuries, and thrombosis. Guidelines and suggestions evidenced in their review, include: chest rolls to assist the abdominal pressure distribution; a Jackson table to decrease visceral congestion; and, supportive padding along the arms to decrease risk for brachial plexus injury.

In a review “Back to the Basics: Positioning the Patient” conducted by Spruce & Van Wicklin (2014), evidence was found on the use of positioning aids to decrease pressure ulcer formations. Chest rolls were suggested for relieving both the abdomen and thorax, increasing diaphragm and lung expansion. Continual monitoring and reviews of the patient during the intraoperative process is suggested, as well.

## **CONCLUSION:**

Through this literature review, the evidence analyzed appears to consistently agree with the increased usage of positioning aids, pre- and intra-operative individualized assessments, and education in the reduction of perioperative pressure ulcers and neuropathies in the geriatric surgical patient. As denoted, advanced age, impaired skin integrity, weight, and comorbidities extremely heightens the risk for development of pressure ulcers and peripheral neuropathies (Bouyer-Ferullo, 2013). It is evidenced that an increase in awareness and education of proper positioning technique and the risk for perioperative complications in the surgical team greatly influences decision-making and the quality and safety of care.

All articles prove that diligent, individualized assessments of the patient can ensure the proper employment of necessary interventions (ie. foam pads, RIK mattresses, gel rolls). As analyzed, an increase in education, communication, assessment, and monitoring in the surgical team is necessary to reduce patient risk for developing surgical complications. It can further be determined that engaging in proper decision making to use needed interventions, such as surgical positioning devices, can greatly aid in reducing the prevalence of pressure ulcer and neuropathic injury formation.

## **IMPLICATIONS FOR PRACTICE**

Many implications of procedural adjustments and influences to decision-making in the surgical team can be considered. Encouraging the continuation of enhanced education and communication, as well as increasing competency verifications, can greatly improve and more better guarantee individual's techniques. Increasing techniques for communication styles, interdisciplinary coordination, and improving assertiveness for patient advocacy in the circulator can encourage the use of critical interventions during assessment, positioning, and monitoring of the patient. Increasing competency in the manufacturer's guidelines for surgical devices, and knowledge of the differences between them, can greatly influence their effectiveness in decreasing pressure ulcer formation in the surgical patient (Engels et al., 2016).

Conclusively, the vigilant nurse should, as follows: (1.) recognize the individualized needs of the autonomous patient; (2.) make precise pre-assessment judgments; (3.) adjust decision-making and interventions based on patient needs; and, (4.) continually monitor and evaluate effectiveness of interventions (ie. positioning aids).

## **REFERENCES:**

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**Professional Experience:** Kenna Allison is currently graduated as an ASN-RN from the State College of Florida. She is currently finishing her BSN-RN in December of 2018. Kenna has been practicing her nursing career at Sarasota Memorial Hospital for 1 year, as of date, in the Operating Room department as a circulator nurse.

**Author Summary:** Kenna Allison began her surgical nursing experience at Sarasota Memorial Hospital in Sarasota, Florida. As a new graduate, Kenna has taken the opportunity to further her knowledge in nursing and medicine by going into the operating room department. Within the operating room, Kenna functions as a circulator nurse for the patient's perioperative experience.