# Revalidation of the acero-kurtz perioperative skin bundle

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## Significance

The Operating Room (OR) is a high-risk environment for hospital-acquired pressure injuries (HAPI) due to a number of factors including:

- Operative time and prolonged immobility
- Inability to perceive pain or discomfort from unrelieved pressure
- Friction and sheering forces
- Relatively hard support surfaces[1,2]

In 2019, 38% of all HAPI at a 500+ bed teaching hospital were contributed to the OR. The Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline published in 2019 recommends considering expected surgical time and patient position in HAPI risk assessment and using soft silicone multi-layered foam dressings to protect the skin on high pressure areas[3].
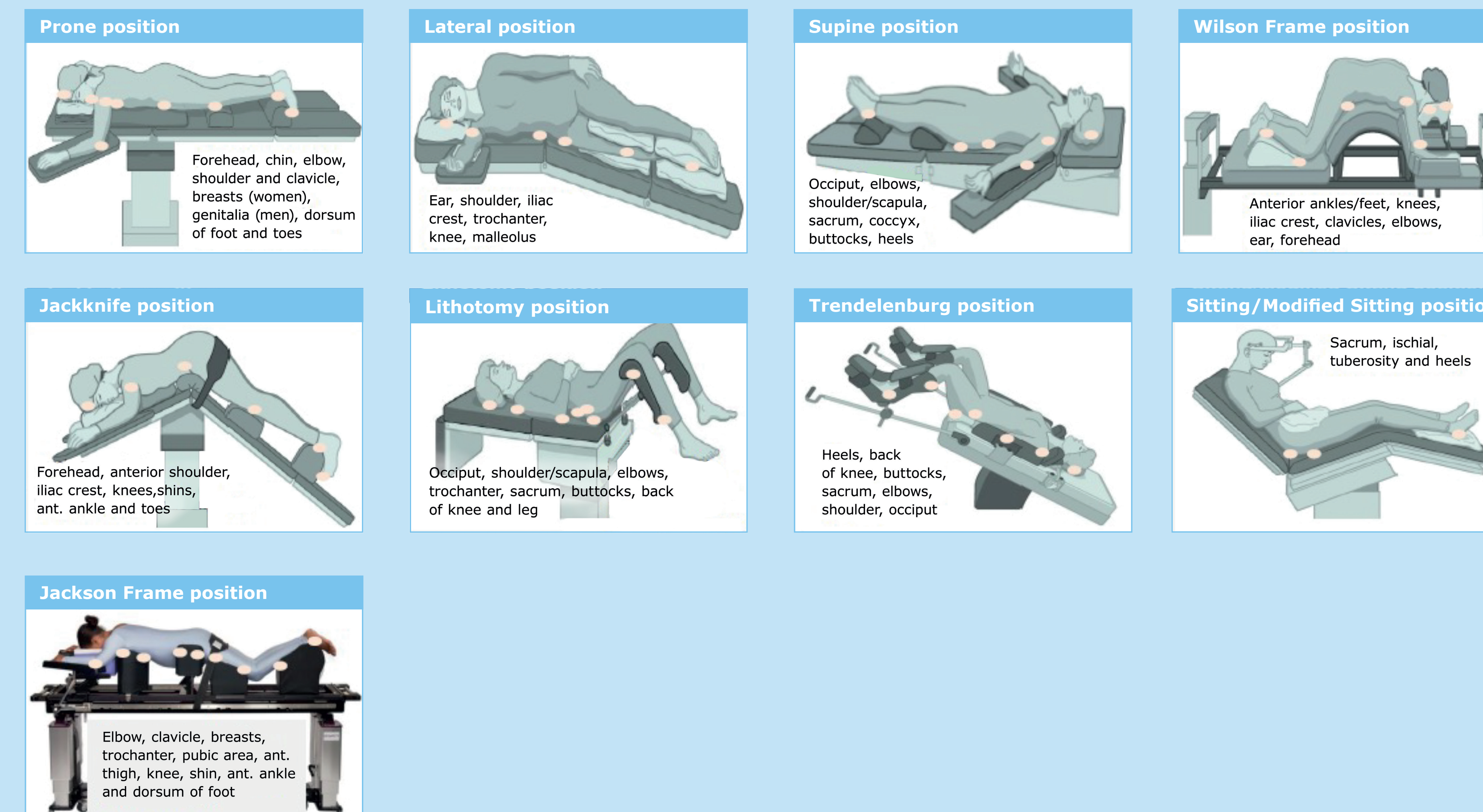
## Purpose

The purpose of this study was to test whether OR-related HAPIs could be reduced through the use of a perioperative HAPI risk screening tool and an associated bundle which included the use of soft silicone multi-layered foam dressings.

## Process

- A pre/post-test design was used and statistical significance of pressure injury outcomes was determined using Fisher's Exact Test
- The baseline period was 10/2019–09/2020 and the intervention period was 10/2020–09/2022
- The Acero-Kurtz Perioperative Skin Assessment Tool was implemented for all surgeries
- Any "yes" answer resulted in activating an OR skin bundle which included pre-surgical skin assessment, safe patient handling, and use of positioning devices
- Any 2 "yes" answers or repeat surgery during the admission identified the patient as high risk and triggered the use of the OR skin bundle and the application of prophylactic soft silicone multi-layered foam dressings based upon surgical position
- OR staff and nursing leadership were educated on the Acero-Kurtz Perioperative Skin Assessment Tool. The tool was integrated into the electronic medical record.

*Staff education provided on placement of soft silicone multi-layered foam dressings based on surgical position.*



Prone position — Forehead, chin, elbow, shoulder and clavicle, breasts (women), genitalia (men), dorsum of foot and toes

Lateral position — Ear, shoulder, iliac crest, trochanter, knee, malleolus

Supine position — Occiput, elbows, shoulder/scapula, sacrum, coccyx, buttocks, heels

Wilson Frame position — Anterior ankles/feet, knees, iliac crest, clavicles, elbows, ear, forehead

Jackknife position — Forehead, anterior shoulder, iliac crest, knees, shins, ant. ankle and toes

Lithotomy position — Occiput, shoulder/scapula, elbows, trochanter, sacrum, buttocks, back of knee and leg

Trendelenburg position — Heels, back of knee, buttocks, sacrum, elbows, shoulder, occiput

Sitting/Modified Sitting position — Sacrum, ischial, tuberosity and heels

Jackson Frame position — Elbow, clavicle, breasts, trochanter, pubic area, ant. thigh, knee, shin, ant. ankle and dorsum of foot

*The Acero-Kurz Perioperative Skin Bundle. Includes the modified PRAMS risk assessment tool and the associated perioperative interventions.*

### An NUMC Perioperative Skin Assessment Tool

If a patient identified as high risk for developing a pressure injury, a perioperative skin bundle protocol should be implemented to mitigate harm. A bundle is a set of evidence-based interventions to help standardize care and reduce complications in the healthcare setting. (Waters et al. 2015)

Patient name: _____ MR#: _____ Date: _____

Type of Procedure: _____

| All patients receiving general anesthesia will be assessed for the following risk factors | YES | NO | N/A |
|---|---|---|---|
| Diabetes | | | |
| Braden score ≤16 | | | |
| Age ≥70 | | | |
| Preexisting pressure injury | | | |
| *Surgical time ≥3hrs. | | | |
| Repeated/return to OR more than once during this admission | | | |

HIGH RISK patients ☐ If "YES" to any 2 risk factors please implement OR skin bundle ☐ *Repeated/return to OR as a stand-alone criterion is considered as high risk therefore an OR Skin Bundle will be implemented.

RN name:_____ RN signature:_____ Date: ___Time: _____

| OR Skin Bundle includes the following interventions | Check here |
|---|---|
| Use Safe Patient Handling device for patient transfer | |
| For offloading of pressure on all areas in the following position: Prone, Lateral, Supine, Lithotomy, Jackknife, Trendelenberg and Sitting, apply multilayer silicone foam border dressing | |
| Apply approved positioning devices to pressure point especially the occiput | |
| Maintenance of normothermia (Range 96.8°F-100.4°F) | |
| Microclimate management by using disposable pads | |
| Monitor skin pressure points during operative procedure and report status to receiving nurse | |

RN name:_____ RN signature:_____ Date: ___Time: _____

| Post OR procedure | Check here |
|---|---|
| Assess the integrity of the multilayer silicone foam border dressing | |
| Assess and "peek" the skin under silicone foam border dressing | |
| Document any skin integrity changes on flowsheet | |
| Handoff report includes skin assessment and preventive skin dressing sites | |
| Microclimate management by using disposable pads | |
| Patient is ambulatory or transferred out from PACU and mPRAMS is discontinued as of date:_____ | |

RN name:_____ RN signature:_____ Date: ___Time: _____

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## Outcomes

- 100% staff education attendance was achieved
- During the intervention period, 93 surgical patients met the criteria for high-risk and received OR skin bundle and prophylactic soft silicone multi-layered foam dressings
- OR-related HAPI incidence was 0% compared to 1.9% in the baseline period (p=.0011)
- This project demonstrates that with proper staff education and the implementation of a bundle including the use of soft-silicone multilayer dressings, activated through an OR-specific risk screening process, the occurrence of HAPI in the OR can be significantly reduced.

| Results | Pre-protocol implementation (10/2019 – 09/2020) | Post-protocol implementation (10/2020 – 09/2022) |
|---|---|---|
| Total number of OR patients | 311 | 1272 |
| Number that met bundle criteria | Not applicable | 93 |
| OR-acquired HAPI | 6 | 0 |

*ALLEVYN° LIFE Foam Dressing, Smith and Nephew, Hull, UK.

**References:**
1. Creehan S, Black J. Defining Practices to Avoid Hospital-Acquired Pressure Injuries in the Operating Room. *J Wound Ostomy Continence Nurs.* 2022;49(1):89–96.
2. Primiano M, Friend M, McClure C, et al. Pressure ulcer prevalence and risk factors during prolonged surgical procedures. *Aorn j.* 2011;94(6):555–566.
3. European Pressure Ulcer Advisory Panel (EPUAP) NPIAPN, Pan Pacific Pressure Injury Alliance (PPPIA). Prevention and treatment of pressure ulcers/injuries: clinical practice guidelines. *3rd ed.* 2019.