

## HAPI Panel of Experts Topic of the Month – April 2020

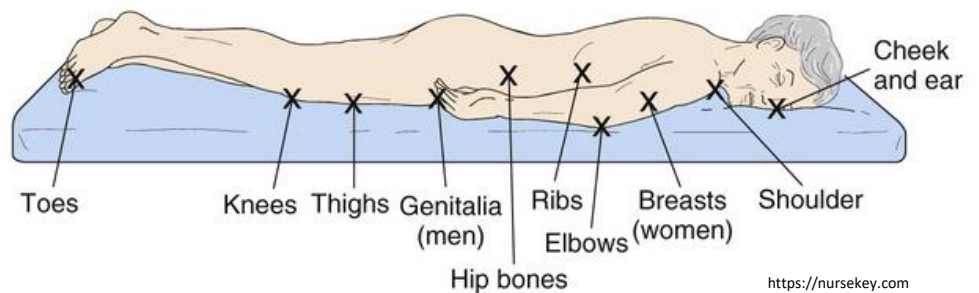
### Preventing Pressure Injuries in Prone Patients

#### Introduction

There are several reasons patients are placed in a prone position. Those undergoing spinal surgery, for example, are placed in prone position in the OR. Prone positioning is also a therapeutic intervention for patients with acute respiratory distress syndrome (ARDS) which takes on more significance in the current COVID-19 pandemic. COVID-positive patients that require mechanical ventilation have high prevalence of ARDS and usually remain on the ventilator for extended periods of time, so may have prone positioning as part of their treatment plan. In fact, the World Health Organization's guidance on management of COVID-19 patients with ARDS recommends prone ventilation for 12-16 hours per day.<sup>1</sup> When caring for a prone patient, caregivers are challenged with protecting unique pressure points from skin breakdown. Fortunately, there are effective strategies for preventing pressure injuries in these vulnerable areas.

#### Pressure Points in Prone Position

The diagram on the right shows the most common pressure points for patients in the prone position. If patients have prominent sternums, acromion processes, collar bones, or other bony prominences, these areas will also be vulnerable for breakdown.



If positioning devices are used, they may create pressure on

areas of the body such as the forehead or chin. In fact, the risks of medical device-related pressure injuries must be carefully considered. Urinary catheter tubing, endotracheal and nasogastric tubing, central lines, and hoses on sequential compression devices, for example, require careful placement and monitoring when patients are prone. ECG leads should be removed from the chest and placed on the back. Urinary catheters should drain between the legs rather than to one side. Special care must be taken to avoid pressure on the eyes. One additional consideration is the relationship of prone-related pressure points to body image. While a sacral pressure ulcer may be painful and difficult for a patient, an ulcer on the face or genitalia is especially distressing. Consider the case presented in the November 2009 journal, *British Association of Plastic,*

*Reconstructive, and Aesthetic Surgeon.* A 31-year-old man undergoing proning developed a stage 2 pressure injury on his chin. The injury took one year to heal completely.<sup>2</sup>



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#### Pressure Injury Prevention Strategies

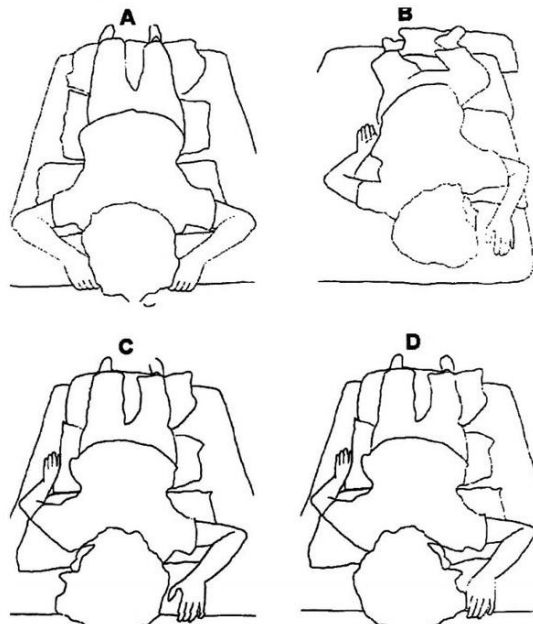
Standard pressure injury prevention strategies apply to vulnerable pressure points in prone position just as they do with supine or lateral positions, they just need to be thoughtfully selected and implemented. Hospital protocols for proning should include strategies for preventing pressure injuries.

## Protective Foam Dressings

Protective foam dressings can be applied to bony prominences such as the iliac crests, patellas, and so forth. These dressings can be safely used on sensitive areas such as the face and can be used under devices. Facial edema is not uncommon with proning, so carefully assess for changes in pressure areas throughout the proning time period.

## Positioning and Repositioning

Patients undergoing proning must remain in a prone position for many hours each day. However, regular repositioning of the limbs and head should still occur. The diagram below shows four positions to which prone patients can be alternated every 1-2 hours. The same positions can then be repeated with the opposite arm extended. Placement of medical devices must be carefully assessed with each repositioning, along with all areas of visible skin. When the patient is returned to a supine position, all prone-related pressure areas should be fully assessed. Care must be taken with repositioning from supine to prone to minimize shear and tissue stress from devices.



## Positioning Devices

In the OR, a variety of positioning devices are used to support patients in the prone position, however, there is little literature on positioning device utilization in the ICU. Specialty beds with proning ability exist as do some head-positioning devices that provide for face-down positioning. Consult with PT and/or OT for questions about devices and methods that help achieve proper positioning.

## Other Considerations

While there is little published evidence on the safety of tube-feeding patients in the prone position, the evidence that exists has found it to be safe.<sup>3,4</sup> Therefore, nutrition support should not be withheld. Corneal abrasions can occur from proning, so care should be taken to keep the eyelids closed. Monitor skin around the eyes and on the eyelids for any evidence of pressure or shear injury.

## References

1. World Health Organization. (2020). Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected. Interim Guidance, March 13, 2020. Retrieved from [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected).
2. MacDonald, E. (2020). Coronavirus and the lungs: does COVID-19 cause more severe pneumonia or ARDS than other viruses.. *Cleveland.com*. Retrieved from <https://www.cleveland.com/coronavirus/2020/03/coronavirus-and-the-lungs-does-covid-19-cause-more-severe-pneumonia-or-ards-than-other-viruses.html>.
3. Gottesman, K. (2019). Feeding face down: ARDS and prone positioning. *Dietitians on Demand*. Retrieved from <https://dietitiansondemand.com/feeding-face-down-ards-and-prone-positioning>.
4. McKenna, C. and Meehan, C. (2018). Prone positioning in ARDS. *My American Nurse.Com* Retrieved from <https://www.myamericannurse.com/prone-positioning-in-ards>.

The HAPI Panel of Experts is a group of wound care and quality professionals that represent hospitals of varying sizes and geographic regions of Tennessee. The Panel convenes monthly to discuss a topic specific to pressure injury prevention and share their practices and recommendations.

### Panel of Experts

**Jennifer Vandiver**, BSN, RN, CWON - West Tennessee Healthcare  
**Julie Brandt**, MSHA, BSN, RN, WOCN - Erlanger Health System  
**Lauren White**, MBA, BSN, RN - Vanderbilt University Medical Center  
**Sonya Clark**, RN, CWOCN - Henry County Medical Center  
**Suzanne Kuhn**, RN, CWS - Delta Medical Center

If you would like to suggest a topic for the Panel to discuss, please email your request to Rhonda Dickman at [rdickman@tha.com](mailto:rdickman@tha.com).