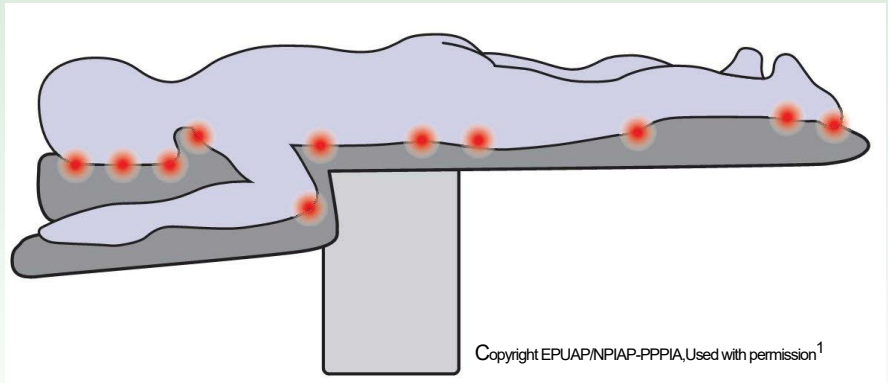


# Pressure Injury Prevention - PIP Tips for Prone Positioning

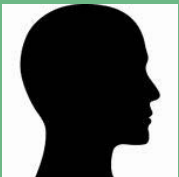
- General Tips:**
- Use a pressure redistribution surface (for those not on a bed specifically designed for proning)
  - Follow manufacturer instructions when using beds, positioning devices, prophylactic dressings and other products.
  - Positioning devices/pillows are needed to offload pressure points.
  - Involve enough trained staff to avoid friction-shear when repositioning. May reposition into swimmer position.
  - Microshifts and small position changes should be performed while prone, especially in non-rotating beds.
  - Assess all pressure points :
    - Prior to proning (anterior surfaces). Prior to returning to supine position (posterior surfaces).
    - When alternating arm position in swimming arm position, assess integrity of skin of arm/head/face.
    - Document all skin assessments and preventive measures.

## Pressure Points:

- Forehead
- Chin
- Cheeks
- Nose
- Clavicle - shoulder
- Elbow
- Chest - breasts
- Genitalia - penis
- Anterior pelvic bones (*iliac crests, ischium, symphysis pubis*)
- Knees - patella
- Dorsal feet and toes<sup>1</sup>
- Under/around medical devices



## Pay special attention to the following areas:



### HEAD

- Apply soft silicone multi-layered foam prophylactic dressings to pressure points on face.
- Manage moisture: Suction oral secretions. Use liquid skin protectants/sealants on face. Change foam dressing pm. Apply hydrofiber/calcium alginate dressing under prophylactic dressing to manage excess moisture.
- Apply thin foam dressings under medical devices. Avoid multiple layers of dressings that increase pressure.
- Offload head with offloading device(s): Consider the density of foam, height of the cushion, angle of the face, and endotracheal tube (ETT) positioning when selecting an appropriate device.
- With manual proning, shift patient's head q 2 hours; re-position head q 4 hours. May adjust timing to patient needs.
- Note: commercially available ETT securement devices may contribute to increased skin breakdown in prone patients. Assess skin carefully. Consider tape to secure ETT during proning.
- Maintain eye care to prevent corneal abrasions. Apply ophthalmic lubricant. Tape eyelids shut horizontally.
- Ensure tongue is inside patient's mouth. A small soft bite block may help. Assess tongue for injury.



### TORSO

- Place EKG leads on back while proning.
- Apply prophylactic foam dressings to pressure points.
- Ensure central lines, arterial lines and cannulas are secured (e.g., sutured).
- Empty ileostomy/colostomy pouches and pad around stoma site.
- If receiving enteral feedings, turn off feeding 1 hour before prone position turn. Resume once in prone position as ordered.
- Secure all tubes and devices away from skin; protect surrounding skin with prophylactic dressings and bridge areas with positioning devices.
- Create channels for tubes with positioning aids. Ensure that there are no unsecured devices under the torso.



### LEGS

- Apply prophylactic foam dressings to pressure points (e.g., patella and pretibial area).
- Remove securement devices and align urinary catheter/fecal management device toward foot of bed.
- Ensure that there are no unsecured devices under legs. Offload feet.

**BREASTS & GENITALIA** are particularly sensitive tissues that should be offloaded and protected.

# Special considerations:

## Acute Respiratory Distress Syndrome and Proning (including with COVID-19)

### Rationale for Proning in ARDS

- Eight RCTs have demonstrated improved oxygenation and reduced mortality with prone positioning in moderate and severe ARDS.<sup>2,3</sup>
- Prone positioning in ARDS enhances oxygenation by improving alveolar recruitment and ventilation-perfusion ratios while decreasing strain on lung tissue and the risk of ventilator injury.<sup>4,5</sup>

### Special considerations with ARDS

- Consider the potential impact of oxygenation deficits on the risk of pressure injuries. (Recommendation 1.9)<sup>1</sup>
- Episodes of prone positioning usually last for 12 or more hours.<sup>3</sup>
- Make small shifts in body position and reposition head every 2-4 hours or as required by patient.
- Major complications of proning in ARDS include displacement of ET tube, pressure injuries and loss of venous access.<sup>2</sup>
- If proning in combination with ECMO, carefully secure and offload the ECMO cannula.

## Beds and Positioning Devices Designed to Support Prone Positioning

### Beds

- Proning can be done manually on a specialty support surface with high quality pressure redistribution and shear reduction features.
- Beds specifically designed for prone positioning combine prone positioning features and the ability to rotate the bed 40 to 62 degrees. The rotation feature facilitates drainage of pulmonary secretions and enhances ventilation-perfusion matching.
- Follow manufacturer instructions and training when using beds designed for proning.<sup>7</sup> The rotation feature should not be used with unstable fractures, cervical or skeletal traction and uncontrolled intracranial pressure.

### Positioning Devices:

- Several devices are commercially available to support prone positioning. They are made of various materials designed to redistribute pressure and reduce shear stress and strain. Devices include those specifically designed for the head and torso, as well as, cushions that can be molded to conform to the body.
- Follow manufacturer instructions and training recommendations when using positioning devices designed for prone positioning.

## 2019 International Pressure Injury Guideline Recommendations (Refer to full guideline for supporting evidence)

### Repositioning Principles

- Determine repositioning frequency with consideration to the individual's level of activity, ability to independently reposition and tissue tolerance. (5.2)
- Reposition the individual to relieve or redistribute pressure using manual handling techniques and equipment that reduce friction and shear. (5.6)
- Reposition individual in such a way that optimal offloading of all bony prominences and maximum redistribution of pressure is achieved. (5.5)
- Once positioned check for uneven distribution of pressure and positioning of medical devices if possible.
- Consider using continuous bedside pressure mapping as a visual cue to guide positioning. (5.7)
- Use a soft silicone multi-layered foam dressing to protect the skin for individuals at risk of pressure injuries. (3.5)
- Do not use ring or donut-shaped positioning devices.
- Avoid extended use of prone positioning unless required for management of the individual's medical condition. (5.10)
- Reposition unstable critically ill individuals who can be repositioned using slow, gradual turns to allow time for stabilization of hemodynamic and oxygenation status. (5.17)
- Initiate frequent small shifts in body position for unstable critically ill individuals who are too unstable to maintain a regular repositioning schedule and to supplement regular repositioning. (5.18)

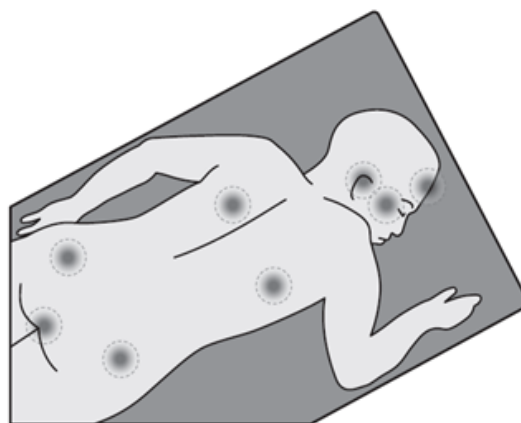
### Medical Devices

- Regularly monitor the tension of medical device securements. (8.2)
- Assess the skin under and around medical devices. (8.3)
- Use a thin prophylactic dressing beneath a medical device. (8.5)
- Avoid multiple layers of dressings that increase pressure.
- Regularly rotate or reposition the device if possible. (8.4)
- Avoid positioning the individual directly onto medical devices.

**Disclaimer:** This document is intended for educational and informational purposes only. It does not constitute medical advice for individual patient(s). Follow institutional policies, manufacturer recommendations and principles of sound clinical judgment in addressing the needs of individual patients.

## Swimming/Freestyle Position

- Patients in standard prone position can be repositioned using the swimming position.
- Alternate the position of the arms and direction of the head, in a manner that is similar to that of a freestyle swimmer.
- Pressure points on the diagram correspond to the body surface facing the mattress.



Copyright EPUAP/NPIAP-PPPIA, Used with permission<sup>1</sup>

## Cited References

1. European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel, and Pan Pacific Pressure Injury Advisory Panel, Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. Third ed. 2019: EPUAP-NPIAP-PPPIA. Available from: <https://guidelinesales.com/>
2. Griffiths, M.J.D., et al., Guidelines on the management of acute respiratory distress syndrome. *BMJ Open Respir Res*, 2019. 6(1): p. e000420. Available from: <https://spiral.imperial.ac.uk:8443/bitstream/10044/1/74593/2/Guidelines%20on%20the%20management%20of%20acute%20respiratory%20distress%20syndrome.pdf>
3. Papazian, L., et al., Formal guidelines: management of acute respiratory distress syndrome. *Ann Intensive Care*, 2019. 9(1): p. 69. Available from: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6565761/pdf/13613\\_2019\\_Article\\_540.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6565761/pdf/13613_2019_Article_540.pdf)
4. Vollman, K.M. and S.P. Dickinson. Why Prone, Why Now? Improving Outcomes for ARDS Patients. AACN Critical Care Webinar Series 2017 [cited 2020 March 27, 2020]; Available from: <https://www.aacn.org/education/webinar-series/wb0042/why-prone-why-now-improving-outcomes-for-ards-patients>.
5. Gordon, A., et al., Prone Positioning in ARDS. *Crit Care Nurs Q*, 2019. 42(4): p. 371-375.
6. Why Prone? Why Now? Improving Outcomes for ARDS Patients. *Crit Care Nurse*, 2019. 39(5): p. 84.
7. Jackson, M.E., et al., Skin preparation process for the prevention of skin breakdown in patients who are intubated and treated with RotoProne. *Respir Care*, 2012. 57(2): p. 311-4. Available from: <http://rc.rcjournal.com/content/57/2/311>
8. American Association of Critical Care Nurses. <https://www.aacn.org/education/webinar-series/wb0042/why-prone-why-now-improving-outcomes-for-ards-p>

## Additional References and Resources

- An excellent educational program on prone positioning for ARDS can be found in the AACN Webinar Series.<sup>4,6</sup>
- American Association of Critical Care Nurses. <https://www.aacn.org/education/webinar-series/wb0042/why-prone-why-now-improving-outcomes-for-ards-patients>
- See this publication for a picture of facial prophylactic dressing placement techniques.<sup>7</sup>
- Pan, C., et al., Lung Recruitment in SARS-CoV-2 Associated Acute Respiratory Distress Syndrome: A Single-center, Observational Study. *Am J Respir Crit Care Med*, 2020.
- Albert, R.K., Prone Ventilation for Patients with Mild or Moderate Acute Respiratory Distress Syndrome. *Ann Am Thorac Soc*, 2020. 17(1): p. 24-29.
- Valesky, W. and L. Chow, Prone Positioning for Acute Respiratory Distress Syndrome in Adults. *Acad Emerg Med*, 2020.
- Bajwa, A.A., et al., Automated prone positioning and axial rotation in critically ill, nontrauma patients with acute respiratory distress syndrome (ARDS). *J Intensive Care Med*, 2010. 25(2): p. 121-5.

## Acknowledgments:

The NPIAP gratefully acknowledges the contributions of the following individuals:

**Authors:** Dr. Virginia Capasso, Massachusetts General Hospital; Dr. Jill Cox, Rutgers University; Dr. Janet Cuddigan, University of Nebraska Medical Center; Dr. Barbara Delmore, NYU Langone Health; Dr. Ann Tescher, Mayo Clinic; and Susan Solmos, University of Chicago Medicine.

**Reviewers:** The NPIAP Directors and Council Liaisons. We are particularly grateful for the feedback provided by the following Corporate Advisory Council representatives to ensure the appropriate use of products that support safe prone positioning practices: Michelle Deppisch, Molnlycke®; Carroll Gillepsie, Arjo, Inc; Julia Rian, ConvaTec, Inc; and Kristen Thurman, Wellsense.