

PRONETECT

SKIN CARE CONSIDERATIONS

for the patient in prone position

The patient with acute respiratory distress syndrome (ARDS) is often placed in the prone position (PP) to improve oxygenation and survival,¹ however – PP increases skin vulnerability to breakdown i.e. pressure ulcers (PUs), medical device-related PUs (MDR-PUs), and moisture-associated skin damage (MASD).^{2,3}

The incidence of pressure ulcers is higher in PP versus in the supine position,⁴ therefore it is critical to employ preventative strategies.

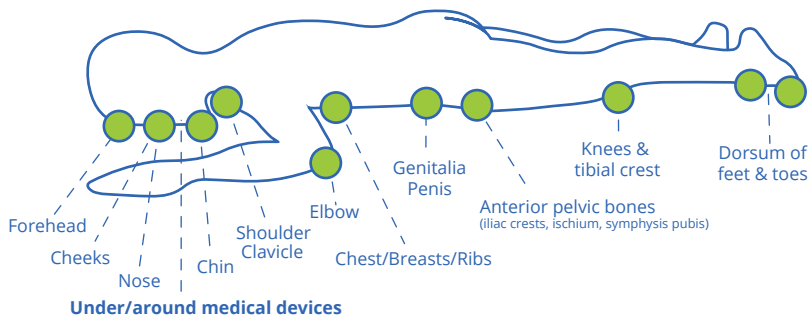
CONSIDERATIONS:

- PRONE team** Adequate number of staff available (5-7). Skilled in the prone manoeuvre.
- PRONE kits** Prepare pre-packed kits with devices needed for PP; readily available at bedside. Checklist on-hand.
- Patient** No contra-indications for PP. Procedure explained to family.

KEY CONCERNS:

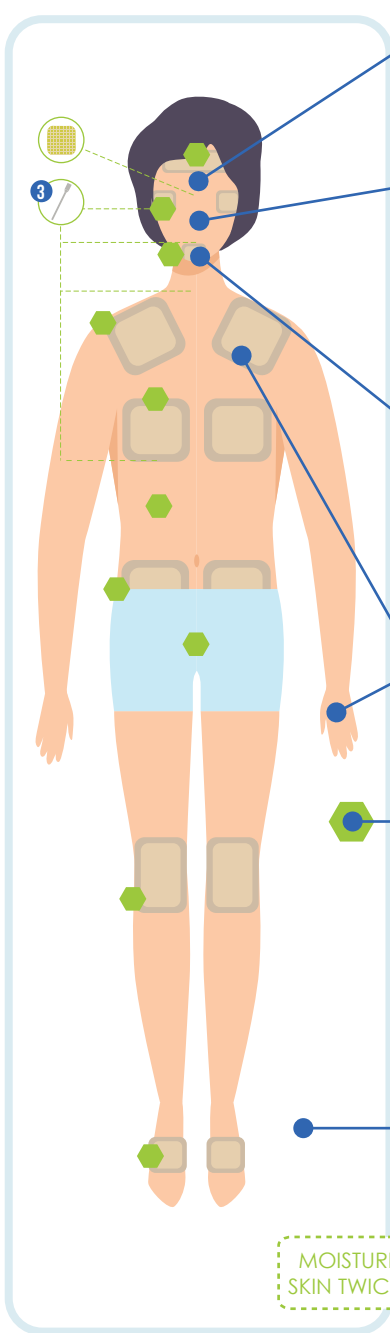
- Pressure points for potential PU development
- Medical device-related PUs
Endotracheal- and nasogastric tubes, catheters, etc.
- Moisture-associated skin damage
Prone positioning increases saliva on the chin/face.
- Skin manifestations due to COVID-19 infection⁵
- Medical adhesive-related skin injuries
- Skin tears
Related to medical adhesives and potential trauma during patient turning.

PRESSURE POINTS:



3 STEP APPROACH: 1 PREPARE 2 POSITION/REPOSITION 3 MANAGE AND CHECK

1 PREPARE



1 EYE CARE

Apply ophthalmic lubricating ointment.
Close eyelids by applying microporous/silicone tape horizontally - eye lashes forward.

2 REPLACE ET TUBE HOLDER WITH TAPE

Secure endotracheal tube (ETT) with appropriate tape versus devices which can cause more pressure in PP.
Place thin foam under the ETT ties, if used.
Ensure patient's tongue is positioned in the mouth.
Consider soft bite block for tongue.
Float nasogastric tube (NGT) with hammock taping technique or consider switching to oral gastric tube.

3 APPLY ALCOHOL-FREE LIQUID BARRIER

- Underneath all adhesives (tape and non-silicone adhesive dressings).
- All areas exposed to secretions and moisture (mouth, cheeks, skin folds, stoma sites...).
- Alginates/hydrofibres can be applied for extra absorption of secretions.

4 SUTURE LINES

Central-and arterial lines should be sutured vs. only device securement. Check that lines are not kinked or disconnected.

5 PROTECT HIGH RISK AREAS

Apply multilayer silicone-adhesive foam dressings over bony prominences and vulnerable skin areas.

- Pad areas around drains and stoma sites.
- Position the penis between the legs, the Foley catheter towards the feet, and ensure catheter is not pressing against the inner thighs.
- Use hydrocolloids for areas of friction, cheeks, and bridge of nose if silicone foam dressings are not available.⁶

6 SPECIALISED EQUIPMENT AND DEVICES

Apply a specialised device for pressure redistribution designed for management of tissue loads, micro-climate, and/or other therapeutic functions (e.g. reactive support surface, low air loss, alternating pressure).⁷

MOISTURISE THE SKIN TWICE DAILY

2

POSITION/REPOSITION

1 5-7 PEOPLE

One specialist dedicated to airway management.

Place absorbent pad underneath patient's face for secretion absorption.

2 POSITIONING



Use turning and positioning devices. Patient first turned to a 90° side-lying position to ensure all lines are secure and in the correct position/alignment for the final move to PP. Check the ETT and NGT to ensure there is no pressure on the mouth/lips or nares from these devices. Remove EKG leads from chest and place on back.

▲ Sliding- or bed sheets.

Personnel need to have training for the correct prone manoeuvre to minimise complications.

Refer to supplementary resources on the Reference page.

3 PRESSURE REDISTRIBUTION



Off-load with fluidised positioners or air inflatable devices.



▲ Gel pads and positioners.



Use soft cornered wedges to elevate feet. Check that toes do not touch any surface.

▲ Pillows: 3-4 dependent on patient size.

4 TURN

Turn patient towards ventilator. Ensure there is no tension on the lines/catheters.

5 POSITION

Patient in swimming/freestyle position. Head facing the arm in abduction (arm not positioned in abduction beyond 70°). Avoid brachial plexus injury.



1 REPOSITION HEAD

Every 2-4 hours or as clinically indicated.
Support head; neck in neutral position.

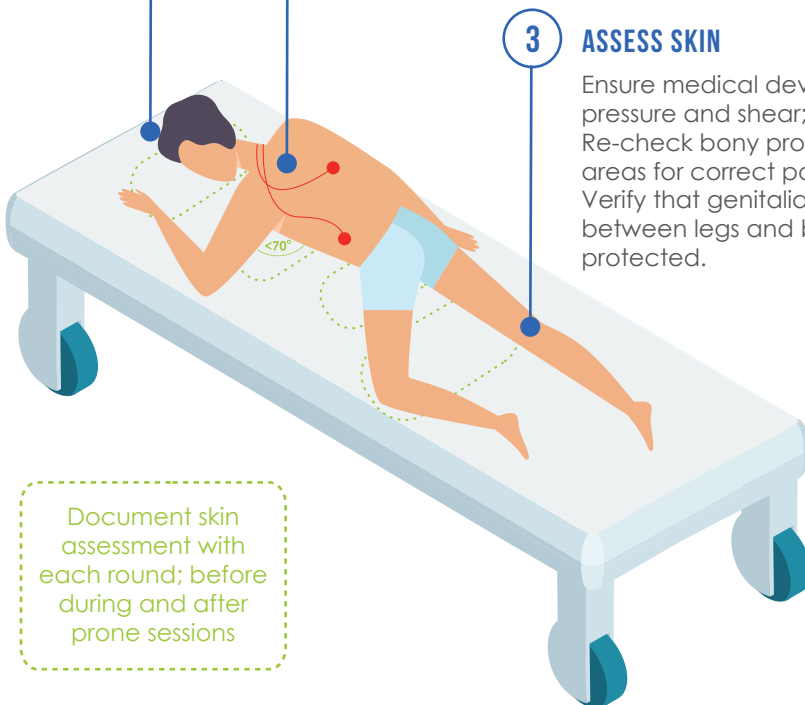
- Ensure eyes are free from direct pressure.
- Monitor tongue for oedema.
- Check underneath ETT, monitor mouth for pressure damage.
- Re-apply alcohol-free liquid barrier to mouth corners and all areas exposed to secretions.
- Ensure ears are not folded or compressed.

2 CHANGE BODY POSITION

Avoid arm hyperextension.
Change leg position as arm direction is changed.
Check ankle area for pressure damage.
Ensure positioners/pillows are in place under chest and pelvis to reduce intra-abdominal pressure.
Conduct body micro-shifts two hourly or more often if possible.
Bed position in 30° reverse Trendelenburg to minimise facial oedema.

3 ASSESS SKIN

Ensure medical devices are not causing pressure and shear; check surrounding skin.
Re-check bony prominences and vulnerable areas for correct position and padding.
Verify that genitalia are not compressed between legs and breasts off-loaded and protected.



Document skin assessment with each round; before during and after prone sessions

References:

- ¹ Guérin C, et al. PROSEVA Study Group. Prone positioning in severe acute respiratory distress syndrome. *N Engl J Med* 2013; 368: 2159–2168.
- ² Gattinoni L, et al. Effect of prone positioning on the survival of patients with acute respiratory failure. *N Engl J Med* 2001; 345 (8): 568–573.
- ³ Gefen, A, et al. Critical biomechanical and clinical insights concerning tissue protection when positioning patients in the operating room: A scoping review. *Int Wound J* 2020; 17: 1405–1423.
- ⁴ Munshi L, et al. Prone position for acute respiratory distress syndrome: a systematic review and meta-analysis. *Ann Am Thorac Soc* 2017; 14 (4): S280–288.
- ⁵ Cansas CG, et al. Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol* 2020; 183: 71–77.
- ⁶ Lucchini A, et al. Prone Position in Acute Respiratory Distress Syndrome Patients. *Dimens Crit Care Nurs* 2020; 39 (1): 39–46 doi: 10.1097/DCC.0000000000000393
- ⁷ Support Surface Standards Initiative (S3I).
<https://www.npuap.org/resources/educational-andclinical-resources/support-surface-standards-initiative-s3i/>

*Supplementary resources:

European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline. Emily Haesler (Ed.). EPUAP/NPIAP/PPPIA: 2019.

Faculty of Intensive Care Medicine (FICM). *New guidance launched for Prone Positioning in Adult Critical Care*. Available at https://www.ics.ac.uk/ICS/News_Statements/Prone_Positioning_in_Adult_Critical_Care_.aspx

Gefen A, Alves P, Ciprandi G, Coyer F, Milne CT, Ousey K, Ohura N, Waters N, Worsley P. Device-related pressure ulcers: SECURE prevention. *J Wound Care*. 2020 Feb 1;29(Sup2a):S1–S52.

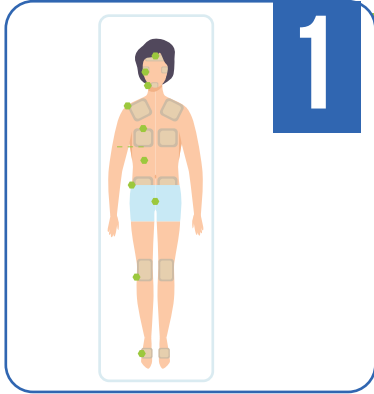
LeBlanc K, Heerschap C, Bresnai-Harris J, Butt B, Chaplain V, Wiesenfeld L. 2020. *NSWOCC Best Practice Recommendations for Skin Health Among Critically Ill Patients: with an emphasis on critically ill patients suffering from COVID-19*. Available from: www.nswoc.ca

Mobility is Medicine: Joyce Black & Kathleen Vollman: *The pursuit of HAPI-less. Proning safely - pressure injury prevention*. <https://www.youtube.com/watch?v=AXd1q6C9dko>

National Pressure Injury Advisory Panel (NPIAP): *Pressure Injury Prevention (PIP) tips for proning*. Available at https://cdn.ymaws.com/npiap.com/resource/resmgr/press_releases/NPIAP_PIP_Tips_for_Proning.pdf

Rush University Medical Center: *Prone Positioning for ARDS*.
<https://www.youtube.com/watch?reload=9&v=lcBPahQUvXY>

Disclaimer: *This guidance document is intended for educational purposes only. Follow institutional policies and good clinical practices according to the needs of each individual patient. For specialised equipment and devices follow manufacturer recommendations.*



1

PREPARE

1. Eye care and moisturise skin-----
2. Replace ET tube holder with tape-----
3. Apply alcohol-free liquid barrier-----
4. Suture and secure lines-----
5. Pad high risk areas-----
6. Use specialised equipment/devices-----



2

POSITION/REPOSITION

1. 5 - 7 people-----
2. Position using devices-----
3. Redistribute pressure-----
4. Turn-----
5. Position-----



3

MANAGE AND CHECK

1. Reposition head-----
2. Change body position-----
3. Assess skin-----
4. Document skin assessment-----