The patient with acute respiratory distress syndrome (ARDS) is often placed in the prone position (PP) to improve oxygenation and survival, however – PP increases skin vulnerability to breakdown i.e. pressure ulcers (PUs), medical device-related PUs (MDR-PUs), and moisture-associated skin damage (MASD). The incidence of pressure ulcers is higher in PP versus in the supine position, therefore it is critical to employ preventative strategies.

**PRONE TACT**

**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, however – PP increases skin vulnerability to breakdown i.e. pressure ulcers (PUs), medical device-related PUs (MDR-PUs), and moisture-associated skin damage (MASD). The incidence of pressure ulcers is higher in PP versus in the supine position, therefore it is critical to employ preventative strategies.

**CONSIDERATIONS:**

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

**PRESSURE POINTS:**

- Forehead
- Cheeks
- Nose
- Chin
- Shoulder
- Clavicle
- Elbow
- Genitalia
- Penis
- Knees & tibial crest
- Anterior pelvic bones (iliac crests, ischium, symphysis pubis)
- Dorsum of feet & toes
- Under/around medical devices

**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 infection**
- **Medical adhesive-related skin injuries**
- **Skin tears**
  - Related to medical adhesives and potential trauma during patient turning.

**3 STEP APPROACH:**

1. **PREPARE**
2. **POSITION/REPOSITION**
3. **MANAGE AND CHECK**

*Coronavirus disease 2019*
1. **PREPARE**

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

   **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.
   - 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.

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

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

   **PROTECT HIGH RISK AREAS**
   - Apply multilayer silicone-adhesive foam dressings over bony prominences and vulnerable skin areas.
     - a. Pad areas around drains and stoma sites.
     - b. Position the penis between the legs, the Foley catheter towards the feet, and ensure catheter is not pressing against the inner thighs.
     - c. Use hydrocolloids for areas of friction, cheeks, and bridge of nose if silicone foam dressings are not available.

   **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).
5-7 PEOPLE
One specialist dedicated to airway management.

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.

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.

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

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

▲ Tier 2: if recommendations are not available
3 MANAGE AND CHECK

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.

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References:


7 Support Surface Standards Initiative (S3I). https://www.npuap.org/resources/educational-and-clinical-resources/support-surface-standards-initiative-s3i/

*Supplementary resources:


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


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.
**CHECKLIST**

**PREPARE**

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

**POSITION/REPOSITION**

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

**MANAGE AND CHECK**

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

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