**Prone Position Ventilation in Critical Care**

**Aim:** To provide practical guidance on the indications and process for prone position ventilation.

**Scope:** Ventilated adult patients in the Intensive Care Unit. This guidance should be used in conjunction with the Department of Critical Care Standard Operating Procedure for Refractory Hypoxaemia.

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### Indications

Consider proning early when adequate oxygenation can not be achieved within ARDSnet lung protective ventilation parameters (See Refractory Hypoxaemia SOP). Typical criteria include:

- Ventilator settings optimised, paralysed and recruitment manoeuvres attempted
- Requiring FiO₂ over 0.65 to keep PaO₂ over 8kPa
- Unable to keep peak airway pressure below 30cmH₂O

### Potential Contraindications

**Absolute contraindications include:**
- Open abdomen
- Unstable cervical spine

**Relative contraindications include:**
- Cardiovascular instability
- Head injury with raised ICP
- Eye or facial injury
- Thoraco-lumbar spinal injury
- Pelvic fracture
- Recent abdominal surgery
- Gross ascites or obesity
- Pregnancy in 2<sup>nd</sup> or 3<sup>rd</sup> trimester
- Intra-aortic balloon pump

### Pre-Turn Considerations

- Ensure sufficient staff available
  - 1 doctor with intubation skills
  - 4 additional nurses or doctors
- Assess pressure areas and ensure suitable mattress is in use.
- Perform eye care: clean and lubricate with simple ointment (e.g., Lubitears), then close with tape.
- Perform standard DCCQ mouth care.
- Check grade of intubation, current length of ETT at teeth, and suitable ETT securing (not Anker Fast or Elastoplast)
- Ensure deep sedation and adequate muscle relaxation.
- Aspirate NGT and pause feed while turning
- Disconnect non-essential IV lines and luer lock, for re-connection following the turn.
- Ensure there is adequate length of IV tubing for essential infusions while turning.
- Remove ECG electrodes from anterior chest wall and reposition on back/sides.
- Try to re-position chest drain sets without lifting above the patient. Any temporary clamping of chest drains for turning should only be done by a senior doctor.

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Beware proning too soon after admission to ICU. First try to give other measures a chance to work, carry out essential transfers, and ensure all necessary lines are in and working.
Critical Care Standard Operating Procedure

Turning to the Prone Position

1. Brief the team on the process (minimum of 5, including 1 doctor with airway skills).

2. Move the patient on a slide sheet to the side of the bed furthest from the ventilator.

3. Place pillows to side of patient, aligned with chest and pelvis, (not abdomen) to be rolled on to.

4. Tuck arm closest to the ventilator under buttocks with the palm facing down.

5. Place leg furthest from ventilator on top of other leg, crossing at the ankles.

6. At airway doctor’s discretion either clamp ETT and disconnect from ventilator, or carefully control ETT for turn.

7. In a controlled manner, turn the patient 45 degrees and then fully prone.

8. If ETT was clamped and disconnected, re-connect the ventilator and re-check adequate ventilation including CO2 trace.

9. Gently flex both arms and raise towards the head with palms down.

10. Ensure the abdomen is not compressed and is free to expand with ventilation.

11. Change head position to face the ventilator.

12. Re-check all lines and monitoring.

13. Re-check all pressure areas.

Maintaining in the Prone Position

- Aim to keep in prone position for 16-18 hours at a time.¹
- As long as proning is still required, aim to keep prone for at least 75% of the time (eg 18/24 hours).¹
- Vary the prone position regularly, eg rotating through positions A, B, C & D every 1-2 hours.
- After rotating through A-D, repeat with the opposite side of the body (ie right hand up, instead of left)
- Watch carefully for new pressure areas on the front of the body and take special care to avoid pressure on the eyes.
- At the end of each prone session, re-assess the need for further proning.

Reference