# PRONING IN THE WARD-BASED AWAKE SELF VENTILATING PATIENT WITH COVID-19

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<td>CLASSIFICATION:</td>
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<td>PURPOSE</td>
<td>To advise Clinicians on how to prone awake patients on the ward who are self ventilating in the management of COVID19</td>
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<tr>
<td>Document Author:</td>
<td>Dr Shyam Madathil (and respiratory colleagues at UHBFT)</td>
</tr>
<tr>
<td>Approved By:</td>
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</tr>
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**Distribution:**
- **Recommended Reading for:** All clinicians treating ward-based patients with COVID19
- **Information for:** Wards Managers, Senior Nurses, ADNs, Divisional Directors
Background

About 20% of patients with COVID-19 disease require oxygen supplementation with about 5% needing invasive ventilation. Proning has been used in treating ventilated patients with Acute Respiratory Distress Syndrome (ARDS) for many years. Given the improvement noted with proning in mechanically ventilated patients during the current COVID-19 epidemic, it has been postulated that prone positioning may also be beneficial in conscious COVID-19 patients requiring basic respiratory support in terms of improving oxygenation, reducing the need for invasive ventilation and potentially even reducing mortality. Evidence to support the prone position in the awake self-ventilating patient is in large anecdotal yet is supported by basic physiological principles including:

- Reducing load on lung fields by both the abdominal content and heart
- Recruitment of posterior lung segments and reduction of shunt due to reversal of atelectasis
- Improved Ventilation Perfusion (V/Q) matching – caused by a shift in pulmonary perfusion to anterior regions
- Potential to improve secretion clearance

Indications

Confirmed or suspected COVID-19 patients requiring FiO2 of 28% or more or basic respiratory support (CPAP/ NIV/ HFNO) to achieve target O2 saturations (> 92 to 96% or 88 to 92% if at risk of hypercapnic respiratory failure).

Proning should only be considered for appropriate patients and undertaken by trained staff with appropriate PPE (as per trust policy) and with a clear monitoring plan, failure criteria and escalation criteria.

Aims

Appropriate monitoring should support the following aims of prone positioning:

- Improve oxygenation & reduce Fi02 demand
- Reduce work of breathing
- Recruit collapsed alveoli in dorsal regions of the lungs

Do Not Prone:

Absolute contraindications to proning include

- Immediate need for intubation
- Respiratory distress, accessory muscles active, RR>35, PCO2>6.5 kPa,
- Decreased consciousness level or agitation
- Spinal fractures, severe facial fractures or other non-fixated fractures
- Recent abdominal surgery, intestinal ischaemia or raised intra-abdominal pressure
- Cardiovascular instability, recent pacemaker/ICD insertion or recent thromboembolic event
Relative contraindications to proning include
- Pregnancy (2nd and 3rd trimesters)
- Morbid obesity
- Facial injuries
- Raised intracranial pressure

Proning in the awake patient may also be inappropriate in the following circumstances and discussion with appropriate specialist teams may be required:
- Inability to adopt a prone position independently
- Full stomach – including patients with NG bolus feed
- Pressure areas

**Procedure:**
The flow chart taken from the Intensive Care Society document attached should be used to guide the proning procedure.
CLEAR plans should be documented in the medical records in regards to monitoring with direction on planned de-proning where there no evident treatment benefit and monitoring both in the prone position and alternative positions. A plan in regards to position changes should also be clearly documented with estimated times and indications for escalation.

**Position**
A fully prone position may not be achievable and the reverse Trendelenburg in prone (foot of bed angled 10° to 30° down) may aid comfort and can be seen below (figure 1) with care taken to clear the abdomen of any pillows. A semi-prone position may be more achievable due to patient tolerance, requires the abdomen to be cleared, and again is seen below (figure 2).

*Figure 1: The reverse Trendelenburg in prone position*  
*Figure 2. Alternative semi-prone position*
Table 1 – Timed position changes for patients undergoing conscious proning process

Timed Position Changes:

If patient fulfils criteria for proning ask the patient to switch positions as follows. Monitor oxygen saturations 15 minutes after each position change to ensure oxygen saturation has not decreased. Continue to monitor oxygen saturations as per the National Early Warning Score (NEWS)

- 30 minutes to 2 hours lying fully prone (bed flat)
- 30 minutes to 2 hours lying on right side (bed flat)
- 30 minutes to 2 hours sitting up (30-60 degrees) by adjusting head of the bed
- 30 minutes to 2 hours lying on left side (bed flat)
- 30 minutes to 2 hours lying prone again
- Continue to repeat the cycle......
Figure 1 – Flow diagram decision tool for Conscious Proning process

1. If \( \text{FiO}_2 \geq 28\% \) or requiring basic respiratory support to achieve \( \text{SaO}_2 \geq 92 - 96\% \) (88-92\% if risk of hypercapnic respiratory failure) AND suspected/confirmed COVID-19:
   - Consider prone position if ability to:
     - Communicate and co-operate with procedure.
     - Rotate to front and adjust position independently.
     - No anticipated airway issues
   - YES

2. Absolute contraindications:
   - Respiratory distress (RR > 35, \( \text{PaCO}_2 \geq 6.5 \), accessory muscle use)
   - Immediate need for intubation
   - Haemodynamic instability (SBP < 90mmHg) or arrhythmia
   - Agitation or altered mental status
   - Unstable spine/thoracic injury/recent abdominal surgery
   - Relative Contraindications:
     - Facial injury
     - Neurological issues (e.g. frequent seizures)
     - Morbid obesity
     - Pregnancy (2/3rd trimesters)
     - Pressure sores / ulcers
   - YES

3. Assist patient to prone position (See Table 1):
   - Explain procedure/benefit
   - Ensure oxygen therapy and basic respiratory support secure with adequate length on the tubing
   - Pillows may be required to support the chest
   - Reverse Trendelenburg position may aid comfort
   - Monitor oxygen saturations – If drop then ensure O2 connected and working
   - Sedation must not be administered to facilitate proning

4. Monitor Oxygen Saturations for 15 minutes:
   - \( \text{SaO}_2 \geq 92-96\% \) (88-92\% if risk of hypercapnic respiratory failure) and no obvious distress
   - YES

5. Continue proning process (See Table 1):
   - Change position every 1-2 hrs aiming to achieve a prone time as long as possible
   - When not prone aim to be sat at between 30-60 degrees upright
   - Monitor oxygen saturations after every position change
   - Titrate down oxygen requirements as able
   - NO

6. If deteriorating oxygen saturations:
   - Ensure oxygen is connected to patient
   - Increase inspired oxygen
   - Change patient’s position
   - Consider return to supine position
   - Escalate to critical care if appropriate
   - Discontinue if:
     - No improvement with change of position
     - Patient unable to tolerate position
     - RR > 35, looks tired, using accessory muscles
   - NO

Taken from ICS Guidance for Prone Positioning of the Conscious COVID Patient 2020