

Guideline: Awake Proning for Non-Intubated Patients in Critical Care Setting

Contents

A. Rationale.....	1
B. Inclusion Criteria.....	1
C. Exclusion Criteria	1
D. Proning Procedure	1
1. Before Proning	2
2. Proning.....	2
3. After Proning.....	3
E. References	4

A. Rationale

Proning is an established therapeutic intervention for intubated patients with ARDS and is a central component to managing hypoxic respiratory failure in patients with severe COVID-19 acute lung disease. Patients with moderate COVID – 19 lung disease with escalating O₂ requirements may benefit from “Awake” proning interventions. Clinical observations from colleagues in the U.S. and Europe suggests that proning may improve oxygenation in less severe disease and potentially avert the need for ICU care/intubation for some patients.

B. Inclusion Criteria

- Bilateral diffuse or multifocal pulmonary infiltrates involving more than one lobe on CXR
- Patients should be able to mobilize into and out of prone position without assistance
- O₂ saturation 88% - 92% on ≤ 6L NC supplemental O₂
- Patients on HFNC can be considered on a case by case basis after discussion with RT, nursing and attending physicians

C. Exclusion Criteria

- Chronic lung disease
- Chest tubes
- Spinal instability, vertebral compression fractures, other spinal issues
- Decision of withdrawal or limitation of therapy
- Pulmonary infiltrates of cardiac origin
- GCS < 15
- PaCO₂ > 45
- Hemodynamic instability
- Pregnancy
- Morbid obesity with BMI > 45
- Attending considers the patient unsuited for the prone position
- Prone position as a rescue therapy should not be used as a replacement for ICU transfer or intubation.

D. Proning Procedure

- Key Safety Points:
 - Adjust equipment, secure IV lines, tubes, drains, and ensure patient’s ability to self-adjust to avoid deep tissue injury
 - Place 3 bed rails up, bed flat or in reverse Trendelenburg position

1. Before Proning

- a. Patient comfort
 - i. Ask patient to void if needed
 - ii. Consider moving EKG leads to the back. See Figure 1.

Figure 1: Proper placement of EKG leads on back



- iii. Provide additional pillows or pads as needed for pressure points
- b. Patient safety
 - i. Ensure continuous pulse oximetry and telemetry monitoring
 - ii. Avoid sedation
- c. Record vital signs, including O₂ saturation,
- d. Determine minimum oxygen saturation level, heart rate, respiratory rate for proning session to be stopped due to intolerance
- e. Provider enters proning order in Penn Chart

2. Proning

- a. Instruct patient to roll over (face toward door) into the prone position. See figure 2.
 - i. The patient should lie on stomach, supported by arms and pillows.
 - ii. Patient can self-adjust position/arms and pillows
 - iii. Care must be taken to ensure that O₂ supply tubing is unobstructed

Figure 2: Prone Positioning



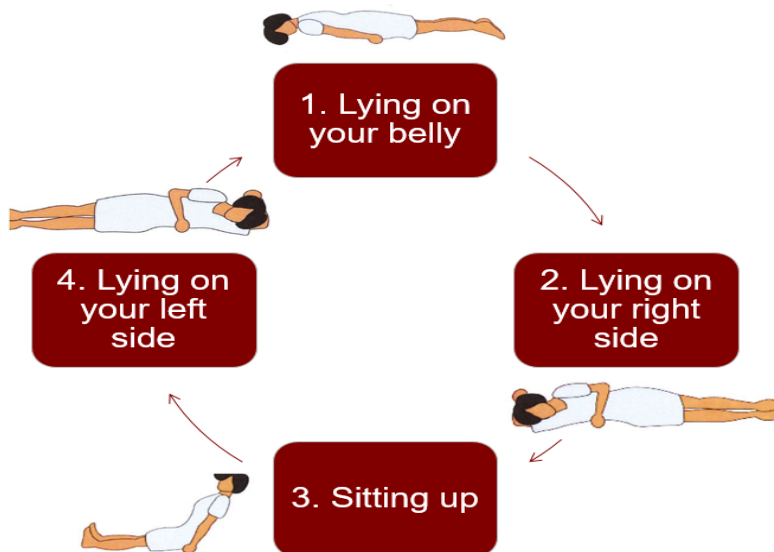
- b. Monitor O₂ saturation, and record vital signs within 30 minutes, then q hour and PRN
 - i. Some patients may not tolerate the maneuver and/or may desaturate

- ii. If patients O₂ saturation < 88%, HR > 120, RR > 24 (or at levels below set goals)
 - Ask patient to move back to semi-recumbent supine position
 - RN/RT informs the critical care provider of non-tolerance to prone position
- iii. If O₂ desaturation persists:
 - Follow the Critical Care **Respiratory escalation, non-invasive ventilation, and ICU management guideline** which can be accessed on the COVID 19 UPHS Sharepoint Site under Critical Care Resources
- c. If tolerated, prone cycle duration should be at least 2-4 hours – can trial longer if tolerated. See figure 3 for an example of cycled positioning rotation.
- d. Perform at least twice a day if there is evidence for benefit and no evidence of tissue injury.

3. After Proning

- a. Examine pressure points for evidence of tissue injury
- b. Record vital signs within 30 minutes

Figure 3: Cycled rotation of position changes during self-proning



E. References

1. Caputo, N.D., Strayer, R.J., Levitan, R., and Klein, J. Early self-proning in awake, non-intubated patients in the emergency department: A single ED's experience during COVID-19 pandemic, *Academic Emergency Medicine*. 2020; 27(5):375-378.
2. Sun Q, Qiu H, Huang M, Yang Y. Lower mortality of COVID-19 by early recognition and intervention: experience from Jiangsu Province. *Ann Intensive Care*. 2020;10(1):33.
3. Feltracco P, Serra E, Barbieri S, et al. Noninvasive high-frequency percussive ventilation in the prone position after lung transplantation. *Transplantation Proceedings*. 2012;44(7):2016-2021.
4. Feltracco P, Serra E, Barbieri S, et al. Non-invasive ventilation in prone position for refractory hypoxemia after bilateral lung transplantation. *Clin Transplant*. 2009;23(5):748-750.
5. Valter C, Christensen AM, Tollund C, Schønemann NK. Response to the prone position in spontaneously breathing patients with hypoxemic respiratory failure. *Acta Anaesthesiol Scand*. 2003;47(4):416-418.
6. Pérez-Nieto OR, Guerrero-Gutiérrez MA, Deloya-Tomas E, Ñamendys-Silva SA. Prone positioning combined with high-flow nasal cannula in severe noninfectious ARDS. *Critical Care*. 2020;24(1):114.
7. Gattinoni L, Taccone P, Carlesso E, Marini JJ. Prone position in acute respiratory distress syndrome. Rationale, indications, and limits. *American journal of respiratory and critical care medicine*. 2013;188(11):1286-1293.
8. Scaravilli V, Grasselli G, Castagna L, et al. Prone positioning improves oxygenation in spontaneously breathing nonintubated patients with hypoxemic acute respiratory failure: A retrospective study. *J Crit Care*. 2015;30(6):1390-1394.
9. Ding L, Wang L, Ma W, He H. Efficacy and safety of early prone positioning combined with HFNC or NIV in moderate to severe ARDS: a multi-center prospective cohort study. *Critical Care*. 2020;24(1):28.
10. Pandharipande PP, Shintani AK, Hagerman HE, et al. Derivation and validation of SpO₂/FiO₂ ratio to impute for PaO₂/FiO₂ ratio in the respiratory component of the Sequential Organ Failure Assessment score. *Crit Care Med*. 2009;37(4):1317-1321