

Department of Nursing Education and Research

Conscious prone positioning of COVID-19 patients

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Emerging Literature

- ▶ Per the Intensive Care Society, conscious prone positioning
 - Is a simple intervention done to improve oxygenation
 - Is compatible with all forms of basic respiratory support
 - Requires little or no equipment
- ▶ Early application of prone positioning with HFNC, in patients with moderate ARDS and baseline SpO₂ > 95%, may help avoid intubation.

- Ding, L., Wang, L., Ma, W. *et al.* (Jan. 2020). Efficacy and safety of early prone positioning combined with HFNC or NIV in moderate to severe ARDS: a multi-center prospective cohort study. *Crit Care* **24**, 28



Objectives

- ▶ Manage hypoxic respiratory failure in patients with COVID-19
- ▶ Improve oxygenation in less severe disease
- ▶ Avert the need for ICU care/intubation
- ▶ Adhere to evidence-based practice and emerging literature for care of COVID positive patients

**Prone position as a rescue therapy should not be used as a replacement for ICU transfer or intubation.*

Inclusion Criteria

- ▶ Bilateral diffuse or multifocal pulmonary infiltrates involving more than one lobe on CXR
 - ▶ O2 sat > 92% on ≤ 6L NC supplemental O2
 - ▶ Ability to mobilize into and out of prone position independently
 - ▶ Appropriate mentation (oriented and expressed understanding of why pronation is offered)
- ❖ Patients on HFNC - considered on a case by case basis.
- Discuss with attending provider, primary nurse, and respiratory therapist

Exclusion Criteria

- ▶ Chronic lung disease
- ▶ Chest tubes
- ▶ PaCO₂ > 45 * if tested
- ▶ Spinal instability, vertebral compression fractures, other spinal issues
- ▶ Decision of withdrawal or limitation of therapy
- ▶ Pulmonary infiltrates of cardiac origin
- ▶ Pregnancy
- ▶ Aspiration Risk
- ▶ Morbid obesity with BMI > 45

CPP process for COVID-19 Patients

C

- Confirm Appropriateness

O

- Offer Education

V

- Verify Supplies and Readiness

I

- Initiate Monitoring

D

- Determine Frequency/Document



Confirm Appropriateness

- ▶ Confirm appropriateness of patient
 - Review inclusion/exclusion criteria
- ▶ Evaluate pre-prone vital signs
- ▶ **Follow Nurse Communication Order**
- ▶ Team huddle

Offer Education

- ▶ Inform and educate patient
 - What is conscious prone positioning?
 - Why are we using it?
 - What is the process?

Verify Supplies and Readiness

- ▶ Gather supplies (ECG leads, pillows, blankets)
- ▶ Prepare patient
 - Empty bladder
 - Avoid proning within 30 minutes of eating
 - Maintain safety measures
 - SECURE ALL LINES & DEVICES
 - Bed rails up
 - Call bell within reach
 - Reverse Trendelenburg position
- ▶ Instruct patient to roll over into the prone position
 - Patient should lie on stomach, supported by arms and pillows.
 - ECG leads are applied to back
- ▶ Encourage self-movement every 1-2 hours (head, arms, legs)
 - Care must be taken to ensure that O2 supply tubing is unobstructed

Initiate Monitoring

- ▶ Monitor O₂ saturation, record vital signs within 30 minutes and 30 minutes after proning
 - Some patients may not tolerate the maneuver and/or may desaturate
 - Stay with patient for first 5-10 minutes
- ▶ If patient desaturates (O₂ saturation < 92%), HR > 120*, RR > 24*
 - Ask patient to move back to semi-recumbent supine position
 - For patients on nasal cannula, increase FiO₂ to 6L NC
- ▶ If O₂ desaturation persists:
 - Call covering provider (or [rapid response](#) if severe)
 - Increase FiO₂ to 8-10L or place on 100% NRB 10-12L if needed

Penn Chart ARDS Proning

ARDS Proning – Now Defaulted in Vital Signs Flowsheet

IMPACTED USER GROUPS: Nurses

The ARDS Proning flowsheet group is now visible by default when documenting on the Signs flowsheet. Previously, this group had to be manually added.

The screenshot displays the 'Flowsheets' application window. The left sidebar shows a list of flowsheet categories, with 'Vital Signs' selected. The main area shows a grid for documenting vital signs. A red box highlights the 'ARDS Proning' section, which includes fields for 'Patient Position', 'Proning Start Time', and 'Total Time'. A red arrow points from the 'ARDS Proning' checkbox in the sidebar to the highlighted section in the grid. The grid also shows other sections like 'Hemodynamic Monitoring' and 'Oxygen Therapy'. The right side of the window displays patient information, including temperature (Temp) and a 'Mins/Maxes' table.

Temp
Max: 100 °F (38.3 °C)
Warm Max: 101 °F (38.3 °C)
Warm Min: 98 °F (35.6 °C)
Min: 97 °F (35.6 °C)

Determine Frequency/Document Procedure

- ▶ Prone cycle duration
 - At least 2 to 4 hours
 - May trial longer if tolerated
- ▶ Perform at least twice a day
- ▶ Discuss tolerance with medical team: nursing and respiratory therapy
- ▶ Document conscious prone positioning in PennChart

Flowsheets (completed rows are filtered out)

File | Add Rows | LDAAvatar | Cascade | Add Col | Insert Col | Data Validate | Hide Device Data | Hi

Skin Assessment | Sedation / Analgesia ... | esas-r | Vitals / Pain | Restraints (NV) | Vent Doc | Vital Signs | Screen

Expanded | View All

Group/Row Name Select

Search | Recent

ID	Display Name	Record Name
16453	ARDS Prone	G UPHS IP ARDS PRONING

Remove | Accept | Cancel

Safe Environment

- Safe Environment
- Arm Bands On
- Safety Rounds (pain)
- Call Light Within Reach
- Overbed Table Within Reach
- Bed In Lowest Position
- Bed Wheels Locked
- Bed/Chair Safety
- NonSkid Footwear

Vital Signs

- Temp
- Temp src
- Pulse
- ECG Heart rate
- Heart Rate Source
- Cardiac Rhythm
- Cardiac Ectopy

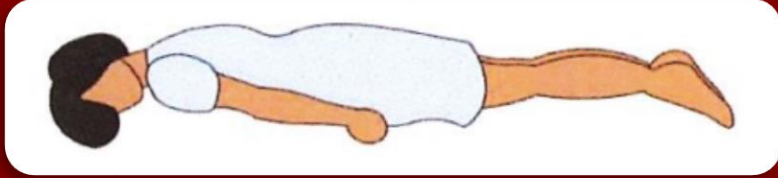
Resp

- BP

Non-invasive BP mean (mmHG) | 71 | 113

BP Location

Prone Position

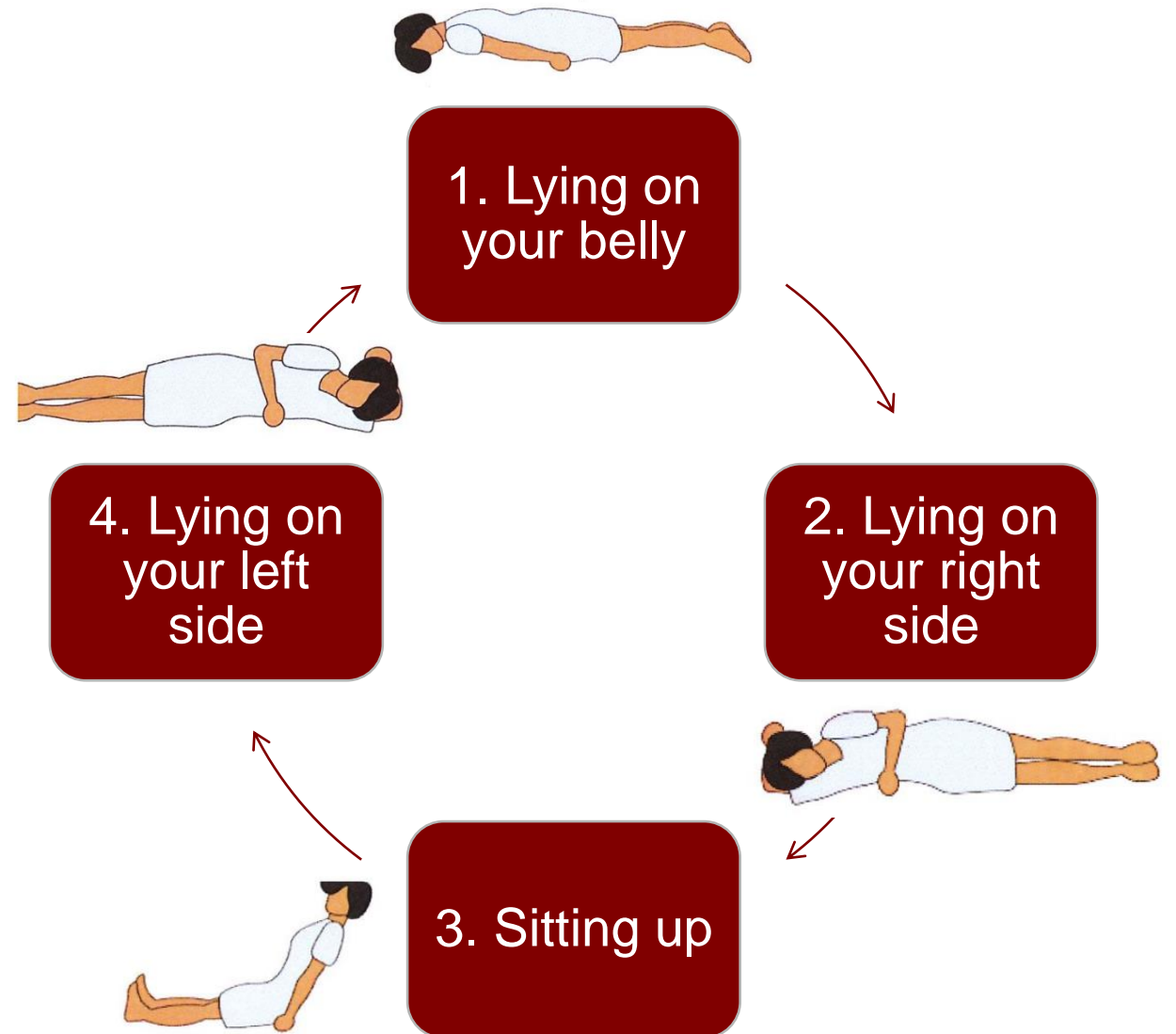


- 2-4 hours lying on belly
- Can trial longer if tolerated

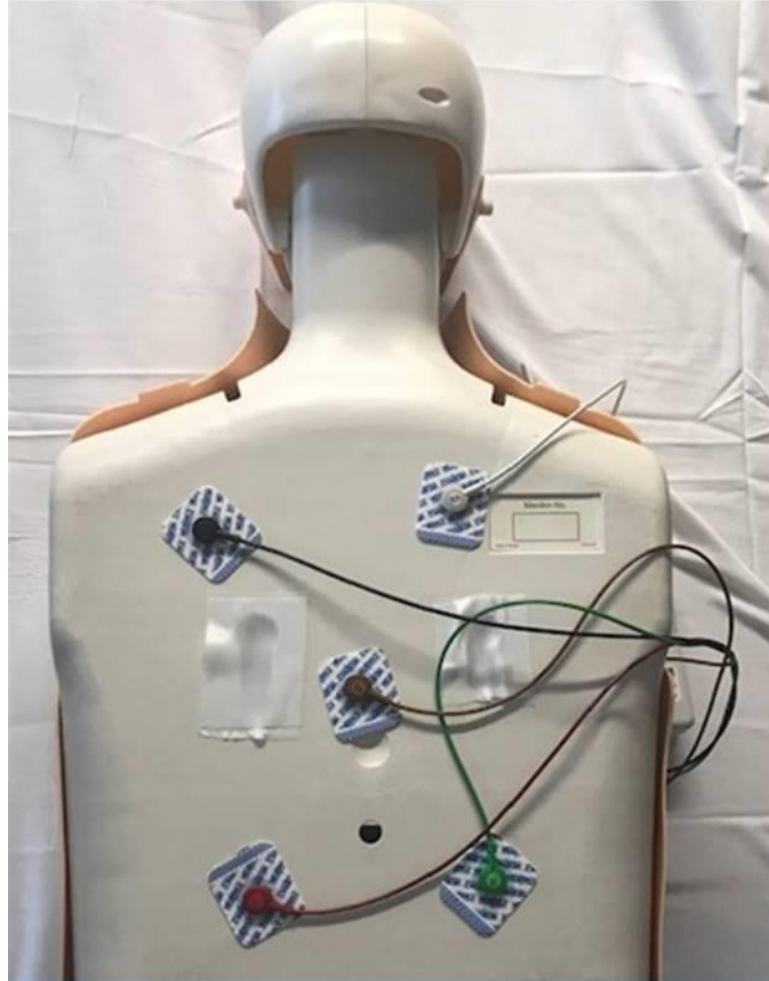
▶ If patient unable to tolerate for recommended duration, see option for timed position change

Timed Position Change

1. 30min – 2 hours: lying on your belly
2. 30min – 2 hours: lying on your right side
3. 30min – 2 hours: sitting up
4. 30min – 2 hours: lying on your left side



Placement of ECG Leads *if on telemetry*



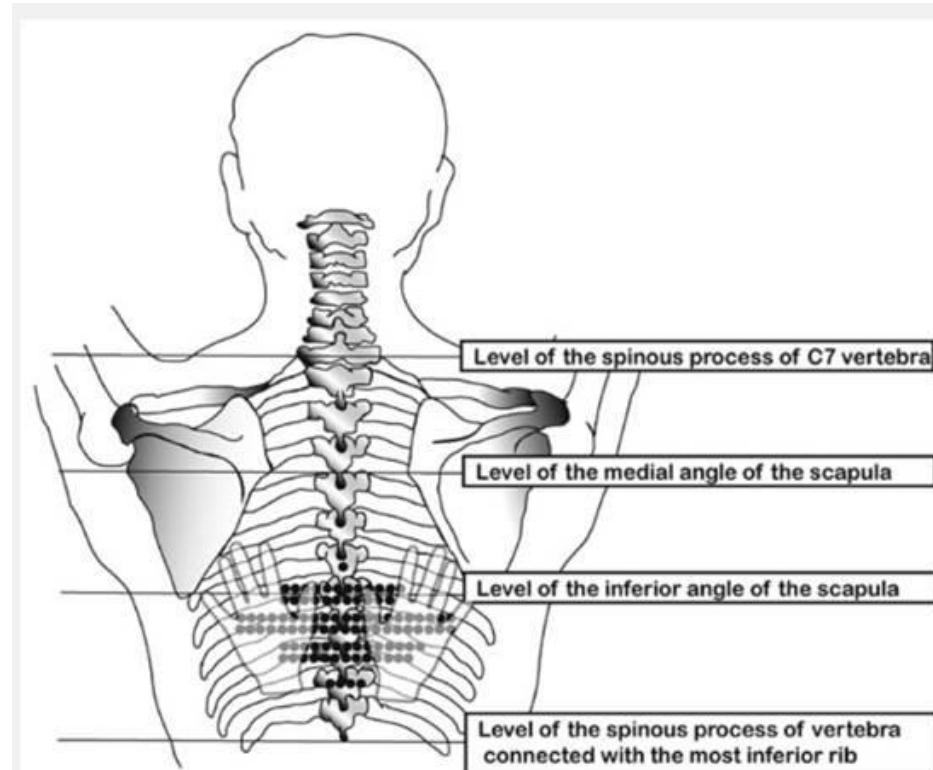
Pressure Injury Prevention (PIP) Tips

Reference huddle sheet

General Tips:

- Use a pressure redistribution surface (*for those not on a bed specifically designed for proning*)
- *Follow manufacturer instructions when using beds, positioning devices, prophylactic dressings and other products.*
- Positioning devices/pillows are needed to offload pressure points.
- Involve enough trained staff to avoid friction-shear when repositioning. May reposition into swimmer position.
- Microshifts and small position changes should be performed while prone, especially in non-rotating beds.
- Assess all pressure points :
 - Prior to proning (anterior surfaces). Prior to returning to supine position (posterior surfaces).
 - When alternating arm position in swimming arm position, assess integrity of skin of arm/head/face.
 - Document all skin assessments and preventive measures.

CPR in Prone Position



Cardiopulmonary resuscitation (CPR) in prone position. Optimal hand position level for cardiac compression during prone CPR and distribution of the level of the largest left ventricular cross-sectional area in relation to the anatomic landmark. Each black dot represents the level of largest left ventricular cross-sectional area in each patient. (From Kwon, M.J. and others. [2017]. Optimizing prone cardiopulmonary resuscitation: Identifying the vertebral level correlating with the largest left ventricle cross-sectional area via computed tomography scan. *Anesthesia & Analgesia*, 124[2], 520-523.)

Resources and Materials

<https://emcrit.org/wp-content/uploads/2020/04/2020-04-12-Guidance-for-conscious-proning.pdf>

https://point-of-care.elsevierperformancemanager.com/skills/32/quick-sheet?skillId=CC_016

<https://emcrit.org/wp-content/uploads/2020/04/COVID-CARP-Protocol-postable.pdf>

<https://www.ncbi.nlm.nih.gov/pubmed/32204726>

<https://ccforum.biomedcentral.com/articles/10.1186/s13054-020-2738-5>

Drahnak, D., & Custer, N. (2015). Prone Positioning of Patients with Acute Respiratory Distress Syndrome. *Critical Care Nurse*, 32 (6): 29-37.

Ding, L., Wang, L., Ma, W. *et al.* (Jan. 2020). Efficacy and safety of early prone positioning combined with HFNC or NIV in moderate to severe ARDS: a multi-center prospective cohort study. *Crit Care* **24**, 28

Guerin C, Reignier J, Richard J *et al.* Prone positioning in severe acute respiratory distress syndrome. *NEJM* (2013); 368(23): 2159-2168.

COVID-19: Proning Considerations For Patient on HFNC or BIPAP. A Rapid Guidance Summary from the Penn Medicine Center for Evidence-based Practice. Last updated April 8th, 2020.