Prone Positioning Utilizing a Ceiling Lift
(For Critical Care Areas only)

Indications for Use: To improve oxygenation in patients who require mechanical ventilation, specifically in ARDS.

Rationale/Principle: To provide instructions on safe patient proning utilizing ceiling lifts.

Equipment:

1. Team members: 4-6 team members to reposition patient (depending on size of the patient), 1-2 Respiratory Therapists are recommended to manage the airway and lead the procedure. An MD at bedside is recommended, especially for the first time.
2. About 6 pillows (you may not need all)
3. 1 Flat sheet
4. Face pillow – available from SPD (ref 1937)
5. New ECG electrodes package
6. Mepilex – to be cut to fit forehead and chin
7. Lacrilube and tape for the eyes
8. Ultrasorb pad
9. Blue (slick) turning sheet
10. Flat Repositioning Sling x2

Precautions & Key Points:

- The patient will be in the prone position 12 to 18 consecutive hours per day and is most beneficial when applied early, within 36 hours after intubation.
- During pronation therapy patient is one to one nursing care
- Ensure all staff is informed of prone patient on unit
- A “Proning Kit” will be placed in the MICU supply room

Inclusion Criteria:

- New onset and severe ARDS
- ALL of the following:
    i. PaO2/FiO2 ratio < 150 mmHg
    ii. FiO2 > 60%
    iii. PEEP > 5cm H2O

Exclusion Criteria:

- Suspected increased ICP > 30mm Hg or CPP < 60mm Hg
- Unstable spine, femur, pelvis, rib fractures or other skeletal limitations
- Open chest or unstable chest wall
- Substantial Facial trauma
- Substantial acute bleeding
- Wounds at risk of dehiscence
- Pregnancy
- Tracheal surgery or sternotomy: Must consult surgical team

- IABP therapy, Ventricular assist device
- Goals of care incompatible with aggressive treatment plans

If one or more exclusion criteria are present, inform providers

Discontinuation of Therapy:

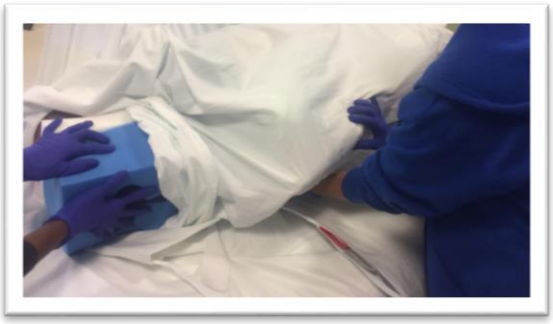
1. **Patient improvement:** Patient has met pre-established criteria (defined as a PaO_2: FiO2 ratio of >150 mm Hg, with a PEEP of ≤10 cm of water and an FiO2 of ≤0.6; these criteria must be met in the supine position at **least 4 hours** after the end of the last prone session.
2. **Absence of response:** Consistent PaO_2/FiO_2 ratio deterioration by more than 20% relative to the PaO_2/FiO_2 ratio in the previous supine session. Stop with prone therapy if deterioration occurs in two consecutive prone sessions.
3. **Life-threatening deteriorations:** Complications that may lead to immediate interruption of prone therapy:
    a. Oxygen saturation of less than 85% on pulse oximetry or a PaO_2 of less than 55 mm Hg for more than 5 minutes when the FiO_2 was 1.0
    b. Unplanned extubation
    c. Main-stem bronchus intubation
    d. Endotracheal tube obstruction
    e. Substantial hemoptysis
    f. Cardiac arrest or heart rate less than 30 beats per minute for more than 1 minute
    g. Systolic blood pressure of less than 60 mm Hg for more than 5 minutes

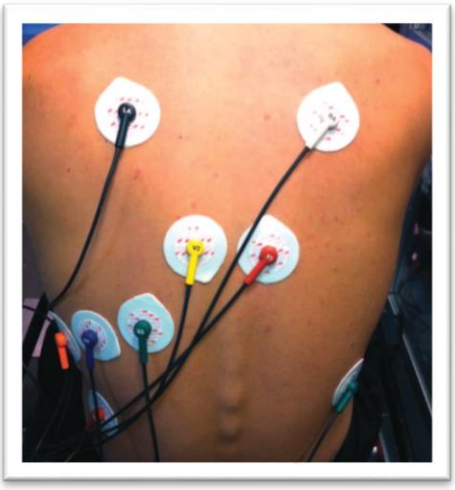
Actions:	***Evidence/Key Points:***
Pre-Proning	
1. Obtain provider order to place patient in prone position	Provider order is necessary due to the potential patient risks.
2. Obtain baseline vital signs and hemodynamic measurements.	Baseline data are needed to evaluate the effect of prone positioning.
3. Perform and document physical assessment. Pay particular attention to skin condition	Baseline skin assessment is necessary to assess for any changes associated with prone positioning.
4. Obtain any ordered baseline lab samples.	Baseline data are needed to evaluate the effect of prone positioning.
5. Provide analgesia, sedation and ***consider*** neuromuscular blockade. (*NMB is not required)*	Depending on patient's condition, paralysis may not be required; aggressive control of pain and

	anxiety is essential for the position change to be effective and to prevent complications.
6. Consult with Respiratory Therapy to secure the airway.	To prevent dislodgment of ETT. RT will have primary responsibility of the ETT during the prone turn. ETT can become less secure due to increased oral and nasal drainage while proned.
7. Perform skin protection interventions • Apply Mepilex to forehead and chin • Apply lacrilube or moisture drops to eyes and tape eyelids shut (preferably with “kind removal” tape)	Mepilex protects the skin from pressure and sheer injury Patients are at high risk for corneal injury in the prone position Kind removal tape will minimize potential eye damage
8. Secure tubes/line/drains, note position of tubes for reference and document. • If patient does not have a OG/NG tube consider placing one prior to proning.	To protect against accidental dislodgment. Decompression of abdomen may decrease risk of aspiration.
9. During proning procedure, disconnect and cap any non-vital tubes/lines/drains, including arterial lines. Reconnect all tubes/lines/drains after completion of turn.	Simplifies proning process decreases the potential that tubes/line/drains could be inadvertently dislodged.
10. Remove ECG leads and stickers from the front of the patient. • Keep SpO2 monitor on patient to assess oxygen saturation and heart rate during the procedure	Reduce or remove anything that could create pressure points ECG leads will be replaced on the patients back after proning.

Proning Process	
1. Place Slings/Sheets under patient in the below order (bottom to top): • Flat (repositioning) Sling • Ultrasorb Pad • Slick blue turning sheet • Flat (repositioning) Sling • Flat sheet (to wrap pillows in) leaving 2/3 of the sheet hanging off the bed Or a hovermat (if proning only for a procedure)	
2. Attach the bottom sling to the bed using the loops – to minimize movement	
3. Pillow placement • Place 2-3 pillows on patient's chest • Place 2-3 pillows on hips • Cover pillows with the draped end of the flat sheet	 Pillows protect boney prominences against pressure injury. Leave the abdomen and knees free floating to decrease abdominal pressure and pressure to knees
4. Remove the headboard and footboard, move bed away from wall and drop side rails, and position patient's arms at their sides.	Removing the headboard and moving bed away from the wall allows easier access to the patient's head and ETT.
5. **Perform "time out" and call the room to order**	Ensure everyone is focused on the task

• Conversations not related to proning will be held until after the procedure to ensure patient safety. • Leader calls out "**Time Out**" to confirm procedure, plan, and ensure that tubes/line/drains still attached are secured.	
6. Roll sheet into a tight "burrito" holding the pillows in place.	
7. Attach 1 side of the top sling to the ceiling lift (using the opposite side from the ventilator) • Staff on the lift side hold sling and pull towards themselves as it lifts • Staff on the non-lift side to push and tuck the sheet and pillows under the patient	

8. The team leader maintains control of lift process: • As lift rises the patient will slide to the edge of the bed, away from the ventilator and slowly rise to their side • As the patient rises, the staff on the ventilator side will tuck the sheet and pillows under the patient	
9. Staff will provide support to slowly lower the patient into the prone position	
10. Team will adjust patient for appropriate positioning placement • Take note of the patient's body position, if the patient is hyperflexed add an additional pillow under the chest to maintain a neutral position • Use wedges and pillows to adjust patient positioning as needed.	

11. Place new ECG electrodes on patients back.	
12. Carefully position arms to rest in a neutral position	Caution: Arms should not be hyper-extended. Arms should be placed at less than a 90° and slightly lower than the body to prevent brachial plexus nerve damage
13. If using the proning face pillow, ensure that the eyes are clear of the pillow. You may also position the patient's head either to the left, or right with a regular pillow or pad. Ensure mepilex dressings on chin and forehead are intact Assess for hyper extension of the neck	Verify the facial foam support or proning face pillow is supporting the patient's forehead and avoids placing pressure on the eyes. If need be the face pillow can be cut to size The patient's chin and forehead are at risk for sheer and pressure injury in this position
14. Reconnect disconnected tubes/line/drains. Verify that no tubes/line/drains are kinked.	
15. Perform physical assessments once proned.	Obtain baseline vital signs and physical assessment in the prone position in order to assess for adverse or positive outcomes

Care of the Proned Patient	
Data is needed to assess patient's response to prone positioning. It may take 30 minutes to 2 hours to see a favorable response. *For some patient's prone positioning may result in a serious deterioration in oxygenation or hemodynamic status, and rapid repositioning may be warranted.* *Close monitoring of the patient, especially for the first hour, after turning prone is necessary.*	
1. Reposition arms and head to reduce pressure as tolerated.	Consider turning patient's head to the side and reverse the positioning of the patient's arms. Consider placing arms in swimming position (Right up and Left down) and alternating arm position every 2 hrs.
2. Determine anticipated timeframe for patient proning. • If the patient is too unstable to return to the supine position, steps will need to be taken to alleviate pressure points on the front of the body. • One option is to turn the patient side to side in a ¾ prone position.	Repositioning can help prevent skin breakdown. NEVER raise the humerus above the clavicle as this position can increase the risk of clot formation and nerve damage. **Always have RT present to protect the airway and prevent any tubing disconnections with any major repositioning.**
3. Ensure adequate nutritional intake while in supine position. • Prone position may increase the risk of aspiration.	
Return to the Supine Position	
Criteria for the return to the supine position include **Patient improvement**, **Absence of response, Life-threatening deteriorations** and are defined in discontinuation of therapy section.	
1. Obtain provider order to place patient in supine position	Provider order is necessary due to the potential for patient harm.

2. Secure tubes/line/drains, note position of tubes for reference and document.	To protect against accidental dislodgment.
3. During proning procedure, disconnect and cap any non-vital tubes/lines/drains, including arterial lines. Reconnect all tubes/lines/drains after completion of turn.	Simplifies proning process decreases the potential that tubes/line/drains may be inadvertently dislodged.
4. Remove ECG leads and stickers from the back of the patient	Reduce or remove anything that could create pressure points ECG leads will be replaced on the patients front after proning.
5. Keep SpO2 monitor on patient to monitor oxygen saturation and heart rate	
6. Place Slings/Sheets under patient in the below order (bottom to top): • Flat (repositioning) Sling • Ultrasorb Pad • Slick blue turning sheet • Flat (repositioning) Sling	Lift the patient up or turn side to side while in the prone position and place the slings and sheets underneath the patient.
7. Attach the bottom sling to the bed using the loops – to minimize movement	
8. PERFORM "TIME OUT" AND CALL ROOM TO ORDER • Conversations not related to turning will be held until after the procedure to ensure patient safety. • Leader calls out "**Time Out**" to confirm procedure, plan, and ensure that tubes/line/drains still attached are secured.	Ensure everyone is focused on the task
9. Attach 1 side of the top sling to the ceiling lift (ventilator side)	

• Staff on the lift side hold sling and pull towards themselves as it lifts	
10. The team leader maintains control of lift process: • As lift rises the patient will slide to the edge of the bed, towards the ventilator and slowly rise to their side • Staff will provide support to slowly lower the patient away from the ventilator into the supine position • Reposition limbs ensuring safe body positioning.	
11. Reconnect disconnected tubes/line/drains. Verify that no tubes/line/drains are kinked.	
12. Perform physical assessments once the patient is supine	

Documentation:

1. Document in ICCA and CPRS
2. Document appropriate nursing procedures in CPRS templates as indicated

Patient Education:

1. Explain to the patient and family, as appropriate, the rationale for pronation therapy, sedation, paralytics, and mechanical ventilation. Also explain the procedure, including positioning, the demonstrated benefit, frequency of assessments, expected response, and parameters for discontinuing therapy.

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