RANCHO LOS AMIGOS
NATIONAL REHABILITATION CENTER

ADMINISTRATIVE POLICY AND PROCEDURE

Subject: PRONING THERAPY FOR PATIENTS WITH ARDS **Policy No.:** B887

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PURPOSE:
To outline the care management of patients who will benefit from proning therapy in the treatment of Acute Respiratory Distress Syndrome (ARDS).

POLICY:
Obtain a physician's order for prone positioning

Proning therapy is used as an adjunct therapy for acute hypoxemic respiratory failure to improve oxygenation and promote alveolar recruitment. Proning therapy also improves lung compliance and ventilation-perfusion matching by reducing posterior atelectatic lung and gravitational effects of edema in the lung, resulting in more lung parenchyma optimized for ventilation.

Proning therapy should be initiated within the first 24 hours of the diagnosis of severe hypoxemia ARDS For best results, the patient should remain prone for at least 12 hours in a 24-hour period.

Nutrition – Gastric feedings will be stopped about 1 hour prior to turning to reduce the risk of aspiration during the turning process. Enteral feedings can be resumed during pronation therapy. The use of prokinetic agents and transpyloric feedings are recommended to prevent vomiting.

INCLUSION CRITERIA
- Severe ARDS - Severe hypoxemia defined as PaO2/FioO2 ratio <150mm Hg, with FiO2>60% with at least 5cm of PEEP
- Failure of low tidal volume ventilation

RELATIVE CONTRAINDICATIONS – Use pronation therapy with caution
- Hemodynamic instability (MAP <65)
- Cardiac abnormalities
  - Cardiac pacemaker inserted in the last 2 days
  - Arrhythmias
  - Ventricular assist device in place
- Difficult airway
- Anterior burns
- Chest tubes
- Open wounds
- Shock
- Any skin condition that needs to be open to air or protected from surface contact
- Patient weight >159kg
- Patient height > 6 feet, 6 inches

ABSOLUTE CONTRAINDICATIONS

- Spinal instability
- Unstable spine, femur, skull, facial, or pelvic fractures
- Pregnancy
- Tracheal surgery or sternotomy during previous 15 days
- Recent thoracic and abdominal surgeries
- Massive hemoptysis
- Abdominal compartment syndrome
- Increased ICP/Herniation
- Cervical or skeletal traction
- DVT treated for less than 2 days

PROCEDURE:

Pre-Proning Procedure (See Checklist)

- Provider
  - Evaluate inclusion criteria and possible contraindications
  - Enter a proning therapy order including the amount of time patient will remain prone
  - Order necessary labs or diagnostic exams (e.g. CT, bronchoscopy)
  - Evaluate the need for paralytic therapy
  - Consult with interdisciplinary team members (e.g. Dietician) if needed
  - It is recommended to suture central and arterial lines in place
- Nursing
  - Gather the necessary supplies
  - Provide necessary patient care as indicated
  - Stop tube feedings 1 hour prior to turning patient
  - Manage medications as ordered
  - Protect all bony prominences to prevent pressure injuries while proned
  - Gather the team
- Respiratory Care Practitioner (RCP)
  - Evaluate neck mobility for turning
  - Replace the oral endotracheal tube fastener with soft tube holder to prevent facial pressure injuries

Manual Proning Procedure

- Follow steps as outlined on checklist for phase 2, phase 3, and phase 4
- Provider to remain in the room while proning the patient until stabilized.

PATIENT CARE:

- Provide oral care at least every 2 hours
- Suction ET tube, nose, and mouth hourly and PRN
- Ensure eyes are closed and provide eye care at least every 4 hours applying lubricant as ordered
- Reposition patient's head and arms every 2 hours and PRN (swimmers position: one arm up and one down)
- Adjust patients position (micro-shift) every 2 hours and PRN
- Maintain a 30-degree in Reverse Trendelenburg position for patients on enteral nutrition
- Check gastric residual per routine

REPORTABLE CONDITIONS:

- Failure of respiratory rate, effort, heart rate, and blood pressure to return to normal 10 minutes after the turn
- Deterioration in vital signs
- Increasing respiratory distress
- Significant changes is respiratory assessment
- ECG changes
- Significant changes in ABGs
- Skin breakdown
- Drainage from nares
- Changes in amount or characteristics of secretions
- Changes in eyes condition
- Evidence of feeding substance when suctioning the airway
- Need to interrupt or discontinue pronation therapy

PRONATION THERAPY IMMEDIATE INTERRUPTION

Immediately turn patient supine if these or any other life-threatening events occur:

- Cardiac arrest
- HR < 30 bpm for > 1 minute
- SBP < 60 for > 5 minutes
- Extubation
- Main stem bronchus intubation
- ET tube obstruction
- Hemoptysis
- Oxygen Saturation <85% for >10 minutes
- PaO2 <55 mmHg for > 5 minutes

DISCONTINUING PRONATION THERAPY

Manual prone position should be discontinued once the following criteria are met:

- Improvement in oxygenation
    - PaO2/FiO2 ratio > 150 mmHg with an FiO2 of < 60% and PEEP $\leq$ 10 cm while patient is supine for at least 4 hours
    - PaO2/FiO2 ratio of > 20% relative to the ratio in supine before 2 consecutive prone sessions

DOCUMENTATION:

- Patient/Family education
- Patient's tolerance to prone therapy
- Length of time in prone position
- Assessment findings
- Reportable conditions
- Interruptions in therapy

REFERENCES:

AACN. (2017). *Procedure manual for high acuity, progressive and critical care* (7 ed.). (D. Wiegand, Ed.) St. Louis, MO: Elsevier.

Anesi, G. L. (March de 2020). *Corona virus disease 2019: Critical care issues.* https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-critical-care-issues?topicRef=126981&source=see_link

County of Los Angeles Department of Health Services – Harbor UCLA, Care Management Protocol – Proning Position for ARDS: Management of Patient 5 WMICU, 6WICU, 4WCCU

Supplies Needed			
	2 Bariatric waffle cushions		Scissors
	4 standard waffle cushions		Hydrocolloid dressing (to place under medical devices)
	5-layer foam dressings		Surgical tape
	Pads		ETCO2 set up
	ECG Leads		Suction set up
	2 flat sheets		Anchoring device(s) for catheters and tubes
	Regular tape		Indwelling catheter stat lock
	Tegaderm		

Phase 1 – Pre-Turn Checklist

	MD		Charge Nurse
	Evaluates patient for possible contraindications for proning therapy		Notify RCP
	Informs patient/family about decision to prone, includes risks/benefits of prone position therapy		Assist bedside nurse in facilitating prone position process
	Orders necessary labs		
	Evaluates the need for CT or bronchoscopy prior to proning		
	Enters Proning Orders		
	Evaluate the need for paralytic therapy		
	Staff Nurse		**Respiratory Care Practitioner (RCP)**
	Provide oral care		
	Notify team of order for proning therapy		Evaluate neck mobility for turning with physician and/or RN
	Stop tubes feedings 1 hour before proning		Replace oral endotracheal tube fastener with soft ET tube holder. Use surgical tape as needed for additional securement
	Coordinate with RCP to titrate medication based on ventilator synchrony. Note: patient does not need to be sedated to a RASS of -5, ventilator synchrony is sufficient		Assess ventilator parameters for optimization
	Initiate paralytics as ordered Note: if paralytics will be initiated, sedate patient to a RASS of -5 prior to paralytic administration		Assist with patient transport to CT and/or Bronchoscopy as ordered
	Place foam dressings to bony prominences to protect against pressure (i.e. bilateral knees, pelvis, shoulders, forehead, cheeks, chin, chest)		Set up capnography for monitoring
	Rinse eyes with NS and apply eye ointment as ordered		

Phase 2 – Proning the Patient

	Charge Nurse		Respiratory Care Practitioner
	Gathers the team – at least 6		Removes headboard of the bed
	Charge Nurse – Lead and “hands off”		Pre-oxygenates the patient with 100% Oxygen
	4-6 Staff Nurses – 2-3 at each side of the bed		Make sure enough slack is present with the ventilator circuit and move the ventilator as close to patient as possible
	RCP at the head of the bed, controls the airway and countdown all turns		Suctions the patient’s ET Tube and oral cavity
	MD remains in the room until patient is prone and stable. Aids with emergency interventions		Checks cuff pressure
			Positions hands properly to prepare for the move. One hand is used to stabilize the patient’s occiput and neck, while the other hand is used to hold the ET tube and stabilize the front of the head.
			Always on your count of 3, team will proceed with all patient movements

Phase 3 – Steps to Manual Pronation

	1	Ensure all lines and tubes found from the waist up are positioned toward the head of the bed, and lines tubes from the waist down are positioned toward the foot of the bed, ensure enough slack is present
	2	Maximally inflate the bed and place in the flat position
	3	Place a handy sheet underneath the patient's current sheet
	4	Remove patient's gown, ECG leads, and ECG electrodes. At this time monitor ETCO2, SPO2 and arterial line. Tape arterial line transducer to the side of the chest where the invasive lines are present
	5	Tuck the patient's hand closest to the ventilator under the patient's thigh with the palm facing up (this should be the opposite side of the patient's invasive lines
	6	Place an absorbent pad on top of patient's genital area
	7	Place bariatric waffle cushions on top of the patient in a vertical position
	8	Place a flat sheet on top of everything, covering the patient up except the patient's head
	9	Roll the bottom and top sheets tightly together, encasing the patient like a "burrito"
	10	At this time, RCP removes the patient's pillow and positions hand on patient's neck/occiput and ET tube as described above
	11	If RCP requests it, on the count of 3, boost the patient up to the head of the bed
	12	On RCPs count of 3, move patient horizontally to the edge of the bed farthest away from the ventilator
	13	On the RCPs count of 3, rotate the patient to a side-lying position with the ET tube facing the ventilator
	14	On the RCPs count of 3, while the patient is in side-lying position, slide the patient horizontally away from the ventilator
	15	On the RCPs count of 3, nurses opposite the ventilator side will pull the rolled-up sheets from beneath the patient while the other nurses carefully turn the patient onto the prone position
	16	Replace ECG electrodes and leads
	17	Place patient on swimmers position and turn head and reposition arms every 2 hours and PRN
	18	Stop the Max inflate function and return to normal setting. Remove handy sheet
	19	Resume enteral feeding as ordered

Phase 4 – Steps for Manual Supination

	1	Ensure all lines and tubes found from the waist up are positioned toward the head of the bed, and lines tubes from the waist down are positioned toward the foot of the bed, ensure enough slack is present
	2	Maximally inflate the bed and place in the flat position, place arms down on patient's sides
	3	Place a handy sheet underneath the patient's current sheet
	4	Remove ECG leads, and ECG electrodes. At this time monitor ETCO2, SPO2 and arterial line. Tape arterial line transducer to the side of the chest where the invasive lines are present
	5	Tuck the hand that is on the opposite side of the ventilator under the patient's hip/thigh, with the palm facing up. This arm should be the one on the opposite side of the patient's invasive lines
	6	Place an absorbent under pad on the patient's buttocks
	7	Place a flat sheet on top of everything, covering the patient up except the patient's head
	8	Roll the bottom and top sheets tightly together, encasing the patient like a "burrito"
	9	At this time, RCP positions hand on patient's neck/occiput and ET tube
	10	If RCP requests it, on the count of 3, boost the patient up to the head of the bed
	11	On RCPs count of 3, move patient horizontally to the edge of the bed farthest away from the ventilator
	12	On the RTs count of 3, rotate the patient to a side-lying position with the ET tube facing the ventilator
	13	On the RCPs count of 3, while the patient is in side-lying position, slide the patient horizontally away from the ventilator
	14	On the RCPs count of 3 nurses opposite the ventilator side will pull the rolled-up sheets from beneath the patient while the other nurses carefully turn the patient onto the supine position
	15	Replace ECG electrodes and leads
	16	Stop the Max inflate function and return to normal setting. Remove handy sheet
	17	Resume enteral feeding as ordered
	18	Remove handy sheet from underneath the patient