Mechanical Prone Positioning (Overhead Lift) for Ventilated Patients

26.64PR

PROCEDURE

Procedures are a series of required steps to complete a task, activity or action

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Purpose:

- To establish a standardized, evidence-informed process for turning and managing intubated and mechanically ventilated adult patients in the prone position using an overhead ceiling lift (OHL) within Island Health.
- This procedure has been developed to:
  - Ensure safe, consistent, and coordinated practice across all critical care and high-acuity settings where proning is performed;
  - Reduce variation in technique and minimize the risk of adverse events such as airway dislodgement, line tension, or pressure injury;
  - Support staff competency and confidence in using the OHL system as the preferred method for proning mechanically ventilated patients.
  - Align practice with Island Health's Adult Proning Guideline for Intubated and Mechanically Ventilated Patients and relevant external standards (e.g., SCCM, CCCS, and ARDS management guidelines).

Cultural Safety and Humility:

Island Health offers programs and services on the unceded and traditional territories of the Coast Salish, Nuu-chah-nulth, and Kwakwaka'wakw Peoples.

As a signatory to the 2015 Declaration of Commitment to Cultural Safety and Cultural Humility, Island Health is committed to addressing the ongoing impacts of colonialism and Indigenous-specific racism in order to provide a culturally safe, inclusive, healthy and respectful environment.

The organization is committed to strengthening diversity, equity and inclusion to enable excellence in health and care for everyone, everywhere, every time. Through these commitments, Island Health strives to deliver the highest possible standard of care and to promote safe workplaces.

Scope:

- **Audience:**
  - Most Responsible Physicians (MRPs), Intensivists, Registered Respiratory Therapists (RRTs), Registered Nurses (RNs), Physiotherapists (PTs), and other critical care-trained staff involved in the care of intubated and mechanically ventilated adult patients.
- **Environment:**
  - Island Health-wide
  - Adult Intensive Care Units (ICUs) only, where invasive mechanical ventilation, continuous hemodynamic monitoring, and an overhead ceiling lift (OHL) system are available.
- **Indications (when this document is to be used):**
  - Intubated and mechanically ventilated adult patients with severe ARDS or refractory hypoxemia (PaO_2/FiO_2 less than or equal to 150) despite optimal PEEP and lung-protective ventilation strategies.
  - When proning has been clinically indicated and approved by the attending physician and the interdisciplinary ICU team.
- **Exceptions (when this document is NOT to be used):**
  - Elevated intracranial pressure.
  - Unstable cervical spine or spinal fracture.
  - Recent or unstable facial, orbital, or tracheal surgery or trauma.
  - New pacemaker insertion (less than 48 hours).

- Pregnancy (second or third trimester).
- Open abdomen or recent major abdominal surgery.
- Massive hemoptysis or high risk of airway bleeding.
- Anterior chest tube with ongoing air leak.
- Neonatal or pediatric patients (refer to pediatric proning protocols).

Outcomes:

- Standardized and safe proning practice across Island Health ICUs using the **overhead** lift (OHL) as the preferred method.
- Reduced risk of staff injury by minimizing manual handling and promoting ergonomic technique.
- Improved patient safety through consistent, controlled movement and airway protection.

1.0 Equipment

- Overhead lift with positioning sling, ultrasorb, Z-slider or similar product.
- Foam headrest/positioner.
- Pillows or positioning wedges for chest, hips, and legs – amount required will depend on patient.
- Emergency airway and reintubation equipment.
- Cardiac monitor and defibrillation pads.
- Emergency medication and equipment.
- Bed linens and absorbent pads.

2.0 Procedure

2.1 Proning with OHL

2.1.1 Patient Preparation

1. Confirm sedation and analgesia plan prior to turning.
2. Ensure a physician skilled in intubation is available on the unit and aware that proning is occurring.
3. Organize all equipment as described in the equipment list to ensure availability and accessibility during the procedure.
4. Perform oral, eye, and skin care, and cleanse the anterior surface prior to turning. Ensure eyes are lubricated and closed.
5. Remove patient gown as appropriate to prevent entanglement during repositioning.
6. Perform a full head-to-toe assessment, including pressure points and skin integrity. Apply protective dressings to bony prominences and pressure areas.
7. Disconnect or secure non-essential lines and equipment as appropriate.
8. Verify line and tube security (airway, vascular, drains, catheters).
9. Orient vascular lines according to insertion site:
    - Lines inserted above the waist (e.g., neck, upper extremity) should be directed toward the head.
    - Lines inserted at or below the waist (e.g., femoral) should be directed toward the feet and positioned medially between the legs.

- This alignment maintains consistent line orientation with body movement, minimizing the risk of tension, kinking, or entanglement during turning.

10. If continuous cardiac monitoring is required due to hemodynamic instability, reposition ECG leads to the upper arms or lateral chest to maintain monitoring access once prone.
11. *Confirm and document insertion length prior to repositioning (NG/OG, OETT).* Consult Clinical Documentation Policy for further information.
12. Enteral nutrition: Assess patient tolerance and aspiration risk prior to proning. If clinically tolerated, enteral feeds may continue during the procedure. If intolerance or hemodynamic instability is present, feeds may be paused and resumed once the patient is safely positioned. Consult Registered Dietician as needed.
13. Secure airway and monitoring cables with sufficient slack to allow movement.

2.1.2 Pre-Brief

1. Confirm team members, roles, and responsibilities.
2. Designate a team leader to coordinate the procedure. This individual should be experienced and confident in leading the proning process, ensuring clear communication and safety throughout.
3. Review airway management plan and confirm the airway lead.
4. Verify indication for proning and anticipated duration.
5. Review potential risks and mitigation strategies (see Table 1).
6. Ensure adequate sedation and analgesia have been administered; consider neuromuscular blockade as appropriate.
7. Confirm physician presence or immediate availability, ensuring a clinician skilled in airway management is aware of and available for the procedure.
8. Ensure all necessary equipment is available and functioning (ventilator tubing, suction, monitoring, positioning aids, emergency airway equipment).
9. Review communication plan and confirm a shared understanding of the sequence of actions and safety checks.
10. Establish a plan for emergency repositioning or return to supine if required.
11. Watch the educational video as a team.

Table 1: Risks and Mitigation Strategies

Emergency Event	Potential Cause	Immediate Action / Mitigation Strategy
Airway dislodgement or obstruction	Excessive tube tension, poor stabilization, or patient movement during turn	• Immediately stop the turn. • Airway Manager to stabilize and confirm endotracheal tube (ETT) placement. • Reassess ventilator connection and oxygenation before resuming.
Hemodynamic instability	Altered venous return or compression during turn	• Pause procedure. • Return to supine if instability persists. • Reassess fluid status, vasoactive infusions, and positioning.

Emergency Event	Potential Cause	Immediate Action / Mitigation Strategy
Accidental line or catheter dislodgement	Inadequate line orientation or tension during movement	• Halt procedure and apply direct pressure if required. • Re-establish access as needed. • Confirm securement and orientation before continuing.
Desaturation or ventilator disconnect	Airway kink, ventilator circuit tension, or loss of seal	• Reconnect circuit and ensure tubing slack. • Check ETT patency, cuff pressure, and ventilator function. • Resume proning once oxygenation stabilizes.
Pressure or skin injury	Prolonged pressure on bony areas or devices	• Reposition supports and inspect pressure areas post-turn. • Apply protective dressings and maintain reverse Trendelenburg.

2.1.3 Positioning Slings and Supports

1. Ensure the patient is centered on the sling to maintain even weight distribution and prevent rotation during lifting.
2. Lift the patient slightly using the overhead lift and adjust loop orientation as needed to achieve balanced elevation.
3. Apply clean linens from bottom to top in the following order:
   - Positioning sling
   - Clean sheet
   - Absorbent pad
   - Patient transfer sheet
     This creates a clean, friction-reducing surface for safe turning.
4. Align the top of the sling with the patient's shoulders or the base of the neck to support controlled upper-body lift and maintain head and neck alignment.

2.1.4 Turning Patient Prone

1. Move the patient laterally toward the edge of the bed, away from the ventilator, using the overhead lift or by repositioning the bed to create space for the turn.
2. Lower the patient slightly to create slack and remove the sling loops on the ventilator side.
3. Tuck linen with patient transfer sheet overtop, and gently place patients hand under hip in preparation for turn.
4. Raise the patient using the overhead lift, with staff on the ventilator side guiding gently at the shoulders and hips — without pushing — to begin the controlled rotation.
5. Pause in a side-lying position so the Airway Manager can reassess the airway and endotracheal tube, and the RN can verify line and drain security.
6. Continue the controlled roll until the patient is prone, positioning the head toward the ventilator to maintain airway visibility and circuit stability.

2.1.5 Positioning Supports

1. Reattach sling loops required for balanced lifting.
   - Do not use the top two loops near the patient's head once patient is prone..
   - Different loop combinations may be needed to achieve a level, stable lift depending on patient body habitus.

   Rationale: The top loops are not used during pronation because they create upward traction on the head, neck, and airway, which increases the risk of airway movement, pressure injury, and instability during rotation.
2. Lift the patient using the overhead lift to create space for safely placing supports without disturbing the airway or lines.
3. Insert supports as follows:

- Foam head positioner under the patient's face. Position endotracheal tube within foam head positioner. Airway manager will guide the endotracheal tube as the patient is lowered with OHL. Position patients head so that ears, eyelids, nose, and lips are free from pressure and/or pinching
- Pillows or positioning wedges under the chest and shoulders (below the clavicles) to elevate the thorax and prevent abdominal compression.
- Pillow under the hips to support neutral spinal alignment and reduce pelvic pressure.
- Pillow or wedge under the lower legs to relieve tension on the knees and maintain a neutral foot position.

4. Position the arms:

- One arm in swimmer's position (comfortable shoulder abduction, elbow flexed).
- The opposite arm alongside the body with a gentle bend at the elbow and palm facing upward or inward

2.1.6 Position Optimization and Individualization

1. Assess the patient's overall body alignment once prone to ensure balanced support and even pressure distribution.

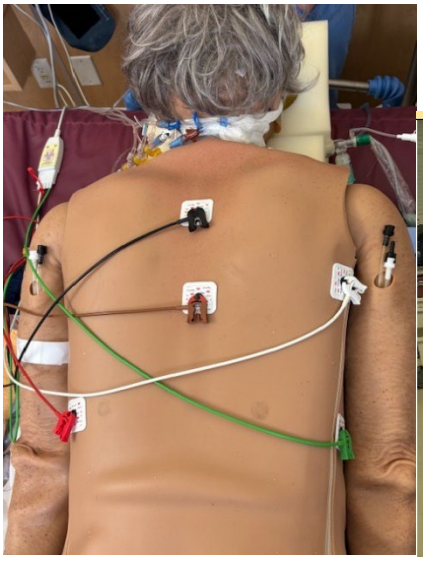
2. Confirm the following positioning elements:

- Shoulders relaxed and supported, positioned away from the ears
- Scapulae supported as needed to prevent winging
- Ears flat and not folded under the head or positioning device
- Eyelids gently closed with no direct pressure on the eyes
- Lips and facial tissues free from pinching or entrapment
- All joints supported in a neutral, mid-range position
- Hips slightly extended and neutrally aligned, avoiding internal or external rotation
- Knees flexed slightly (approximately 15–30 degrees) with a pillow or wedge under the shins
- Feet supported in neutral alignment using soft foot rolls or heel suspension as appropriate

3. Apply protective dressings to bony prominences—including the knees, iliac crests, shoulders, and chest—as indicated.
4. Engage Rehabilitation Services (PT/OT) to review positioning as needed, especially for patients who are proned repeatedly or for extended durations.
5. Consider patient-specific needs, including movement restrictions, contractures, surgical limitations, lines, and drains, and tailor positioning accordingly.
6. Place the bed in reverse Trendelenburg (15 to 30 degrees) to reduce facial edema and minimize aspiration risk.

2.1.7 Final Checks

1. Reconnect all monitoring equipment, lines and tubing, ensuring signals and waveforms are functioning.
2. Confirm airway patency and verify ventilator settings, circuit position, and cuff integrity.
3. Reassess patient tolerance, including respiratory status, hemodynamic stability, and comfort.
4. Confirm that Foley catheter, drains, and vascular lines are unobstructed, properly oriented, and free of tension.
5. Ensure enteral feeding is resumed if clinically appropriate and the patient is stable.
6. Complete post-turn documentation, including time of proning, staff involved, airway confirmation, hemodynamic response, positioning supports used, and any complications.



2.2 Repositioning the Patient while in the Prone Position – Overhead Lift (OHL) Method

1. Prepare the patient and remove supports
   - Remove shoulder supports and return the swimmer's arm to a neutral position alongside the body.
   - Administer additional analgesia or sedation as needed for comfort and safety.
2. Airway manager secures head and airway

- Airwary manager maintains continuous control of the patient's head and secures the artificial airway throughout the maneuver.

3. Attach sling straps (except top two)
   - Attach all required sling straps except the two top straps near the patient's head and neck to allow free, safe head repositioning.
4. Raise patient to create repositioning space
   - Raise the patient using the overhead lift to provide adequate clearance for safe head repositioning.
5. Perform oral and eye care; reposition ETT
   - Nurse performs oral care, eye care, and skin assessment while the patient is elevated.
   - Airway Manager repositions the ETT and circuit to prevent pressure injury and eliminate drag or torque. Perform inline suctioning as needed.
6. Reposition the head
   - Leader gently repositions the head into one of the two approved positions:
     - Option A: Face-down position – eyes and nose aligned in the foam cutout, ETT exiting the side opening.
     - Option B: Head tilted up to 45 degrees to the opposite side – neutral neck alignment with circuit supported to avoid kinking.
7. Lower patient and re-establish support
   - Lower the patient back onto the bed or foam head positioner so the head and face are fully supported.
   - Reapply or adjust positioning supports (pelvic, chest, shin supports; swimmer's arm if indicated).

2.3 Supination with OHL (Return to Supine)

2.3.1 Patient Preparation

1. Confirm sedation and analgesia plan prior to turning.
2. Ensure a physician skilled in intubation is available on the unit and aware that proning is occurring.

3. Organize all equipment as described in the equipment list to ensure availability and accessibility during the procedure.
4. If continuous cardiac monitoring is required due to hemodynamic instability, reposition ECG leads to the upper arms or lateral chest to maintain monitoring access once prone.
5. Cleanse the posterior surface prior to turning.
6. Assess pressure points and skin integrity. Apply protective dressings to bony prominences and pressure areas.
7. Disconnect or secure non-essential lines and equipment as appropriate.
8. Verify line and tube security (airway, vascular, drains, catheters).
9. Orient vascular lines according to insertion site:
    - Lines inserted above the waist (e.g., neck, upper extremity) should be directed toward the head.
    - Lines inserted at or below the waist (e.g., femoral) should be directed toward the feet and positioned medially between the legs.
    - This alignment maintains consistent line orientation with body movement, minimizing the risk of tension, kinking, or entanglement during turning.
10. *Confirm and document insertion length prior to repositioning (NG/OG, OETT).* Consult Clinical Documentation Policy for further information.
11. Enteral nutrition: Assess patient tolerance and aspiration risk prior to proning. If clinically tolerated, enteral feeds may continue during the procedure. If intolerance or hemodynamic instability is present, feeds may be paused and resumed once the patient is safely positioned. Consult Registered Dietician as needed.
12. Secure airway and monitoring cables with sufficient slack to allow movement.

2.3.2 Pre-Brief

1. Confirm team members, roles, and responsibilities for the procedure.
2. Designate a team leader to coordinate the turn and assign an experienced airway manager to maintain control throughout.
3. Review the airway management plan**,** confirming tube securement and ventilation strategy during rotation.
4. Review the indication for returning the patient to supine (e.g., improved oxygenation, planned procedure, intolerance to prone).
5. Discuss specific risks associated with supination**,** including airway dislodgement, secretion burden, hemodynamic instability, and pressure redistribution injury.
6. Ensure a physician skilled in intubation is available and aware the procedure is taking place.
7. Ensure adequate sedation and analgesia**;** consider neuromuscular blockade as appropriate.
8. Verify all required equipment is functioning, including ventilator circuit slack, suction, monitoring, and emergency airway supplies.
9. Review the turn sequence and commands to maintain team coordination.
10. Establish an emergency plan for airway loss or hemodynamic deterioration during or immediately after supination.
11. Confirm all team members are ready and verbalize readiness before initiating the turn.

12. Encourage staff to review the educational video on the designated Island Health platform prior to the procedure to reinforce best practice and team coordination.

2.3.3 Preparing Slings and Supports

1. Encourage staff to review the educational video on the designated Island Health platform prior to the procedure to reinforce best practice and team coordination.
2. Remove shoulder supports
3. Once patient centered on the sling and sling is at patient shoulder level, attach sling loops to the overhead lift, ensuring the two top loops are not attached. Rationale: Prevents uneven lifting and avoids excessive traction on the head, neck, and upper body.
4. Lift the patient slightly using the overhead lift to create space and safely remove the foam head positioner and existing supports.
5. Insert clean linens beneath the patient in the following order:
   - Clean sheet
   - Absorbent pad
   - Patient transfer sheet

   These provide a clean, friction-reducing surface to safely receive the patient after the turn.

2.3.4 Turning Patient Supine

1. Slide or reposition the patient laterally toward the bed edge opposite the ventilator to create space for the turn.
2. Lower the patient slightly using the overhead lift to create slack in the sling and remove the loops on the non-ventilator side.

3. Tuck linen with patient transfer sheet overtop. Gently place patients hand under hip in preparation for turn.
4. Raise the patient using the OHL; staff on the opposite side guide gently at shoulders and hips—never pushing or pulling.
5. Pause in the side-lying position; the Airway Manager reassesses ETT position, airway security, and line integrity.
6. Continue the controlled roll until the patient is fully supine, ensuring the head is returned to a neutral midline position and the airway remains stable.

2.3.5 Final Checks

1. Slide or reposition the patient laterally toward the bed edge opposite the ventilator to create space for the turn.
2. Airway Manager reassesses endotracheal tube position, cuff pressure, and ventilator parameters to confirm ongoing airway security.
3. Reassess patient tolerance and hemodynamic stability following the turn.
4. Critical Care RN reassesses skin integrity, dependent edema, and areas at risk for pressure injury.
5. Document the procedure in the EHR or paper flowsheet (iView) including:
    - Time of supination
    - Staff involved
    - Airway and line checks
    - Patient tolerance and hemodynamic response
    - Any complications

Consult the Clinical Documentation Policy for further information.

⚠ **Just like with proning:**

- Top loops are never attached when prone.
- Staff guide at shoulders/hips, never push.
- Always pause in side-lying for airway reassessment.

2.4 Proning a Patient with a Tracheostomy using the Overhead Lift (OHL) Method

1. Slide or reposition the patient laterally toward the bed edge opposite the ventilator to create space for the turn.
2. Airway Manager reassesses endotracheal tube position, cuff pressure, and ventilator parameters to confirm ongoing airway security.
3. Reassess patient tolerance and hemodynamic stability following the turn.
4. Critical Care RN reassesses skin integrity, dependent edema, and areas at risk for pressure injury.
5. Assess patient and secure tracheostomy.
    - Assess neck length and head alignment while the patient is supine.
    - Ensure the tracheostomy tube and ties are secure; consider suturing if displacement risk is high.
6. Prepare the foam head positioner
    - Cut a semi-circular C-shape along the lower edge of the foam head rest, leaving a small strip of foam under the chin.
    - Confirm the cutout provides space for the tracheostomy tube and allows access for suctioning once the patient is prone.
    - Keep the modified head rest readily available for placement post-turn.
7. Initiate the OHL proning method
    - Prone the patient using the OHL technique.
    - Assign one airway operator dedicated to maintaining continuous control of the tracheostomy throughout the maneuver.

8. Mid-turn airway check during the OHL pause
    - At the halfway pause, the airway operator confirms the tracheostomy is visible, stable, and free from traction.
    - Adjust as needed to prevent drag, torque, or partial displacement before continuing the turn.
9. Position the patient into the modified head support
    - Once prone, place the patient's face into the pre-cut foam head positioner.
    - Ensure adequate space between the head rest and the wedge to avoid pressure on the tracheostomy and to maintain access for suctioning.
    - Confirm the tracheostomy flange rests freely and is not compressed by surrounding supports.

3.0 Definitions

- **Airway Manager**: The clinician positioned at the head of the bed, responsible for airway management and directing the procedure.
- **Ceiling Lift (OHL):** An overhead lift system with a positioning sling used to safely lift and turn patients with minimal manual handling.
- **Manual "Sandwich/Burrito" Technique**: A manual proning method where sheets are rolled around the patient to secure them for turning without use of a ceiling lift.
- **Proning**: The process of turning a patient from supine (lying on their back) to prone (lying on their abdomen).
- **Supination**: The process of returning a patient from prone back to supine.
- **Swimmer's Position**: Arm positioning in prone where one arm is flexed upward at the shoulder and elbow while the other rests alongside the torso.
- **Reverse Trendelenburg Position**: Bed positioning where the head is elevated higher than the feet, typically 15–30 degrees, used to reduce facial edema and abdominal pressure in proned patients.
- **Receiving Team:** Staff positioned on the ventilator side of the bed responsible for guiding the patient's movement during the turn.

4.0 Related Island Health Policy Documents

- Clinical Documentation Policy
- Manual Prone Positioning (Linen Wrap Method) for Ventilated Patients
- Prone Positioning for Ventilated Patients Guideline

5.0 References

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6.0 Resources

- Proning Educational Videos:
  - Proning a Mechanically Ventilated Patient
  - Respositioning a Proned Patient
  - Supinating a Mechanically Ventilated Patient
  - Proning with a Tracheostomy
  - Cardiac Arrest Management in the Prone Patien

Appendix A: Documentation

- All proning and supination events must be documented in either the paper ICU flowsheet or the electronic health record (EHR), depending on the system in use at the site.

Required Documentation Elements

- Date and time the patient was proned or supinated.
- Names and roles of staff present (Airway Manager, Lift Controller, Critical Care Nurse, additional staff).
- Patient tolerance of the procedure (oxygenation, hemodynamic response).
- Medications administered for the turn (sedation, analgesia, paralytic; include dose and time).
- Airway details: confirmation of endotracheal tube securement and position post-turn.
- Lines and drains: securement and patency confirmed.
- Skin assessment findings, including pressure areas or edema.
- Outcome of the procedure (e.g., tolerated well, complications noted, corrective actions taken).

Electronic Health Record (EHR)

- In Cerner PowerChart, document under Critical Care Procedures → Proning (iView/Interactive View).
- Record all elements listed above.