

Proning Therapy Toolkit

GUIDELINES AND STEP BY STEP INSTRUCTIONS ON PRONE THERAPY FOR UNCONSCIOUS AND CONSCIOUS PATIENTS

Critical Care Council Evidence-Based Council Rehabilitation Service Line Workforce Safety



•

•

Table of Contents

• Prone Therapy for Ventilated Patients

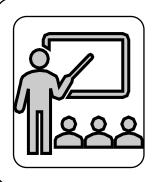
0	Research Review4
0	Contraindications and Precautions4
0	Steps for Prone Therapy5
0	Supplies Needs
0	Eye Protection Guidelines
0	Prone Positioning Considerations
0	Safe Patient Handling & Mobility (SPHM) Equipment Algorithm
0	Patient Handling Guidelines
	Supine to Prone Patient Handling Guidelines: Slide Sheets
	 Prone to Supine Patient Handling Guidelines: Slide Sheets
	 Additional SPHM Options & Techniques for Prone/Supine Positioning
Pr	one Therapy for Awake Patients
0	Research Review15
0	Decision Tool/Algorithm for Conscious Proning Process16
0	Instructions for Self-Proning
0	Awake Proning Guidelines for "a little" to "moderate" Assistance
Ар	opendices
0	Appendix A: Dressing Placement for Prone Patient
0	Appendix B: Proning Therapy Checklist
0	Appendix C: Criteria for Air-Assisted Device Usage



ATTENTION

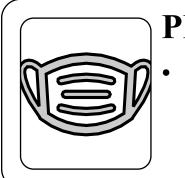
CONSULTATION

- - Please consult with hospital integumentary and pressure injury experts on a case by case basis to ensure a safe plan of care.



EDUCATION

• Ensure ALL appropriate team members have completed necessary training and feel comfortable about assisitng with the proning process



PPE

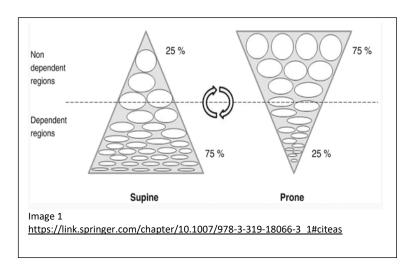
• Don appropriate personal protective equipment (PPE) based on the patient's signs and symptoms and indications for isolation precautions.

Northwell Health Research Review:

Prone Position Effect on ARDS Lung Function

ARDS in supine lung:

- Compression of dorsal lung regions
- Decreased regional lung ventilation.
- Increased pleural pressure gradient (ventral-dorsal)
 Prone positioning effects:
- No significant change in perfusion of lung



- Gravity assists lung morphology to match the shape of the chest cavity more closely.
- Decompression of dorsal segments increases potential for lung recruitment (improved V/Q matching)

Dependent/compressed region of lung switches to ventral region which has relatively fewer alveoli

Absolute Contraindications:

- Open abdominal
- Unstable Spinal Fracture

Precautions:

- Cardiovascular instability
- Head injury with increased ICP
- Facial injury
- Pelvic fracture
- Ascites or morbid obesity
- Pregnancy 2nd or 3rd trimester

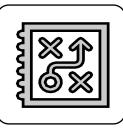
- Intra-aortic balloon pump (IABP)
- Frequent seizures
- Tracheotomy < 24hrs
- Difficult airway
- Patient mentation/cooperation
- Dementia/AMS



Steps for Prone Therapy

PREPARE

- Consider benef
 Gather and orga
 Ensure appropring
 2 people on e
 Position the beau
- Consider benefits and risks of prone positioning with multidisciplinary team
 Gather and organize all potentially necessary equipment
 - Ensure appropriate staff members available, **at least**:
 - 2 people on each side of the bed, 1 at head of bed (MD, NP, PA)
 - Position the bed, secure lines and tubes.
 - Prepare ETT by changing the traditional ETT holder for tape to prevent pressure points
 - Prepare and tape eyes
 - · Hygiene and skin check schedules



PLAN

- Decision for turning <u>direction</u> should be made as an interdisciplinary team with consideration of all lines and tubes.
- Pay special attention to Central Line, A-Line, VV/VA-ECMO (needs perfusion at the bedside), ET tube, CVVHD etc.
 - Communicate movement strategy to team
 - Designate team member(s) to maintain optimal length of lines and tubes during transfer (usually RN)
- Person at head of patient leads mobility task (RT, MD, DO, PA, NP)

EXECUTE

• Utilize bed controls appropriately:



assist features as appropriateUtilize SPHM Equipment and aids whenever possible (slide sheets, repositioning

• Adjust bed height to hip level of shortest team member, max inflate mattress, turn

- sheets, air assisted technology, bed sheets)
 Maintain safe body mechanics and ergonomic principles throughout (wide base of support, mini-squat position, spine neutral)
- Slide patient away from direction of roll to create space for position change
- Position pillows, blanket/towel rolls appropriately
- Line management during transfer

MONITOR



- Position and monitor for pressure injury (reposition per hospital guidelines)
 - No direct pressure to the eyes, ears
 - NG tube not pressing against nostril
 - ET tube not pressing against side of mouth or lips
- Lines not kinked or directly underneath skin
- Penis positioned freely between the legs
- Reconnect ECG and other monitoring
- Resume paused infusions
- Ensure all lines are intact and not kinked



Above positioning guidelines based on "Guidance For: Prone Positioning in Adult Critical Care" – Intensive Care Society



Supplies Needed

PRONE TO PROTECT

Items needed for Proning:

- Proning Kit
 - ✓ ETT Adhesive tape
 - ✓ Full set of silicone dressings with diagram ofbody placement (Refer to Appendix A)
 - Eye lubricant ointment (included in kit, but patient. must have order)
 - ✓ EKG leads
 - Slide sheet/appropriate safe patient handling equipment, soft goods (Refer to SPHM Equipment Algorithm: Page 9)
 - ✓ Stat lock
 - ✓ Mouth care
- 3 Pillows
- 2 Flat Sheets
- 1 Fitted Sheet (if changing bed)
- 2 Purple Pads
- Pair of Z-Float Boots (lower extremity elevation)
- Bowel Management System (External fecal pouch or barrier ointment)
- Square Shaped Cushion with Cut to Accommodate the Endotracheal Tube (Refer to Eye Protection Guidelines: Page: 7-8)
- Foam Positioning Bolster (Refer to Eye Protection Guidelines: Page: 7-8)
- Proning Therapy Checklist (Refer to Appendix B)

Eye Protection Guidelines

1. Place the patient's head in the facedown position on the square face cushion. Be sure to align the eyes and the nose with T-shaped cut out in the cushion. Place the endotracheal tube in the horizontal groove in the cushion (cushion can be cut to accommodate the endotracheal tube on the other side). Care should be taken not to dislodge the endotracheal tube.

Northwell

Health*

2. Place the foam positioning bolster- This should be done with careful attention paid to the neck region which should remain in the neutral position Too much extension should be avoided. This should be placed under the anterior chest but not crushing breast tissue.

**Note: If the cushions are unable to be used and the patient's head is going to be positioned to the side on a pillow, please make sure that the pillow is positioned so that there is no pressure being placed on the eye.

- 3. Place the bed in the reverse Trendelenburg **position** with the head at a 10-15-degree incline.
- 4. Perform eye checks (push foam cushion down on the lateral aspects of the eye) to ensure that they are in the proper position when performing skin checks Q shift.
- 5. Apply ophthalmic ointment (i.e. lacrilube) to each eye Q6 hour and tape the lids shut as per ICU protocol.



7











Eye Protection Guidelines CONTINUED....

Other factors that need to be monitored to prevent ophthalmic sequelae include:

Anemia	Systemic Hypotension	Fluid Status
Low hemoglobin levels: Hemoglobin levels below 7 g/dL should be avoided while prone if possible	MAP of 65mmHg should be the target to avoid retinal ischemia	Fluid overload will lead to ophthalmic edema as well

**References available on page 29.

PLEASE REFER TO VIDEO FOR CUSHION POSITIONING INSTRUCTIONS Video can be accessed through the QR Code below





Prone Positioning Considerations

NON-INTUBATED PATIENTS

- For proning, which can encompass a fairly broad range of mobility status (independent to moderate/maximal assistance), it is helpful to use slide sheets and/or additional personnel to be able to safely assist with the prone maneuver.
- Patients with poor mobility may not be able to reposition themselves to the edge of the bed as would be necessary to allow enough space for them to prone without being obstructed by the bed rails on the other side of the bed.
- Pre-placement of slide sheets underneath the patient to allow with the lateral positioning would be helpful.

INTUBATED AND SEDATED PATIENTS

- For proning of the intubated and sedated, environmental and situational awareness is important.
- Consider that the ventilator tubing may not be the shortest and most restrictive line. Carefully assess intravenous and device lines (e.g. Extracorporeal membrane oxygenation [ECMO], Continuous Renal Replacement Therapy [CRRT]) to determine the optimal direction to roll the patient. This may not always be towards the ventilator.
- Recommend pre-placement of pillows/padding and moisture absorbing pad(s) when the patient is still in a side-lying position. This is to reduce the amount of extra rolling and repositioning required later to get pillows and padding underneath an already proned patient.
- Using the "Burrito Method" avoids this by wrapping all necessary items in with the patient and moving everything all together as a unit.



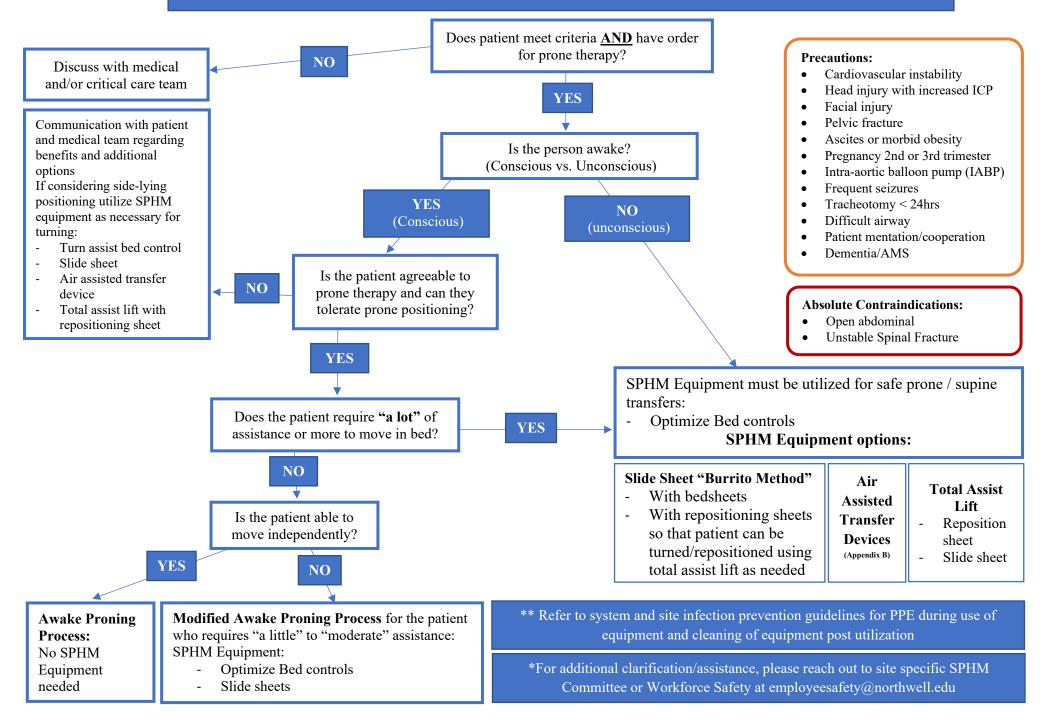
Prone Positioning Considerations continued.....

Positioning Tubing Technique Line Management **Pressure Relief Handling Method** Consider that the ventilator tubing may not be the Recommend pre-placement of Using the "Burrito Method" avoids this by shortest and most restrictive line. Carefully assess pillows/padding and moisture absorbing wrapping all necessary items in with the intravenous and device lines (e.g. Extracorporeal pad(s) when the patient is still in a side-lying patient and moving everything all together as position. This is to reduce the amount of membrane oxygenation [ECMO], Continuous Renal a unit. extra rolling and repositioning required later Replacement Therapy [CRRT]) to determine the to get pillows and padding underneath an optimal direction to roll the patient. This may not already proned patient. always be towards the ventilator. s

Environmental & Situational Awareness

Health

Prone Therapy: Safe Patient Handling & Mobility (SPHM) Equipment Algorithm



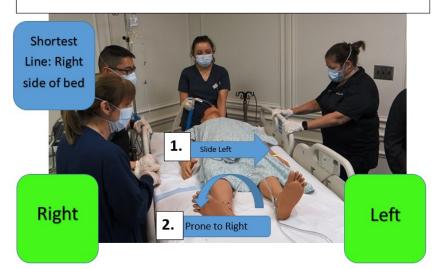
Northwell Health^{*}

Supine to Prone Patient Handling Guidelines: Slide Sheets

Key Points

Scenario: Patient needs to be turned from Supine \rightarrow Prone. Shortest line/tube attached to patient is on right side of bed near patients head.

*Bed Labeled in reference to patient while laying supine in bed



Necessary Equipment:

- 1 Slide sheet
- 2 flat bedsheets
- 3-5 pillows
- At least 5 team members

QR Code to View Video:



- 1. Place slide sheet (with opening of slide sheets at top and bottom of the bed) and flat bedsheet under patient using log roll technique (emphasize effort from pushing team to complete turn of patient)
- 2. Position patients' right arm under buttocks (can use pillowcase or chuck to secure arm if necessary)
- 3. Place chuck face down over the patient's pelvis
- 4. Place pillows over patient's chest (axilla), pelvis and anterior shins
- 5. Place another flat sheet on top of the patient ensuring it is not covering the patient's face/head.
- 6. Roll the top and bottom sheet <u>firmly</u> together in an upward fashion to form a tight cocoon around the patient.
- 7. Position team members so that 1 is at head and at least 2 are on either side of the patient.
- 8. Slide the patient to the far left of the bed.
- 9. Turn the patient into left side lying **right side team members push firmly on patients bottom (right) shoulder and hip**
- 10. Turn the patient prone on the bed.
- 11. Use the slide sheet to center the patient in the bed.
- 12. Untuck the rolls of the sheets and remove the top sheet.
- 13. Adjust pillows and bottom sheet as necessary.
- 14. Remove the slide sheet from under the patient using the tucking method.
- 15. Reposition and offload bony prominences, as necessary.



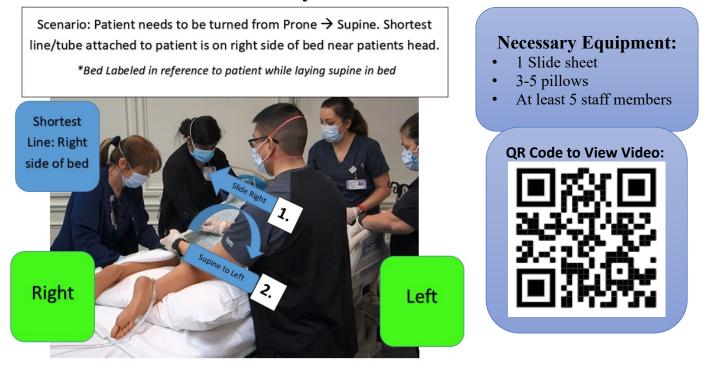




Health

Prone to Supine Patient Handling Guidelines: Slide Sheets

Key Points



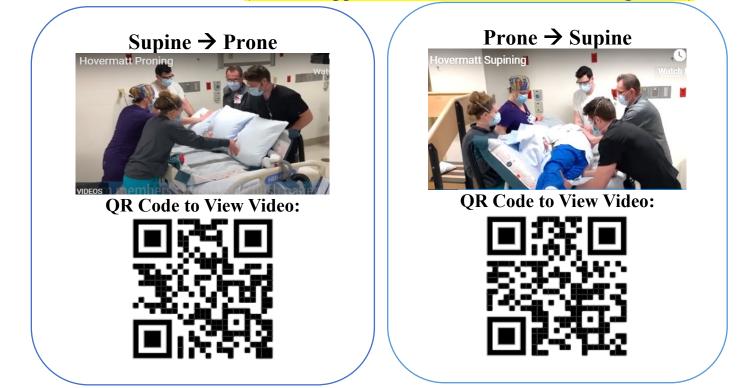
Starting Position: Patient is prone, flat sheet is already under patient from when patient was proned.

- 1. Place slide sheet (with opening of slide sheets at top and bottom of the bed) under patient using tucking method.
- 2. Position patient's right arm under front of pelvis (use pillowcase or chuck to secure arm if necessary)
- 3. Place chuck on patient's buttocks white side facing down.
- 4. Place flat sheet on top of patient without covering patient's head.
- 5. Roll the top and bottom sheet <u>firmly</u> together in an upward fashion to form a tight cocoon around the patient.
- 6. Position team members so that 1 is at head and at least 2 are on either side of the patient.
- 7. Slide the patient to the far right of the bed.
- 8. Turn the patient into right side lying **left side team members push firmly on patients bottom (Right) shoulder blade and hip**
- 9. Turn the patient supine.
- 10.Use the slide sheet to center the patient in the bed.
- 11. Unroll to remove the top sheet and pillows.
- 12. Adjust bottom sheet, as necessary.
- 13. Remove the slide sheet from under the patient using the tucking method.
- 14. Reposition and offload bony prominences, as necessary.

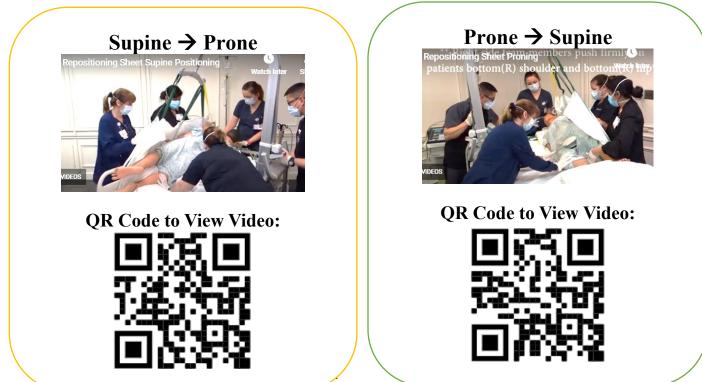


Additional Safe Patient Handling and Mobility Equipment Options & Techniques for Prone/Supine Positioning

Air Assisted Transfer Devices (Refer to Appendix E for Utilization Criteria Algorithm):



Total Assist Lift Devices with Repositioning Sheet:





Research Review: Self Proning of Awake Patients

Prone positioning is a simple intervention that can be done in most circumstances, is compatible with all forms of basic respiratory support and requires little or no equipment in the conscious patient.

Benefits:

- Improves oxygenation.
- May forestall or prevent more aggressive supplemental oxygen therapy (needs more research)
- Improved secretion clearance

Guidance for Prone Positioning of the Conscious COVID Patient (Intensive Care Society (ICS))

Timed Position Changes: If patient fulfils criteria for proning ask the patient to switch positions as follows.

- 1. 30 minutes to 2 hours lying fully prone (bed flat)
- 2. 30 minutes to 2 hours lying on right side (bed flat)
- 3. 30 minutes to 2 hours sitting up (30-60 degrees) by adjusting head of the bed.
- 4. 30 minutes to 2 hours lying on left side (bed flat)
- 5. 30 minutes to 2 hours lying prone again.

 1) Lying on your belly

 4) Lying on your left side

 2) Lying on your right side

3) Sitting up

Continue to Repeat the cycle

Monitor oxygen saturation 15 minutes after each position change to ensure oxygen saturation has not decreased. Continue to monitor oxygen saturation as per the National Early Warning Score (NEWS)

Following page has patient education handout for self-proning.

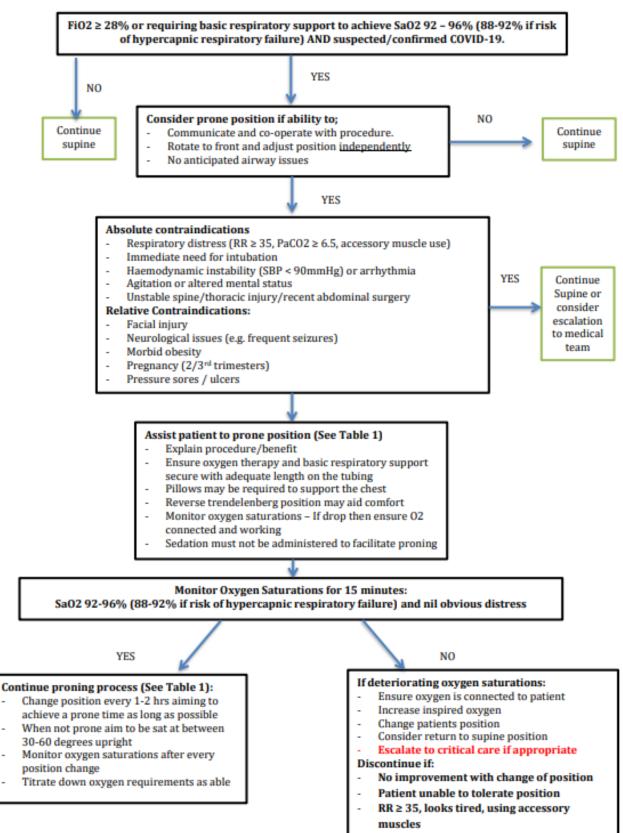


Figure 1 – Flow diagram decision tool for Conscious Proning process

proud to be the voice of critical care since 1970

intensive care

society





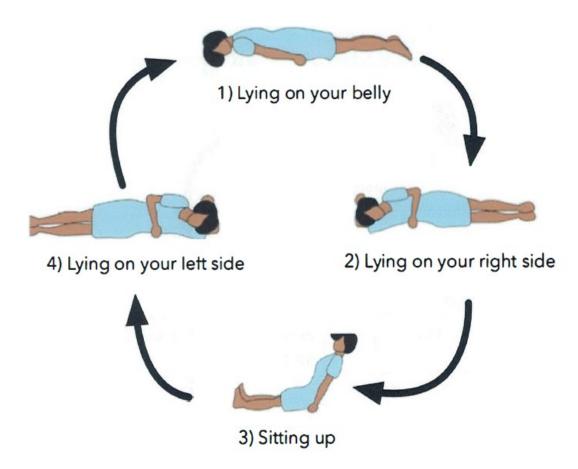
Instructions for Self-Proning

Please try not to spend a lot of time lying on your back. Laying on your stomach and in a side lying positions will help your body to get air into all areas of your lungs. You may notice immediate improvement in your breathing, or it may take several minutes after you have changed your position.

If any position causes you discomfort or pain, please do not use this position.

Your healthcare team members recommend you change your position every 2 hours.

If you can please, try to reposition yourself every 2 hours as seen below:





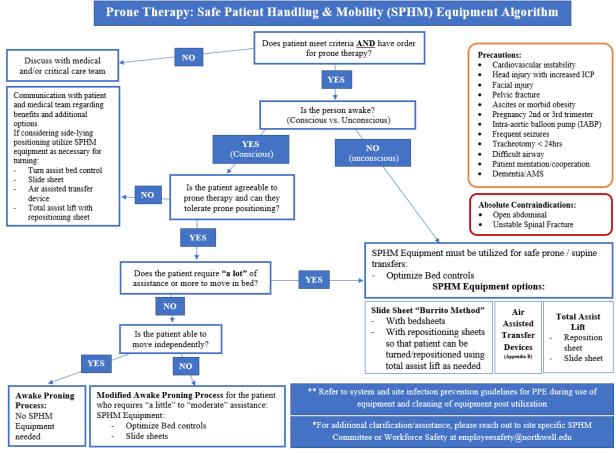
Awake Proning Guidelines for "a little" to "moderate" Assistance

*Adapted from ICS proning guidelines.

Follow below mentioned identified positions, sequence, and duration recommendations.

- 30 minutes to 2 hours lying fully prone (bed flat)
- 30 minutes to 2 hours lying on right side (bed flat)
- 30 minutes to 2 hours sitting up (30-60 degrees) by adjusting head of the bed.
- 30 minutes to 2 hours lying on left side (bed flat)
- 30 minutes to 2 hours lying prone again.

For patients who cannot independently engage in self-proning but are not entirely dependent on staff for care, there are options available that are safe for both patients and employees to assist in completing the ICS proning guidelines. Please refer to the algorithm on page 9.



- 1. Utilize 2+ staff members to assist with bed mobility, position changes and positioning.
- 2. Add Safe Patient Handling and Mobility Equipment

Health

Proning for the Awake Patient: Key Points (Step 1: Supine to Prone)

- 1. Patient laying supine in bed.
- 2. Max inflate mattress of hospital bed.
- 3. Place slide sheet with flat bedsheet on top under patient and chuck) – making sure not to have the slide sheet under the patient feet if they are able to help with their legs **if they are unable to help with LE's then place slide sheet completely under the patient from head of bed to foot of bed in direction for lateral movement.
- 4. Boost patient up in bed *instruct patient to bend and push.

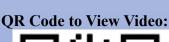
through LE's if able

- 5. Boost patient to one side (right) *instruct patient to bend knees and push through LE's if able.
- 6. Assist patient to tuck arm (left) under buttocks or overhead if able.
- 7. Prepare patients legs for turn.
- 8. Turn patient away from the side they slid toward (left) (ideally toward shortest line) into side lying.
- 9. Prepare patient for prone with pillows under chest, pelvis, shins (tuck pillows under patient's body so that pillows do not slide out during prone
- 10.Use bedsheet over slide sheet to assist with moving patient from side lying to prone.
- 11.Use bedsheet over slide sheet to position patient optimally in bed.
- 12.Remove slide sheet from under patient.

Proning for the Awake Patient Key Points (Step 2: Prone to R Side Lying)

- 1. Max inflate mattress of bed.
- 2. Place slide sheet under patients left side.
- 3. Slide patient slightly to their left.
- 4. Assist with turning patient into right side lying supporting patients. shoulder/pelvis (use turn assist prn)
- 5. Remove slide sheet.
- 6. Position optimally with pillows for right side lying.





Pillows

Necessary Equipment:

Hospital Bed Slide sheet Flat sheet





Proning for the Awake Patient Key Points (Step 3: R Side Lying to sitting)

- 1. Max inflate bed.
- 2. Place slide sheet on left side of bed and tuck under patient (patients' posterior side while lying in right sideling)
- 3. Assist patient into supine.
- 4. Boost patient up in bed (ask patient to assist with UE's/LE's if able)
- 5. Remove slide sheet.
- 6. Utilize bed in chair position or Elevate HOB (30-60 degrees) if unable. to tolerate bed in chair

Proning for the Awake Patient Key Points (Step 4: Sitting to L Side Lying)

- 1. Hold flat button of bed to take hospital bed out of bed in chair mode.
- 2. Max inflate mattress of hospital bed.
- 3. Place slide sheet half under patient and chuck on right side
- 4. Boost patient up in bed *instruct patient to bend and push through LE's if able.
- 5. Boost patient to one side (right) *instruct patient to bend knees and push.

through LE's if able

- 6. Assist patient to tuck arm (left) under buttocks or overhead if able.
- 7. Prepare patients legs for turn.
- 8. Turn patient away from the side they slid toward (left) (ideally toward shortest line) into side lying (use turn assist prn)
- 9. Remove slide sheet from under patient.
- 10.Position optimally in left side lying with pillows.



Necessary Equipment:

- Hospital Bed
- Slide sheet
- Flat sheet
- Pillows

QR Code to View Video:





Proning for the Awake Patient Key Points (Step 5: L Side Lying to Prone)

- 1. Patient starts in left side lying.
- 2. Max inflate Hospital bed.
- 3. Place slide sheet under both flat bedsheet (that should be under patient from step 1) and patient and chuck on left side of bed and tuck under patient (patients' anterior side while lying in left side lying)
- 4. Boost/Slide patient to the right side of bed
- 5. Assist patient to tuck arm (left) under buttocks or overhead if able.
- 6. Prepare patient for prone with pillows under chest, pelvis, shins (tuck pillows under patient's body so that pillows do not slide out during prone



- 7. Use bedsheet over slide sheet to assist with moving patient from side lying to prone.
- 8. Max inflate bed.
- 9. Use bedsheet over slide sheet to position patient optimally in bed.
- 10.Remove slide sheet from under patient.



APPENDIX A: Dressing Placement for Prone Patient



Dressing Placement for Prone Patient

Reference: Image from Smith Nephew: Allevyn Foam Dressings. + Dressing placement for the *Please use dressings available at your site. This picture is just for placement reference purposes ONLY. prone patient Front Back



APPENDIX B: Proning Therapy Checklist



Proning Therapy Checklist: The Burrito Method

Date / Time:

Signature of Physician/RN Initiating Roto Prone Therapy:

- Proning is considered a procedure requiring planning, physician's order, and timeouts.
- Proning usually required 4-6 clinicians (may include physician, nurses, respiratory therapist) and takes 20-30 minutes.
- Gather equipment prior to doing initial proning: EKG patches, Silicone Foam Dressings, Interdry, Eye lubricant, external fecal pouch or barrier ointment, breathable under pad, small Z-float positioner device; if intubated supplies needed to change ETT holder to tape securement
- Identify Proning Team Leader
- One Clinician should be a head of bed, 2 staff on each side of bed.
- Prone 16 hours/ Supine 8 hours, or as MD order
 - Note: Proning Kits are available in Critical Care Areas that contain all needed equipment

Prior to Placing Patient in Prone Position	Completed
1. Place silicone foam dressings on prominent bony prominences which will touch bed when prone:	
Forehead, Bilateral Cheekbones, Chin, Bilateral Shoulders/ Clavicles, Bilateral Iliac Crest, Bilateral knees, Bilateral dorsal	_
area of feet	
2. Apply interdry between toes, beneath breasts (females), groins, and under pannus	
3. Apply eye lubricant	
4. Apply external fecal pouch or apply Barrier Ointment (Criticaid Clear) to perineal area	
5. If patient has EKG leads, remove anterior leads	
6. If already intubated and has a ETT Hollister Holder, change ETT holder to cloth tape for securement	
7. If already intubated, verify EET is secured, optimize ventilator settings, pre-oxygenate patient as indicated, suction ETT and oral cavity	
8. Remove patient gown prior to proning	
9. Apply one breathable under pad beneath patient's perineal area	
10. If patient has a Foley, remove stat lock securement from Foley	
11. If patient has IVs, ensure patient's IV lines have been extended appropriately	

To access checklist online use below QR Code





Proning Therapy Checklist: The Burrito Method

Proning the Patient	Completed
1. Tuck arm under patient (if vented, arm closest to ventilator)	
2. Place oximeter probe on limb not being turned under patient	
3. Slide patient to edge of bed (if vented, away from ventilator)	
4. Check ETT, lines, tubes, etc.	
5. Rotate patient and slowly turn toward vent until in prone position; center in the bed	
6. Place EKG leads on back	
7 Check ETT, lines, tubes, etc. Assess all lines and tubes for dislodgement, kinks; check that patient is not lying on any tubing	
8. Position arms in modified swimmers' crawl. Face in the direction of the raised arm, Shoulder dropped and elbows below. axilla and other arm at side, palm facing up	
9. Place Small Z-Float Positioning Device under patients' head; mold to ensure no pressure on the ear facing downward & airway clear	
10. Place pillows under shins and ensure toes are off the bed	
11. Place bed in reverse Trendelenburg (If bed technology allows or not contraindicated per MD order)	

Care When Patient in Prone Position	Completed
1. Assess adequate clearance, security, and position of all invasive lines, tubes, and drains	
2. Cleanse eyes every 6 hours with warm water to remove all exudates and crusting; apply lubricant ointment and close to keep eyes moist	
3. Provide oral care every 4-6 hours	
4. Check that feet are kept at 90-degree angle to prevent foot drop	
5. If on a Critical care bed that allows continuous rotation, adjust bed to continuous rotation 20 degrees based on patient's. tolerance and per MD order	
6. Provide perineal care as needed	



Proning Therapy Checklist: The Burrito Method

Returning Patient to Supine Position	Completed
1. If bed in reverse Trendelenburg, place in flat position	
2. Tuck arms under the patient	
3. Slide patient to the edge of bed (if vented towards the ventilator)	
4. Check ETT, lines, tubes, etc.	
5. Rotate patient and slowly turn until in supine position (if vented away from the ventilator); center in the bed	
6. Place EKG leads on chest	
7. Check ETT, lines, tubes, etc.; assess all lines and tubes for dislodgement, kinks; check that patient is not lying on any tubing	
8. Position arms for patient comfort	
9. Position bed in reverse Trendelenburg position to help minimize facial edema (If bed technology allows and not contraindicated by MD order)	

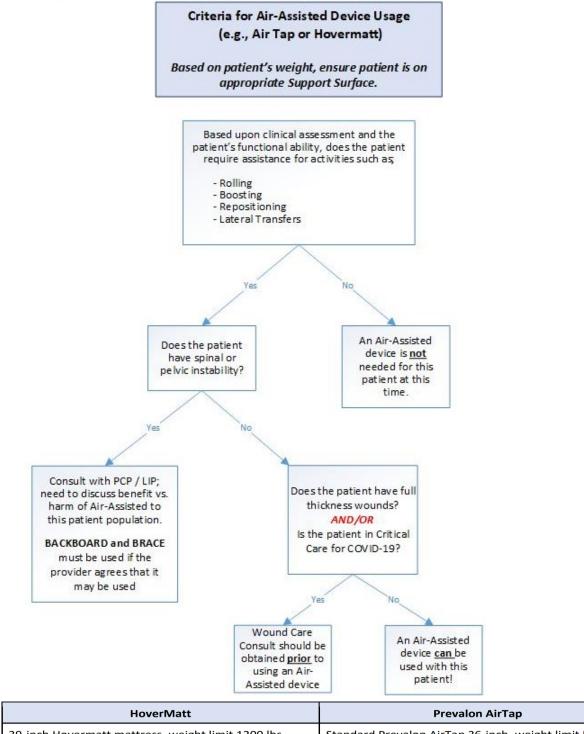
Care When Patient in Supine Position	Completed
1. Remove foam dressings and assess skin (especially face) when patient position changed.	
2. Apply cool packs on face while in supine position for 20 minutes every 2-4 hours	
3. Moistened tongue with hydrogel or moisturizer if mucosa dry (tongue may protrude after proning)	
4. Provide oral care every 4-6 hours and prn	
5. If intubated, change ETT securement (tape) and reposition tube to other side of mouth every time patient is changed to supine position; provide mouth care when changing tape	
6. Elevate heels off bed surface using pillows or fluidized positioners or boots	
7. Provide perineal care as needed	



APPENDIX C: Criteria for Air-Assisted Device Usage



Criteria for Air-Assisted Device Usage



 39-inch Hovermatt mattress, weight limit 1200 lbs (PS# 246834)
 Standard Prevalon AirTap 36-inch, weight limit 550 lbs (PS# 235147)

 50-inch Hovermatt mattress, weight limit 1200 lbs (PS# 263687)
 XXL Prevalon AirTap 43-inch, weight limit 1200 lbs

For additional clarifications/assistance, please reach out to site specific Safe Patient Handling and Mobility Committee, Wound Care Team or Workforce Safety at <u>employeesafety@northwell.edu</u> Developed and modified by Regina Moller, Jane Ellen Barr, Nicole Probst, Workforce Safety Team



Contributions

- Mangala Narasimhan, MD Senior Vice President, Critical Care Services
- Maggie Hymowitz, MD Physician, Ophthalmology
- Lucy Sun, MD Physician, Ophthalmology
- Howard Pomeranz, MD Physician, Ophthalmology
- Matthew Gorski, MD Physician, Ophthalmology
- Thomas Philip, PT, DPT, CEAS
 Senior Director of Operations, Physical Medicine & Rehabilitation
- Erin DiCandia, PT, DPT, CEAS II Manager, Workforce Safety
- Timothy Lee, PT, DPT, CEAS II, REAS Workforce Safety Specialist, Workforce Safety
- Jane Ellen Barr, DNP, RN Director of Patient Care, Nursing Administration, Long Island Jewish Medical Center
- Dorothy Michaels, MSN, ACP, AGNP-BC, WOCN, WON-C Nurse Practitioner, Nursing Education, Plainview Hospital
- Cynthia Delle Site, EdD, MSN/MBA/HC, NPD-BC, PCCN, CCRN, RN-BC Clinical Professional Development Educator, Institute for Nursing
- Dylan Machado, EMT-B, REAS
 Workforce Safety Educator, Workforce Safety
- Joseph Hein, BS Workforce Safety Educator, Workforce Safety
- Regina Moller, PT, DPT Senior Physical Therapist, Rehab – Medicine, Long Island Jewish Medical Center
- Ronald Combs, PT, DPT, MBA, CSPHP
 Manager, Rehabiliation Services, North Shore University Hospital
- Benjamin Kassandra, RN, BSN
 Lead Clinical Value Analysis Specialist, Office of Procurement
- Ruth Neuman, PT, MBA/HA, CEAS II, REAS, PMEC Senior Ergonomist, Workforce Safety
- Paul Power, BA, EMT-P, CEAS I Assistant Vice President, Safety Regulations, Workforce Safety
- Asha Roy, OTD, OTR/L, MBA, MAS PSHQ, MS, CSPHP Director, Workforce Safety



For additional questions on the resources provided please contact aroy@northwell.edu



References for Eye Protection Guidelines

- Bamford, P., Bentley, A., Dean, J., Whitmore, D., & Wilson-Baig, N. (2020). ICS guidance for prone positioning of the conscious COVID patient 2020. United Kingdom: Intensive Care Society. <u>https://emcrit.org/wp-content/uploads/2020/04/2020-04-12-Guidance-forconscious-proning.pdf.</u>
- Epstein, N. E. (2016). Perioperative visual loss following prone spinal surgery: A review. *Surgical Neurology International*, 7(Suppl 13), S347.
- Hearne, B. J., Hearne, E. G., Montgomery, H., & Lightman, S. L. (2018). Eye care in the intensive care unit. *Journal of the Intensive Care Society*, 19(4), 345-350.
- Kousha, O., Kousha, Z., & Paddle, J. (2018). Incidence, risk factors and impact of protocolised care on exposure keratopathy in critically ill adults: a two-phase prospective cohort study. *Critical Care*, 22(1), 1-8.
- Nickels, T. J., Manlapaz, M. R., & Farag, E. (2014). Perioperative visual loss after spine surgery. *World journal of orthopedics*, 5(2), 100.
- Ozcan, M. S., Praetel, C., Bhatti, M. T., Gravenstein, N., Mahla, M. E., & Seubert, C. N. (2004). The effect of body inclination during prone positioning on intraocular pressure in awake volunteers: a comparison of two operating tables. *Anesthesia & Analgesia*, 99(4), 1152-1158.
- Rosenberg, J. B., & Eisen, L. A. (2008). Eye care in the intensive care unit: narrative review and meta-analysis. *Critical care medicine*, 36(12), 3151-3155.
- van Wicklin, S. A. (2020). Systematic review and meta-analysis of prone position on intraocular pressure in adults undergoing surgery. *International journal of spine surgery*, 14(2), 195-208.
- Zhou, Y., Liu, J., Cui, Y., Zhu, H., & Lu, Z. (2014). Moisture chamber versus lubrication for corneal protection in critically ill patients: a meta-analysis. *Cornea*, 33(11), 1179-1185.



References for All Other Sections

- Bamford, P., Denmade, C., Newmarch, C., Shirley, P., Singer, B., Webb, S., & Whitmore, D. Guidance For: Prone positioning in adult critical care. Intensive Care Society and Faculty of Intensive Care Medicine. 2019. https://www.ficm.ac.uk/sites/default/files/prone position in adult critical care 2019.pdf
- Bamford, P., Bentley, A., Dean, J., Whitmore, D., & Wilson-Baig, N. (2020). ICS guidance for prone positioning of the conscious COVID patient 2020. United Kingdom: Intensive Care Society. <u>https://emcrit.org/wp-content/uploads/2020/04/2020-04-12-Guidance-forconscious-proning.pdf</u>
- Brann, G., Alexander, C., Gonzalez, R., & amp; Tarmey, M. (2016, November). Prone position ventilation in critical care. Academic Department of Critical Care. Queen Alexandra Hospital Portsmouth. <u>http://www.portsmouthicu.com/resources/2016-11-11-Prone-(2016)-Final.pdf</u>
- Caputo, N. D., Strayer, R. J., & Levitan, R. (2020). Early self-proning in awake, non-intubated patients in the emergency department: a single ED's experience during the COVID-19 pandemic. Academic Emergency Medicine, 27(5), 375-378. <u>https://doi.org/10.1111/acem.13994</u>

Ccraigmile (2020, April 29). Proning video. [Video] Youtube. https://youtu.be/pc35wXOzGQs

- Chiumello, D. A., Algieri, I., Brioni, M., & Babini, G. (2015). The prone position in the treatment of patients with ARDS: Problems and Real Utility. In *Practical issues updates in anesthesia and intensive care* (pp. 1-13). Springer, Cham. DOI: 10.1007/978-3-319-41852-0
- Gattinoni, L., Busana, M., Giosa, L., Macrì, M. M., & Quintel, M. (2019, February). Prone positioning in acute respiratory distress syndrome. In *Seminars in respiratory and critical care medicine* (Vol. 40, No. 01, pp. 094-100). Thieme Medical Publishers.
- Guérin, C., Reignier, J., Richard, J. C., Beuret, P., Gacouin, A., Boulain, T., ... & Ayzac, L. (2013). Prone positioning in severe acute respiratory distress syndrome. *New England Journal of Medicine*, 368(23), 2159-2168. DOI: 10.1056/NEJMoa1214103
- Hillrom (2015, March 12). *Hill-Rom* | *Liko*® *Lifts* & *Slings* | *Repositioning Turning in bed with RepoSheet™*. [Video] Youtube. <u>https://youtu.be/N9c2UtW_kYU</u>
- Mimi Johnson (2015, June 12). *Manual proning demonstration*. [Video] Youtube. <u>https://youtu.be/qx2z26IL6g8</u>
- NEJMvideo (2013, June 18). Prone positioning in severe acute respiratory distress syndrome. [Video] Youtube. <u>https://youtu.be/E_6jT9R7WJs</u>



Roche-Campo, F., Aguirre-Bermeo, H., & Mancebo, J. (2011). Prone positioning in acute respiratory distress syndrome (ARDS): When and how?. *La Presse Médicale*, 40(12), e585-e594. <u>https://doi.org/10.1016/j.lpm.2011.03.019</u>

Samantha Himmelspach (2019, May 23). Unfolding method of insertion to reposition patient from prone to supine. [Video] Youtube. <u>https://youtu.be/6lNPhcGy_7U</u>

- Scholten, E. L., Beitler, J. R., Prisk, G. K., & Malhotra, A. (2017). Treatment of ARDS with prone positioning. Chest, 151(1), 215-224. <u>https://doi.org/10.1016/j.chest.2016.06.032</u>
- Smith Nephew. Dressing placement for prone patient. Retrieved from <u>sn14877 rev0 allevyn</u> <u>dressing placement prone patient.pdf (smith-nephew.com)</u>
- Stefanie Scott (2015, April 19). Proning after transfer with drawsheet. [Video] Youtube. https://youtu.be/ZjdqJI8Ijec