

NURSING CLINICAL PROCEDURE :CODE: NUMBER:
HENRY FORD HOSPITAL :
DETROIT, MICHIGAN :TITLE: **12/97**
: PRONE POSITIONER, USE OF

APPROVED: REVIEWED: REVISED:01/99

POLICY:

The RN will collaborate with physician to determine the need for prone positioning based on the criteria listed below before the Vollman Prone Positioner will be utilized.

An order is required with critically ill patients prior to use of the prone position.

Patients who respond to the prone position by an improvement in PaO₂ of > 10mmhg are considered a responder.

The Vollman Prone Positioner will be cleaned between positioning turns, when prone positioning is discontinued or the device is being used between two patients at the same time.

SUGGESTED INDICATIONS FOR USE OF THE PRONE POSITION:

ARDS/oxygenation criteria: unable to reduce FiO₂ to a safe level with the appropriate PEEP therapy, mobilization of secretions, and relief of pressure &/or positioning in the OR

SUGGESTED CONTRAINDICATIONS OF THE PRONE POSITION:

Unable to tolerate a head down position/increase intracranial pressure, hemodynamically unstable patients as defined by a systolic blood pressure of < 90 mm/Hg regardless of fluid and vasoactive support, if using a support frame/weight greater than 300lbs

ARTICLES NEEDED:

Vollman Prone Positioner

PROCEDURE:

1. Assess patient prior to positioning prone:
 - a. Assess the time interval from injury to position change. A trial of prone positioning should be performed early in the course of acute lung injury to assess the patient's level of response. However, If initial positioning does not elicit a positive response, this should not rule out periodic attempts to assess patient's responsiveness throughout the course of lung injury. Response to severe position change has been noted at all stages of acute lung injury.
 - b. Assess the hemodynamic status of the critically ill patient to identify ability to tolerate a position change.

KEY POINT:

Imbalances between oxygen supply and demand must be addressed/corrected if possible prior to the procedure to offset any increases in demand created by the physical turn. The final decision to prone the hemodynamically unstable patient rests with the physician who must weigh the risks against the potential benefits of the prone position.

- c. Assess the critically ill patients' mental status prior to use of the prone position.

KEY POINT:

Agitation whether caused by delirium, anxiety and/or pain can have a negative effect when using the prone position. Nevertheless, agitation is not a contraindication for use of the prone position. Effective management of agitation is the goal.

- d. Assess patient size/weight load to determine the ability to turn within the narrow critical care bed frame.

KEY POINT:

When turning prone in a hospital bed, with or without a frame, one must determine whether a 180-degree turn can be accomplished within the confines of the space available. Critical care bed frames are narrow, making it difficult to complete the turn on patients who weigh greater than 140kg. One option being used is to move the patient onto a stretcher while supine and then position them back onto the bed in the prone position.

SCHEDULING FREQUENCY:

2. Positioning schedule is based on whether the patient is able to sustain improvements in PaO₂ made while in the prone position. A schedule of Q6H in the prone position is recommended. The amount of time spent in the supine position will be based on whether and how long the patient is able to sustain or maintain the improvement when they are returned from the prone to supine position. If the patient maintains the improvement in PaO₂ when repositioned supine, the patient can remain in the supine to lateral position (continuous lateral rotation) for 4-6 hours maximum or return to the prone position when or if a decrease in PaO₂ is seen. If the patient is unable to maintain the improvement in gas exchange seen with the prone position when return to a supine position, the patient should remain in the supine/lateral rotation position for only 1-hour before being repositioned prone. It is highly recommended to use lateral rotation therapy in conjunction with prone positioning so that when the patient is returned to their back, they are laterally rotated. The use of the prone position is discontinued when the patient no longer demonstrates a response to the position change.

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KEY POINT:

Without a clear direction from the literature on frequency of position change, the health care team must weigh other physiologic factors when a patient remains in a stationary position for an extended period of time. The potential for skin injury and edema formation can be minimized following the principles of pressure relief used when positioning patients laterally or supine. The longer time spent in a single position requires that the support surface provide greater pressure reduction or relief than a standard hospital mattress. Combining the literature on the prone position and surface interface pressure, a safe suggestion for frequency of repositioning is between 4-6 hours.

POSITIONING THE PATIENT PRONE UTILIZING THE VOLLMAN PRONE POSITIONER:

3. Prepare the patient
 - a. Explain the purpose and procedure for using the prone position.
 - b. Prior to positioning the patient prone the following care activities should be performed:
 - 1) removal of ECG leads from the anterior chest wall
 - 2) eye care to include lubrication and taping of the eyelids in a horizontal fashion and/or covering with a transparent film/saran wrap.
 - 3) Ensure the tongue is inside the patients' mouth. If swollen and/or protruding insert a bite block
 - 4) Ensure the tape/ties of the endotracheal tube and/or tracheotomy tube is secure by double taping/tying.
 - 5) If a wound dressing on the anterior body is due to be changed during the prone position sequence; perform the dressing change prior to the turn.
 - 6) Empty ileostomy/colostomy bags prior to positioning
 - 7) Consider use of capnography to identify correct position of the endotracheal tube at all times during the positioning procedure.

KEY POINT: To prevent areas of pressure and potential breakdown, to avoid complications related to injury or accidental extubation and promote the delivery of comprehensive care before, during and after pronation therapy.

Prepare the environment:

- c. Position 1 staff member on either side of the bed, with another individual positioned at the head of the bed (total of 3 staff required for the turn)

KEY POINT:

The individual at the head of the bed is responsible for monitoring the stability and position of the endotracheal tube, as well as the monitoring/intravenous lines that are located by the patient's head. The individual at the head of the bed is also responsible for positioning the ventilator tubing.

- d. All intravenous tubing, invasive lines and monitor leads are adjusted to prevent kinking, disconnection or contact with the body during the turning procedure and while the patient remains in the prone position. All lines inserted in the upper torso will be placed aligned over the right or left shoulder. The only exception is chest tubes, those are placed at the foot of the bed. All lines inserted in the lower torso will be aligned and placed at the foot of the bed.
- f. When turning prone, always turn in the direction of the mechanical ventilator. Turn the patient's head so it is facing away from the ventilator. Without disconnecting the ventilator tubing from the Endotracheal Tube (ET), place the portion of the tubing extending out from the endotracheal tube on the side of the patient's face that is turned away from the ventilator. Loop the remaining ventilator tubing above the patient's head.

KEY POINT:

These maneuvers are performed to prevent disconnection of the ventilator tubing or kinking of the ET tube during the turning procedure.

- g. Place the straps that secure the positioner to the body under the patient's head, chest (axillary area) and pelvic region at this time.
4. Place the Prone Positioner:
 - a. Attach the Vollman Prone Positioner to the patient while in the supine position. Lay the frame gently on top of the patient. Align the chest piece to rest between the clavicle and sixth rib.

KEY POINT:

The chest piece is the only non-movable part and serves as the marker piece for proper placement of the device. If the patient has a short neck or limited range of motion of the neck it is suggested to align the chest piece lower (3rd ICS) and move both head pieces up to the top of the frame so that only the forehead is supported by the head cushion and the chin is suspended to reduce the risk of skin breakdown.

- b. Adjust the pelvic piece to rest 1/2 inch above the iliac crest. Evaluate the distance between the chest and pelvic piece to ensure abdomen suspension while preventing bowing of the back.
- c. Adjust the forehead and chin pieces to provide full facial support in a face down position or a side lying position without interfering with the ET tube.
- d. Fasten the positioner to the patient using the soft adjustable straps. Once secured, lift the positioner to assess a secure fit. Readjust as necessary.

KEY POINT:

To help ensure a secure fit, look for cushion compression. If the frame is not secured tightly in place, shear and friction injuries to the chest and pelvic area skin may occur.

- 5. Turn Prone using the Half-Step Technique:
 - a. Utilizing a draw sheet, move the patient to the edge of the bed farthest away from the ventilator in preparation for the prone turn. The individual closest to the patient maintains body contact with the bed at all times serving as a side rail to ensure a safe environment.

KEY POINT:

The draw sheet is unnecessary if the patient is on a low air loss surface.

- b. Tuck the straps attached to the steel bar that is closest to the center of the bed underneath the patient. Then tuck the patient's arm and hand that now rest in the center of the bed under the buttocks. Cross the leg closest to the edge of the bed over the opposite leg at the ankle. This will help with forward motion when the turning process begins.

KEY POINT:

If the arm resting within the center of the bed is unable to straighten, tuck the arm into the open space between the chest and pelvic pads.

- c. Turn the patient to a 45-degree angle toward the ventilator. The individual residing on the ventilator side of the bed grips the upper steel bar while the person on the opposite side of the bed grasps the straps attached to the lower steel bar. Using a three count, lift the patient by the frame into a prone position. During the turning procedure, the individual at the head of the bed is present to ensure that all tubes and lines are secure and patent.

KEY POINT:

It is extremely important to use a wide base of support to improve balance and prevent self-injury during the turning procedure.

- c. Gently rotate out parallel to the body the arms and hands that were in a tucked position and then flexed them into a position of comfort lying parallel to the head. Care should be taken not to extend the arm position to a 90 degree angle which places stress on the capsule of the shoulder joints.

KEY POINT:

Assess the patients range of motion of the arms. If limitations of motion are present in the shoulder area reposition using a bilateral sidelying position aligned with the body or swimmers position of one arm up and one down is recommended. Reposition or provide range of motion every two hours to prevent injury.

- d. Support the feet with a pillow or roll to provide correct flexion while in the prone position if necessary.
- e. Minor adjustments of the patient's body may be necessary to obtain correct alignment once in the prone position.
- f. Pad the elbow area to prevent compression of the ulnar nerve.
- g. Loosen the straps at this time. If the patient is unstable, it is recommended to keep the straps fastened securely to facilitate a safe, quick return to the supine position in the event of an emergency.

KEY POINT:

The procedure for returning to the supine position takes less than one minute if the straps are fastened and a support frame is used.

MONITORING RESPONSE TO THERAPY & CARE WHILE IN THE PRONE POSITION:

6. Assess patient's tolerance to the turning procedure using physical cues such as respiratory rate and effort, heart rate or blood pressure. If these parameters fail to return to baseline within 5 minutes of the turn, the patients may be displaying initial signs of intolerance.
7. Assess the patient's response to the prone position. Immediate changes in oxygenation can be identified by monitoring pulse oximetry (SpO₂) and mixed venous oxygenation saturation (SvO₂). To determine the full effect of the position change on oxygenation, Arterial blood gases (ABGs) should be drawn within 1/2 hour of the position change and within 1/2 hour prior to returning the patient to the supine position with the initial turn. Subsequent turns may be monitor with SpO₂. Ventilator adjustments may be made based on the results.
8. Reposition the patient's head on an hourly basis while in the prone position to prevent facial breakdown. While one individual lifts the patient's head, the second individual moves the headpieces to provide support for the head in a different position.

KEY POINT:

Patients with short necks and limited neck range of motion have difficulty assuming a head side lying position. Therefore, these patients are more prone to facial breakdown and it may be necessary to turn the patient more frequently to prevent breakdown or utilize the technique described in #4 Placing the Prone Positioner.

9. Provide range of motion to arms and legs every two hours to minimize the risk of injury.

RETURNING TO THE SUPINE POSITION:

10. Fasten the straps tightly prior to repositioning.
11. Aligned the patient with the edge of the mattress closest to the ventilator.
12. Arrange the ventilator tubing to provide sufficient mobility and length to prevent pulling during the turning procedure.

KEY POINT:

The individual at the head of the bed is responsible for monitoring the stability and placement of the ventilator tubing, monitoring wires and invasive lines.

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13. Straighten the patient's arms from a flexed position and bring them to rest on either side of the head.
14. Cross the leg closest to the edge of the bed over the opposite leg at the ankle.
15. Turn the patient to a 45-degree angle using the steel bars and then rolled onto his/her back.
16. Stretch the arms parallel to the body and bring them into a downward position.
17. Unfasten the positioner and removed from the patient. The straps may be left under the patient in preparation for the next turn.

CLEANING PROCEDURE FOR VOLLMAN PRONE POSITIONER:

18. Don personal protective equipment. Gather necessary supplies, hospital disinfectant.
19. Remove padded straps, wash and let dry.
20. Thoroughly wipe down all exposed surfaces and wipeable straps attached to the device with an approved hospital grade disinfectant. Allow the surfaces to completely air dry.
21. Check all support pads, buckles and wipeable straps for wear and replace as necessary.
22. Store in a clean area for next patient usage.

DOCUMENTATION:

Document patient's response to therapy, ability to tolerate the turn, length of time in the position, positioning schedule used and any complications noted during or after the procedure.

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