What Is Prone Patient Positioning?

› The prone position is defined as lying in a horizontal position with the abdomen facing downward and the face facing either downward or to one side. The prone position is the opposite of the supine position, which is defined as lying face-up in a horizontal position with the back of the head, spinal column, and heels resting directly on a supporting surface. (For information on placing non-critical care patients in the supine position, see Nursing Practice & Skill ... Patient Positioning (Non-Critical Care Patients): Supine.) The prone position is also distinguished from pronation (i.e., rotation of the forearm so that the palm of the hand is facing downward).

• What: The prone position is commonly used in many surgical procedures and is employed post-operatively to avoid placing pressure on vulnerable body sites. Turning the patient to a prone position is a non-invasive procedure that, when properly performed, utilizes knowledge of anatomy and body mechanics. Positioning the patient may require the assistance of additional healthcare workers to avoid problems such as dislodgement of an endotracheal tube (ETT) or other invasive tubes and intravascular lines, especially if the patient has mobility limitations.

• How: While maintaining patient safety, one or more caregivers provide partial to full assistance in moving the patient into a face-down position (for a description of the levels of assistance different patients may require, see What You Need to Know Before Placing a Non-Critical Care Patient in the Prone Position, below). No special equipment is required, although an assistive transfer device may be useful if the patient has special mobility, skincare, and/or orthopedic needs (for more information, see Nursing Practice & Skill ... Transfer of Patient: Using Assistive Devices). Newer equipment such as a lightweight cushioned frame attached to the front of the patient before turning has made this procedure less risky for the patient and more comfortable to maintain the position for several hours.

• Where: Prone positioning of patients is performed in all healthcare settings, including acute care hospitals, long-term care facilities, and the home setting. Patients may be placed in a prone position during diagnostic or surgical procedures, and in bed.

• Who: Prone positioning of non-critical care patients can be performed by healthcare professionals, assistive personnel, home care staff, and family members who have been appropriately trained in patient positioning and body mechanics. Depending on the wishes of the patient, it may be appropriate for family members to be present during prone positioning.

What Is the Desired Outcome of Prone Positioning of Non-Critical Care Patients?

› Prone positioning allows access to the back of the patient’s body, which is especially useful during procedures that involve the spine, sacral area, or the back of the arms and legs.

› Prone positioning may be used to relieve pressure on a specific site (e.g., sacral pressure ulcer, ventral surgical site) or be alternated with other positions as a means of promoting comfort and preventing musculoskeletal injury.
Prone positioning is used for pulmonary toileting (i.e., a set of activities/methods performed to clear the airways of mucus and secretions; also called pulmonary hygiene) and to improve ventilation and oxygenation in patients with early stage pneumonia, acute lung injury, or acute respiratory distress syndrome (ARDS)

Why Is Prone Positioning of Non-Critical Care Patients Important?

› When alternated with other positions (e.g., supine, lateral), prone positioning can promote comfort and help prevent or heal pressure ulcers in patients with limited mobility, poor nutritional status, and/or older age by relieving pressure exerted on bony prominences
› Prone positioning may decrease morbidity and mortality in patients with early stage pneumonia, acute lung injury, or ARDS
› Prone positioning can relieve pressure to a surgical site (e.g., ventral surgical site) or other vulnerable body sites

Facts and Figures

› The prone position improves gas exchange and reduces mortality in patients with respiratory insufficiency (Sud et al., 2010). Previously, the results of research studies on the use of prone positioning for ventilation in patients with ARDS were mixed. More recent studies, however, are yielding results in favor of prone positioning in patients with ARDS. In a recent multicenter, prospective randomized controlled trial involving 466 patients with severe ARDS, researchers reported that patients assigned to prolonged prone positioning sessions experienced significantly decreased 28-day and 90-day mortality (Guerin et al., 2013). And in a smaller case-control study, researchers found that prone positioning was safe in obese patients with ARDS, and may improve oxygenation more than in nonobese patients (De Jong et al., 2013)
› Researchers in a prospective randomized trial of 101 obese patients reported that performing colonoscopy in the prone position resulted in significantly shorter cecal intubation times and reduced need for patient repositioning (Uddin et al., 2013)
› Mechanical ventilation in the prone position in ARDS patients reduced overall mortality significantly, but was associated with pressure ulcer development (Lee et al, 2014)
› The prone position does not appear to shorten the duration of ventilator treatment or reduce mortality among children with acute lung injury (Fineman et al, 2006)
› In 4-month-old well babies cared for at home, prone positioning while awake is linked to earlier achievement of sitting, reaching, and other developmental milestones. However, prone positioning during sleep is contraindicated in infants due to the risk for sudden infant death syndrome (SIDS; Dudek-Shriber et al., 2007)
› In the event of cardiac arrest during surgical procedures in the prone position, chest compressions and defibrillation can be administered in the prone position (Feix & Strugress, 2014)

What You Need to Know Before Placing a Non-Critical Care Patient in the Prone Position

› The patient’s weight, medical condition, mobility needs, and complexity of medical treatments (e.g., to avoid dislodgement of indwelling devices) must be considered prior to placing a patient into the prone position. Levels of assistance can be categorized as such:
• Dependent—patient is unable to lift more than a third of his/her weight or is unpredictable in the amount of assistance he/she can provide; assistive transfer devices are required
• Partial Assist—patient requires some physical assistance and/or verbal guidance when moving; stand-by assistance is necessary
• Independent—patient is able to move and perform physical tasks safely without staff assistance or the use of assistive devices
› If the patient reports pain or discomfort when being turned, the nurse should
• ask the patient to describe the pain, if possible, including its location
• perform a neurologic assessment to identify any changes in the patient’s condition compared with before turning was initiated
• return the patient to the supine position
• notify the treating clinician if a change in neurologic status or continuous pain is present
› Patients may not be comfortable in the prone position and may not be able to tolerate facing downward for an extended period of time
A turning schedule should be created that initially allows the patient to remain in the prone position for a short time (e.g., 10 minutes) and gradually increases the time spent in the prone position until the patient can tolerate lying prone for 2 hours followed by lying supine for 2 hours.

Preliminary steps that should be performed before placing the patient in prone position include the following:

- Review facility/unit specific protocols relevant to patient positioning, if available, including information about:
  - safe patient handling
  - the use of proper body mechanics
  - the proper use of facility skin assessment forms for accurate documentation of the patient’s skin condition
- Review the treating clinician’s order for patient positioning, which may include frequency of position changes and any contraindicated positions
- Review the manufacturer’s instructions for all equipment to be used and verify that the equipment is in good working order
- Review the patient’s medical history/medical record for:
  - any allergies (e.g., to latex, medications, or other substances); use alternative materials, as appropriate
  - any mobility limitations
- Determine the number of staff members required for repositioning based on weight, medical condition, mobility needs, and complexity of medical treatments; coordinate with staff members if assistance is anticipated and/or obtain an assistive transfer device, if applicable
- Gather supplies, including the following:
  - Nonsterile gloves and additional personal protective equipment (PPE; e.g., gown, mask) depending on the patient’s known or suspected infectious status
  - Facility-approved pain assessment tool
  - Prescribed medications (e.g., analgesia), if indicated
  - Pillows
  - Draw sheet
  - Assistive transfer device, if needed
  - 2 small rolled towels or hand rolls (i.e., preformed devices that prevent full contraction of the hand and reduce risk for skin breakdown)
  - Footboard (optional)
  - Bite block (if the patient’s tongue cannot be positioned inside the mouth)
  - EKG lead patches, if applicable

How to Place a Non-Critical Care Patient in the Prone Position

- Perform hand hygiene and don nonsterile gloves and other PPE, as indicated
- Identify the patient according to facility protocol
- Establish privacy by closing the door to the patient’s room/or drawing the curtain surrounding the patient’s bed
- Introduce yourself to the patient and family member(s), if present; explain your clinical role; assess the coping ability of the patient and family and for knowledge deficits and anxiety regarding patient positioning
  - Determine if the patient/family requires special considerations regarding communication (e.g., due to illiteracy, language barriers, or deafness); make arrangements to meet these needs if they are present
    - Use professional certified medical interpreters, either in person or via phone, when language barriers exist
  - Explain the procedure for prone positioning and its purpose; answer any questions and provide emotional support as needed
  - As appropriate, ask family members and other visitors to leave the patient’s room in order to promote privacy
- Assess the patient’s general health status, including his/her pain level using a facility-approved pain assessment tool
  - Premedicate patient with prescribed analgesia, if appropriate; allow for therapeutic level to be reached before initiating patient movement
- Reduce your risk for muscle injury (especially to the back) by verifying that the bed is at a comfortable working height (e.g., thigh level) and that the bed wheels are locked
- Secure all equipment (e.g., oxygen tubing, intravenous lines) that is attached to the bed or the patient
- Lower the head of the bed to flat or as low as permitted by the patient’s condition
- Lower the side rails of the bed on the side closest to you
- Remove any pillows that could interfere with repositioning the patient
Verify that the patient’s tongue is positioned inside the mouth. If the patient’s tongue is swollen or otherwise protruding, insert a bite block into the mouth to position the tongue inside the mouth to prevent injury during movement.

- Remove EKG leads from the anterior chest as needed.

Move the patient to the nearest side of the bed, using an assistive transfer device or draw sheet to reduce friction, as needed, so that the patient will be in the center of the bed after he/she has been placed in the prone position.

Adjust the following steps according to the patient’s mobility limitations.

To turn a patient from the supine position to the prone position:

- Align the patient’s head with the spine.
- Position the patient’s arm that is farthest from you so that it is parallel to his/her body, with the hand slightly under the hip.
- Gently straighten the patient’s legs, and slowly roll the patient away from you to his/her side, over the arm that you have positioned as described above.
- Continue to roll the patient until he/she is lying on the abdomen.

To turn a patient from a lateral (i.e., side-lying) position to the prone position:

- Align the patient’s head with the spine.
- Gently straighten the patient’s legs and slowly roll the patient onto his/her abdomen.

After positioning the patient in a prone position, perform the following for correct body alignment, to promote patient comfort, and to relieve high-pressure areas that can develop pressure ulcers:

- Reposition the pillows for comfort, especially under the neck, head, and forearms.
- Turn the patient’s head to one side.
- Place the patient in either of the following positions:
  - With the arms in a flexed position and the elbows at or near shoulder level.
  - With the arm of one side flexed at shoulder level, the upper thigh of the same side flexed, and the arm and leg on the opposite side extended.
- Place small hand roll or folded towel in each hand.
- Place the patient’s feet against a footboard to promote normal flexion.
- Replace EKG leads on the patient’s back as needed.

Raise the side rails and lower the bed for patient safety.

Reassess the patient’s comfort level and place the call light and bedside table within reach.

Dispose of used PPE and perform hand hygiene.

Make the appropriate notation in the patient’s treatment administration record and/or flow sheet to indicate that repositioning was performed and/or document the following information in the patient’s medical record:

- Date and time of prone positioning.
- Description of the procedure, including the use of any assistive transfer device.
- Patient assessment findings, such as:
  - pre-procedure respiritory status.
  - level of pain.
  - skin assessment findings, including any signs of skin breakdown.
- Patient’s response to the prone position, including any reports or indications of pain, dyspnea, or discomfort.

Other Tests, Treatments, or Procedures That May Be Necessary Before or After Placing a Non-Critical Care Patient in the Prone Position:

- If in bed, the patient should be repositioned periodically to avoid the development of complications related to immobility (i.e., pressure ulcers), as ordered by the treating clinician or per facility protocol.
- Range of motion exercises to the shoulders, arms and legs should be performed every 2 hours.
- While in the prone position, the patient’s head should be turned hourly to prevent facial pressure injury.
- If the prone position is necessary for a surgical or diagnostic procedure, care and treatment related to the surgery or procedure will begin following prone positioning.
What to Expect After Placing a Non-Critical Care Patient in a Prone Position

- The patient is comfortable and pressure on bony prominences is minimized or relieved
  - If the patient is able to communicate, he/she will express feeling comfortable
  - If the patient is non-communicative, vital signs will indicate that the patient is not in distress (e.g., heart rate and respiratory rate will be within baseline limits)
- The patient’s airway will remain patent and respiratory effort will be unlabored
- If the prone position is necessary for a surgical or diagnostic procedure, there will be no complications related to prone positioning and prolonged immobility; post-procedurally, the patient will be repositioned for comfort and safety

Red Flags

- Do not drag the patient across the surface of the bed because doing so can cause friction and shear to skin and subcutaneous tissues, which triggers skin breakdown and leads to the development of pressure ulcers
- Prone positioning increases risk for skin breakdown and development of pressure ulcers on the face, sternum, hips, and knees; these areas may require additional padding after positioning
- Facial/eyelid edema can result from prone positioning. Often this is primarily a cosmetic problem that resolves quickly when the patient is returned to a supine or lateral position
- Prone positioning during lengthy surgery increases intraocular pressure and can predispose patients to developing ischemic optic neuropathy
- Potential problems that can develop during patient positioning include the following:
  - Inadvertent removal, manipulation, or kinking of lines and tubes, which should be replaced or repositioned as necessary
  - Deterioration in oxygenation/hemodynamics, although this is usually transient. Observe for return to previous level of blood oxygen saturation and contact the treating clinician if the patient’s status does not stabilize
  - Mobilization of secretions in the airway; suctioning the airway as required will maintain patency
- Relative contraindication for turning the patient to a prone position are: increased intracranial pressure; unstable spine, chest or pelvis; unstable fractures of bones; heart failure, shock, abdominal surgery and pregnancy

What Do I Need to Tell the Patient/Patient’s Family?

- Explain the purpose and steps of prone positioning to the patient and/or family and respond to any questions or concerns
- Ask the patient, if communicative, to alert healthcare staff to any discomfort experienced during or after positioning

References