

PROTOCOL FOR: Ventilator: Care of Patient on a Ventilator

POLICY: Patients requiring mechanical ventilators will be admitted or transferred to a Critical Care area.

DESIRED PATIENT

- OUTCOMES:
1. Patient will maintain acceptable PaO<sub>2</sub> levels while on ventilator.
  2. Will wean from ventilator as tolerated.
  3. Will suffer no ill-effects as a result of intubation.

ASSOCIATED

STANDARDS: Restraints: Acute Medical-Surgical (Non-Psychiatric)

CLINICAL  
ASSESSMENT

AND CARE:

A. Pulmonary Status:

1. Respiratory status assessment to be performed every 2 hours until stable and then every 4 hours:
  - a. Breath sounds for rales, rhonchi, wheezing, volume, symmetry
  - b. Observation for chest symmetry
  - c. Synchronization with ventilator
  - d. Air leak from ET tube
  - e. Character of secretions (quantity, color, odor, consistency)

B. Potential Complication:

1. At each assessment, observe for possible complications of mechanical ventilation; observations should include monitoring for possible pneumothorax, air leaks, and proper placement and security of ET tube.

C. Monitoring Ventilator System:

1. Check ventilator settings with pulmonary assessment for correct parameters and to prevent inadvertent changes. The RN will remain aware of the following parameters:
  - a. V<sub>t</sub> (tidal volume)
  - b. Rate (patient and ventilator)
  - c. FIO<sub>2</sub>

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- d. Pressure limit and required pressure
  - e. Use of PEEP
  - f. Mode (IMV, CPAP)
  - g. Spont. vol in IMV patient
  - h. Pressure support
2. Check tubing, connections for leaks, and observe for possible kinking or obstructions in airway lines.
  3. During ventilator checks, observe exhalation tubing for excess condensation; keep tubing clear; empty into water traps on ventilator tubing... not into cascade!!!
  4. Develop the habit of concentrating on ventilator sounds in and out of patient's room so as to pick up problem ASAP.
  5. Observe that all ventilator alarms are on at all times; discuss excessive alarming with therapist; observe for air leak if spirometer alarm excessive; observe for poor airway compliance if pressure alarm excessive (i.e., tubing obstruction, patient airway unclear, patient fighting ventilator, worsening of pulmonary pathology).
- D. Ventilator Settings and Orders:
1. Ventilator changes are to be made primarily by therapists unless it is an emergency situation or they are not available. All changes must be communicated to Respiratory Therapy Department and recorded on the Respiratory Flow Sheet and ICU Flowsheet. Therapists may take and record physicians' orders for ventilator settings and pulmonary care on resp. flowsheet. These must be discussed with the nursing staff and the physician's order must be countersigned by the responsible RN.
- E. Moving Secretions/Suctioning:
1. Suction airway PRN but a minimum of every 4 hours. During the every 4 hour suction period, perform full pulmonary toilet:
    - a. Hyperoxygenate/hyperventilate via ventilator or Ambu bag.
    - b. Instillation of 3-5cc NS to thin secretions only if absolutely necessary.

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- c. Suction after routine, encouraging patient to cough
  - d. Use tonsil tip to suction mouth; catheter may be used to suction nose if necessary.
2. When possible, place all suction equipment on opposite side of EKG monitor so that bedside monitor can be observed during suctioning attempts; observe for HR changes  $\pm$  20 BPM and ventricular ectopics; bag with high O<sub>2</sub> flow rate until baseline rhythm is established.
    - a. RESTRICT ALL SUCTIONING TO 10 SECONDS OR LESS!
    - b. DO NOT USE SUCTION GREATER THAN 200 MM Hg!
  3. Reassessment of the airway and chest will take place after each suctioning attempt to evaluate effectiveness of effort and assure correct ET tube placement.

F. Bagging:

1. The resuscitation bag is to be available at all times at the head of the bed connected to O<sub>2</sub> with reservoir, with an appropriate PEEP valve; bagging is to be done during these times:
  - a. Before, during, and after suctioning attempts, if patient not on PEEP, or if not hyperoxygenated via the ventilator.
  - b. During ambulation (room, unit, to chair).
  - c. When patient is dyspneic and/or out of sync with ventilator -- Use combination of "talking down" + high FIO<sub>2</sub> + keep up with patients rate + use deeper volume to decrease air hunger and regain synchronization and control.
  - d. Any vent alarm that doesn't immediately correct itself.
  - e. During emergencies -- ventilator system failure.

G. Lab Work:

1. Discuss each AM the ordering of electrolytes and daily chest x-rays with MD.
  - a. Draw ABG's per MD order.
  - b. NURSING STAFF CAN DRAW ABG'S THROUGH EXISTING A-LINES ONLY.

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2. Specifics of FIO<sub>2</sub>, ventilator mode, temp and time shall be marked on all ABG lab requests. All ABG's sent on ice.
3. Discuss with the physician the insertion of an A-line if patient to be ventilated more than 48 hours.

H. Preventing Physical Deconditioning:

1. Exercise extremities every 4 hours via ROM x 5 each joint (use combination of passive and active motion).
2. Raise HOB to 45 degrees every shift, observing V/S and monitor closely to prevent orthostatic hypotension.
3. Dangle patient and get OOB in chair ASAP -- discuss daily with physician depending on patient's status.

I. Patient Comfort/Safety:

1. Assess comfort level with assessments; question about pain which could be due to physical problems or inadequate ventilation; discuss with MD use of IV titrated morphine or other sedatives every 2-3 hours for comfort; ALWAYS BE AWARE OF RECENT ABG'S PRIOR TO MEDICATING PATIENT -- do not give for restlessness/agitation until assessing patient for hypoxia!
2. Alternate position at least every 2 hours.
3. Keep tubing off patient and maintain tight support arms to prevent excess pressure on ET tube/trach.
4. Keep side rails up at all times when not in direct contact with patient.
5. Control blankets and room temperature for patient comfort.
6. Evaluate patient for need of soft restraints to prevent self-extubated which could cause trauma to chords. If assessment \_\_\_\_\_ patient would benefit to promote healing and ventilator weaning and protection from self harm, institute restraint acute medical-surgical.
7. Maintain privacy but also provide stimulation (radio or unit TV); use clocks, calendars, and room bulletin board to keep patient oriented; keep curtains and door open when not in room.
8. Use letter board or pencil & paper for communication with patient - be patient!.

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9. Allow patient to make basic decisions about timing of physical care to provide some element of control; call patient by name of preference.
10. Keep HOB at 20-30 degrees except for treatments or when contraindicated.
11. Prevent sleep deprivation by planning care to allow as much uninterrupted rest as possible; as condition improves, space and group care around sleep periods.
12. NEVER SET LIQUIDS ON TOP OF VENTILATOR! Follow all precautions in electrical safety policies.
13. Customize visiting hours to meet family and patient needs.

J. Weaning:

1. Assess patient via team (physician, therapist and nursing staff) each day for possible weaning. Weaning to be started only after patient assessment and parameters are met and after patient has had a restful night.

- PATIENT TEACHING:
1. Explain procedures and therapies thoroughly to patient and family.
  2. Review goals of therapies, coordinate with other disciplines.
  3. Explain why patient can't speak and assure patient it is temporary.

APPROVAL: ICU Standards Committee  
Nursing Standards Committee

EFFECTIVE DATE: 2/88

REVISION DATE: 2/90, 1/92, 1/93, 1/95, 3/96, 5/97, 6/97, 10/00, 10/03