

B-260 Mechanical Ventilation (Negative or Positive Pressure Ventilation)

Purpose

Prevent hypoxia due to alteration or cessation of respirations.

Provide uninterrupted ventilatory support.

Applies To

Registered Nurses

Licensed Practical/Vocational Nurses

Other (*Identify*): _____

Equipment/Supplies

- Primary portable or stationary ventilator (volume or time cycled; positive or negative pressure).
- Backup ventilator.
- Battery, battery charger, backup power source.
- Suction apparatus (portable or stationary).
- Oxygen system (compressed tank, concentrator, or liquid system).
- Nebulizer for medication, humidification.
- Manual resuscitator bag (Ambu bag), condenser, humidifier with connectors and adapters to be used with positive pressure ventilator and connected to client or ventilator circuit.
- Ventilator accessories consisting of:
 - a. Client circuit assists with bacteria filter.
 - b. Humidifier with bracket and hose.
 - c. Tracheostomy flex tube.
 - d. Battery cables.
 - e. Alarm system.
- Ventilator tubing, connectors, and adapters.
- Positive end expiration pressure (PEEP) valve and related supplies as needed.
- Hose and connectors for negative ventilator and breathing apparatus.
- Oxygen tubing, nasal cannula, oxygen analyzer, tracheostomy collar, or adaptor as needed.
- Suction catheters, tubing, receptacle of water, gloves.

- Disinfectant solution and distilled water.
- Spare tracheostomy tube and supplies, if appropriate.
- Prescribed medications for nebulizer administration.

Procedure: Positive Pressure Ventilation

1. Wash hands. Refer to the Hand Washing procedure.
2. Place the client in a semi-Fowler's position or position of comfort.
3. Assemble ventilator, power source, and backup power source. Check to make sure equipment is functioning properly.
4. Follow manufacturer's instruction manual for complete information about the use of this equipment.
5. Plug ventilator into electrical outlet and set volume control, mode of ventilation, "sigh" mode, "pressure limit" mode, breaths/minute, oxygen accumulator, pressure gauge, pressure limit, and sensitivity as prescribed by the primary care physician.
6. Fill reservoir of humidifier with distilled water. Connect tubing to inlet port from ventilator and outlet port from circuit and client.
7. Assemble ventilator circuit and attach to humidifier and client circuit. (If condenser is used for humidity, place between tracheostomy tube and exhalation valve.)
8. Check and drain all tubing moisture into receptacle, not back into the humidifier.
9. Attach ventilator tubing to outlet port of humidifier and ventilator airway connection. Attach client circuit tubing to inlet port of humidifier and tracheostomy tube via the adaptor.
10. Attach supplemental oxygen, if ordered by physician.
11. Monitor oximetry oxygen concentration.
12. Monitor all alarms. Change ventilator and client circuits daily to ensure proper alarm function.

Procedure: Manual Ventilation

1. Administer air to the lungs through resuscitation or Ambu bag when needed, such as during suctioning, tracheostomy care, filling or changing the humidifier, draining condensation from client/ventilator circuit, or during power/ventilator failure.
2. When using resuscitation or Ambu bag, disconnect the ventilator circuit and connect the bag valve to the tracheostomy tube.
3. Squeeze the bag during inspiration if the client is breathing on his/her own. If not, squeeze the bag as soon as it is connected to tracheostomy tube.

4. Squeeze the bag in a quick, smooth motion while observing the client's chest. Release bag when the chest rises.
5. Allow time for the client to exhale air. Repeat at a 1:2 ratio for the air to enter and exit lungs. This cycle may be repeated 10 to 14 times/minute.
6. Connect supplemental oxygen to the oxygen reservoir if needed.
7. Reconnect the ventilation circuit to the client when manual resuscitation is completed.
8. Store Ambu bag near the client at all times.

Procedure: Cleaning and Disinfecting Equipment

1. Wash ventilator, client circuiting, and other reusable parts in a detergent solution and rinse thoroughly every one to three days.
2. Completely submerge parts. Soak in disinfectant solution or white vinegar and distilled water solution (1:3 dilution) for 15 minutes. Rinse thoroughly.
3. Allow the parts to dry on clean paper towels or hang over towel rack. Store them in a clean towel or plastic bag when dry.
4. Test parts for leaks or for the need to be replaced before or during washing.
5. Wipe exterior of ventilator with alcohol solution.
6. Change ventilator filters as recommended by the manufacturer.

Related Procedures

Administration of Oxygen, Tracheostomy Care, Tracheostomy Suctioning, Pulse Oximetry

Policy History

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