BiLevel Pressure Device

Purpose

Define indications and care settings for the initiation of noninvasive positive pressure ventilation. Identify the role of Respiratory Care Service and Nursing Service in providing noninvasive ventilatory support with or without supplemental oxygenation for the spontaneous breathing patient.

Scope

Respiratory Care Services will initiate noninvasive positive pressure ventilation as ordered by a physician. A licensed respiratory care practitioner (RCP) in accordance with a physician order will perform initial set up. A licensed RCP trained in the proper setup procedure will do noninvasive positive pressure ventilation setting adjustments. A registered nurse and respiratory therapist will provide ongoing assessment and documentation of the patient condition.

Physician's Order

A written order by a physician is required:

Indications

Noninvasive positive pressure ventilation devices are indicated in patients who exhibit alveolar hypoventilation, chronic ventilatory muscle fatigue or impending fatigue, sleep-apnea syndrome ,and refractory hypoxemia. The following table shows patient care area requirements for each BiPAP indication.

Bilievel Indication	Care Area for Monitoring
1. History of home use of noninvasive positive pressure ventilation with chronic respiratory failure 2. Nocturnal use with stable ventilatory status. This includes newly initiated NiPPV for use while sleeping. 3. Application for palliative care, for end-of-life support and comfort.	Any inpatient unit
1. Acute respiratory failure 2. Impending respiratory failure	Intensive Care Unit, IMU, Emergency Department PACU

Contra-indications

1. Patients unable to maintain spontaneous ventilation
2. Progressive airway compromise, such as a known difficult airway, infection, tumor or hematoma unless patient is in a monitored location such as ICU, IMU, ER or PACU
3. Untreated pneumothorax or cardiovascular instability
4. Inability to protect the airway
5. Acute facial trauma
6. Upper GI Bleed, epistaxis, or active hemoptysis
7. Altered mental status/combativeness or need for physical or chemical restraint, unless it is a temporary trial and the patient is being closely monitored in an ICU setting.
8. Patients with artificial airways
9. Patients' incapable of maintaining life-sustaining ventilation in the event of mal-positioning of the mask in a non-monitored ICU setting
10. Patients with excessive secretions, untreated nausea or active vomiting.
11. ICP > 20 mmHg

Equipment

A noninvasive positive pressure ventilation machine.

1. Oxygen tubing for supplemental oxygen delivery if required
2. Patient circuit and mask.

Procedure

Step	Action
1	Review EMR for order, diagnosis, indications, and other information, wash hands, don PPE and check patient identification.

2	Assemble circuit and connect to the BiLevel Pressure Device. Ensure proper placement of the exhalation valve (facing outward and unobstructed). If required connect oxygen tubing for supplemental oxygen (prescribed in liters per minute or O2 percentage to maintain SpO_2 in a specified range). Verify machine settings are in accordance with written orders.
3	Apply mask and head strap to patient. Adjust the straps until all significant leaks are eliminated. Avoid over-tightening, which may cause leaks and patient discomfort.
4	Enter set parameters into the EMR. Note mask size and supplemental oxygen liter flow or FiO2, as well as appropriate clinical data, (i.e.) RR, HR, BS, etc. Adjustments of set parameters are made per physician order. Monitor clinical and physiological parameters.
5	Patients requiring continuous Bi-Level Pressure Device support (>8 hours per day), will be assessed every 4 hours by Respiratory Care Services. Documentation in EMR will be required with each assessment. The therapist will: • Remove the mask and head gear to allow for pressure relief for as long as patient tolerates • Inspect skin integrity at key pressure points (including bridge of nose, cheeks, head, and neck) • Place a protective skin barrier to these pressure points as needed (note: protective skin barrier must be removed with each assessment to allow for proper inspection of skin integrity) • Perform suctioning as needed during these assessments • Re-secure the mask.

Addendum

Patients who bring their BiLevel Pressure Device from home will be monitored by Respiratory Care Service and provided with supplemental oxygen as prescribed by a physician. Patients with a home BiLevel Pressure Device will need to have appropriate orders written by their assigned inpatient physician. The unit must be inspected for electrical safety and a waiver must be signed and placed in medical record for inpatient use. Settings and any adjustments cannot be made by hospital staff.