CPAP/BiPAP THERAPY

PURPOSE: To outline the management of patients (except NICU) receiving oxygen therapy by Continuous Positive Airway Pressure (CPAP) mask or continuous Bi-level Positive Airway Pressure (BiPAP) mask.

SUPPORTIVE DATA: Non-invasive positive pressure ventilation therapy is used for patients with conditions such as obesity hypoventilation syndrome, obstructive sleep apnea, neuromuscular and chest wall disease, chronic obstructive pulmonary disease (COPD) exacerbation, and decompensated heart failure.

Environment	CPAP/BiPap	Example of Uses	SpO2 Monitoring
ICU	Continuous CPAP, BiPAP	Hypercapnea, acute respiratory failure	Continuous
PCU	Continuous CPAP, BiPAP	Hypercapnea, acute respiratory failure	Continuous
Med/Surg Unit*	Intermittent CPAP	Sleep apnea, nocturnal	Every 4 hours with vital signs
Med/Surg Unit	Continuous CPAP, BiPAP	Palliative Care Patients who are DNR/DNI	Every 4 hours with vital signs

(* Patient may be placed on continuous CPAP/BiPAP pending urgent transfer to ICU/PCU)

Respiratory Care Practitioners (RCP) are responsible for setting up the equipment and administering the therapy and also are solely responsible for verifying that physician's order match setting on the acute care unit setting. Nursing is responsible for assessment and monitoring the patient receiving this therapy as outlined below.

The patient with impaired ability to remove the mask (e.g. the patient is not alert enough or strong enough to remove the mask or is in restraints) is at high risk for aspiration when using a full-face mask. These patients should be continuously observed by a Care Companion or should have a nasal rather than full facial mask.

CONTRAINDICATIONS:

- Cardiac or respiratory arrest
- Non -respiratory organ failure
- Severe encephalopathy
- Severe upper gastrointestinal bleeding
- Hemodynamic instability or unstable cardiac arrhythmia
- Facial or neurological surgery, trauma, or deformity
- Upper airway obstruction
- Inability to cooperate/protect airway
- Inability to clear secretions
- High risk for aspiration
- Inability to maintain life-sustaining ventilation in the event of malposition of the Mask
- Severe nausea or vomiting
- Pneumothorax or pneumomediastinum
- Bullous lung disease
- Hypotension induced by positive pressure ventilation
- Tuberculosis

ASSESSMENT:

1. Assess the following a minimum of every 8 hours adults (every 4 hours pediatrics and ICU)
   - BiPAP settings/readings (ICU only):

- Inspiratory pressure (IPAP)
- Expiratory pressure (EPAP)
- Tidal volume (Vt) achieved with current settings
- Concentration of oxygen (FiO_2)
- Rate

- Quality and rate of respirations
- Skin color
- Breath sounds
- Proper equipment position and fit
- Mental status
- Vital signs including oxygen saturation via pulse oximetry (SaO_2)
- Nausea or vomiting

2. Assess for skin irritation and pressure areas/ injuries a minimum of every 4 hours (especially the bridge of the nose).
3. Use two-finger rule to determine appropriate strap adjustment between head and straps.

ADMINISTRATION:

4. Request Respiratory Care Therapist to determine the size and fit of mask/cannula
   Note: The mask has a soft inflated edge to make a seal.
5. Place skin barrier device on bridge of nose as applicable depending on interface device (e.g. full mask, nasal).
6. Ensure order for CPAP/BiPAP includes (ICU only):
   - Concentration of oxygen (FiO2%)
   - Pressure settings
   - Length of time on therapy e.g. continuous except while eating or 2200 to 0600
   - Back up rate of O_2 via nasal cannula while off CPAP/BiPAP e.g. while awake or when eating
   - Respiratory Care Therapist will adjust the settings

SAFETY:

7. Provide mouth care a minimum of every 8 hours.
8. Maintain patency and function of oxygen delivery device/source. If using oxygen tank:
   - Maintain oxygen tank level above 500 psi
   - Ensure that oxygen tank is secured to carrier

HYDRATION:

9. Encourage fluid intake to 2000 ml/day unless contraindicated by age or condition. Face/nasal mask should be removed during hydration

TEAM COLLABORATION:

10. Collaborate with Respiratory Care Practitioner for:
    - Adjustments of settings (ICU only)
    - Patient complaints regarding oxygen delivery system
    - Timely replacement of delivery system equipment
    - Proper sizing of mask

PATIENT/FAMILY TEACHING:

11. Reinforce No Smoking Policy.
12. Instruct patient/family to notify nurse of:
    - Increasing shortness of breath
    - Chest pain
    - Headache
    - Disruption in oxygen delivery therapy
    - Pain/ discomfort from mask

13. Explain rationale and importance of CPAP/BiPAP

REPORTABLE CONDITIONS:

14. Report the following to provider:
    - Unable to tolerate/ refuses to wear
    - Deteriorating respiratory status
    - Mental status changes
    - Chest pain
    - Headache
    - Deterioration in vital signs from baseline
    - Emesis
    - Presence of skin breakdown

DOCUMENTATION:

15. Document in accordance with "Documentation" standards
    - In iView Systems Assessment Navigator Band

Initial date approved:	Reviewed and approved by:	Revision Date:
3/14	Critical Care Committee Professional Practice Committee Nurse Executive Council Attending Staff Association Executive Committee	03/22

Reference: LAC+USC Department of Respiratory Care Service Policy: Non-Invasive Positive Pressure Ventilation (BiPAP and CPAP)