Respiratory Care Services
John Dempsey Hospital
Policy and Procedure Manual

Subject: **Managing Acute Respiratory Insufficiency/Failure**

Rationale: For the non-invasive positive pressure ventilation (NPPV) management of spontaneously breathing patients initially presenting to either the Intensive Care Unit (ICU) or Emergency Department (ED) in acute respiratory insufficiency/failure. The Respiratory Care Practitioner will utilize the following protocol to identify a candidate for NPPV and select the ventilation assistive device and type of interface to effectively manage the patient.

Equipment Needed:

1. Stethoscope
2. Ventilation Assistive device
   a. BiPaP Vision
   b. BiPaP S/T-D
   c. CPAP
3. Interface device
   - Nasal Mask
   - Full Face Mask (e.g. Image 3 Full Face Mask)

Procedure:

1. Identify potential candidate for NPPV.
   a. Spontaneously breathing patient
   b. Patient demonstrates clinical evidence of acute respiratory distress by more than one of the following:
      - Dyspnea / SOB
      - Accessory Muscle Usage
      - SpO_2 < 90%
      - Respiratory Rate > 24 BPM
      - Increased PCO_2 demonstrated from ABG lab result

Special Note: Those patients exhibiting any of the following criteria will be excluded from NPPV and an Alternate Therapy must be chosen:

- Respiratory Arrest
- Uncontrolled Arrhythmias
- Airway Obstruction
- Unable to Clear Secretions
- Uncooperative
- Facial Trauma
- Systolic BP < 90 mmHg

2. Initiate NPPV selecting the appropriate Ventilation Assistive device and Type of Interface (correctly sized).

   Nasal Mask – appropriate for facial abnormalities, long-term NPPV
   Image 3 Full Face Mask – appropriate for mouth breather, claustrophobia, anxiety, and long-term NPPV

Remember a mask which is improperly fitted to the patient, causes anxiety, or results in discomfort will only impede the effective management of the patient.

3. Obtain initial orders/settings for NPPV and verify patient's orders sheet for specific instructions. Verify patient's name, DOB, and bed location. Proceed to patient's bed, introduce yourself, and explain what you are about to do. Check the patient's name and DOB verbally and by the patient's wristband. Offer reassurance.

   Example:
   For BiPAP / BiPAP Vision initial settings as follows:
   - S/T Mode
   - IPAP/EPAP 10 / 4
   - Respiratory Rate 8
   - Rise Time = Adjust of patient comfort

4. Set NPPV alarms to appropriate levels

5. Continue to monitor patient's respiratory parameters and perform clinical assessments:
   a. Assess patient's level of dyspnea, accessory muscle usage, and respiratory rate
   b. Assess patients mental status (patient awake, alert, and demonstrates an ability to follow and perform simple commands when instruction is provide)
   c. Chest auscultation: assess breath sounds and air movement
   d. Assess for effectiveness of cough effort in promoting airway clearance
   e. Assess secretions (frequency, amount , color, and texture)
   f. Optimize medical management of patient
   g. Monitor patient comfort
   h. Obtain ABG's as needed

6. Monitor & Assess Ventilation Assistive Device System and Interface.
   a. Adjust Ventilation Assistive Device settings to patient ventilatory and oxygenation needs.
   b. Adjust alarms and verify alarm settings accordingly.

For patient ventilatory needs:

- Gradually Adjust IPAP and Optimize patient ventilator synchrony
  - optimize V_T and/or PCO_2
  - minimize accessory muscle usage/WOB
  - alleviate dyspnea/SOB
  -decrease respiratory rate

For patient oxygenation needs:

- Gradually Adjust EPAP(and IPAP) and Adjust FIO_2 or O_2 lpm
  - $SpO_2 > 90\%$

7. Monitor Therapy Goals
   - Does patient demonstrate significant improvement in ABG's and respiratory symptoms?
   - Is patient stabilized?
     -Transfer stabilized patient to Unit /Floor
   - If patient shows no improvement after 1 hour elapsed, advise physician that patient's current respiratory status may warrant the physician considering intubation and placement of the patient on mechanical ventilation