Bi-Level Positive Airway Pressure Titration

**Audience:** All personnel in the Sleep Disorder Center.

**Purpose:** To establish technical guidelines for BiPAP titration for patients who have already been diagnosed with Obstructive Sleep Apnea (OSA), Qualify for Split Night Procedure (See Split Night Procedure), or other diagnosis requiring BiPAP. The study is performed to determine the optimal pressure of BiPAP necessary for effective treatment.

**Policy:** All patients will be oriented to positive airway pressure (PAP) prior to starting the BiPAP polysomnogram.

When fitting a patient for a mask and headgear, measuring tools and techniques should be used to ensure a proper fit. Patient discomfort may prevent the patient from being effectively treated; therefore, it is the night technologist’s responsibility to utilize all available mask, equipment, and counseling to aid in the patient’s compliance during the titration study. Additionally, the comfort and fit of the patient mask should be evaluated throughout the night.

If significant (as determined by effect on sleep quality) leak is present during the titration, the technician is responsible for repairing the leak as soon as possible and as frequently as necessary. Actions may include, but are not be limited to, the following:

- Adjusting mask
- Adding chinstrap
- Changing mask type

Patients should be encouraged to sleep in the supine position during the titration study. Sleeping in an inclined position should be strongly discouraged.

Minimum starting BiPAP pressures: 8 cmH2O IPAP / 4 cmH2O EPAP
Maximum BiPAP pressures: 30 cmH2O IPAP / 25 cmH2O EPAP

**Obstructive Events:**
- IPAP and EPAP should be increased in 1-2cmH2O increments until obstructive apnea and hypopnea are eliminated. The patient will be monitored for a minimum of 5 minutes between incremental PAP pressure adjustments for apnea and hypopnea.
  - In the absence of apnea and hypopnea, 1 cmH2O IPAP increases will be done for the presence of RERAs, snoring with associated arousals, and saturation deficiencies
The patient will be monitored for a minimum of 25 minutes between incremental BiPAP pressure adjustments for snoring and saturation deficiencies.

Central Events:
- 1 cmH2O IPAP increase will be done with the presence of Central/Periodic Breathing Events. If centrals worsen after pressure is increased 2-3 cmH2O, return pressure where obstructive component eliminated.
- If IPAP pressure increases were ineffective in treating centrals, a trial of O2 is indicated if desaturations are present

Desaturation Events:
- 1 cmH2O IPAP increases will be done with the presence of a sustained SaO2<88% for a period ≥ 2 minutes in the absence of Apnea, Hypopnea and RERA.
- If SaO2 is not able to be maintained at ≥88% after increasing IPAP 4 cmH2O return to pressure where Apnea, Hypopnea and RERA were eliminated and initiate O2. (See O2 administration procedure)
- The patient will be monitored for a minimum of 25 minutes between incremental BiPAP pressure adjustments for a SaO2 < 88%.

The titration model above is a guide and does not include all scenarios that will be encountered in the sleep laboratory during a titration. If you have questions during a titration contact the Medical Director or his designee or Denise McElyea, Program Manager.

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If SaO2 Sustained <70% for > 2 minute during a titration procedure initiate O2 Administration procedure and as appropriate titrate pressures down as adjustments are made (see O2 Administration procedure).

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