

**OLIVE VIEW-UCLA MEDICAL CENTER
RESPIRATORY CARE SERVICES – SLEEP MEDICINE
POLICY & PROCEDURE**

**NUMBER: 11437
VERSION: 1**

SUBJECT/TITLE: SPLIT-NIGHT POLYSOMNOGRAPHY PROTOCOL

POLICY: The diagnostic portion of the split night sleep study should be performed according to the AASM Practice Parameters for the Indications for Polysomnography and Related Procedures: An Update for 2016. Please refer to the Protocol for Polysomnography for the indications and procedures.
Application of electrodes, montages, filters, sensitivities, and scoring will be performed according to the AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications.
The CPAP/BILEVEL treatment portion is performed after the patient has had at least 2 hrs. of unequivocal sleep with a total AHI of 40 or more events and the patient doesn't have any history of other heart, lung, kidney, neuromuscular problems. If patients has these problems the treatment can be started at an AHI of 20 events.

PURPOSE: The split night sleep study allows diagnosis and PAP titration during a single night study.

DEPARTMENTS: RESPIRATORY CARE SERVICES

DEFINITIONS: A Split-Night Sleep Study starts out the same as a overnight PSG but is converted to a CPAP or BI-LEVEL PAP study if certain parameters are met.

PROCEDURE:

- 1.0 Recorded Parameters:
 - 1.1 Central Monopolar
 - 1.2 Occipital Mono- or Bipolar Recording
 - 1.3 Chin EMG
 - 1.4 R/LAT and L/LAT
 - 1.5 ROC and LOC
 - 1.6 Snoring MIC or SENSOR
 - 1.7 Thermistor
 - 1.8 Nasal/Oral Airflow
 - 1.9 Thoracic Effort
 - 1.10 Abdominal Effort
 - 1.11 SaO2
 - 1.12 Body Position
- 2.0 Upon admission to the Sleep Lab, each patient will have an

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assessment completed

by the Sleep Lab Technologist for data collection and to determine any immediate needs or concerns.

3.0 Admission assessment will include the following:

3.1 Review of demographic information

3.2 Reason for sleep study

3.3 Physiological parameters

3.4 Current medications

3.5 Environment - special needs of the patient (e.g., hearing aid, glasses, cane, interpreter)

3.6 Patient/family education

3.7 Discharge planning: Where? With whom?

3.8 Reminder to patient of follow-up appointment with referring Physician.

4.0 CPAP/BILEVEL treatment is started after the patient has at least 2 Hrs. of unequivocal sleep and has an AHI of 40 or more, (without any history of the above mentioned medical conditions), or an AHI of 20 or more events with a medical history of heart, high blood pressure, lung or kidney disease, neuromuscular disease.

4.1 Begin the patient on a setting of 4-5 cm of water. If the patient is morbidly obese or unable to fall asleep on the setting of 4-5cm of water, higher starting pressures may be needed.

4.2 If apneas or frequent hypopneas are present, pressure settings should be increased by 2 cm of water. If occasional hypopneas, snoring, or mask flow limitation (see below) are present, pressure settings should be increased by 1 cm of water and maintained for at least 5 minutes to determine if events improve or resolve. Pressure settings may need to be increased more quickly during REM sleep given the limited amount of REM during sleep and the need to treat events during this stage.

4.3 If a mask leak occurs, the tech should first fix the leakage before raising the pressure. Otherwise, the final pressure setting chosen for the patient may be too high. Once the mask leak has been fixed, decrease the pressure to the last setting where mouth breathing and/or mask leakage was not present, and then re-titrate as indicated. Make sure to document directly on the study the steps taken to resolve the leak, and the type of masks used. Pressure settings usually do not need to be set as high with a nasal mask as with a full-face mask.

4.4 The recoding technologist should document directly on the study at least every 30 minutes.

4.5 If the patient takes a break from wearing the mask, do not decrease the CPAP pressure on attempted return to sleep unless

the patient remains awake for 15 minutes, or the patient specifically requests that the pressure be lowered.

- 4.6 Do not raise pressure settings for central apneas. If the patient develops central apneas, pressure setting may need to be lowered.
- 4.7 If the patient is unable to tolerate CPAP secondary to
 - 4.7.1 Persistent mouth breathing despite use of a full-face mask/chin strap;
 - 4.7.2 Inability to exhale against higher expiratory pressures (typically beginning anywhere from 15 to 20 cm of water); or,
 - 4.7.3 Has frequent central apneas; the use of bilevel positive airway pressure may be indicated. Make sure to document directly on the study why the patient is being switched from CPAP to bi-level.
 - 4.7.4 Ensure that supine sleep has been seen on the chosen setting. Going above the chosen setting by 1 or 2 cm of water to show range may be helpful to ensure that the correct pressure has been established.

Level of Titration Achieved

You have achieved an optimal titration when you see the following:

- a. The Respiratory Disturbance Index (RDI) is <5 per hour for a period of at least 15 minutes at the selected pressure and within the manufacturer's acceptable leak limit.
- b. The SpO₂ is above 90% at the selected pressure.
- c. Supine REM sleep at the selected pressure is not continually interrupted by spontaneous arousals or awakenings.

You have achieved good titration when you see the following:

- a. The Respiratory Disturbance Index (RDI) is <10 per hour (or is reduced by 50% if the baseline RDI was <15) for a period of at least 15 minutes at the selected pressure and within the manufacturer's acceptable limit.
- b. The SpO₂ is above 90% at the selected pressure.
- c. Supine REM sleep at the selected pressure is not continually interrupted by spontaneous arousals or awakenings.

You have achieved an adequate titration when you see the following:

- a. The Respiratory Disturbance Index (RDI) is NOT <10 per hour but the RDI is reduced by 75% from baseline.
- b. Criteria for optimal or good titration is met but you did NOT get a sample of supine REM at the selected pressure.

An unacceptable titration does not meet any of the above grades.
Repeat titration should be considered

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References:	
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