Name of Policy: **Split-night studies** **Policy Number**: 3364-171-03-07 **Approving Officer**: Chief Executive Officer Chief Operating Officer Medical Director **Responsible Agent**: Director, Respiratory Care **Scope**: The University of Toledo Medical Center Pulmonary Services Department	**Effective date:** **Original effective date**: March 17, 2023
Key words: Split-night, AASM, Titration, AHI, PSG	

	New policy proposal	X	Minor/technical revision of existing policy
	Major revision of existing policy		Reaffirmation of existing policy

(A) Policy statement

All qualified and trained sleep technologists are responsible for accurately identifying and treating Obstructive Sleep Apnea (OSA) during a split-night study.

(B) Purpose of policy

To establish guidelines for combined diagnostic testing and Positive Airway Pressure (PAP) titration that is consistent with American Academy of Sleep Medicine (AASM) practice parameters.

A split-night study (initial diagnostic Polysomnography (PSG) followed by Continuous Positive Airway Pressure (CPAP) titration during PSG on the same night) may be preferred relative to full-night PSG and PAP titration studies due to the convenience, cost savings, or insurance requirements of completing a diagnostic and titration study during one rather than two separate PSG studies. However, this needs to be balanced with the consequences of potentially inconclusive diagnostic or titration portions of the sleep study.

(C) Overview

The general policy of the University of Toledo Medical Center (UTMC) Sleep Disorders Center is to avoid the performance of split-night CPAP titration studies for the treatment of sleep-related breathing disorders because:

(1) The split-night baseline assessment for sleep apnea is frequently unreliable, as there is often insufficient time to evaluate the patient while sleeping in all positions (supine and decubitus), and during all stages of sleep, and because nocturnal respiratory events frequently worsen as the night progresses.

(2) The determination of CPAP pressure requirements is often inaccurate because there is insufficient time to perform the titration in all positions, and during all stages of sleep.

(3) Many patients experience a "first night effect" in the laboratory, which serves to disrupt or limit their nocturnal sleep. When added to the interruption required to begin treatment, and the frequent difficulties experienced with initial CPAP tolerance, the result is often a night of extremely disturbed or limited sleep, and a potentially invalid sleep evaluation.

(4) It is not possible to obtain a valid Multiple Sleep Latency Test (MSLT) assessment of daytime sleepiness following a split-night procedure.

(5) The patient's subjective impression of treatment efficacy is often reduced following a split-night procedure, and this may adversely affect compliance.

(6) The procedure requires that a technician make the preliminary determination of sufficient sleep-disordered breathing to warrant treatment, and base it on an incomplete recording.

(D) Procedure

(1) When clinically appropriate and a split-night study is ordered, a split-night study may be performed provided:

(a) A moderate to severe degree of OSA (e.g., Apnea-Hypopnea Index (AHI) of 20-40 or more events/hour) is observed during a minimum of 2 hours of recording time on the diagnostic PSG, and

(b) At least 3 hours of sleep time remains for the CPAP portion of study, due to respiratory events can worsen throughout the night.

It is permissible to extend the patient's sleep period (i.e., delay the scheduled wake-up time), if the patient is available to stay.

(2) If the diagnostic portion is inconclusive, a second PSG is needed. If the titration portion is inconclusive, a second PAP titration study, or the use of auto adjusting PAP may be needed. In a patient with previously diagnosed OSA, a split-night study may be done, if the study is ordered by a physician. However, if the diagnostic portion of the study shows an AHI< 20/hour in the first 2-3 hours of sleep, the study will be continued as a PSG and a titration study may be done at a later date, if needed. If the patient has an AHI ≥20/hour, the study will be done as a split-night study, provided at the time of split, 3 hours of sleep remain.

In the event that a patient is scheduled for a PSG, but during the initial 2 hours severe OSA is observed, with the following criteria, an emergency split-night study may be performed. The medical director or the sleep specialist assigned to the study shall be contacted and a verbal order for an emergency split-night study shall be obtained. A copy of this order shall be given to the medical director for signature and then entered into the medical record. Considerations for request of an emergency split-night study.

(c) Minimum of 2 hours of sleep documented.

(d) Multiple apneas leading to any of the following:
  (i) Severe oxygen desaturation (below 70%).
  (ii) Prolonged apneas (more than 60 seconds).
  (iii) Persistent bradycardia below 35 bpm.
  (iv) Other life-threatening ECG dysrhythmias associated with abnormal breathing patterns.

(3) Workflow

(a) Proceed with the hook-up as you would for a typical PSG study.
(b) If the need for a Split-Night Study is suspected, educate the patient regarding CPAP equipment and usage prior to lights out.
(c) Explain to the patient that if they are positive for OSA, you will be in during the study to fit the mask and start the therapy portion of the test.
(d) If the patient meets criteria, proceed with the Split-Night study.
(e) Follow CPAP/Bilevel Titration Policies and Procedures
(f) Due to time constraints with Split-Night Studies, PAP should be increased by a minimum of 2 cm H2O with a time interval of no less than 5 minutes.

(4) Components

(a) Patient education.
(b) Set-up and inspect the unit for minimalization of leaks.

(c) Add heated humidification using sterile water.

(d) Patient hook-up.

(i) International 10-20 hook-up.

(ii) Chin Electromyograph (EMG).

(iii) Eye Electrooculogram (EOG).

(iv) Anterior Tibialis leads right and left.

(v) Chest Respiratory Inductance Plethysmography (RIP) belts.

(vi) Abdomen RIP belt.

(vii) Oximeter.

(viii) Snore microphone.

(e) Patient to bed.

(f) Lights out.

(g) Impedance check.

(h) Machine calibration.

(i) Patient calibration.

(j) Machine calibration.

(k) Lights on.

(l) Disassemble PAP device and remove all electrodes and process each for disinfection or disposal per policy.

Approved by:	**Policies Superseded by this Policy:**
Daniel Barbee, MBA, BSN, RN, FACHE Chief Executive Officer Date Russell Smith, PharmD, CPEL, BCPS, FACHE Chief Operating Officer Date Andre Aguillon, M.D. Medical Director Date Melissa Kukiela Director, Respiratory Care Date *Review/Revision Completed by:* *Melissa Kukiela, Director, Respiratory Care* *Grant Sturgell, Manager, Sleep Lab*	• *None* Initial effective date: March 17, 2023 Review/Revision Date: Next review date: