

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

**NUMBER: 9054
VERSION: 2**

SUBJECT/TITLE: MWT PROTOCOL

POLICY: The sleep center performs MWTs in accordance with AASM practice parameters and published guidelines. MWT is indicated to assess a person’s ability to remain awake when his or her inability to remain awake constitutes a public or personal safety issue. MWT may be indicated in patients with excessive daytime sleepiness to assess response to treatment.

MWT must be ordered or approved by a sleep staff physician. Performance of a PSG prior to MWT is decided by the physician based on clinical circumstances. MWT trials last 40 minutes. On occasion the sleep staff physician may order 20 minute trials (e.g., for FAA requirements).

General Considerations: The patient’s use of tobacco, caffeine and medications before and during MWT should be determined by the sleep clinician before the MWT. Drug screening may be indicated to ensure that sleepiness or wakefulness during the MWT is not influenced by substances other than medically prescribed drugs. The physician may request a urine specimen for drug screening; the timing of this specimen is determined by the physician.

PURPOSE: A standard MWT protocol that is consistent with AASM practice parameters promotes consistency, allows comparisons between tests, and ensures accurate interpretations that are consistent with published data.

DEPARTMENTS: RESPIRATORY CARE SERVICES

DEFINITIONS: MWT: Maintenance Wakefulness Test

PROCEDURE: General Description:

- 1.0 The MWT consists of 4 trials performed at 2-hour intervals.
 - 1.1 The first trial begins about 1.5 to 3 hours after the patient’s usual wake-up time. It is recommended that each trial last 40 minutes if no sleep occurs. Prior to each trial the patient is asked if he/she needs to use the restroom or other adjustments for comfort.
 - 1.2 Twenty-minute trials may be done based on the judgment of the sleep clinician.

SUBJECT/TITLE: MWT PROTOCOL

Policy Number: 9054

Page Number: 2

- 1.3 Use of 20-minute trials must be justified.
- 2.0 A light breakfast is provided about 1 hour prior to the first trial, and a light lunch is provided immediately after the end of the second trial.
- 3.0 Between trials the patient is kept out of bed and is visually monitored to ensure that no napping occurs.
- 4.0 During each test, the patient sits in a semi-reclining position (45-90 degrees) on the bed, with his/her back supported by the adjustable bed and the patient's head supported on a pillow, in a dimly lit room, (a 7.5 W night light is positioned slightly behind the patient's head so that it is just out of the patient's field of vision) and the patient is told to try to stay awake.
- 5.0 The recording is terminated after 40 minutes if no sleep occurs. If the patient falls asleep during the 40 minutes, then the trial is terminated after unequivocal sleep, defined as three consecutive epochs of stage N1 sleep, or one epoch of any other stage of sleep.
- 6.0 The MWT is recorded with standard polysomnography using the following montage: REOG, LEOG, chin EMG, EEG (F3/M2, F4/M1, C3/M2, C4/M1), EEG (O1-M2, O2-M1) and EKG.
- 7.0 The mean sleep latency is determined across 4 trials.
- 8.0 Sleep latency is defined as the time from lights out to the first epoch of any stage of sleep scored according to the "AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications."

Details of the Procedure:

- 1.0 After completion of the polysomnogram (if applicable), airflow, chest respiration belts, oximeter probe and leg EMG leads are removed.
- 2.0 After arising, the patient should use the bathroom, dress in street clothes and eat breakfast.
- 3.0 The MWT procedure should be explained to the patient. The patient is told that he or she cannot sing or make unnecessary movements during the test.
- 4.0 Between trials the patient should be out of bed and overseen by continuous visual monitoring to ensure that no napping occurs.
- 5.0 The first page of the MWT report is labeled with the following information:
 - 5.1 Patient name
 - 5.2 Patient identification number
 - 5.3 MWT
 - 5.4 Room number
 - 5.5 Date of test
 - 5.6 Patient date of birth

SUBJECT/TITLE: MWT PROTOCOL

Policy Number: 9054

Page Number: 3

5.7 Ordering physician

5.8 Initials of technologist performing study

5.9 Montage for the MWT:

Channel #	Parameter	Derivation	Sensitivity	Low filter	High filter
1	REOG	REOG/M1	7 uv/mm	0.3	35
2	LEOG	LEOG/M2	7 uv/mm	0.3	35
3	Chin EMG	Chin EMG	3 uv/mm	10	100
4	EEG	F3/M2 and F4/M1	7uv/mm	0.3	35
5	EEG	C3/M2 and (C4/M1)	7 uv/mm	0.3	35
6	EEG	O2/M1 and (O1/M2)	7 uv/mm	0.3	35
7	EKG	EKG	variable	0.3	70

6.0 A 50-microvolt standard calibration is performed for all recording channels.

7.0 The electrodes are visually inspected for good adherence, and any loose electrodes are replaced.

8.0 An impedance check is performed, and any electrodes >5,000 ohms are replaced and rechecked.

9.0 Patient is placed in bed at test time, and the jack box is plugged in.

10.0 The room lights are out with a dim light illuminated behind the patient.

11.0 The following schedule of events occurs prior to each test:

11.1 30 minutes before - cessation of smoking

11.2 15 minutes before - suspension of physical activity

11.3 10 minutes before - preparation for bed

11.4 5 minutes before - electrodes connected and calibrations completed (see below)

11.5 5 seconds before - instructions to relax and remain awake

11.6 0 - lights out

12.0 Technologist starts polygraph or computer and makes adjustments in tracing. When tracing is acceptable, technologist performs the following patient biocalibrations:

12.1 Eyes open for 30 seconds

12.2 Eyes closed for 30 seconds

12.3 Moving eyes only, look right

12.4 Moving eyes only, look left

12.5 Moving eyes only, look up

12.6 Moving eyes only, look down

12.7 Blink several times

SUBJECT/TITLE: MWT PROTOCOL

Policy Number: 9054

Page Number: 4

12.8 Swallow

12.9 Grit teeth

13.0 Inform patient that the nap has begun with the following statement: "Please sit still and remain awake for as long as possible. Look directly ahead of you, and do not look directly at the light."

14.0 Patients are not allowed to use extraordinary measures to stay awake such as slapping the face or singing.

15.0 Label the "lights out" page with the following information:

15.1 Lights out and time

15.2 Patient position

16.0 Document any changes made in sensitivity or filter settings, as well as patient position and behavior during the study.

17.0 The test is ended after 40 minutes if no sleep occurs. If sleep does occur, the test is ended after unequivocal sleep, defined as three consecutive epochs of stage N1 sleep, or one epoch of any other stage of sleep.

18.0 On the "lights on" page, label the following information:

18.1 Lights on and time

18.2 Post-test machine calibrations

18.3 Standard 50-microvolt calibrations

19.0 Knock and enter patient's room and disconnect jack box from cable. Inform patient that he or she must stay awake until the start of the next test at approximately (time).

End of Study:

1.0 At the end of the last trial, turn off polygraph or exit computer.

2.0 Gently remove all sensors from patient. Take care to avoid irritation of patient's skin.

3.0 Carefully remove tape and electrodes from the patient's skin.

4.0 Ensure that all paste residue has been removed by using a damp wash cloth on the skin and hair and all electrodes have been removed.

After the Polysomnogram:

1.0 Carefully sort wires and group them together by lengths and application sites.

2.0 Remove any remaining tape, wash electrodes with soap and water, rinse and then wipe down with a germicidal wipe cloth, then an alcohol pad. Rinse well and allow to dry.

3.0 Inspect wires at this time to insure their integrity.

SUBJECT/TITLE: MWT PROTOCOL

Policy Number: 9054

Page Number: 5

4.0 Return any equipment and all cleaned and disinfected wires to the storage area for future use.

General Cleanup Checklist:

1.0 Discard all used tape, collars, gauze, etc.

2.0 Return patient preparation kit to appropriate area.

3.0 Stock patient preparation kit as needed.

4.0 If CPAP and/or oxygen equipment was used, remove and empty humidifier, connecting tubing, nasal cannula, and any other equipment and place in designated “dirty equipment area” for cleaning and disinfecting.

5.0 Discard disposable equipment such as the nasal cannula or disposable oximeter probe.

6.0 Remove any lint from CPAP equipment filter.

7.0 Remove used linen and place in appropriate dirty linen container.

8.0 Leave patient rooms in clean and orderly condition.

Scoring:

1.0 Sleep-stage scoring is based on the “AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications.”

2.0 The sleep latency is determined from lights out to the first epoch of any stage of sleep.

SUBJECT/TITLE: MWT PROTOCOL

Policy Number: 9054

Page Number: 6

References:	
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SUBJECT/TITLE: MWT PROTOCOL
Policy Number: 9054
Page Number: 7