

Approved \_\_\_\_\_

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## **POLICIES & PROCEDURES**

### **Sleep Research Lab**

## **RECORDING PROCEDURES, SCORING CRITERIA AND PROTOCOL FOR RESEARCH AND CLINICAL MSLT**

### BEGINNING OF THE TEST

- The research MSLT protocol begins at approximately 9:00 am, with four naps at two-hour intervals.

The clinical MSLT protocol begins approximately 2 hours after morning wake-up, with four to five naps at two-hour intervals. The clinical study ends after four naps if there is no SOREM, or if there are two or more naps with SOREM. A fifth nap is performed if there is one nap with SOREM, or uncertainty about SOREM in any of the naps.

- Subject should remove shoes, loosen constricting clothing, and hooked up in bed 5 minutes before scheduled start of test.

Have subject complete subjective rating of sleepiness.

Perform physiological calibrations - EC, EO, look left, look right, look up, look down, blink, clench teeth, entering the corresponding annotations as they occur.

Encourage subject to assume a comfortable position for falling asleep. (NOTE: This is done *before* test instructions are given.)

The following instruction is repeated **verbatim** for every MSLT:

**"Please lie still, keep your eyes closed, and try to fall asleep if you can. I will let you know when the test is over."**

Immediately after instructions are given, lights are turned off, signaling the start of the test, from which time (zero) sleep latency is calculated. Enter annotation for lights out when lights out occurs, making every effort to place at the beginning of an epoch.

### ENDING A TEST

The **research** MSLT is terminated 20 minutes after lights-out if there has been no sleep,  
or after three consecutive epochs of Stage 1 sleep,

or the first epoch of another sleep stage.

The **clinical** MSLT ends 15 minutes after the first epoch of sleep, or after 20 minutes from lights out if sleep has not occurred within that time.

The sleep tech recording the clinical MSLT determines sleep onset by scoring “on the fly”, continuing until there is an epoch of unequivocal Stage 1 sleep, from which point the recording continues for 15 minutes. This sleep onset latency may decrease when reviewing and scoring the naps retrospectively, but insures that the nap does not end prematurely.

#### Stage 1 sleep defined:

A relatively low voltage, mixed frequency EEG with a prominence of activity in the 2-7 cps range. Stage 1 is characterized by the presence of slow eye movements, each of several seconds duration, which are usually most prominent during the early portions of the stage. Rapid eye movements are absent.

The transition from a low voltage waking record to Stage 1 is characterized by a generalized slowing of the EEG. The transition from an alpha record to Stage 1 is characterized by a decrease in the amount, amplitude, and frequency of alpha activity.

When the amount of record characterized by alpha activity combined with low voltage activity drops to less than 50% of the epoch and is replaced by relatively low voltage, mixed frequency activity, the epoch is scored as Stage 1.

### MEASURING LATENCIES

Sleep latency is measured as the elapsed time from lights-out to the first epoch scored as sleep using a 30-sec scoring epoch. This criterion is reached when sleep occupies > 50% of any 30-sec epoch.

Sleep onset is determined using the standard sleep stage criteria. In cases where there is no clear slowing in the central derivations for  $\geq 15$  sec., the occipital derivations should be compared with the centrals to determine the percentage of sleep in an epoch.

Latency to SOREM is measured beginning with the first epoch after the epoch of sleep onset.

### QUALITY ASSURANCE

A technical evaluation of the recording will be done by the lab manager prior to scoring based on the following criteria:

1. The record is clearly annotated with lights-out, lights-on, and any other information that affects scoring.
2. The recording was not terminated prematurely (e.g. before the onset of sleep).
3. The recording does not contain excessive amounts of artifact which would make the record unscorable, and that sufficient attempts were made to alleviate artifact when possible.

### SCORING PROCEDURES

Scoring of MSLTs is done by two individual scorers (one of which is the lab manager) who have been qualified to do scoring based on a minimum of 50 scored records. Clinical MSLTs are scored by the recording technologist and the Lab Manager.

Each study is scored individually without knowledge of the results of the other scorer, recording sleep onset for each nap on a separate scoring sheet.

The scorers will make comments on the scoring sheet to provide information when further review is necessary.

The individual scores are compared and the final scores and latency recorded on the data sheet using the following criteria:

1. If the scores differ by  $\leq 2$  min., the scores are averaged.
2. If the scores differ by  $> 2$  min., the scorers confer with each other and try to come to an agreement, with the lab manager being the arbiter when no agreement can be reached.

For the clinical MSLT, REM is determined based on R&K scoring guidelines. When a SOREM is detected within the 15 minutes following sleep onset, every effort is made to be in agreement on sleep onset and consequently REM latency. If the difference between sleep latencies is less than 2 minutes, then the two subsequent REM latencies are averaged and the mean REM latency recorded on the data sheet with a comment made that the value is the mean REM latency.

The final scores, mean latency, and occurrence of SOREM are recorded on the data sheet and are initialed by the person confirming the scores.

In most cases the scorer who completes the data sheet puts his/her scores in Column 1 and the other scorer's sleep latencies in Column 2.

The scorers will make comments on the data sheet to document by which criteria the scores were determined.