

**HACKETTSTOWN REGIONAL MEDICAL CENTER  
CENTER FOR SLEEP RELATED DISORDERS  
PATIENT ARRIVAL, PREPARATION AND ELECTRODE/SENSOR APPLICATION**

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**Effective Date:** June, 2010

**Policy No:** 7.027

**Cross Referenced:**

**Origin:** Center for Sleep Disorders

**Reviewed Date:** 04/12

**Authority:** Cardio/Pulmonary Manager

**Revised Date:**

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**PURPOSE:** Specific instructions for patient arrival, standard instructions and activities to prepare the patient for sleep recordings, and standard procedures for the application of electrodes to ensure consistency of pre-study activities among sleep technicians and help ensure the integrity of the recording.

**POLICY:** All patients arriving for polysomnography will be registered down the West Wing registration area. Patients will then be escorted from the registration area to the sleep lab where they will be brought to the appropriate testing rooms and will be greeted in a professional and courteous manner. Standard procedures will be followed to prepare the patient for polysomnography. All sensors and electrodes will be applied following standard procedures and adhering to published standards and guidelines.

**PROCEDURE:**

Prior to Patient Arrival to the Sleep Center

Confirm physician orders for polysomnogram and any other procedures such as supplemental nocturnal oxygen and/or nasal CPAP.

Confirm history and physical are on patient's chart.

Confirm physician order or center protocol for appropriate montages to be utilized.

Patient suite and sensors should be inspected and prepared prior to patient's arrival.

Calibrate polygraph and/or computer and related monitors and confirm proper operation.

Electrode Placement/Application

**WASH HANDS THOROUGHLY**

- EEG
- Preparation of scalp electrodes:
- The head must be measured according to the International 10-20 System to assure accurate electrode application. Electrode sites generally used for the polysomnogram are Ground, F3, F4, C3, C4, O1, O2, M1, and M2. Additional electrodes will depend on system or montages to be utilized. A system reference electrode is also used for computerized systems.
- Prepare the electrode sites using skin abrasive specifically designated for skin preparation. Apply abrasive to marked electrode sites with cotton swab using care to avoid over-abrading the scalp. Allow to dry. Application of electrodes can be accomplished via variety of techniques, either by use of TEN-20 conductive paste and/or EC-2 cream.
- Place TEN-20 conductive paste in electrode cups and applying them to the prepared areas on the scalp. Secure the electrode cups by applying 1" X 2" gauze pieces with a small amount of EC-2 cream over each of the electrode cups and securing them with a few hairs crossed over the gauze patches.
- EOG
- Properly identify each location of electrode placement and prepare sites with skin abrasive gel and allow to dry.
- Fill electrode cups with conductive cream and apply one electrode 1 cm above and 1 cm away from outer canthus of one eye and the other electrode cup 1 cm below and 1 cm away from outer canthus of the other eye.
- Tape the electrodes in place.
- Guide wires toward back of patient's neck.
- EMG

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**Submental/Mentalis**

- After properly preparing electrode sites and electrode cups are filled with conductive paste, three electrodes are applied at the center of the chin and one electrode is placed beneath the chin and one laterally all 1cm apart.
- One of the three electrodes is used as a backup for possible use during the recording.
- Secure electrodes with paper tape and drape over patient's ears toward back of his/her neck.

**Left/Right Anterior Tibialis**

- Prepare each electrode site with skin abrasive gel.
- Allow to dry.
- Identify muscle by flexing patient's ankle and observe muscle movement at the site.
- Apply EKG electrodes or patches and attach snap electrodes.
- Apply two electrodes 3 cm apart on that portion of patient's legs.
- Secure with paper tape.
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**EKG**

- Identify and prepare sites with skin abrasive gel and allow site to dry.
- Placement of electrodes should be below the clavicle and equidistant from the sternum.
- Respiration

**Airflow devices**

- A thermistor/thermocouple is secured directly below the nostrils to record air temperature changes at patient's nose and/or mouth. .
- Nasal Pressure Cannulas are used to record pressure changes at the patient's nose and mouth.

**Respiratory Effort**

- Respiratory Inductance Plethysmography (RIP) for chest and abdomen are secured at the patient's abdomen and thorax via comfortably snug fitting elastic belts to record chest and abdominal excursion

**Oximetry**

- An oximeter probe is attached to patient's finger, toe, nose or ear. Site is dependant on the sensors available and the Technologist's discretion

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**Final Preparation**

- Group sensor wires together and secure. Arrange wires out of reach of the Toddler.
- Confirm patient's comfort in bed.
- If applicable, raise side rails in the up and locked position. Document in technologist's notes.
- Confirm impedances. (Less than 5 ohms)
- Confirm data at polygraph or computer.

**Collection**

Begin recording at this time and perform patient calibrations.

- After completing patient calibrations document "Lights Out".
- Document all observed actions and reactions.
- Correct any artifact and document as it occurs during the recording.
- Sleep study data should be collected for a minimum of 8 hours, if indicated.

**End of Sleep Study**

- At the end of the polysomnogram, gently awaken patient and document "Lights On".
- Patient Calibrations and mechanical calibrations should be recorded prior to ending study
- End recording and if necessary exit from computer program.
- Gently remove all sensors from patient. Take care to avoid irritation of patient's sensitive skin.
- Carefully and diligently soak each electrode site with warm water until the electrode gently lifts away from the patient's skin.
- Assure that all paste residue has been removed by using a fine-toothed comb after all electrodes have been removed.