

VALLEYCARE
**OLIVE VIEW-UCLA MEDICAL CENTER/HEALTH CENTERS
POLICY & PROCEDURE**

**NUMBER: 2212
VERSION: 1**

SUBJECT/TITLE: NEONATAL EEG RECORDING - PROCEDURAL PROTOCOL

POLICY:

1. This policy applies to neonates, defined as infants less than 2 months of age from term (48 weeks conceptional age). Usually such requests will come from the neonatal ICU (NICU); for rare outpatient neonates, the recording protocol would be similar to that for routine EEGs except for use of the neonatal montage and amplifier and chart settings throughout (described below), and for a longer recording time to capture all wake and sleep states. The following protocol assumes the baby is in the NICU.
2. Obtain requisition from EEG lab secretary or neonatal team.
3. Neonatal EEGs should be coordinated with the nursing unit and with the nurse in charge of the patient on the day the procedure is to be done.
 - a. Any other procedures to be done on the neonate should be carried out prior to the EEG, unless such a procedure requires a medication that might affect the EEG, in which case the EEG should be performed first if possible.
 - b. Inform the nurse that the EEG will take approximately 1½-2 hours to complete (approximately 30-45 minutes for preparation and removing electrodes, plus one hour of recording). If pressure of time or patient care needs do not allow a 1-hour recording, the minimum duration of recording should be 30 minutes for a valid neonatal EEG.
 - c. If the baby is being fed orally, try to schedule the EEG to begin immediately after a feeding, to facilitate sleep.
4. Gather the equipment and necessary paperwork to be transported to the nursery.
5. Upon arriving at the nursery or NICU:
 - a. Check in with the nurse in charge of the patient.
 - b. Verify procedure ordered.
 - c. Obtain a brief history from the parent(s), nurse or chart. Note any of the following information in the Technologist History section of the EEG record:
 - i. gestational and conceptional ages

- ii. type of delivery (natural, C-section, emergency),
 - iii. difficulties during prenatal period,
 - iv. difficulties during or after delivery (anoxia, bradycardia, apnea, seizures, abnormal movements, hemorrhage, trauma, infection).
 - d. Identify limitations that may be incurred during procedure.
 - e. Clean the equipment with Citrace and Bactoshield CHG 2%. Scrub hands and forearms to the elbow for three minutes; glove and gown.
 - f. Obtain assistance from nurse as needed to complete procedure.
 6. Utilizing appropriate and acceptable methods of electrode application, prepare the patient for the procedure.
 - a. A modified electrode placement may be used if the circumference of the baby's head is less than 35 cm. Insure that all electrode placements are symmetrical.
 - b. Electrodes are applied with electrolytic paste.
 - c. Be careful when prepping the skin. Any disruption of skin integrity should be reported to the nurse.
 - d. Only one montage (including Fp3 (Fp1), C3, T3, O1, the homotopic right-sided electrodes, and Cz) is needed throughout the entire recording. Additional electrodes are used for the monitoring of:
 - i. EKG
 - ii. Respiration (strain gauge)
 - iii. Eye movements (two channels)
 - iv. Submental EMG
 - v. (Limb EMG is not routine but may be added if particular circumstances warrant.)
 7. Check impedances of all electrodes. Impedances should be below 5 Kohms, preferably 1-3 Kohms. All impedances must be equal.
 8. Calibrate the equipment with both machine calibration and bio-cal, as described for routine EEGs.
 9. Use the neonatal montage for the entire recording, with the following amplifier and chart settings:
 - Sensitivity: 7 μ v/mm
 - Time scale (chart speed): 20 seconds/page

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- High frequency filter: 70 Hz
- Low frequency filter: 0.5 Hz
- 60-Hz notch filter off.

The sensitivity and high frequency filter settings may be changed as the situation demands, and the 60-Hz notch filter may be turned on if necessary.

10. Note the general appearance of the patient (e.g., appears awake, asleep, on a ventilator, eyes closed, etc.) as well as whenever there is a change. Watch for artifacts, e.g., 60 Hz, electrode pops, respiration, muscle tension, etc. Correct if possible; otherwise, document or monitor the artifact and resume recording. Annotate any and all activity noted. This should include eye movements, artifacts, swallows, movements, etc. Note changes in responsiveness (e.g., patient appears to become drowsy or appears to have fallen asleep) and any sudden changes in vital signs or oxygen saturation.
11. Record 45-60 minutes to sample all states of awake, active and quiet sleep, if possible.
12. The patient is videotaped during the recording, especially if unusual or suspicious movements occur.
13. Upon completion of the recording, the equipment is recalibrated. After removal of electrodes, the patient's head is cleaned of as much of the electrode paste as possible. In the NICU, the nurses will clean the baby's head and note in the chart completion of the procedure.
14. Pack up all supplies and equipment and return to the Laboratory.

PURPOSE: Standardize method of performing neonatal EEG recordings

DEPARTMENTS: Neurology

DEFINITIONS:

PROCEDURE:

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References:	
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