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## **PARENT INFORMATION SHEET ELECTROENCEPHALOGRAPHY (EEG)**

### **What Is an EEG?**

Electroencephalography (EEG) is a non-invasive diagnostic test to study the health and functioning of your child's brain by recording its electrical activity. During the procedure, small discs called electrodes are attached on your child's scalp and the brain's electrical activity is recorded and displayed on monitor in a pattern of wavy lines or brain waves called an electroencephalogram. Knowing what to expect can help you prepare your child adequately for this test.

### **Why does my child need an EEG?**

The most common reason an EEG is performed is to assist in diagnosing epilepsy. It is useful also to exclude unusual movements in the awake and sleep state.

### **Is the EEG safe for my child?**

The EEG test is painless and safe, without side effects. The electrodes only *pick up* the electrical signals that are present and do not affect the child's brain or cause a seizure.

Younger children can be sensitive to having their head touched and bandaged (to keep the leads in place). Distraction and comfort from parents is helpful. Booking the study during a day nap of the child is helpful

### **Types of EEG:**

#### **Standard (Routine) EEG**

Usually, a standard EEG test will be done at the clinic room. This study is normally performed in the awake patient.

#### **Sleep-deprived EEG**

A sleep-deprived EEG test is done when a child has had less sleep than usual, the night before the study ('sleep deprived'). When patients are sleep deprived, there is a higher chance that abnormal electrical activity (if present) will be detected. Before a sleep-deprived EEG test, school aged children (>5 years) will be asked to stay up as late as possible (3 hours past the normal bedtime) and to wake up at least 2 hours earlier than normal. *Care should be taken and discussion with your doctor should occur if your sleep deprivation is a trigger for your child's seizure.* In that case, it may be possible just to wake your child up earlier than usual on the day of the EEG test.

#### **Prolonged EEG**

Prolonged EEG involves EEG recording for at least 3 hours in outpatient setting. The procedure is performed at Brisbane Child Neurology and is ideal for children who need prolonged recording but are not candidates for overnight EEG recording.

### **Overnight video-EEG study**

This study is reserved for selected individuals to capture EEG during a normal awake and sleep state. This study requires admission to The Mater Children's Private Hospital and the video EEG recording occurs overnight. This study is similar to a standard EEG except that it records for more than 12 hours with the ability to capture sleep EEG features and record events suspicious of a seizure.

### **How to prepare my child for the EEG?**

- Wash your child's hair the night before.
- Do not put any oil, gel, or hairspray on his or her hair.
- Do not wear hair extensions because they can interfere with the test.
- If your child has hair lice, please make a new appointment, as health precautions prevent us from carrying out an EEG on a child with lice.
- Give your child his or her medications as usual, unless specified otherwise by your doctor
- Your child's doctor may suggest doing the test when your child is in a sleep-deprived state. Our neuro-scientist will give you further details about age-specific ways to sleep deprive your child
- Ideally, we need your child to be fairly still during the recording. The EEG scientist is experienced in helping children to relax and distractions such as toys and DVDs are provided or you could bring along some of your child's favourite one's from home. Younger children may benefit from dummies, bottles and other comforters. Please bring these with you.
- If your child has special needs or you think he/she may not be able to cooperate with the procedure, please contact our Neurophysiology scientist to discuss your concerns and the best course of action.
- If your child has episodes during specific situations, such as during sleep, please speak to your doctor or our Neurophysiology scientist about the implications for the EEG recording, as it may be possible to provoke these episodes.

### **What happens during an EEG?**

- Parents stay with the child during the test. Your child will be asked to lie on a bed or sit in a chair. Infants are held by their parent on a chair and can be fed during the process or given a favourite toy to calm or help with distraction
- Before testing, the EEG scientist will ask a few questions about your child even though you may have given this information to your doctor.
- Your child will either sit in a reclining chair or be nursed by you.
- After explaining the procedure, the scientist will measure your child's head and mark the scalp with a soft pencil where electrodes will be placed.
- The scientist will clean these areas lightly with a cotton bud before placing the electrodes (usually 23 small metal discs) on the scalp, and keep them in place with a sticky paste (not glue) and some light tape.
- After the electrodes have been placed, your child needs only to remain reasonably still while the scientist sits at the computer watching the screen.

- A video is recorded in case an event occurs. This gives the neurologist an accurate visual record in conjunction with the EEG recording.
- Children old enough to cooperate will be asked to open and close their eyes during the recording.
- Later they will be asked to hyperventilate (do some deep breathing).
- The standard EEG test also involves photic stimulation where your child will be asked to look at controlled flashing light.

### **How much time will the procedure take?**

A standard EEG usually takes about an hour to complete. A prolonged or sleep EEG may take longer time. Our Neurophysiology scientist will give you a rough idea about the time but the actual time on the day will vary depending on the time taken by the child to fall asleep.

### **What happens after the EEG?**

The Neurophysiology scientist will carefully remove all the electrodes from your scalp. The areas where the discs have been placed will be cleaned by the scientist but it is generally recommended that you wash your hair at home after the test is performed. There are no after effects from the EEG so you can carry on with your normal activities immediately.

### **Obtaining the results**

The EEG scientist has been specially trained for obtaining a good EEG record and will be pleased to answer any questions about the procedure. However, the scientist cannot tell you the results of the test and administration staff are unable to provide results over telephone. You must make arrangements with your doctor to receive the results. In urgent situations, your doctor may obtain a preliminary report by contacting our neurologist.

**The EEG result will be faxed to your referring doctor within 48 hours.**

### **Key points to remember**

- EEG is completely safe and pain free for your child
- Wash your child's hair the night before
- Bring your Medicare care and the EEG request form or referral letter (if it has not been sent)
- If the sleep recording is required, follow the instructions given by our neurophysiology scientist.