

A Day at Children's EEG

Submitted by:

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The Children's EEG lab is nicely tucked away on the first floor of the Children's Hospital, Winnipeg. On any given day upon walking past you can expect to hear laughing, singing, and sometimes crying.

Inside the lab you will find four full time EEG technologists working hard with the children to get quality EEG recordings. This involves keeping the child still, calm and relaxed while they perform simple tasks as specified by the technologist.

This is a feat often easier said than done when working with children and requires creativity and flexibility. Not only does this require the technologists to be competent in their technical skills but also skilled child entertainers. Although an EEG is a simple test to perform, some children may find it boring while others may think it is a little scary, which can make cooperation difficult. It is, therefore, the technologist's job to put the child and their family at ease and do their best to make it a fun experience.

Children are welcomed into the lab with walls full of stickers of popular cartoon characters and two big fish tanks that are home to many tiny friends. In the recording room, technologists have on hand toys, story books, movies, and music to help keep the child preoccupied and content. Walls and ceilings are made more interesting with airplane mobiles, glow in the dark stickers and an alphabet chart to sing along to.

Once in the room, the child is also allowed to choose toys and stories from the lab's collection. Typically, two technologists would be working with a child; one will interact with the child and keep them entertained while the other one will perform the actual test. Lab coats are also avoided so the techs look like everyday people.

The technologist then demonstrates the electrode application process to the patient in a child-friendly manner, often applying a single electrode referred to as a "camera" to his or her hand and explaining how all the electrodes are "colorful ribbons for their hair" while the EEG itself is referred to as "picture-taking". Toys, stories and, for smaller ones, bottles or soothers, keep the child distracted while electrodes are applied.

recording. Lights are then dimmed for "quiet-time" where the child is asked to lay still and quiet.

At this time the technologists may count, sing, or let the child listen to the radio depending on age and cooperation levels. More often than not the child will fall asleep. At the end of the EEG the child receives a sticker of his or her choice. Sometimes the children have such a good time that they cry when its time to leave.



L to R: Paula Melendres, Christina Anderson, Jill Patrick (on the table), and Leanne Morissette

During the recording children may be asked to close and open their eyes followed by 3 minutes of deep breathing, during which the child is asked to "practice blowing out their birthday candles". As required, deep breathing will at times be performed for 5 minutes which may require the technologist to be creative in order to keep the child encouraged and breathing adequately. A strobe light is shown to the child during the EEG

The lab tends to both outpatients and inpatients ranging in age from a few hours old up to 17 years old. The procedure takes a minimum of one hour.

Methods of recording include: Routine EEGs recording approximately 30 minutes; Sleep-deprived EEGs recording a minimum of 45 minutes, where patients were instructed to either stay up late the previous night or not go to bed at all;

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Neonatal recordings, either in the lab or in the intensive care unit, where infants are recorded for a minimum of 60 minutes and require additional electrodes to monitor physiological changes that aid with sleep cycle evaluation. To encourage children to go to sleep, which helps to get an artifact free recording and may give additional information, patients are scheduled around nap times and sleep habits, with teenagers scheduled first thing in the morning, infants around mid morning, and young children in the afternoon.

Prolonged monitoring, aimed at capturing events of concern, can be done on an outpatient using an Ambulatory EEG, where patients are set up with a compact EEG recording system, which they will then take home to be recorded overnight. It may also be performed on an inpatient with continuous EEG with video monitoring, which typically last up to a week but can also last several weeks and are done in the hospital wards.

Being able to interpret the EEG is an important part of working in the lab. Before any analysis is started the technologist's first goal is to get the EEG recorded as clearly as possible. The EEG patterns of the developing brain vary greatly from birth to age 17 years and technologists have to be familiar with what is appropriate for different age groups in addition to the epilepsies that are exclusive to, and present in, childhood.

A career in pediatric EEG is as rewarding as it is challenging. In addition to their regular duties at the Children's Hospital, each year the EEG technologists also participate in 'Discovery Day' where, together with the pediatric neurologists, they present and demonstrate to local teenagers the practice of neurology and give them exposure to different career paths in health care. The technologists also play a part at the Annual Teddy Bear's Picnic where they setup a Neurology booth and perform mock EEGs on the guests' stuffed animals.