



# Epilepsy Monitoring Unit Family Resource Guide

## Le Bonheur Comprehensive Epilepsy Program

50 N. Dunlap St.

Memphis, TN 38103

Phone: (901) 287-5916 or 1-888-890-0818

Fax: (901) 287-5304

[lebonheur.org/neuroscience](http://lebonheur.org/neuroscience)





## Table of Contents

About the Neuroscience Institute .....	1
Phases of Admission .....	2
Information about Your Stay .....	5
Hospital Resources .....	7
7th Floor Map .....	8
Campus Map .....	9
Notes .....	10

# Le Bonheur Children's Hospital Neuroscience Institute

The Neuroscience Institute at Le Bonheur is ranked by *U.S. News & World Report* as one of the best pediatric neuroscience and neurosurgery programs in the country.

## Mission Statement

The Neuroscience Institute at Le Bonheur is dedicated to excellence in the care of and research for children with neurological disorders. In partnership with our skilled and specially trained physicians and staff, we provide the most current and comprehensive treatment with coordination, compassion and service.

## About Le Bonheur Children's Hospital

At Le Bonheur, your child is in the hands of some of the most highly respected names in the world of pediatrics. Our international reputation as a healing center for children from birth to age 21 was created by the compassionate staff and doctors who see nearly 200,000 children each year. Le Bonheur is a valuable regional resource. From classroom-based programs to sophisticated laboratory research, no other organization comes close to providing the state-of-the-art equipment, array of pediatric specialists and all-inclusive care that Le Bonheur offers.



## Phases of Admission

In the Epilepsy Monitoring Unit (EMU), your child may require three phases of admission. The goal of Phase I is to use scalp recordings to best locate where the seizure activity starts in your child's brain. The tests are used to clarify the type of events your child is experiencing. If they are seizures, your child's care team will determine treatment options. Your child could be a candidate for surgery. If that is the case, phase II consists of placing electrodes on your child's brain to determine the location of seizure activity. Phase III involves surgically removing the portion of the brain causing the seizure activity. Your child's care team will determine what phases your child may need.

### Phase I Admission

The phase I evaluation is a series of tests that will help diagnose your child's type of seizures or epilepsy syndrome. The goal of this phase is to locate, as best possible from scalp recordings, where the seizure activity starts in your child's brain.

A typical stay in the EMU is three to seven days. While there, your child will wear standard electroencephalogram (EEG) electrodes attached to the scalp. The electrodes are kept in place with a gauze wrap. The technology is wireless, allowing your child to move around their room and the EMU playroom, located on the unit.

Your child's neurologist may recommend additional testing. The test results provide important information that will help your child's doctor determine how best to treat your child. These tests include:

#### EEG Monitoring

Approximately 26-28 electrodes are placed on your child's scalp. The EEG records ongoing electrical activity generated by neurons in the brain, which is why it is called a "brain wave test". Abnormal EEG signals are common with epilepsy even if your child does not show the signals physically. During EEG testing, a process called Evoked Potentials (EPs) might be performed. This measures the electrical activity produced by external stimulation such as light flashes or sound clicks.

#### High Density EEG Monitoring (HD EEG)

Similar to EEG monitoring, HD EEG records the electrical activity of the brain. It utilizes a cap with 128 - 256 electrodes that is placed on your child's scalp. For some children, the additional electrodes allow for doctors to find a more precise location of the seizure activity. The average monitoring time with HD EEG is approximately one to two hours.

## **Magnetic Resonance Imaging (MRI)**

MRI provides detailed, physical pictures of the brain. Sometimes, seizures are associated with a physical abnormality that is visible through MRI. MRI testing requires your child to be still for approximately 45 minutes. Sometimes, sedation is used to allow for optimal imaging. Please let us know if your child has any metal objects in his/her body, as this could interfere with the testing. Metal objects might include vagal nerve stimulator (VNS), Baclofen pumps, pins, pacemakers or shunts.

## **Magnetoencephalography (MEG)**

MEG helps give important information prior to surgery. This type of testing allows doctors to map specific signals from the brain. It can improve the detection of potential seizures by revealing the exact location of the abnormality. MEG is a non-invasive test. Your child might be sedated for the MEG test.

## **Neuropsychology Testing**

Neuropsychology testing involves a series of tests administered by a pediatric neuropsychologist to measure the way the brain functions. The evaluation is often used to detect neurological disease or the impact of epilepsy on brain function. The typical evaluation takes three to six hours to perform, and can be broken up into a series of tests. It is also a non-invasive test.

## **Single Photon Emission Computerized Tomography (SPECT)**

The brain SPECT is a diagnostic imaging technique that provides images of blood flow in the brain. It is very sensitive and can detect changes in brain blood flow associated with seeing, hearing and thinking. It helps localize the region of the brain responsible for seizures, even if your child has a normal MRI or CT scan. After the drug is given, your child's brain is scanned. A SPECT requires an IV to be started on your child. A drug is given through the IV during a seizure and then between seizures. The test takes 30 to 45 minutes.

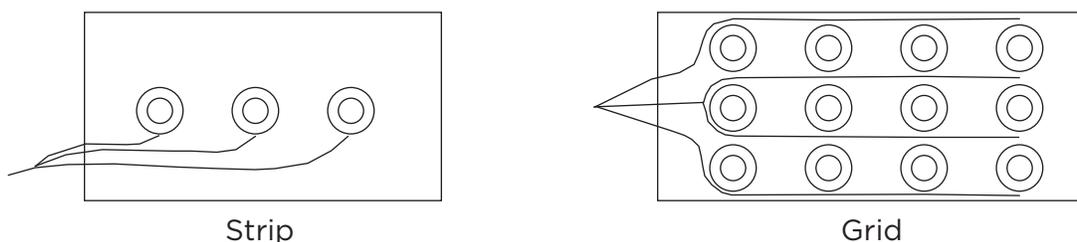
## **Wada Testing**

A Wada test looks at language and memory on one side of the brain at a time. This test is done in the cath lab where a neuroradiologist inserts a catheter into a blood vessel in the leg. Once this is in place, medicine is injected which will put one side of the brain to sleep for a few minutes. The neuropsychologist will then show your child objects and pictures. The awake side of the brain tries to recognize and remember what it sees. After just a few minutes, the anesthetic wears off and the side that was asleep begins to wake up. Once both sides are fully awake, your child will be asked what was shown. This process is repeated for the other side. The doctors will compare the language and memory results from each side of the brain to determine which side is the dominant side for these functions. This helps your child's doctors determine if surgery can be performed without interfering with your language and memory functions.

## Phase II and III Admission

After phase I, additional testing and surgery may be needed. Not every child in the EMU will require phase II (placement of electrodes on the brain) or phase III (epilepsy surgery).

For some children, the exact location of the seizures is not always well defined by scalp EEG recordings. In these cases, electrodes are placed on the surface of the brain or inside the brain through surgery. The electrodes help doctors get a close-up look at the seizure focus, or area of origination. Examples of electrodes that may be used are subdural electrode grids or strips:



These are sheets and strips of electrodes inside a thin, flexible sheet of plastic. They are placed on the surface of the brain at the suspected seizure focus, in order to get a better recording of the seizures.

The grid electrodes also map brain function. They can be useful when seizures are close to a critically important part of the brain, such as speech or motor areas. Grid mapping is done by applying a small amount of electrical current through a pair of electrodes to identify the functional areas of the brain that need to be preserved.

The number and placement of strips are based on test results and ultimately decided on by your child's epilepsy doctors.

Subdural grids or depth electrodes are surgically placed in the operating room, while seizure activity is continuously recorded in the EMU. This encompasses phase II of treatment. Results from the electrodes are used to plan the epilepsy surgery, or phase III. In phase III, the electrodes and in most cases the area of the brain responsible for the seizures are removed.



## Information About Your Stay

### Parking & Registration

Park in the garage located behind the Outpatient Center, at 777 Washington Ave. Bring your parking ticket in, and exchange it for a token at any security area. Take the elevators to the Ground Floor. Walk through the tunnel, and follow the hearts to the main hospital. If you enter through the main entrance of the hospital, security is located to the left by the front doors. Check in at the Registration Desk on the Lobby Level of the hospital. You will need to provide your child's name and information.

### Length of Stay

The phase I evaluation usually takes three to seven days. The time needed for a full evaluation may be shorter or longer, depending on the number of seizures your child has during his/her stay. If your child does not have any seizures while at Le Bonheur, your doctor may request additional tests to determine seizure activity. This might include decreasing or stopping certain medications or sleep deprivation. It is rare that a child leaves the EMU without enough documented seizures.

### Partnering with Your Doctor

Every effort is made to have your child's evaluation completed during his/her doctor's rotation for the EMU. However, there are times that a child may be evaluated by a different pediatric neurologist. Your neurologist will discuss your child's care with the other doctors on rotation so that they are familiar with your child's treatment plan prior to admission.

A pediatric neurologist will be in the EMU every day and will give you updates. Once a week, the doctors and the EMU team meet to discuss the results of testing completed that week. At this time, treatment plans are finalized. Your doctor will discuss this treatment plan with you and your child.

### EMU Family and Friends

Parent armbands and ID badges are provided upon arrival at the hospital. Please wear these at all times. As a parent, you are welcome to stay with your child at all times in the EMU. We encourage no more than two adults to spend the night. Friends and other family members are welcome to visit whenever possible.



## Items to Bring

To help you prepare for your hospital stay, we've prepared the following list of items to bring with you. Please check with your doctor to find out if there are specific items you should or shouldn't bring in addition to those listed on this page.

- When packing for your child's stay, include things that will make the room as home-like as possible. Bring things like your child's favorite pillow or blanket, toys, games and anything else that reminds him/her of home.
- Pack your child's favorite toy, book, blanket, pacifier or other special comfort item. A familiar stuffed animal, for example, may help your child feel less anxious.
- Make sure to bring entertainment. We have access to many movies and TV channels as well as a variety of gaming systems.
- Please bring any toiletry items from home that would make you or your child more comfortable. There are basic toiletries available in the EMU, if needed.
- Cell phone use is permitted in most areas of the hospital. If you do not have a cell phone, bring a phone card with you to make long distance calls on your room phone.
- You may bring laptops, iPods, MP3 players, etc. Wireless Internet access is available throughout the hospital.
- Many children are able to continue school work in the hospital. You may want to talk to your child's teacher in advance to prepare. Le Bonheur has an accredited school program, and we have teachers on staff to help.



## Hospital Resources

For an entire list of hospital resources, refer to our patient guide during your hospital stay. The Family Resource Center is located on the Lobby Level of the hospital. There, you will find additional information and resources for your stay.

## EMU Support

The EMU is located on the 7th floor of Le Bonheur. It has a playroom specifically for EMU patients, as well as a Family Room. Regularly, families have the option of attending group discussions in the EMU playroom on seizure types, general neuroscience information and support group information. Discussions are led by various members of the EMU staff. Parent mentors are family members who have experienced a stay on the 7th Floor. They are available for guidance and support.

## Laundry

Laundry facilities are available for your use in the EMU. Laundry supplies may be found at the EMU nurses' station.

## Dining

While your child is staying in the EMU, he/she will order food from a menu using Dining on Call, Le Bonheur's in room dining service. For family and friends, a cafeteria is located on the Lobby level. Food and drink can also be brought into the EMU, and you may use the refrigerator and microwave located in the Family Room.

## Computer and Phone Access

Computers are located in the Family Resource Center on the Lobby level of the hospital. Laptops are permissible, and wireless Internet is available. Access is through GuestNet:

**Username:** 1visitor

**Password:** welcome

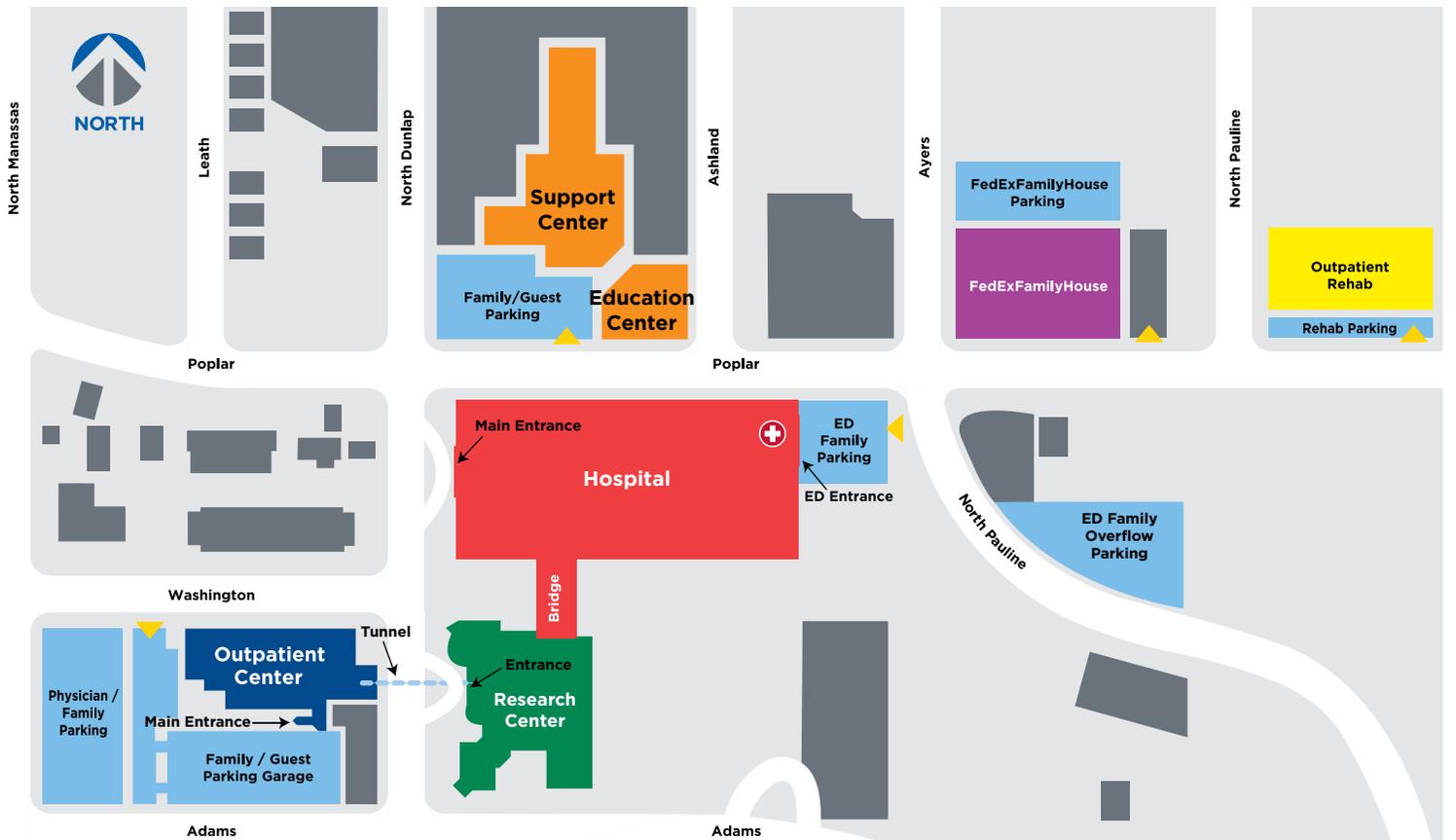
Cell phones are allowed in most areas of the hospital. Additionally, each room in the EMU has a phone for your use. Long distance calls can be made by using a phone card.

## 7th Floor Neuroscience Institute Unit/ Epilepsy Monitoring Unit (EMU)



## Campus Map

Family and guest parking is high lighted in light blue.



Upon arriving at Le Bonheur, please park in the garage adjacent to the Outpatient Center. Take the elevator to Level G and walk through the tunnel into the Research Center. There, you will see a Welcome Center with a staff member to assist you. To enter the hospital from the Research Center, take the South Elevators to the 2nd floor and walk across the bridge. Be sure to stop at the security station to receive your ID badge.

