

## TREATMENTS AND THERAPIES

# Epilepsy Surgery

### ■ What is epilepsy surgery?

Approximately 30% of people with epilepsy are not able to control their seizures with medication. This is called “drug-resistant epilepsy”. For these individuals, epilepsy surgery may be an alternative treatment to consider. Epilepsy surgery is a type of brain surgery that can be used for carefully selected individuals to reduce or stop seizures.

### ■ When to consider surgery?

Surgery is an under-utilized treatment for epilepsy in both adults and children. New guidelines for the treatment of epilepsy in Ontario indicate that anyone who has had tried two anti-seizure medications but continues to have seizures should be assessed at a specialized epilepsy clinic to see if they may be a candidate for surgery. For more information see our Drug-Resistant Epilepsy *Spark* sheet

#### FACT:

Carefully chosen surgery candidates have about an 80% chance of being seizure-free after surgery.<sup>1</sup>

### ■ Who is suitable for epilepsy surgery?

It is important to stress that not all patients with medically refractory epilepsy can be helped with surgery. The best surgical candidates have seizures arising from a single location in the brain (called the seizure focus), and from an area of the brain that can be safely removed without affecting a person’s

functioning. In these cases, the seizure focus can often be safely and completely removed.

### ■ Types of epilepsy surgery

There are several types of surgical procedures for epilepsy. The type of surgery a person receives depends on their seizure type and where the seizures originate in the brain. The most common type of surgery is resective surgery, during which the area of the brain producing seizures is removed.

Resective surgery cannot be performed when the source of the seizure activity cannot be pinpointed, or when the seizures originate from an area of the brain involved in essential functions (i.e. language, memory).

Other surgeries include surgery to interrupt the nerve pathways through which seizure impulses spread within the brain, and surgery to implant a device used to treat epilepsy.

### ■ What testing is needed before epilepsy surgery?

Success rates for epilepsy surgery are constantly improving. This is mostly due to improvements in the testing done before surgery. Proper patient selection is completed through a thorough assessment that involves extensive testing to identify the seizure focus and determine whether it can be safely surgically removed. This assessment is completed at epilepsy monitoring units (EMUs), and includes video EEG monitoring for at least several days. Other assessments include a neurological exam, MRI scans and neuropsychological testing.

<sup>1</sup> Provincial Guidelines for the Management of Epilepsy in Adults and Children (Epilepsy Implementation Task Force)

## Epilepsy Surgery *continued*

### ■ What should a person and their family expect from epilepsy surgery?

It's important for the person with epilepsy and their family to have realistic expectations of the results of the surgery. Here are a few things to consider:

- After surgery, some people become completely seizure-free, and others have no improvement at all.
- Many people fall between these extremes, having fewer seizures or seizures that are less intense.
- Some people may be able to lower or simplify their anti-seizure medications, under a doctor's supervision, if seizure control improves.
- After a person has been thoroughly evaluated for surgery, the likelihood of seizure freedom and potential risks can be explained more specific to their own situation.

### ■ What are the possible benefits of surgery?

In patients with an identified focal seizure focus, the success rate of surgery is up to 80 per cent. This is the number of patients who will be seizure free for five years after surgery, with some patients experiencing occasional auras and some still taking anti-seizure medication.

For patients with generalized seizures that don't start from a specific spot in the brain, the results are not as good. However, these patients may still get some benefits from surgery.

### ■ What are the possible risks of surgery?

As with any operation, there are risks from surgery for epilepsy. The risks depend on the area of the brain operated on, and may include producing a disturbance in motor strength, sensation, vision or speech. There have also been rare cases of people dying from epilepsy surgery.

Fortunately, with continuing improvements in neurosurgery, the chances of long lasting complications are small, at approximately two per cent. The benefits of surgery should be weighed carefully against its risks, however, because there is no guarantee that it will be successful in controlling seizures.

**TIP:** According to the provincial epilepsy management guidelines (pg. 24), if you have tried two anti-seizure medications and are still having seizures, ask your neurologist for a referral to a specialized epilepsy centre, where you can be assessed for surgery.

### ■ Where is epilepsy surgery performed in Ontario?

Surgery assessments can be completed at the following hospitals:

- Hamilton Health Sciences, Hamilton (Adult & Pediatric)
- The Ottawa Hospital, Ottawa (Adult)
- Children's Hospital of Eastern Ontario, Ottawa (Pediatric)
- Kingston General Hospital, Kingston (Adult & Pediatric)

## Epilepsy Surgery *continued*

### ■ Where is epilepsy surgery performed in Ontario? *continued*

Surgery assessment and surgery are performed at the following locations:

- London Health Sciences Centre, London (Adult & Pediatric)
- The Hospital for Sick Children (SickKids), Toronto (Pediatric)
- Toronto Western Hospital, Toronto (Adult)

Your healthcare provider can refer you to one of these centres.

*Adapted from: Epilepsy & the Facts: Surgery and Epilepsy (Epilepsy Toronto); Surgery (Epilepsy Foundation, retrieved from [www.epilepsy.com/learn/treating-seizures-and-epilepsy/surgery](http://www.epilepsy.com/learn/treating-seizures-and-epilepsy/surgery)); Provincial Guidelines for the Management of Epilepsy in Adults and Children (Epilepsy Implementation Task Force)*

Version Date: April 2017

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