The Intra-Operative MRI

The Intra-Operative MRI is a highly specialized surgical imaging system that allows images of a patient to be taken during surgery—right in the operating room.

Using current technology, surgeons must use static pre-operative images from which they base their surgical plans. After surgery, young patients are sent to recovery and, two days later, they need an MRI to determine whether or not doctors were able to successfully remove, for example, every fragment of a cancerous brain tumour. The Intra-Operative MRI allows surgeons to take that image while the patient is still on the operating table.

Neurosurgery is extremely delicate and can often take more than 12 hours. The risks are high and there is very little margin for error. During neurosurgery, a "brain shift" often occurs, which cannot be predicted with static images. With the current equipment, our specialists can only estimate what that shift has been, and perform the operation accordingly.

A young child's brain is extremely delicate. The Intra-Operative MRI will allow our professionals to take images of their patients during surgery, enabling them to see the impact of the "brain shift" immediately. This will provide them with the information they need to ensure that critical areas of the brain are not disturbed.

The Children's has had a strong presence and tradition of neurosurgery for nearly 50 years, with a large team of three neurosurgeons for the past several years.

HELP US TO GIVE OUR SPECIALISTS THE TOOLS THEY NEED TO SAVE LIVES.

The Intra-Operative MRI offers enormous benefits to pediatric patient care

A QUEBEC SUCCESS STORY

PROVIDE the top Neurosurgeons in Quebec with today's tools

IMPROVE treatment for cancer patients

REDUCE significantly the current wait time for an MRI

IMPROVE research in premature babies

IMPROVE research in Neurosurgery, Neurology, Radiology and Anæsthesiology

IMPROVE research in Autism

IMPROVE understanding of the chemical make-up of certain tumours

FIND the precise border between the tumour and eloquent cerebral regions for both surgical and beam therapies

IMPROVE the study, diagnosis and treatment of patients with Epilepsy, Autism, Cerebral palsy and other neurological disorders

How will young patients and their families benefit from access to an Intra-Operative MRI?

Less radiation given to a sick child, by using an MRI instead of a CT scan for imaging

Shorter and less frequent stays in the hospital

Shorter recovery times

Decreased risks due to improved precision

A decrease in the need for chemotherapy and/or radiation therapy. In some cases, these therapies are used to remove what could not be removed during surgery. Thanks to the benefits of an Intra-Operative MRI, there will be less need for these therapies.

More accurate surgeries = fewer surgeries = less risk for young patients

You can help children like our son Jacob

A tumour the size of a golf ball was recently discovered in the brainstem of our four-year-old son Jacob. In the past months, he has had two microsurgeries, yet 25% of the tumour remains. Jacob will likely need chemotherapy and/or radiation therapy. If The Children's had an Intra-Operative MRI, our son would probably have only needed that first surgery.

Jacob was no different from any healthy, happy, hockey-loving four-year-old you may know. One day, he complained of headaches, and we noticed that his eye would twitch from time to time. Within one week, he was diagnosed and admitted to The Children's for 12-hour brain surgery.

The brainstem is a dangerous location for a tumour. Precision during surgery is critical in order not to damage areas that control speech, swallowing, and walking, among others. Dr. Farmer, MUHC Neurosurgeon and Surgeon-in-Chief at The Children's, only had static pre-operative images to guide him during each surgery. With an Intra-Operative MRI, he could have simply looked at the screens while Jacob was still on the operating table – and seen exactly where the tumour margin ended.

Recovery from neurosurgery is long and painful. Jacob had trouble with his balance and he had to learn to walk again. With access to an Intra-Operative MRI, he may have only needed one surgery – and we might not be faced with chemotherapy and radiation therapy today.

Today, Jacob has an MRI every three months and, each time, we are terrified. We know the tumour is still in there and we just want it out. Dr. Farmer is not sure whether Jacob can live with it forever. As he says, "Jacob has already been through a lot". For now, Dr. Farmer will continue to monitor it, and we will continue to draw our strength from the strongest little boy we have ever known.

The Children's staff is exceptional. Despite our situation, as soon as we met Dr. Farmer, we actually felt comfortable.

If Jacob could have had only one surgery, and every fragment of the tumour could have been removed, it would have meant the world to us. Please help families like ours by contributing to the purchase of an Intra-Operative MRI. You can help save lives.

Sincerely,

Véronique Boisvert Eric Malouin

Véronique Boisvert and Eric Malouin
Jacob's parents