



RCH Complex Movement Disorders Program

The **RCH Complex Movement Disorders Program** will greatly improve the lives of children and young people with conditions affecting their movement.

These life-limiting and progressive disorders include:

- **Genetic dystonias:** involuntary muscle contractions that cause slow repetitive movements or painful abnormal postures
- **Cerebral palsy:** a lack of muscle control affecting body movement, muscle coordination, muscle tone, reflex, posture and balance
- **Acquired brain injury:** damage to the brain occurring after birth that affects cognitive, physical, emotional and independent functioning.
- **Neurodegenerative diseases:** a range of incurable and debilitating conditions that result in progressive degeneration and death of nerve cells causing problems with movement or mental functioning.

The Complex Movement Disorders Program features a multidisciplinary team of neurologists, neurosurgeons, developmental medicine specialists, rehabilitation specialists, orthopaedic surgeons, and allied health professionals like physiotherapists, occupational therapists and neuropsychologists working together to provide comprehensive and world-leading care.

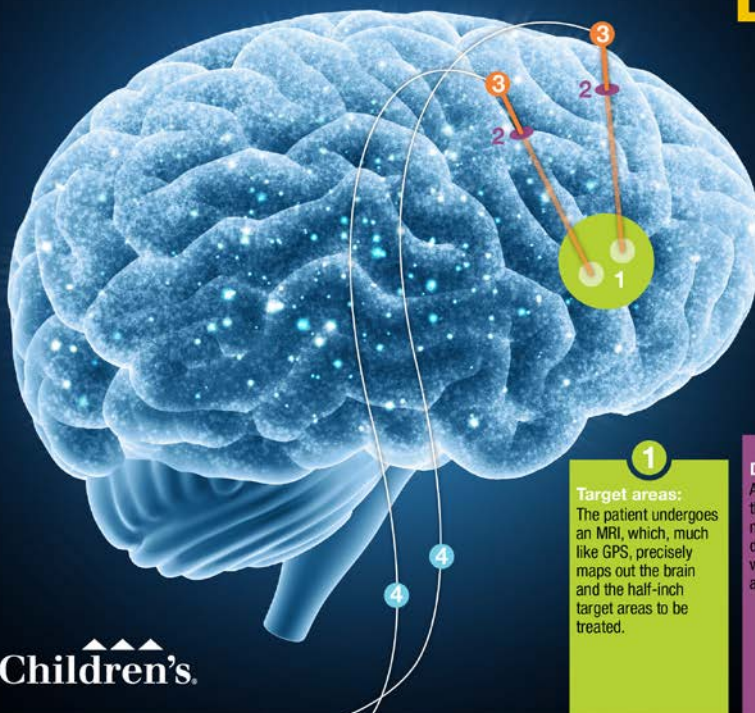
They will provide innovative and intensive therapies that decrease pain, increase motor function and improve their quality of life. One of these therapies is Deep Brain Stimulation (DBS), a surgical treatment that disrupts abnormal brain activity. An electrode is implanted into a patient's brain, which is accompanied by a pacemaker-type device called a pulse generator. The generator produces electrical impulses in the electrode that override the abnormal brain activity. Often used in patients resistant to other forms of treatment, DBS can enable them to walk and talk again.

See the diagram below for an overview of the DBS surgical procedure.



Fly for the Kids

One doctor. One plane. One mission:
to support The Royal Children's Hospital.



CookChildren's

Deep brain stimulation

In this surgical procedure, doctors implant wire leads containing electrodes in the brain to reduce symptoms associated with movement disorders. Cook Children's Medical Center is using the procedure to treat dystonia, a rare disorder that produces debilitating contortions.

How it works:

1

Target areas:
The patient undergoes an MRI, which, much like GPS, precisely maps out the brain and the half-inch target areas to be treated.

2

Drilling the holes:
An incision is made in the scalp, and two nickel-sized holes are drilled into the skull while the patient is asleep.

3

The electrodes:
The electrodes are precisely moved through the holes and into the targeted areas of the brain.

4

The pulse generators:
In a separate surgery, two battery-operated pulse generators, much like pacemakers, are implanted near the collarbones. Two wires are threaded behind the ears and down the neck to the generator. At a later date, the generators are turned on and set to the correct voltage.

Image courtesy of Jane and John Justin Neurosciences Center at Cook Children's

In March 2017, Associate Professor Andrew Kornberg will Fly for the Kids to fundraise for the Complex Movement Disorders Program at the RCH. Associate Professor Kornberg will solo circumnavigate Australia to help the many patients enduring the challenge of a severe movement disorder.