

A young girl with blonde hair is looking up at a doctor in a hospital setting. The doctor is wearing a white coat and a blue surgical cap. In the background, a nurse in a white uniform and pink cap is visible. The scene is brightly lit, typical of a hospital operating room.

SickKids® 2016

SICKKIDS INNOVATORS

IMPACT REPORT

CENTRE FOR IMAGE- GUIDED INNOVATION AND THERAPEUTIC INTERVENTION

**REVOLUTIONIZING PAEDIATRIC
SURGERY.**

We are profoundly thankful for your remarkable support for the Centre for Image-Guided Innovation and Therapeutic Intervention (CIGITI) through SickKids Innovators. Combining three research themes: surgical robotics, medical imaging, and surgical simulation, CIGITI is working to create minimally invasive, image-guided procedures which are less painful, faster, safer and produces better results. CIGITI unites surgeons, radiologists, engineers and software developers to transform surgical practice through technological innovation.



SickKids Innovators are committed to advancing child health, and through your generosity, CIGITI has been able to advance the development of Intelligent Operating Room tools that will result in fewer incisions, faster recoveries, and enable the treatment of conditions that were previously considered untreatable.

The SickKids Division of Neurosurgery sees more than 500 surgical cases a year, and has been a world leader in groundbreaking research in many areas, including brain tumours, which has led to improved outcomes for patients. Currently, the surgical tools being used in neurosurgery have a limited range of motion, only moving in one direction, which often requires a surgeon to make multiple, large incisions in order to access different areas of the brain. Using smart materials known as shape memory alloys, the CIGITI team, led by Dr. James Drake, has developed flexible tools with the ability to move in multiple directions, and around curves, requiring only a small incision. Using this technology, the team has developed several prototypes of an endoscopic robot that helps to perform intraventricular neurosurgery. Using

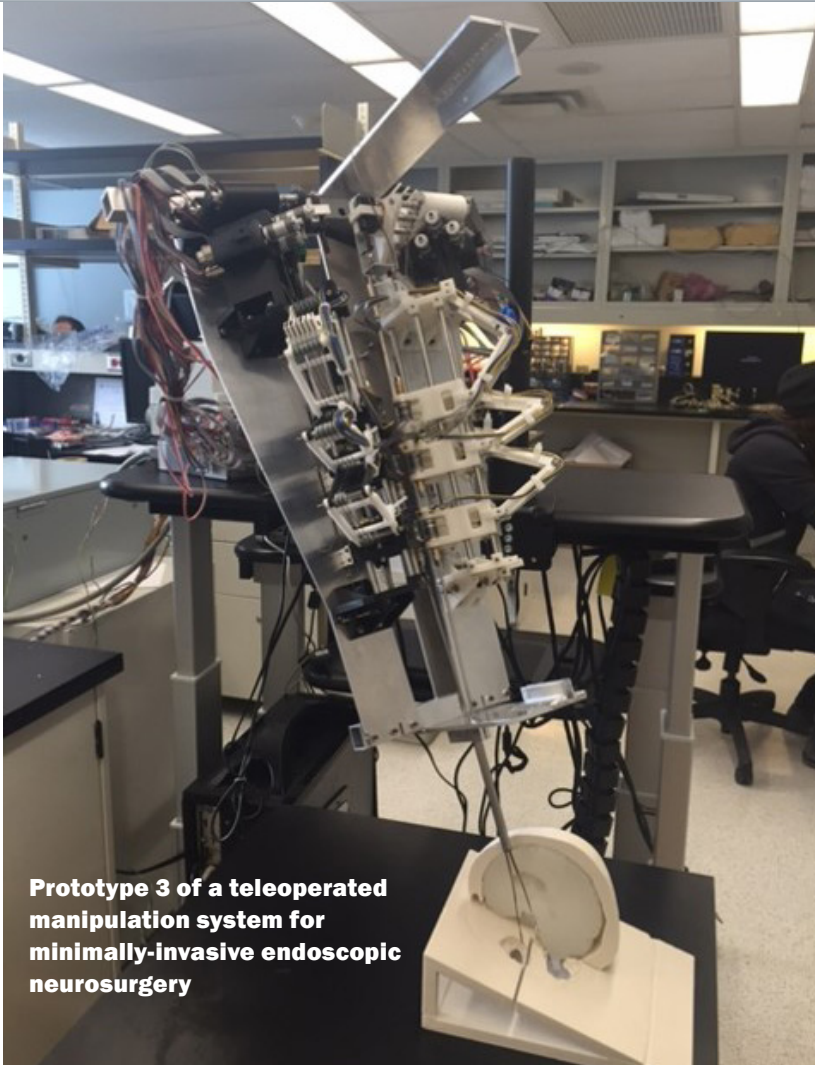
an endoscope—a fibre optic instrument that allows the surgeon to see inside the brain—requires a much smaller incision and not the opening of the skull.

Over the past year, the CIGITI team has made remarkable progress. Version 3 of the endoscopic robot prototype has been designed and constructed. The prototype is cable-driven with three separate arms, and the control architecture has been implemented and its function is being optimized. The team has begun testing the prototype on 3D-brain models through surgical simulations, and on animal models. The team expects to be ready for Health Canada approved testing with patients next year.

This incredible new technology will drive the transformation of the way we perform neurosurgery, breaking down boundaries and improving outcomes for patients. Without your support, these valuable and transformational opportunities wouldn't be possible.



THE CENTRE FOR IMAGE-GUIDED CARE (CIGC) WAS ESTABLISHED IN 2012 TO DEVELOP AND PROMOTE EXCELLENCE AND COLLABORATION IN IMAGE GUIDED CLINICAL CARE, RESEARCH AND EDUCATION.



Prototype 3 of a teleoperated manipulation system for minimally-invasive endoscopic neurosurgery

PAST GIVING

PAEDIATRIC ADVANCED CARE TEAM (PACT)

Your two-year support of a clinical fellowship position in 2014 through the SickKids Innovators funding has been incredibly vital to PACT, helping to establish a fellowship program in paediatric palliative care at SickKids. The fellowship has been integral to increasing capacity for the team, allowing PACT to help and support more families.

Through a competitive fellowship program, SickKids is able to attract the brightest trainees from around the world to obtain world-renowned expertise that is only offered at the Hospital. As the PACT clinical fellow, Dr. Joanna Humphreys has an opportunity to gain experience and advance her career in community paediatrics and palliative care, while increasing PACT's ability to reach and provide support for families within their homes and through local community resources. The skills gained through her fellowship will help her integrate into the team as a valuable PACT member and as part of our patients' interdisciplinary care team.

In addition to the incredible work and the capacity building that the PACT fellowship is providing, it is also enhancing PACT's reputation in the community and providing increased recognition for paediatric palliative care as an accredited specialty for the Royal College of Physicians and Surgeons of Canada. Accreditation from the Royal College would enable sustainable funding and improve the palliative and bereavement care system not just at SickKids, but across Ontario.

Thank you for your incredible generosity which helps PACT provide the proper medical and emotional support for patients and families at SickKids who are facing life-limiting illnesses.

YOUR SUPPORT

WHAT'S NEXT

This year, your support is having an incredible impact on the way we deliver child and youth mental health services through your the SickKids Innovators gift to the Medical Psychiatry Alliance.

Up to 40 per cent of children with a physical illness will also suffer from mental illness. These illnesses are inseparable yet lack a comprehensive, coordinated system of care. This has led to the creation of the Medical Psychiatry Alliance, a bold vision that is unique in the world. We have brought together four leading institutions—SickKids, CAMH, Trillium Health Partners, and University of Toronto—to address the challenge of how to best treat people who have both a mental and a physical illness. Each partner is critical to our success. One of SickKids strengths is caring for children and youth with complex illnesses, telemedicine coordination, and research expertise in neuroscience and mental health. Our goal is to ensure patients have access to the right care, at the right time, leading to improved quality of life for children and their families. We look forward to reporting on the impact of your gift next year.

THANK YOU.

Every day, SickKids is improving the lives of children and our success depends on the generosity of donors like you. The commitment of SickKids Innovators to advancing priority areas of the Hospital ensure the we can continue to provide support and best-in-class care to our patients. Thank you for your remarkable generosity.



SickKids Foundation is accredited under the Imagine Canada Standards Program, demonstrating excellence in Board governance, financial accountability and transparency, fundraising practices, staff management, and volunteer involvement.

SickKids®

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