

BACKGROUND: BRI Research Labs and Centres

Established in 2004, the internationally recognized Bloorview Research Institute (BRI) is the only hospital-embedded childhood disability research institute in Canada dedicated to co-creating meaningful and healthy futures for children and youth with developmental differences and disabilities and their families.

The BRI is housed in Holland Bloorview Kids Rehabilitation Hospital, Canada's largest pediatric rehabilitation hospital, which is fully affiliated with the University of Toronto. The institute is ranked among Canada's top 40 research hospitals for more than a decade since 2011.

The BRI has 13 research centres and labs where multidisciplinary scientists, researchers and trainees collaborate with clients and families as well as clinicians on a wide array of research. See below for a few highlights of BRI's current studies:



[Autism Research Centre](#)

Current studies highlights:

[Dr. Evdokia Anagnostou](#), vice president of research and director of the BRI, child neurologist and Canada Research Chair in Translational Therapeutics in Autism (Tier II), Dor. Stuart D. Sims Chair in Autism

- Province of Ontario Neurodevelopmental Disorders Network (POND) : the POND Network is a multisite, Holland Bloorview-led, translational research network that rethinks how we understand neurodiversity from genes, to brains to lived experience to response to treatment, in order to improve diagnosis, care and long-term outcomes for children and youth with neurodevelopmental disorders. Learn more: pond-network.ca
- The CALM is a national clinical trial evaluating treatment of anxiety for children and youth with neurodevelopmental conditions. This is one of many clinical trials in neurodivergent populations with our team. Learn [more](#).
- Adult Aging: We study how the autistic brain ages to understand the needs of our aging population and consult on the development of appropriate systems of care. Learn [more](#).

[Dr. Danielle Baribeau](#), clinician scientist, psychiatrist:

- Studying treatment care pathways for managing ADHD symptoms in autistic children. Learn [more](#)
- Understanding genetic differences in mental health trajectories in children with neurodevelopmental conditions. Learn [more](#)
- Using single subject clinical trials to learn about treatment effects in rare genetic disorders. Learn [more](#)

[Azadeh Kushki](#), senior scientist; [Jessica Brian](#), senior clinician scientist, psychologist and [Dr. Evdokia Anagnostou](#)

- Evaluating the role of emotion regulation and arousal in anxiety and autism. Learn [more](#)

[Dr. Melanie Penner](#), senior clinician scientist, developmental pediatrician, Bloorview Childrens Hospital Foundation Research Chair in Developmental Pediatrics:

- Evaluating the ECHO Ontario Autism program to assess whether participating community practitioners (i.e., physicians and nurse practitioners) gain the knowledge and receive the support they need to diagnose and manage autistic children and youth in their own practices. Learn [more](#).



[Critical Disability And Rehabilitation Studies \(CDARS\) Lab](#)

Current studies highlights:

Dr. Barbara Gibson:

- Partnering with disabled youth to investigate *disability as potential* rather than deficit. Learn more about this [study](#)



[CONNECT Lab](#)

Current studies: highlights:

[Deryk Beal](#), senior scientist and chair, Research Ethics Board

- Evaluating the feasibility of transcranial direct current stimulation as an adjunct to physiotherapy intervention in children and youth with acquired brain injury
- Treatments to promote self-regulation in children with Autism Spectrum Disorder
- Examining subacute rehabilitation outcomes in childhood stroke: clinical metrics and neural mechanisms
- Learn [more](#)



[CP Discovery Lab](#)

Current Studies – highlights:

[Dr. Darcy Fehlings](#), senior clinician scientist, developmental pediatrician:

- CP-NET: The Cerebral Palsy Integrated Neuroscience Discovery Network (CP-NET) is a partnership among researchers, clinicians, knowledge users, and individuals with CP and their families to drive new neuroscience discoveries focused on individuals across the lifespan with, or at high risk, of CP and their families. Learn more at www.cp-net.org
- Evaluating feasibility of using Metformin for motor and cognitive improvements in children with cerebral palsy.
- Developing a pan-Canadian knowledge implementation project focused on early detection and evidence-based early interventions for young children with CP. Learn more at <https://www.childhooddisability.ca/edit-cp-toolkit/>



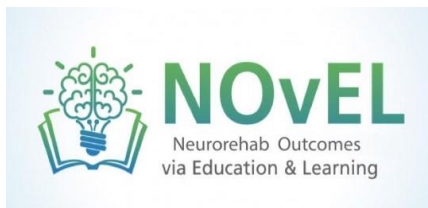
[Engagement & Planning for Inclusive Communities \(EPIC\) Lab](#)

Current Studies – highlights:

[Tim Ross](#), scientist

- Creating Inclusive Playgrounds: A Playbook of Considerations and Strategies – This report presents best practices for designing inclusive playgrounds. It's structured around four key design questions: (1) How do we start? (2) Can I get there? (3) Can I play? and, (4) Can I stay? Ideas and tools are provided to help with various aspects of a playground's development, including community engagement, transportation, the design of the playground and its surroundings, services and maintenance, and more.

- **Playground Programming Project** – This qualitative study aims to understand the accessible playground programming needs and preferences of children with disabilities, parents, as well as education and healthcare professionals. In doing so, the goal is to enhance the use of accessible playgrounds while helping kids with disabilities meet their educational, rehabilitative, and social goals through play.
- **Illustrating Inequities** – This qualitative study explores the complex healthcare experiences of racialized youth with disabilities, their parents, and the healthcare providers who serve them. Through arts activities and interviews, participants offer important insights into inequitable and marginalizing experiences they face when accessing and navigating healthcare.
- **Housing and Developmental Disability Project** – This project explores the housing experiences and preferences of people with developmental disabilities living in intentional community residences. Lessons learned will help to improve the design of their housing, their community participation, and their overall health and wellbeing. The study also includes a focus on learning effective ways to engage people with developmental disabilities in urban planning and design processes.



[NOvEL Lab](#)

Current Studies – highlights:

[Shannon Scratch](#), clinician scientist, clinical neuropsychologist, Holland Family Professorship in Acquired Brain Injury

- **Teaching Educators about Acquired Brain Injury: Teach-ABI** – designed to help students with ABI re-integrate into their classroom and succeed while educating educators on how to create a more inclusive classroom for all students. [Learn more](#)
- **Move & Connect** is an interdisciplinary intervention for youth with persistent post-concussion systems where they work with physiotherapists and occupational therapists in a group setting.
- **Teen Online Problem Solving Therapy (TOPS) program** – Holland Bloorview is one of 15 sites implement the TOPS program at its hospital to increase delivery of care to families of children with moderate to severe traumatic brain injury and to evaluate treatment efficacy.
- [Learn more](#)



Possibility Engineering And Research Lab (PEARL) Lab

Current Studies – highlights:

[Elaine Biddiss](#), senior scientist and Bloorview Childrens Hospital Foundation Chair in Pediatric Rehabilitation

- **Bootle Blast, a movement tracking video game for home-based motor therapy – Navigating gaps to market readiness:**

Trialing Bootle Blast, a movement tracking mixed-reality rehabilitative video game, in the homes of disabled youth with any motor condition to gain insight into its real-world implementation. Learn [more](#)

- **R2Play:**
To promote athlete safety and provide clinicians, parents, and coaches with confidence in return-to-play decisions, we are researching R2Play as an assessment tool to evaluate athletes' readiness to return to sports following a concussion. Learn [more](#)
- **The Virtual Music Teacher:**
Engaging children with Cerebral Palsy in an early-childhood music education curriculum through an accessible AI-based mixed-reality music application that enables use of real-life instruments in virtual worlds. Learn [more](#)



Paediatric Rehabilitation Intelligent Systems (PRISM) Lab

Current Studies – highlights:

[Tom Chau](#), senior scientist, Raymond Chang Foundation Chair in Access Innovations

- **Qualitative BCI Study:** This study seeks to obtain qualitative feedback about Brain Computer Interface (BCI) from clients and families enrolled in the Clinical BCI Program at Holland Bloorview and examine how their expectations have changed over time as well as their future hopes and suggestions for BCI.

- Influences of physiological Synchrony and Nonverbal Behaviour Between Conversing Dyads: Research has shown that people match brain activity during a social interaction. This study looks at how children with/without autism match their brain activity with their parents to understand differences in brain function.
- Developing a gaze-based keyboard: This study looks at a novel hybrid-architecture question-answer system and see-through, gaze-optimized keyboard to enable efficient information retrieval.
- Learn [more](#)



[Promoting a Future of Inclusive Healthy Lifestyles for Everyone \(ProFILE\) Lab](#)

Current Studies – highlights:

[Amy McPherson](#), senior scientist:

- Let’s Talk Disability and Sex: A program of research to support the sexuality of children and youth with disabilities. www.hollandbloorview.ca/sexuality



[Paediatrics, Rehabilitation, Orthotics, Prosthetics, Engineering, Locomotion \(PROPEL\) Lab](#)

Current Studies – highlights:

[Jan Andrysek](#), senior scientist:

- Biofeedback and artificial sensory substitution: goal of this research is to develop a wearable biofeedback system to augment gait training for individuals with lower-limb amputations and other patient populations
- Digital technologies in Prosthetics and Orthotics: Digital technologies have the potential to revolutionize prosthetic and orthotic design by providing a more customized fit for users at a lower cost. The goal is to develop a process to implement digital technologies to design and fabricate prosthetic and orthotic devices.

- Designing an adjustable diagnostic forearm for prosthetists to use with their clients when creating a more customized upper-limb prosthetic device.
- Learn [more](#)



[Supporting Physical Activity-based rehabilitation Research for Kids \(SPARK\) Lab](#)

Current studies: highlights:

[Virginia Wright](#), senior scientist

- Evaluating the effectiveness of robotic gait training and gait-focused physical therapy programs for children living with cerebral palsy using the Lokomat, a new robotic treadmill. Learn [more](#)
- Evaluating the gross motor skills of children living with cerebral palsy using the Challenge, a performance measure that assesses a child’s coordination, agility, balance, fitness and strength. Learn [more](#)



[Transitions And Inclusive environments \(TRAIL\) Lab](#)

Current Studies – highlights:

[Sally Lindsay](#), senior scientist:

- Community-based research partnership examining the complexities of the lived experience of youth with disabilities through the lens of race, ethnicity and gender. Learn [more](#)
- Enhancing healthy and productive work for racialized youth with non-visible disabilities. Learn [more](#)

[Gillian King](#), distinguished senior scientist, Canada Research Chair (Tier 1) in Optimal Care for Children with Disabilities

Current Studies – highlights:

- Developing a questionnaire that uses a whole-person approach to assess youth readiness for the transition to adulthood. [Learn more about our online survey study](#) that asks parents about their child's transition readiness at redcap.link/adulthood.
- Studying the nature of engagement in rehabilitation therapy from the perspective of children, youth, parents, and care providers. Read a decade of research and access our suite of evidence-based measures of engagement [on the PRIME Team's website](#).
- Supporting optimal, person-centred care for clients and families by helping clinicians to evaluate and develop their listening and communication skills. Learn more about how to assess listening at hollandbloorview.ca/ELICS

Learn more: www.hollandbloorview.ca/hbresearch