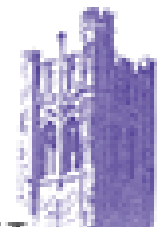




**Holland Bloorview**  
Kids Rehabilitation Hospital

**SickKids**



**Western**

Thames Valley  
Children's Centre

 **Laurentian University**  
Université **Laurentienne**

**ERINOAKIDS**  
Centre for Treatment and Development



**GRANDVIEW**  
CHILDREN'S  
CENTRE



**McMaster**  
Children's Hospital



**CanChild**  
Centre for Childhood Disability Research

**McMaster**  
University 

Inspiring Innovation and Discovery

# Making Research Relevant to Families

**Baycrest**

We want to hear from you!

**CHEO**

 **University  
Health  
Network**

 **UNIVERSITY  
of TORONTO**



**Queen's**  
ONTARIO  
BRAIN  
INSTITUTE

Health Sciences North  
Horizon Santé-Nord

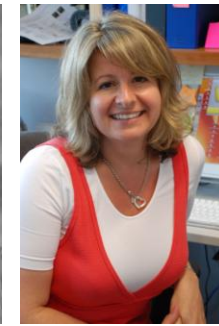
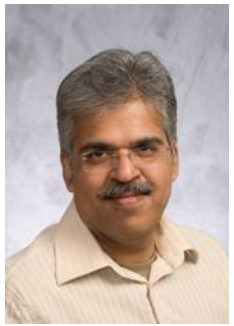
 **Hotel Dieu**  
HOSPITAL

 **robarts**  
RESEARCH

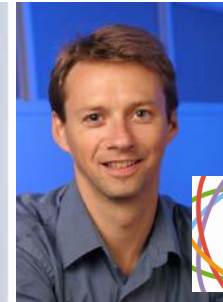
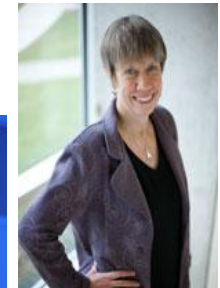
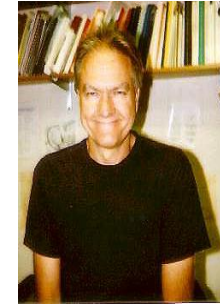
## Agenda

1. Introductions
2. Overview of CP-NET
3. Building a Parent/Family Advisory Group
4. Getting the Right Information to the Right People at the Right Time
5. Research Priorities & Future Directions





Ontario Brain Institute  
 Childhood Cerebral Palsy Integrated Neuroscience  
 Discovery Network (CP-NET)  
 Investigator Group





# Holland Bloorview

Kids Rehabilitation Hospital

# SickKids

## ERINOAKKIDS

Centre for Treatment and Development



Thames Valley  
Children's Centre



McMaster  
Children's Hospital



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### CP-NET Organizations

- Holland Bloorview Kids Rehabilitation Hospital (lead)
- The Hospital for Sick Children
- The University of Toronto
- Toronto Western Hospital, University Health Network
- Robarts Research Institute, University of Western Ontario
- McMaster Children's Hospital, Hamilton Health Sciences
- McMaster University
- Child Development Centre, Hotel Dieu Hospital
- Queen's University
- Children's Treatment Centre, Health Sciences North
- Laurentian University
- Grandview Children's Centre
- ErinoakKids Centre for Treatment and Development
- Children's Hospital of Eastern Ontario, University of Ottawa
- Thames Valley Children's Centre
- Rotman Research Institute, Baycrest



## CP-NET Investigators

**Holland Bloorview**

Kids Rehabilitation Hospital

Dr. Darcy Fehlings (Lead) – Holland Bloorview Kids Rehabilitation Hospital

Dr. Gabrielle deVeber – SickKids

Dr. Michael Fehlings – Toronto Western Hospital, University Health Network

Dr. Ravi Menon – Rotman Research Institute, University of Western Ontario

Dr. Peter Rosenbaum – McMaster University

Dr. Stephen Scherer – SickKids

Dr. Elaine Biddiss – Holland Bloorview Kids Rehabilitation Hospital

Dr. Craig Campbell – Thames Valley Children's Centre, London Health Sciences Centre

Dr. Tom Chau – Holland Bloorview Kids Rehabilitation Hospital

Dr. Robert Chen – Toronto Western Hospital, University Health Network

Dr. Jan Willem Gorter – McMaster Children's Hospital, McMaster University

Dr. Mark Henkelman – SickKids

Dr. Carolyn Hunt – Grandview Children's Centre

Dr. Anne Kawamura – Holland Bloorview Kids Rehabilitation Hospital

Dr. Marie Kim – ErinoakKids Centre for Treatment & Development

Dr. Anna McCormick - Children's Hospital of Eastern Ontario, University of Ottawa

Dr. Ronit Mesterman - McMaster Children's Hospital, McMaster University

Dr. Cindi Morsehead – University of Toronto

Dr. Sean Murray – Health Sciences North

Dr. Andrew Paterson – SickKids

Dr. Lucie Pelland – Queen's University

Dr. Dawa Samdup – Child Development Centre, Hotel Dieu Hospital

Dr. Stephen Scott – Queen's University

Dr. Manohar Shroff – SickKids

Dr. Margot Taylor – SickKids

Dr. Derek van der Kooy – University of Toronto

Dr. Richard Wintle – SickKids

Dr. Virginia Wright – Holland Bloorview Kids Rehabilitation Hospital

Dr. Nancy Young – Laurentian University

Ms. Lauren Switzer – CP-NET Project Manager – Holland Bloorview Kids Rehabilitation Hospital





# Holland Bloorview

Kids Rehabilitation Hospital

# SickKids

**ERINOAK**KIDS  
Centre for Treatment and Development

Thames Valley  
Children's Centre



### OBI CP-NET Industrial Partners

- |                            |                    |
|----------------------------|--------------------|
| Electronic Arts            | Siemens Healthcare |
| BKIN Technologies          | XLR Imaging        |
| Gesture Tek                | Sangamo Inc        |
| Cell Cure Neuroscience Ltd | Covidien Inc.      |
| Northern Digital           | Allergan Inc.      |
| Hocoma Inc                 | Stem Cells Inc.    |

### OBI CP-Net Patient Advocacy Organization Partners

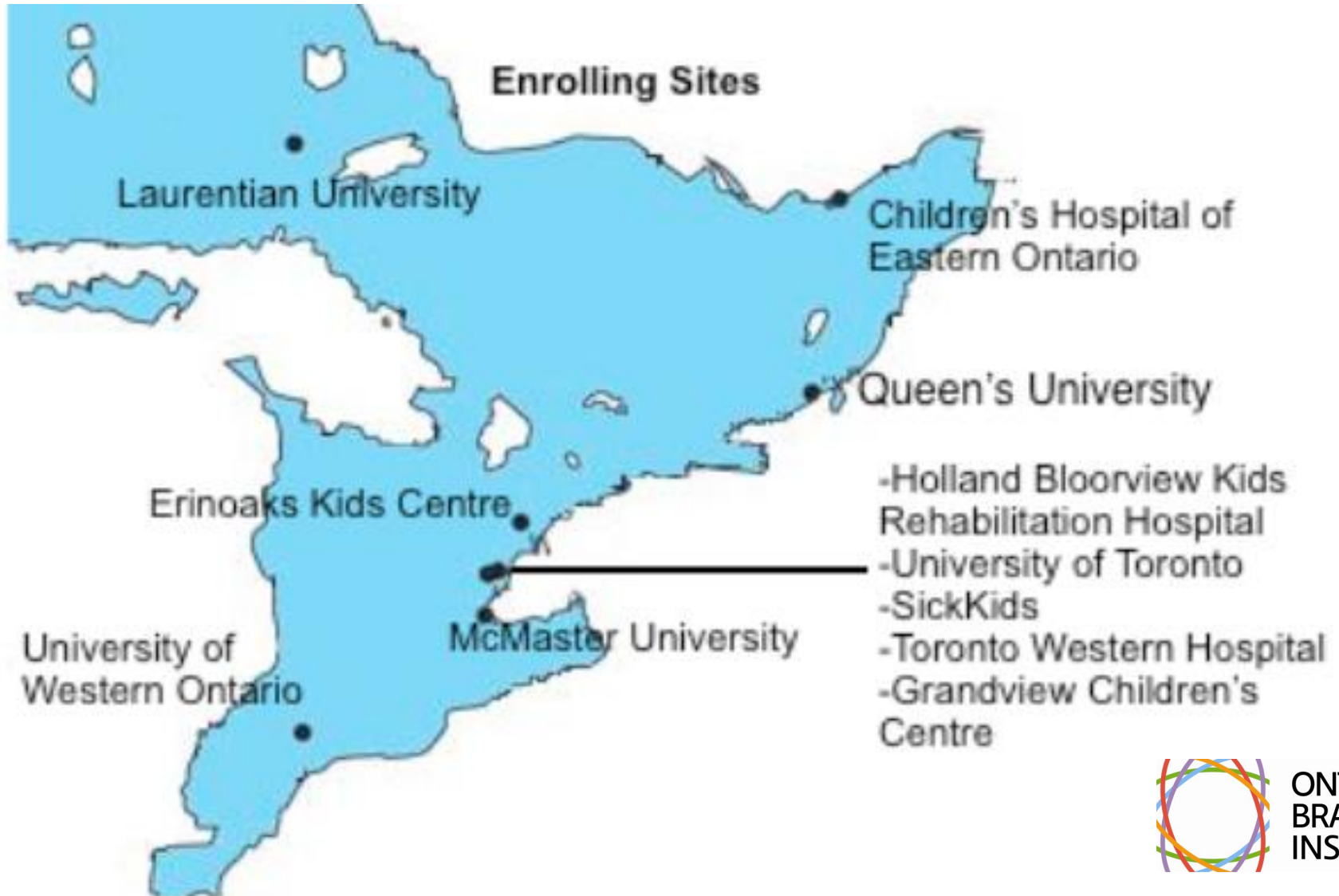
- CanChild Centre
- NeuroDevNet
- Ontario Federation for CP
- OACRS
- Heart and Stroke Foundation of Ontario
- Parents for Children with Hemiplegic CP

OBI CP-Net Vision: to transform care for children with CP and their families by accelerating the development of new neuroscience treatments

## Databases

Research Themes	Clinical Risk Factors	Genomics	Neuro-Developmental	Neuro-Imaging
1) Neuro-Developmental Patterns				
2) Genomics				
3) Constraint Therapy				
4) Technology Innovation				

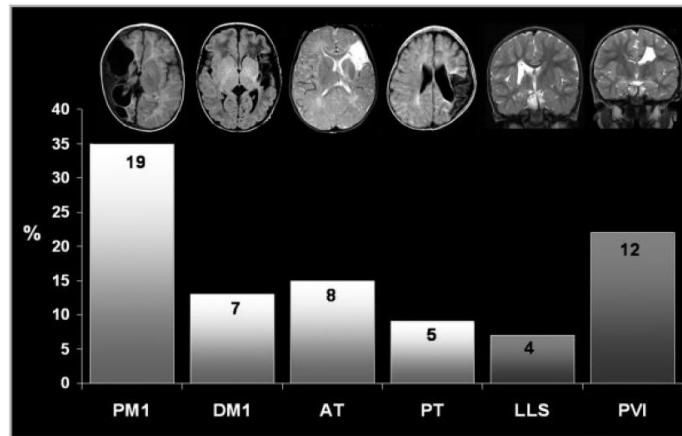
# Sites Involved





# Research Themes

## 1. Predicting developmental outcomes based on images of the brain



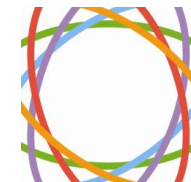
Adam Kirton, MD, MSc, FRCPC,<sup>1</sup> Gabrielle deVeber, MD, MHSc, *Ann Neurol* 2008;63:436–443

## 2. Role of Genetics in Hemiplegic CP

- Special genetic testing to discover genetic risk factors for hemiplegic CP

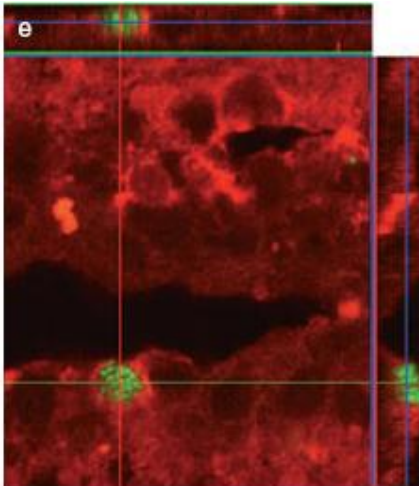
## Research Theme 3: Constraint Therapy

- 3a) Can we predict when Constraint Therapy will have the most benefit by looking at images of the brain?



# Research Theme 3: Constraint Therapy

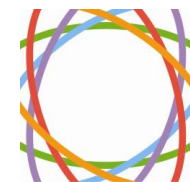
3b. Looking at the molecular and cellular mechanisms of Constraint Therapy in mice with a focus on stem-cells. Can the information in mice tell us something about kids with hemiplegic CP?



DEVELOPMENTAL MEDICINE & CHILD NEUROLOGY

ORIGINAL ARTICLE

**Effects of constraint-induced movement therapy on neurogenesis and functional recovery after early hypoxic-ischemic injury in mice**



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# Theme 4: Developing Technological Innovations for Neuro-Rehabilitation

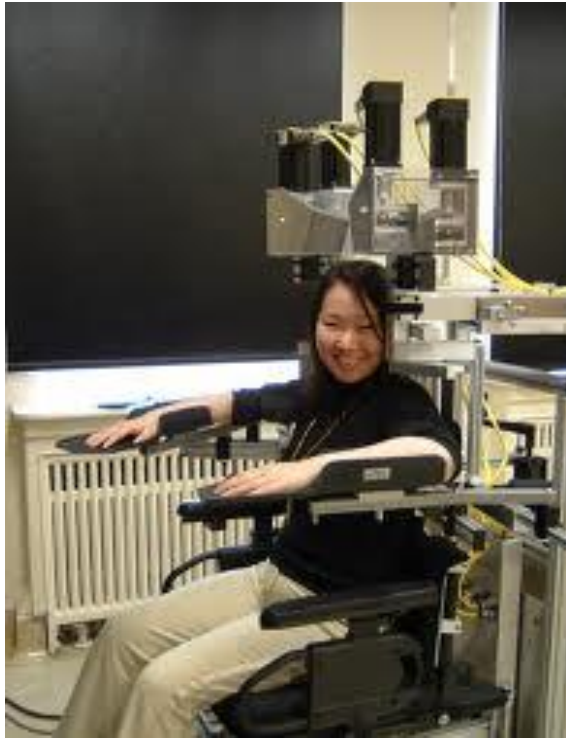
## a. Virtual Reality Therapy (Kinect)



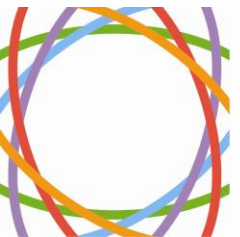
## b. Robotics-Assisted Gait Training (Lokomat)



## c. Robotic Upper-Limb Proprioception (Kinarm)



## d. Transcranial Magnetic Stimulation (TMS)



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