

ONTARIO  
BRAIN  
INSTITUTE

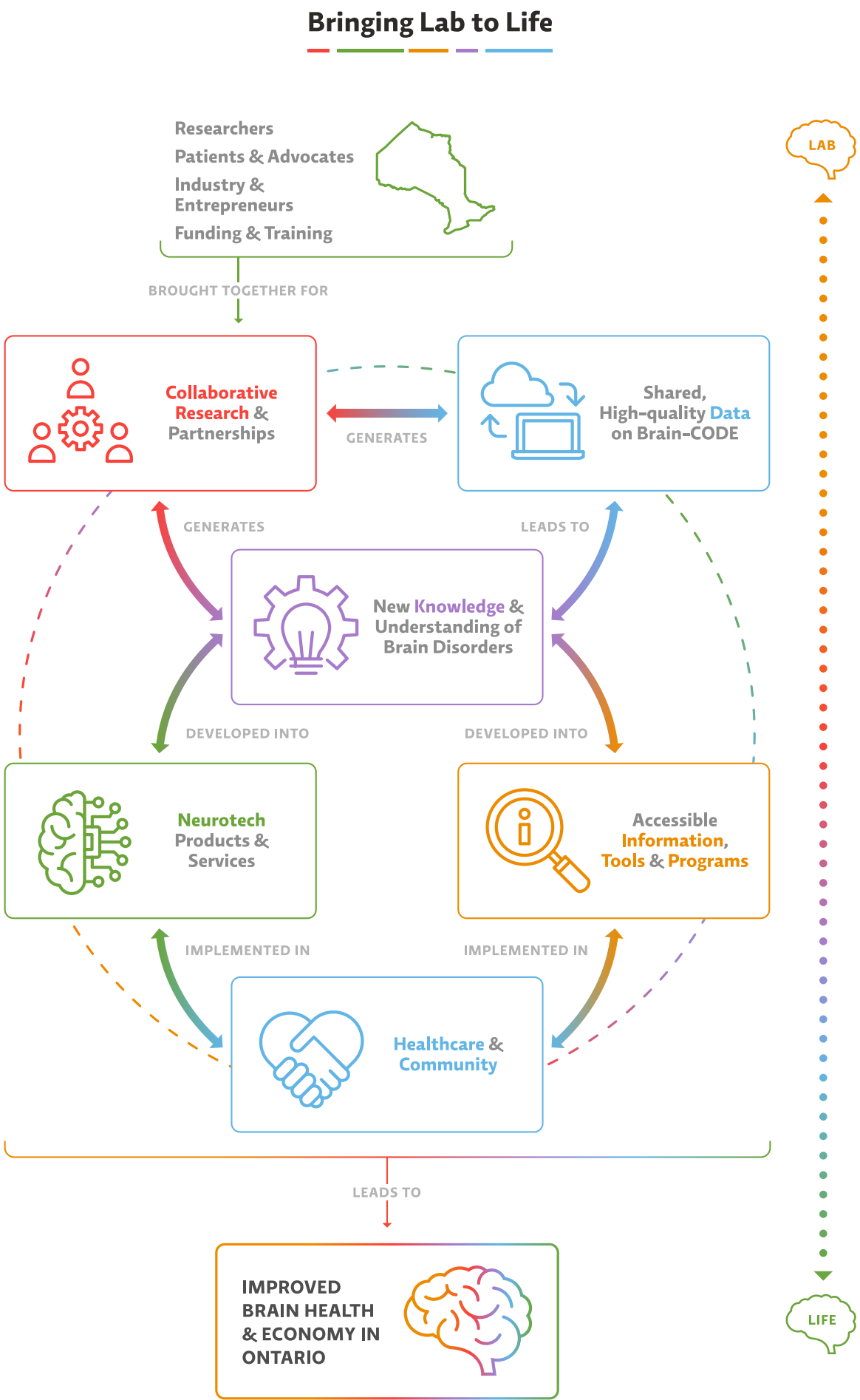
INSTITUT  
ONTARIEN  
DU CERVEAU

## Celebrating a Decade of Excellence in Brain Health

OBI brings together a community of experts  
through collaborative research, commercial  
innovation and connected care.

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# The OBI Origin Story

In 2010, OBI was established in response to a pressing concern – the immense societal and individual cost of brain disorders.

Driven by a vision for doing science with impact, the late Dr. Donald Stuss, OBI’s Founding President and Scientific Director and the late Mr. Joseph Rotman, OBI’s Founding Board Chair, pioneered a collaborative approach to brain research that would harness Ontario’s world-class talent in research, clinical care, and commercial development.

United by a shared goal of improving brain health, OBI recognized the need to bring the community together to address the complexity of brain health. Through better understanding of the biological basis of brain disorders, diagnosis, and treatment, the OBI network would champion research excellence, commercialization of neurotech, and care while ensuring that the needs of patients and caregivers drove outcomes at all levels.

OBI builds partnerships and tears down traditional silos, connecting strengths between clinicians, researchers, industry, and patients. And also, between institutions, research disciplines, and methodologies.

OBI started small and grew from success learning and expanding its mandate and network. With collaboration as its mantra, OBI has leveraged the funding provided by the government of Ontario into \$389 million to date. OBI’s brain health community includes six Integrated Discovery Programs spanning a breadth of brain disorders and over 192 researchers, 81 portfolio companies, and 29 community groups.

Though it’s grown in number, the work remains true to its foundational principles. The cross-disorder, multi-disciplinary collaboration remains key to OBI’s role as a catalyst, integrator, and innovator. Ten years into its vision of doing science with impact, OBI is well on its way to improving the lives of 1 in 3 Ontarians living with a brain disorder. Flip through to learn more.





## Research Driven by Patient Needs

Including the voice of the patient community helps researchers better understand the everyday concerns of a person living with a brain disorder and the issues they urgently need addressed.

By establishing **Patient Advisory Committees**, OBI has elevated and embedded patient partners into brain research. Their involvement is crucial for researchers and clinicians to focus their attention on the questions that are the most meaningful and have the greatest impact on quality of life.

In partnership with the James Lind Alliance, OBI worked with the community in **Setting Research Priorities** for two of its focus areas – **epilepsy** and **neurodevelopmental disorders**. These top 10 priorities have been instrumental in working with research organisations, researchers, policy makers and funders to concentrate their resources and expertise on the most essential issues in brain health.

The brain is a complex organ and there is much we do not understand, but this approach to research has helped focus our attention on what matters the most to improve brain health.



**Collaborative Research & Partnerships**





## Building a Neurotech Cluster

Bringing an idea from the lab to life is a long tedious process, especially in the health care sector where capital, connections and clinical testing are defining factors in commercialization success.

OBI's solution is to build a neurotech cluster that supports young companies as they bring their ideas to life. Through strategic investments and collaborative partnerships, OBI has established a well-connected system that builds and thrives by better connecting existing resources and expertise in brain health.

For example, through the [ONTrepreneurs](#) and [NERD](#) programs, OBI has helped shorten gaps in the commercialization pathways by supporting product development and clinical validation of neurotechnology as well as increasing access for patients. While enabling collaborative partnerships with industry and research, OBI has been able to build capital and visibility for these neurotechnologies.

Through this integrated approach, OBI has supported 81 [Portfolio Companies](#), 61 ONTrepreneurs, 163 interns, invested \$9.2 million through the ONTrepreneurs and NERD programs and successfully secured follow-on investments of \$172 million which makes up to 19x the return on investments.

By promoting a neurotech cluster, OBI has been able to harness the talent, build an infrastructure of well-connected stakeholders and support the provincial economy – with the ultimate goal of improving brain health.



Neurotech Products & Services





# Leading the Charge for Data Sharing

The brain is already complex, so when it comes to understanding brain disorders, we face enormous challenges. The biggest being the scattered bits of data that need to be patched together for a clearer picture of the brain and its inner workings.

Data is like a puzzle, once all the pieces are within reach and visible, it's easier to complete the picture. At OBI, we advocate for open science and data sharing because while brain disorders are complex, we can understand them better the more puzzle pieces we gather (i.e., with the help of big data).

While advocating for a new approach to science is necessary – having the right tools to bring about this change is all the more important. OBI's [Brain-CODE](#), a neuroinformatics platform is that very tool that makes data sharing possible.

Since Brain-CODE's conception in 2011, OBI has been designated [Privacy by Design ambassador](#) by the provincial government for committing to a rigorous data privacy and security framework. Data from OBI's research programs and other institutions has been pouring into Brain-CODE. The platform has been [adopted by the Centre for Addiction and Mental Health](#) to be used in a hospital setting. [OBI working with the Institute for Clinical Evaluative Sciences is linking](#) clinical research and health system data that will allow researchers to investigate the relationship between the two. And while Brain-CODE has received 128 data access requests from across the globe, it is set to [release six new sets of clinical data](#) with the world this year.

With the support and cooperation of researchers to openly share data, we can find solutions to the complex brain disorders sooner and improve the lives of the 1 in 3 Ontarians.



Shared, High-quality Data on Brain-CODE



# Faster Discoveries through Cross-Disciplinary Collaboration

Working on a scientific problem takes years of work and lots of funding. And more often than not, competition exists among researchers working on similar problems.

OBI strongly believes in collaboration and bringing experts together to solve complex problems, reduce duplication, and efficiently use resources. Through collaboration, OBI accelerates discovery and innovation.

Thanks to a team of experts, [OBI's depression research program – CANBIND](#) has successfully identified a biomarker associated with depression and antidepressant response.

A similar collaboration led to ground-breaking evidence on the underlying genetic risk factors of cerebral palsy – a study involving [OBI's cerebral palsy research program – CP-NET](#).

The team at [POND – OBI's neurodevelopmental disorders research program](#) discovered that the presence of copy number variants in a sibling would help in a future diagnosis of autism or atypical development.

Using brain imaging [ONDRI – OBI's neurodegeneration disorders research program](#) helped us better understand how damage to small blood vessels in the brain can lead to loss of cognition or dementia.

Through a pilot project, a first-of-its-kind in Canada, adults with a concussion in the emergency room are immediately recruited for a study at [CONNECT – OBI's concussion research program](#). This will help enhance care for people who have experienced a concussion.

Researchers from [EpLink – OBI's epilepsy research program](#) are uncovering genetic markers to better understand and prevent sudden unexplained death in epilepsy (SUDEP).

And using data gathered from all of OBI's research programs, we can now look across brain disorders to ask questions about common brain health issues like sleep and mental health.

Collaboration is key to accelerate discovery. OBI's "Team Science" approach continues to advance understanding of brain disorders and deliver targeted care options for people who need it the most.



New Knowledge & Understanding of Brain Disorders





## Neurotech Solutions for Brain Health

Support for brain health is not just limited to clinical care, it can also be delivered by technology. For that reason, OBI promotes and supports the development of neurotechnology in partnership with the brain health community. While entrepreneurs can bring great ideas to the table, researchers and clinicians can test technology in a research or clinical setting, and patients can vet the usefulness of the technology in the real world.

For example, the **Anxiety Meter** developed by researchers at the Holland Bloorview Kids Rehabilitation Hospital measures levels of anxiety for those who are non-verbal and/or with intellectual disabilities. The tech allows users to apply relaxation strategies and avoid emotional outbursts. OBI connected 2017 OBI ONtrepeneur, Andrea Palmer of **Awake Labs**, with Holland Bloorview to help commercialize the nascent neurotech. After the app was paired with the smartwatch, the device was tested out in partnership with **Community Living** to help improve user experience and ensure that the watch accurately identified the big emotions.

End user feedback is critical to help ensure a technology works. Many of our companies have seen the benefits of these partnerships. Similar examples include, **Welbi**, a software that helps senior living communities reduce social isolation and acts as a personal assistant, automating administrative tasks for the staff. **Botley's Bootle Blast**, an immersive virtual reality game designed to help make physical therapy fun and engaging for children and youth with cerebral palsy. And **Mobio Interactive** focused on digital therapeutics and performance enhancement that empowers people to live better and heal faster.

The future for neurotech is promising. Tech offers people the potential for independence and accessibility – and OBI, through its partnerships with clinicians and patient communities, can ensure the technology is clinically validated, safe and useful for its end users.



Neurotech Products & Services





## Empowering People to Manage Their Own Health

When it comes to brain health, people seek out evidence-based information, but it's hard to know what is trustworthy amidst the endless information available online.

OBI believes evidence-based resources and information, tailor made to meet public needs not only empowers them to take their brain health into their own hands, but also equips them to hold productive and well-informed conversations with their healthcare providers.

Through the formation of partnerships between a network of researchers, clinicians and people living with brain disorders, OBI supported the development of resources the public can use to manage their own health.

The **CHOICE-D Guide** was developed to help people understand evidence-based treatment options available to help manage depression. The **Smart Concussion Advice Tool: SMART CAT** helps those who have experienced a concussion and wish to independently track their symptoms. **Physical Activity and Alzheimer's Disease Toolkit** allows seniors to plan out their physical activity routines. While the **Epilepsy Guidelines for Public and Practitioners** can help the epilepsy community improve the quality and consistency of epilepsy care. The **OBI Public Talks** helps bring the latest knowledge and learning in brain health to the general population directly from the experts.

Whether you are well-informed or just beginning to understand brain disorders, toolkits and guidelines available on several topics are a valuable resource for patients, caregivers and clinicians to take care into your own hands.



Accessible Information, Tools & Programs





## Bringing Care and Support Closer to Home

While healthcare is found in a hospital, care is often found in a community and at home where it is more accessible and more personal.

Community-based initiatives not only help reduce burden on the healthcare system but simultaneously help build capacity to address a crucial gap in services closer to home. OBI's approach to brain health recognizes the importance of community as part of the greater care continuum and actively integrates it into our research, commercialization, and outreach efforts.

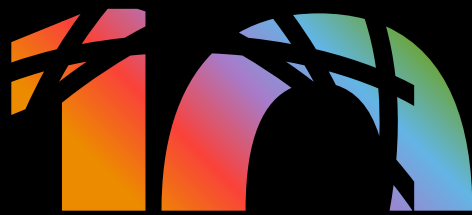
The [OBI GEEK Program](#) provides funding and support to community-led programs for people living with a brain disorder in order to improve the quality and quantity of evidence-based care. Similarly, OBI funding towards [MINT Memory Clinics](#) provides older adults living with dementia and their families access to complete, continuing care closer to where they live. Through a partnership with the Chiefs of Ontario, the Ontario First Nations Young People's Council and the University of Western Ontario - [Stories from Our Roots](#) a mental wellness program helps First Nations youth find support and care through trained members of their own community.

Communities across Ontario have greatly benefited from this model of community care. OBI has not only helped communities build and increase capacity for high-quality health care, but also helped build support systems they can trust.



Healthcare & Community





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*The Ontario Brain Institute is a not-for-profit organization that accelerates discovery and innovation, benefiting both patients and the economy. Our collaborative 'team science' approach promotes brain research, commercialization and care by connecting researchers, clinicians, industry, patients, and their advocates to improve the lives of those living with brain disorders. Welcome to Brain Central. Funding provided, in part, by the Government of Ontario.*