ONTARIO BRAIN INSTITUTE | INSTITUT ONTARIEN DU CERVEAU

Open Call for Integrated Discovery Program Proposals

About the Ontario Brain Institute (OBI)

The Ontario Brain Institute (https://braininstitute.ca) is a provincially funded, not-for-profit organization that accelerates discovery and innovation for brain health, benefiting both patients and the economy. OBI realizes this through a collaborative 'team science' approach between researchers, clinicians, industry, patients, and their advocates to foster discovery and deliver innovative products and services that improve the lives of those with brain disorders.

Our goal is to cultivate partnerships and enable innovation in brain health that is person-centred and internationally recognized. We will achieve our goal through the integration of research, commercialization, and community engagement and collect and enable the use of data for improvements in patient care and economic prosperity.

Our work remains fueled by and focused on our vision:

> Ontario as a world leader in brain research, commercialization and care.
>
> *Once OBI has achieved its vision, the following will be the evidence of our achievements:*
>
> - *We will understand the molecular underpinnings of the brain disorders that affect one in three Ontarians*
> - *Population-level screening will be routine through the discovery of risk factors and early, prevention-oriented interventions*
> - *Diagnosis will be made and even anticipated based on the molecular fingerprinting of disease*
> - *A new generation of disease-modifying drugs and technologies will have flooded the market*
> - *Treatment strategies employed to harness the brain's inherent plasticity will facilitate recovery from injury*
> - *There will be vast improvements to overall population health with brain disorders being diagnosed earlier, slowed and even prevented*
> - *Citizens will be empowered with knowledge and tools to be proactive in maintaining their brain health*
> - *Ontario's policies related to brain health will inform and be informed by this transformation*

- *The impact of these advances on quality of life, cost of care, and impact on the economy cannot be overstated.*

This vision has guided us since OBI's inception ten years ago, to fund and manage pan-Ontario collaborative translational research networks across brain disorders, called **Integrated Discovery Programs** (IDPs) (Stuss, 2014). The IDPs include a continued focus on patient and community involvement, industry collaboration, data-driven innovation, with the goal of deeply understanding the clinical populations to drive better care. We will use the term "Integrated Discovery Program" or "IDP" throughout this document as a shorthand for integrated, clinically-oriented, impact-focused networks of research, commercialization, and translation to improve care. We will also use the term "network" throughout this document to refer both to the IDPs and to the applicant's research network, either existing or newly formed for the purposes of this funding opportunity, applying to this Open Call.

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1. Open Call Rationale and Scope

1.1 Description of Call

Ontario has a wealth of expertise in brain research, commercialization, and care. Through this open call, OBI seeks to engage with these experts to further advance our collective understanding of brain disorders and enable data-driven decision-making to accelerate discovery, translation, and improvements in care.

This open competition seeks networks that have a primary focus in research areas related to brain disorders and who are driven by an approach that starts with standardized patient-level data collection. The focus is on the deep characterization of clinical cohorts in a fashion that facilitates hypothesis-driven research, testing and validation of new clinical tools, and open science. To this end, we are building on our past approaches (Stuss, 2014) with an enhanced emphasis on a strong clinical framework and borrowing ideas from the Master Observational Trial approach, whereby prospective clinical cohorts can be established and used to trial new tools and treatments that will benefit patients (Dickson, et al., 2020). This approach involves:

- multi-site, prospective and longitudinal data collection.
- transparent governance, including principles of open data sharing.
- core capabilities for running modular clinical trials.
- patient consent enabling data collection, linkage and secondary use.
- molecular testing capabilities.
- use of Common Data Elements (CDEs).
- ability to integrate with interventional trials or real-world data.
- capacity for advanced analytics and artificial intelligence.

The approach also involves continued partnerships with industry, patients, caregivers, and community organizations to inform patient-level impacts.

1.2 Key Elements

Four Pillars of the IDP Model: The open call design is based on four pillars of the IDP model, which include: 1) Clinical Research, 2) Data Management and Analytics, 3) Patient Engagement and Integrated Knowledge Translation, and 4) Industry Partnerships. These four pillars reflect the highly collaborative and integrative approach to research that we believe will help us realize impact faster. These pillars must be represented in IDPs with clear leadership identified for each.

Key elements that fall under each pillar and that will guide the development of the proposals are listed below:

1.2.1. Clinical Research

- Prospective longitudinal patient cohort incorporating multi-modal data collection which can serve a number of purposes, including, for example, acting as a contemporary common control arm for case-matched clinical trials or natural history outcomes studies.
- The approach adds value to national/international initiatives and broadens the opportunity for discovery and impact by facilitating cohort data harmonization, blending and aggregation and enhancing the power of aggregate data models.

1.2.2. Data Management and Analytics

- Standardized and curated data, including international standards of CDEs including data modalities (e.g., patient assessments, imaging, molecular, wearables, etc.) with the goal of creating a longitudinal patient data model reflective of participant heterogeneity.
- Data acquired should be made analysis-ready with analytics-by-design incorporated from the outset, including the methods that facilitate federation with other data sources.
- The main protocol can be modular to allow for the incorporation of other assessments or populations and the testing of innovative technologies or interventions (see Li & Bergan, 2020).

1.2.3. Patient Engagement and Integrated Knowledge Translation

- The approach incorporates patient and community engagement throughout the research process and ensures that the research approach is informed by patient needs and is conducted in partnership with patients.
- Equity, Diversity, and Inclusivity (EDI) principles are applied across research design and practices (see CIHR's guidance on best practices here: https://cihr-irsc.gc.ca/e/52553.html).

1.2.4. Industry Partnerships

- The approach incorporates industry engagement to conduct clinical trials, technology validation, and/or commercialization of technologies.

1.3 Program Intentions and Scale

OBI funding and partnership are intended to support and scale the development and maintenance of a large-scale, multi-site IDP with standardized data collection, processing, and storage protocols. The approach is focused on the creation and extension of data resources to accelerate the characterization of patient populations, facilitate understanding of biological mechanisms, and embrace a learning healthcare system approach in Ontario. The goal is to improve the lives of people with brain disorders through the generation of data that informs better care, policies, and new treatments and technologies.

In parallel to the core data collection, OBI will look to support additional opportunities within the networks to leverage the core data assets throughout the funding period. Modular opportunities that fit within and leverage the framework can be listed within this proposal. Examples include validation or interventional trials, incorporation of industry partnerships, evidence implementation in healthcare and community settings, and innovative data analytic approaches.

1.3.1. Open Data

Commitment to open data and to shared policies. Data will be collected, curated in alignment with FAIR principles (Wilkinson et al., 2016) and released for controlled open access as quickly as reasonably possible across all IDPs. Exclusivity can be placed on specific hypotheses for an agreed-upon timeframe in order to protect the researchers in the IDPs and their work. However, data will be otherwise made open to external applicants for other appropriate and accepted uses.

As a publicly funded organization charged with improving the brain health of Ontarians, it is important that our activities, programs, and services, at all levels, reflect our community and that we demonstrate transparency and inclusiveness. OBI understands and embraces the principle that equity, diversity and inclusion are more than just words. These are principles guiding how we build our teams, cultivate leaders, and operate our programs to improve brain health and create economic opportunities.

2. Eligibility

This competition is open to neuroscience networks focused on studying prospective clinical cohorts whose outputs target improving brain health, understanding the molecular basis of brain disorders, and creating new tools and technologies. The IDP members must demonstrate the experience and capabilities outlined in the sections below and plan to work together across multiple clinical research sites toward standardized data collection. IDP proposals should be oriented within a national or global context and seek to involve or leverage the work of others to deepen the potential for health and economic impact. Although the main source of OBI operational funds has been Ontario-based, successful applicants are encouraged to involve or identify additional funds (leverage).

For an application to be eligible:

- One or more of the IDP investigators will be designated the Director/Co-directors and serve as the main point(s) of contact with OBI. The Director/Co-directors will also be responsible for the overall management of the program in collaboration with OBI.
- At least one Director/Co-director must have an academic appointment and be conducting research at an Ontario-based university, hospital, or clinical site.

- IDP members include all people involved in the IDP activities, and they should be based at either a recognized research institution, not-for-profit, or neuroscience-related company and be eligible to receive research funding or contracts.
- The IDP proposal and associated research must align with OBI's vision (above) and meet the requirements set out below.
- IDP proposal must involve multiple sites and have multidisciplinary composition.
- IDP proposal should add clear value within a national and/or international context.
- Applicants must be able to initiate the proposed activities by October 2023.

3. Application Timelines and Review Process

3.1 Timelines

Phase 1	Launch of Open Call for IDP Proposals	June 1, 2022
	Submission of Registration Form	By September 15, 2022
	Access to OBI's Submission Management System	Upon receipt of your registration form, a link to the application site will be sent via email.
	Deadline for Submission	September 15, 2022
	Notification of Successful Applications to Move Forward to the Program Development Phase	By December 2022
Phase 2	Program Development Phase	January to March 2023
	Notification of Award	April 2023
	Program Launch and Funding Phase Start	October 1, 2023

This Open Call includes two phases: Phase 1, Open Call for IDP proposals (June 1 to September 15, 2022) and Phase 2, Program Development (January to March 2023). This two-phased approach reflects OBI's interest in forming partnerships with IDPs and supporting their successful launch and operations.

3.1.1. Phase 1

Phase 1, Open Call for IDP proposals, aims to identify the most promising IDPs based on their described mission, proposed research outline, quality of internal collaborations and external partnerships and alignment with the OBI vision and IDP model. Applicants are to submit broad descriptions and plans for their proposed IDP based on the questions outlined below. While information about the proposed research and its execution is requested during this stage, OBI is not looking for detailed research proposals. We encourage applicants to focus on the potential contributions of their IDP.

OBI will engage with the applicants to address any questions and provide clarification as required. All applicants must register to confirm their intent to apply and gain access to OBI's submission platform. While there is no deadline to register, early registration is encouraged to facilitate OBI's downstream planning processes. Applicants will have the option to request additional support during registration to clarify expectations and help answer questions.

All received and eligible IDP proposals will be reviewed by a panel composed of internal OBI staff and an external panel of advisors. The advisory panel will be composed of national and international experts with experience and expertise across the four main IDP pillars (research excellence, data analytics and informatics, patient engagement and integrated knowledge translation, and industry partnerships). These external advisors will work collaboratively with OBI to help identify the most promising proposals. A shortlist of applicants will be selected based on the ranking and estimated budget constraints. The shortlisted applicants will be notified by December 2022.

3.1.2. Phase 2

During Phase 2, OBI will work closely with the shortlisted applicants to co-design the implementation plans for their proposals. This includes agreeing on data quality standards, and developing milestones and deliverables for key activities, budgets, and evaluation plans for the IDP. Applicants and OBI will also have feedback from the external reviewers during the Phase 1 review to strengthen their planning.

During this phase, OBI might inform collaborations across the shortlisted applicants in the event that multiple parties have similar proposals and could benefit from working together to strengthen their application(s). OBI may also engage subject matter experts to provide guidance and advise on specific areas that might need development. Being shortlisted does not guarantee funding, rather, it signals OBI's commitment to work with parties collaboratively to further explore the feasibility and potential for real-world impacts.

Final funding decisions will be made by April 2023 and are contingent on the ability to develop implementation plans and on the success of OBI's funding renewal in March 2023.

OBI will fund IDPs via direct contracts with participating institutions. Continuation of funding for a specific IDP or participating site will be based on the achievement of agreed-upon annual deliverables.

3.2 Assessment Criteria

All eligible proposals will be evaluated and selected following the two-phased review process described above. Phase 1 assessment will focus on the overall significance, capabilities, and potential impact of the proposal. Phase 2 assessment will consider in greater depth the feasibility of the proposed work plans and progress made during program development.

3.2.1. Phase 1 – Open Call for IDP Proposals

All eligible proposals will be assessed across three central themes listed below. Proposals will be evaluated holistically, and areas flagged for further development of short-listed applications will be addressed during Phase 2.

1. **Significance and relevance of the proposal** – the extent to which the proposal has identified an explicit clinical "unmet need" in its vision, objectives and proposed research description that are informed by and meaningful to its target patient population both in and beyond Ontario, and its alignment with OBI's IDP model.
2. **Capabilities and capacity** – the ability of the network to achieve its stated goals based on: expertise, experience, and track records of its leadership and members; experience with and/or identified plans or potential to participate in collaborative projects with research institutions and/or with patient, community, or industry partners; and description of program structure and governance including personnel.
3. **Potential for impact** – the extent to which the proposal identifies outcomes that align with OBI's vision, have clear and achievable impacts for the research community, patients, and industry.

3.2.2. Phase 2 – Program Development

Shortlisted applicants selected to move forward to the program development phase will be assessed on:

1. Real-world value and impact of the proposed plans, feasibility, and implementation capacity.
2. Ability to collaborate effectively within IDP members and with OBI on implementation plans; and
3. Final funding availability to support the protocol as described or with reasonable rescaling of activities.

4. Proposal: Integrated Discovery Programs

OBI's model for IDPs involves prospective clinical cohorts, use of a master protocol, use of standardized assessments and common data collection and curation pipelines, involvement of patients and their advocates, involvement of industry partners and other knowledge-users, and a clear focus on improving the lives of people with brain disorders. This section highlights the scientific excellence of the study design, data collection techniques, and analysis methods to be implemented.

4.1 Description of Clinical Research

4.1.1. Research Area

The research area represents the clinical population(s) that the network hopes to better understand and whose lives and care you hope to improve. The area is determined by the over-arching hypothesis that guides data collection from multiple sites and the proposed short-term to long-term impacts. Given the complexities of brain-related disorders, the IDP may enroll participants broadly with related and possibly overlapping diagnoses. The research focus should add clear value within a national and/or international context. By this, we mean the data collected should fill a gap in the broader pursuit of better understanding your research area and recognize opportunities to connect data that are available from other sources. The research outcomes should be aligned with OBI's goals of improving brain research, commercialization, and care.

4.1.2. Standardized Clinical Framework

The standardized clinical framework is a core feature of IDPs and represents a multidisciplinary approach to standardized patient assessments, which are to be implemented across all sites involved in the study. Specific examples might include imaging, genomics, wearables, and clinical assessments. This framework enables hypothesis and data-driven research that can be explored within and across programs, studies, diseases/disorders, and beyond. There are two components to the standardized clinical framework: a) network-specific patient assessments; and b) the OBI standardized battery of patient assessments, which is referred to as the Brain-CODE (Centre for Ontario Data Exploration) CDEs (see section 4.3 for more information).

Question 1. Tell us about your clinical research program:

a) Name of IDP: (25 words)
b) Area of focus (e.g., dementia): (25 words)
c) Unmet need: (125 words)
d) Vision: (125 words)
e) Core hypotheses: (250 words)
f) Goals: (250 words)

g) Describe any barriers or challenges to integrating network activities to achieve your network's stated goals: (125 words)

Question 2. Describe your clinical research approach:

a) Study design: (900 words)
b) Brief methodology: (450 words)
c) Enrolment target: (125 words)

Question 3. Equity, Diversity and Inclusion in research participants and activities:

a) Describe current gaps or issues regarding underrepresented populations (e.g., by race/ethnicity, by sex/gender, by class) in your network's total clinical population of interest. (325 words)

b) How will the network's activities and research approach be inclusive of these populations to ensure fair and equitable access to research and the applicability of its results? (325 words)

Question 4. Tell us how your proposed work fits in a national/international context:

a) What other initiatives are relevant to your work? (250 words)
b) How does your clinical research approach add value to what is already taking place? (250 words)
c) Does your design allow for formal partnership (explain why or why not)? (250 words)
d) Does your design allow for data interoperability (explain why or why not)? (250 words)

Question 5. What are your proposed key research deliverables in a 1**, 3, and 5 year time horizon? (250 words)

Note: Year 1** deliverables will focus more on establishing processes (e.g., contracts, establishing sites, beginning recruitment, formalizing plans for partnerships and collaborations, etc.), while years 3 and 5 should focus on the real-world deliverables that the network aspires to generate (e.g., trials, publications, dataset generation, implementation work, etc.)

Year 1 commences on October 1, 2023, and ends on March 31, 2024. Subsequent years will start on April 1 and end on March 31 of each fiscal year.

4.1.3. Prospective Clinical Cohorts

The core activity of each network should focus on establishing prospective clinical cohorts that harness the power of interventional trials with the breadth of real-world data. The study design should employ a master protocol to inform the collection of longitudinal data from

both patient and control populations using standardized research platforms. Alongside this core function, the trial structure allows for a modular design to enable tool validation or interventional trials to be added and removed over the course of the study. Because of the standards in place, seamless integration of these modular trial types can take place to more specifically test sub-hypotheses or validate new techniques or tools.

Question 6. List and describe plans for a modular design. Examples include validation or interventional trials, serving as a common control arm for case-matched clinical trials or natural history outcomes studies, evidence implementation in healthcare and community settings, and innovative analytic approaches. (1400 words)

4.2 Description of Data Management and Analytics by Design Services and Support for IDPs

4.2.1. Brain-CODE

Brain-CODE ("Centre for Ontario Data Exploration") (www.braincode.ca) is OBI's neuroinformatics platform that supports the acquisition, integration, sharing and analysis of data for multiple brain disorders and from a wide range of disciplines, including clinical, imaging, wearables, genomics, and other molecular data. Brain-CODE facilitates integration and interoperability for researchers to discover and explore new and complex relationships among data, leading to new avenues of research and treatment. Brain-CODE supports federation and linkage with other large data platforms to enable the combined analyses of deep research data with broad health data. By adhering to the principles of Privacy by Design, Brain-CODE serves as the data-sharing platform for the IDPs leading to opportunities for national and international collaborations and research exchanges. OBI strives to provide excellence in brain research informatics and continues to improve platform functionality, services, and collaboration opportunities for discovery.

4.2.2. Informatics Tools and Services

To support the IDPs and maximize research capacity through collaboration and sharing, OBI's Brain-CODE platform and support team provide a number of tools and services. Currently available tools include:

- Participant tracking and encryption of Ontario Health Insurance Plan (OHIP) numbers via the Subject Registry.
- Clinical data capture on REDCap; brain imaging and complex format (time series, binary files, etc.) data capture on XNAT.
- Molecular 'omic' data capture on LabKey.
- Built-in portal tools such as the File Repository for administrative file handling, visual data dashboards for study monitoring; and analytics workspaces.

The IDPs will also receive the following support from the Brain-CODE team at OBI:

- Electronic data capture and curation tooling training.
- Assistance with electronic case report form (eCRF) validation.
- Data and form validation support.
- Informatics governance, such as ethics tracking and contractual compliance.
- Access permission and data request management.
- Additional curation support to facilitate data sharing on Brain-CODE.
- Data linking support.

4.3 Description of Data Management and Analytics by Design Expectations and Requirements

IDPs will be responsible for the following items for data management and analytics, to be expanded on further below:

- eCRF creation.
- Privacy, ethics, and contractual compliance, including submitting approved protocols, consent forms, amendments, and ethics approvals to OBI prior to initiating recruitment.
- Data capture and/or transfer to OBI's Brain-CODE platform.
- Monitoring for quality assurance/quality control (QA/QC).
- Data curation, including corrections, conversions (as necessary) and standard vocabulary annotation.
- Data sharing support such as providing OBI with data provenance, study protocols, data dictionaries, additional required metadata.
- Additional curation as needed for the IDP's analysis needs.

Data collected by the IDPs will be made accessible for secondary use via Brain-CODE. Data can be linked with other datasets (e.g., health administrative data via encrypted health card numbers). OBI will provide consent form language to support such activities. IDPs will incorporate this consent language within their studies.

4.3.1. Data Collection Plans

Data collection must include Brain-CODE CDEs and conform to Brain-CODE's QA/QC processes. OBI will work together with all shortlisted applicants during Phase 2 of the application process to agree on Brain-CODE CDEs and QA/QC processes.

4.3.2. Brain-CODE CDEs

The current Brain-CODE CDEs consist of a demographic questionnaire, a medical history form, and clinical scales including psychiatric co-morbidity, depression, anxiety, sleep, and quality of life. Recommended standards have also been developed for MRI, EEG and MEG.

The list of current Brain-CODE CDEs can be found here: https://www.braincode.ca/content/getting-started#toc-2.

4.3.3. QA/QC

To ensure data quality is maintained as early as possible, IDPs are expected to implement QA/QC processes during data collection. These include field validation rules, use of controlled vocabulary terms where appropriate, centralized ongoing monitoring, outlier detection, etc. OBI will provide more information about QA/QC processes through general standard operating procedure (SOP) and guidance documents to support the data quality practices across IDPs. OBI's objective is to ensure that study design and data management follow best practices such as those outlined in the DAQCORD guidelines and that all data collected adhere to the FAIR principles (and, where applicable, the CARE principles for Indigenous data governance and the First Nations Principles of OCAP®). Some contents of these documents will be developed with the shortlisted applicants to ensure it meets their informatics needs, such as data formats and file standards, ontologies/controlled vocabularies, and development of modality-specific data collection SOPs.

4.3.4. Data Curation Plans

IDPs will be required to enter and/or transfer their data in a timely manner onto Brain-CODE to ensure data quality, data sharing and collaboration. All electronic case report form data will be captured on Brain-CODE using its electronic data capture tools. Other data types that require pre-processing on-site will be transferred to Brain-CODE as soon as pre-processing is complete to undergo quality assurance and quality control and any further curation. Data transfer to Brain-CODE will require that study information, privacy requirements, and metadata elements are provided to OBI, and that the data meet standardization and quality criteria established for Brain-CODE.

4.3.5. Data Analytics Plans

IDPs are expected to outline the key hypothesis (or hypotheses), the type of data and volume of data required to address these hypotheses, a power analysis, plans to use other data sources to kickstart your work, and any current plans for data linkages to inform your research agenda.

4.3.6. Brain-CODE Analytics

OBI's Brain-CODE platform also provides computing capacity for curation, pipelines, and analysis. Networks will have the opportunity to access these computing capabilities on an as-needed basis.

Question 7. Describe your overall approach to data management:

a) List what data modalities do you propose to capture, and indicate who the domain specialists are for each data modality. (470 words)
b) Describe any data quality assurance and quality control processes that you plan to use. (300 words)

c) Describe your network's plans for data curation. (250 words)
d) Describe your network's data analytics plan, including power analysis and any advanced analytics capabilities. (400 words)

Question 8. What existing datasets can be incorporated into your design? For example, a pre-established control arm or cohort that can be blended into the study design to increase participant numbers/cohort size. (300 words)

Question 9. Describe plans to link data with other initiatives for secondary use. (470 words)

5. Description of Patient Engagement and Knowledge Translation

OBI believes that patient engagement and integrated knowledge translation are key drivers of real-world impact. Working in partnership with members of the patient community (people with lived experience, family members, caregivers, health charities and support organizations) ensures that the IDP activities align with the needs of their community. Patient and community engagement can also facilitate knowledge translation activities that reach the community faster to drive the uptake and adoption of new knowledge, tools, and treatments. This includes sharing actionable knowledge with the patient community and public, improving evidence-based practices in health and community care, and using evidence to inform policy and develop solutions to challenges facing the community.

OBI provides support for patient engagement and knowledge translation through a community of practice. This group will meet in the program development phase of the application to share ideas and plan patient engagement and knowledge translation activities with an eye to how evidence from the IDPs can be translated into real-world impacts. Successful applications will ensure that patients and their carers are engaged throughout all activities, including:

- **Patient/Community/Stakeholder Advisory Committee Members** to bring lived experience perspective and provide input to the direction of the IDP.
- **Co-applicants** of research proposals. Members of the patient community are involved from the beginning to identify the hypothesis, prioritize clinical assessments, and inform what information gets reported back to the study participants.
- **Co-investigators** for studies using data for quality improvement initiatives, data linkage projects, interventions, clinical trials, and secondary use of data.
- **Co-creators** of knowledge translation initiatives to ensure that lived experience is integrated into the selection and creation of knowledge translation outputs from the IDP. This helps to ensure that evidence is used to reduce risk, improve quality of life,

and provide better care for people with brain disorders in both healthcare and community settings.

- **Mentors and Champions** to help establish and maintain a vibrant community surrounding the IDP and onboard new patient partners. Through this community and related activities patients have access to the latest research and hear about opportunities to participate in upcoming programmatic opportunities. As champions, patient and community partners can help disseminate and implement evidence and knowledge translation outputs back to their communities.

Question 10. Describe the previous accomplishments of network members in engaging and involving the patient community in research. (470 words)

Question 11. Outline plans for involving members of the patient community throughout the research process. Examples can include priority setting, study design, recruitment and retention strategies, data analysis/interpretation, knowledge translation and dissemination, evaluation. (400 words)

Question 12. Describe which community partners you plan to work with to generate, disseminate, and implement research evidence that addresses patient needs. Community partners can include not-for-profits, advocacy groups, health charities and support organizations, health professionals. Letters of support are welcome but not mandatory. (300 words)

Question 13. Describe how your proposed plans can be used to inform changes to clinical practice, programs, or policy. (470 words)

6. Description of Industry Partnerships

OBI strives to develop validated neurotechnology that will benefit Canadians both in the long- and short-term. OBI provides a range of support programs to advance these brain health solutions. Examples include providing training for entrepreneurs, commercialization advice, assisting with the screening of external partners, opportunities to apply to our commercialization programs, opportunities to consolidate technology, and access to distribution channel partners.

We expect the network to have a track record of successfully working with companies (or spinning-out companies) for developing and/or working with neurotechnology (e.g., drug candidates, medical devices, and digital health technology) and/or to have a track record of partnering with external organizations for advancing brain health solutions (e.g., start-ups, multinationals). The purpose of these partnerships should align with the goals of the network and of OBI and may include:

- The validation of industry-derived neurotechnology.
- Clinical support for neurotechnology derived from the networks.
- The generation of clinically relevant real-world data.
- The validation of a biomarker against clinical gold standards.
- A biomarker-driven clinical trial or a single-arm trial.
- Access to complementary datasets.
- Projects related to data analytics (e.g., algorithm validation, federation of datasets).

Question 14. Demonstrate the network's or its members' track record for developing and/or working with neurotechnology (e.g., drug candidates, medical devices, and digital health technology). (900 words)

Question 15. Demonstrate the network's or its members' ability to partner with external organizations (e.g., start-ups, multinationals). The purpose of these partnerships should align with the goals of the network and of OBI. For all existing partnerships, please list the type of agreement (e.g., Collaborative Research Agreement, Data Use Agreement, Memorandum of Understanding) that has been signed, if any. (900 words)

7. Program Management and Governance

This section highlights the strength of the network in key areas integral to OBI's vision. It focuses on personnel and expertise.

Strong program management and governance structure are critical to ensure integration, effective communication and ultimately, success in collaborations of this scale. A well-organized plan for decision-making and communications within the program is key to supporting the activities of the program and facilitating engagement across all members. In addition, such planning allows for business continuity during periods of transition.

OBI envisions the program structure such that it provides leadership and capacity in the four key pillars of the IDP, namely: 1) Clinical Research, 2) Data Management and Analytics, 3) Integrated Knowledge Translation and Patient Engagement and 4) Industry Partnerships. OBI works as a close partner with IDPs to centrally support and deliver in each of the areas above.

The specific structure and IDP organizational chart are to be developed by the network and guided by the following framework:

7.1 Leadership

The IDP must designate network leadership with subject matter expertise to represent the IDP's activity in key areas as indicated below. Network leadership must show leadership capacity through demonstrated experience engaging with stakeholders, including industry and patient/community partners. At the core, each IDP network must have the following:

- **Director/Co-directors**: to serve as the main point(s) of contact with OBI. The Director/Co-directors will also be responsible for the overall strategic management of the network's strategic direction, performance, engagement, and opportunities.
- The Director/Co-directors should bring in extensive prior experience leading large multi-center projects within multidisciplinary networks; experience sitting on advisory boards or committees; system-level thinker(s) able to integrate knowledge across expert teams, guide, mentor and manage change.

Question 16. Indicate who will cover the Director/Co-directors role by filling Director/co-Directors the table (see template here). Attach a brief 2-page biosketch (see template here), indicating key experience that they bring into the Director/co-Director role.

Director/Co-directors

Full Name	Affiliation	Key Area/s of Expertise	Attach Biosketch

7.1.1. Core Leadership Roles

Core Leadership Roles in Four Key Areas: these roles can be covered by network members including: clinicians, researchers, patient/community representatives, and/or companies. Any of these roles can overlap with Director/Co-director role. They serve as champions for the IDP and its work. They are part of the IDP Executive Committee and inform the strategy and the IDP decision making processes.

The IDP can assign one point of contact for each role and/or could consider a co-lead model as needed, in order to bring in the appropriate capacity and experience. For example, if IDPs seek to engage with Indigenous communities, they should be sure to appoint an Indigenous lead and follow appropriate relationship-building and data governance and sovereignty policies (e.g., OCAP® for First Nations, CARE Principles for Indigenous communities). Similarly, the patient engagement leadership role is best served by a person with lived experience and with a track record in organizing other patients to advocate.

- **Clinical Research Lead**: must have subject matter expertise in large multi-site clinical study design; clinical trial design; ensure that data collection is harmonized across clinical sites, is hypothesis-driven, and that data types align with and supplement other ongoing initiatives.
- **Data Management and Analytics Lead**: expertise in multimodality data analysis and statistics to ensure study design has statistical power to address key hypothesis. Expertise in data quality, data curation standards and overall data management.
- **Patient Engagement and Integrated Knowledge Translation Lead:** direct experience partnering with patients, families, and community organizations to integrate the lived experience into the research process.
- **Industry Partnerships Lead:** direct experience in developing neurotechnology, partnering with companies to inform clinical trials; obtaining real-world data for monitoring participants; and/or validating an innovation or neurotech by comparing it to clinical "gold standards."
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Question 17. Fill in the Network Leadership Composition: Core Roles table (see template here). Attach a brief 2-page biosketch (see template here) for each core leadership role, indicating key experience that they bring into the role. Access templates below.

Role in Network	Name	Affiliation and Expertise	Attach Biosketch
Clinical Research Lead(s)			
Data Management & Analytics Lead(s)			
Patient Engagement and Integrated Knowledge Translation Lead(s)			
Industry Partnerships Leads(s)			

7.2 Succession framework

The IDP should implement a process to continuously review leadership performance. Together with OBI, a more formal review should take place by Year 3 of funding phase, to assess leadership needs and address any necessary changes/transition to ensure network performance.

Question 18. Briefly outline goals for leadership performance and how your network will monitor them. (250 words)

Note: in the second phase of review each IDP will be asked to develop a succession planning document for leadership roles.

7.3 Governance

The network must establish governance structures that allow for a close and collaborative relationship between the IDP, OBI, and the broader community. Organizing bodies may include executive committee, patient/community advisory committee, publications committee; etc. The IDP network must establish a clear organizational structure and team structure, from strategic leadership to financial accountability.

Core management activities include:

- **Program Management:** coordination and overall management of programmatic planning and performance metrics; financial and reporting activities; integration across core leadership team and participating sites. Liaise with OBI management.
- **Site-specific Coordination**: protocol design, ethics application, participant recruitment, data collection, study monitoring, data quality/curation and data entry into Brain-CODE platform. Liaise within and across participating sites.
- **Neuroinformatics/Data Management:** includes overall informatics and analytics activities, planning and integration of data curation and pre-specified analysis plans across the network**.** Liaise with the OBI Informatics team.
- **Knowledge Translation (KT):** includes management of patient engagement, KT, and communication activities across the network; integration with Patient/Community Advisory Committee. Liaise with the OBI Outreach team.
- **Partnerships:** Includes activities related to partnering with companies and/or community organizations.

Question 19. Provide a list of:

a) the network's participating sites and their status (e.g., clinical site, research-only site). (450 words)

b) organizing committees and teams and their roles and responsibilities as they relate to the core management activities above. (750 words)

Question 20. Provide an organizational chart capturing overall IDP leadership and network structure. Highlight flow of communication and decision making. (upload field)

7.4 Experience and Capacity within the Network

The network must bring in demonstrated experience and capacity in working together as a whole, and in engaging in new national/international collaborations.

Question 21. Provide a brief description of the top (3-5) achievements that the network or its members has/have achieved to date that improve the lives of people with brain disorders (e.g., thoughtful breakthroughs, changes in practice or policy, and new techniques, technologies, or creation of companies). (745 words)

Question 22. List and describe the registries and /or trials that the network or its members have been involved in and their status. (450 words)

Question 23. List and describe the national and international data collection, analysis, or linkage initiatives that the network or its members have been involved in. Include databases used, the status of the initiative, and data types contributed. (1000 words)

8.Equity Diversity and Inclusion (EDI)

Equity, diversity, and inclusion strengthen the scientific community in the quality, relevance, and impact of research. For more information and guidance on how to incorporate EDI into your research, please consult CIHR's guidance as well as the resources provided at participating IDP member' institutions. Diversity in experience and approaches to scientific discovery increases the breadth of ideas and improves our ability to innovate and create impact. EDI considerations in several areas of the Network design will ensure that under-represented researchers have confidence that they will be assessed and welcomed based on their merit and excellence. These include:

- Diversity and equity within the network personnel and network leadership.
- Representation of both junior and senior scientists.
- Diversity in scientific expertise and thought within the Network, including expertise in subject matter, analytics and informatics, clinical trial, methodology (i.e., power analysis), and government and community engagement.
- Investigators, with interdisciplinary and diverse experience in research specialization and stakeholder engagement at the government and community levels.
- EDI principles are applied to the hiring of research personnel based on best practices.
- Geographic equity of participating sites.

Question 24. Demonstrate how the principles of EDI listed above are being addressed in the proposed network structure**.** (900 words)

9.Leveraging and Net Benefit to Ontario

The OBI system is based on creating meaningful partnerships to attract additional investment from other sources (leveraged investment) and to ensure that our funding has research, health, and economic impact in Ontario. Over the years, we have met the target of a cumulative 2:1 ratio of leveraged investment to the accountable OBI government funds. This included funds that came directly to OBI, as well as funds going to our partners due to OBI involvement. We plan to continue this commitment in partnership with our IDP networks. Applicants are therefore expected to engage with other parties to build out their network. This involves leveraging or strengthening existing partnerships or forging new ones. This will serve as an important metric for network impact.

Question 25. Based on your current and proposed collaborations, what leveraging opportunities may exist for your network? (400 words)

Note: Potential funding sources to leverage opportunities include grants, investment, charitable donation, in-kind contributions, etc.

10. Funding Available

OBI plans to enter into direct agreements with IDP network sites, for the purpose of outlining annual deliverables and budget for network expenditures. The funding term commences on October 1, 2023 and ends on March 31, 2028. The Annual Financial Contribution for the networks ranges from $1M to $3M annually. Continuation of funding will be tied to the performance and ability of network to meet its deliverable targets.

Nonetheless, OBI's Financial Contributions are subject to the availability of funds provided by the Legislative Assembly of Ontario in an amount sufficient to fund the IDPs.

10.1. Funding Models

OBI envisions a hybrid funding model, comprised of a fixed budget for personnel and infrastructure costs and a flexible, cost-recovery budget for reimbursement of participant recruitment costs. Per-participant costs will be reimbursed on a quarterly basis in alignment with recruitment activity.

10.2. Network Costs

In estimating the costs of the network, only direct costs of personnel, supplies and services, minor equipment, and travel, that are essential to the operations of the network to achieve its results can be included. Overhead or indirect costs are not eligible.

Question 26. List the proposed annual budget amounts over a 5-year funding period by using the template attached here (budget template).

11. Letters of Support

Applicants are encouraged to provide Letters of Support to bolster their application. Letters of Support may be provided by a) community partner(s) and b) national/international research initiatives that you anticipate collaborating with as partners for the purposes described in previous answers.

Question 27. Provide Letters of Support from the a) community partner(s) and b) national/international research initiatives that you anticipate collaborating with as partners.