Vision
To improve the lives of children with neurodevelopmental disorders and their families, by accelerating and integrating the discovery and utilization of knowledge about disorders of the brain, their early diagnosis, prevention and treatment.

Mission
NeuroDevNet is a national multi- and trans-disciplinary network dedicated to bringing hope to children with Autism Spectrum Disorder (ASD), Cerebral Palsy (CP), Fetal Alcohol Spectrum Disorder (FASD) and related neurodevelopmental disorders, as well as to their families and caregivers. NeuroDevNet focuses its funding on integrated, team-based, research initiatives related to cause, early diagnosis, and interventions. Engaging families, clinicians, other stakeholders and partners both nationally and internationally, NeuroDevNet leverages and enhances the talents of new and seasoned researchers to translate research findings into effective therapies and changes in policy and practice.

Strategic Direction

Strategic Priorities

1. Generate transformative research and high impact projects

2. Translate and leverage new knowledge by expanding new opportunities in valorization, research and stakeholder engagement

3. Influence policy and practice utilizing Network generated knowledge

4. Strategically align training approach with research strengths and emerging issues

Outputs

- New knowledge
- Economically viable outcomes
- Translation and communication activities
- Trans-disciplinary training

Governance, Management, Infrastructure, Measurement, Evaluation

VISION and MISSION
### Background

Canada’s significant track record in neuroscience and growing interest in brain-related issues at the provincial and federal levels formed the backdrop for NeuroDevNet’s unique positioning as the first national Canadian initiative to bring together leading researchers and clinicians specializing in brain development.

The Network was incorporated on Dec 9, 2009, with $19.2 million over five years in funding from the federal government’s Networks of Centres Excellence (NCE) program. In the final year of our initial mandate, we remain strongly committed to a single objective: helping children overcome the challenges of neurodevelopmental disorders.

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Background  continued

As part of an ambitious initial research agenda, three multi-disciplinary Research Projects were identified:

1. **Autism Spectrum Disorder (ASD):** focused on finding genes that are causal or predispose individuals to ASD, one of the most heritable of all the complex neurodevelopmental disorders, as well as enhancing capacity for early diagnosis through innovative approaches to assessment.

2. **Cerebral Palsy (CP):** focused on understanding the underlying pre- and post-natal events leading to the brain injuries that cause this varied and complex disorder, with the aim of improving early diagnosis and patient outcomes.

3. **Fetal Alcohol Spectrum Disorder (FASD):** focused on identifying the affected genes, and changes in gene activity resulting from pre-natal alcohol exposure as well as understanding the relationship between alcohol exposure before birth and behavioural outcomes in children.

Grounded in human studies and animal modeling, NeuroDevNet’s disorders Research Projects share a common platform of cutting edge genetic analysis and brain imaging. This research is also informed by the expertise of three service Cores, in Neuroethics, Neuroinformatics and Knowledge Translation that enhance the effectiveness of the Network and potentiate its impacts.

Although the strength of NeuroDevNet’s original funding application and approach were confirmed by external review, two years into the Network’s mandate, NeuroDevNet’s Board of Directors embarked on a three-stage process to take stock and to gather stakeholder input into a strategic plan. This process, to provide focus to the many proposed activities of the enterprise and build alignment with the expectations of the NCE program, was guided by a predominantly external Strategic Planning Advisory Committee with members selected for their outstanding expertise in matters relevant to the success of a biomedically and clinically oriented NCE.

Now in the fourth year of its first five-year NCE grant, NeuroDevNet has begun to show clear results that validate its significant role in child health and brain development, and reflect its contributions to Canada, and the world. The Network’s focus on early diagnosis and improved understanding of the causes of ASD, CP and FASD is providing a unique opportunity for the integration and sharing of ideas and insights that catalyze new discoveries. Even at this early stage in its evolution, NeuroDevNet is advancing understanding of the causes of developmental brain disorders, pushing capacity to diagnose these conditions ever earlier, and exploring interventions that have, and will continue to have, profound significance for the care and prospects of children with neurodevelopmental disorders. The Network’s outstanding trainee and internship programs are inspiring the next generation of developmental neuroscientists who will champion this work and carry it forward. NeuroDevNet is also sharing its findings with health care professionals, decision makers, and communities of interest, and beginning to make impacts on policy and practice.

NeuroDevNet’s strategic plan charts the way forward, focusing this tremendous momentum, and identifying key directions for the next two years of Network’s first five-year mandate while shaping and informing the renewal application to be submitted by NeuroDevNet in June 2014 for a second phase of five-year funding.

For the balance of its mandate, the Network will focus its activities on delivering impacts that inform public policy and best practices—creating social value for individuals and society and economic benefit through reduced long term costs to the health system. Four strategic priorities, identified in the figure on page 2, are discussed in the next section of this summary.

### Strategic Priorities

#### 1. Generate transformative research and high impact projects

**GOALS:**

1.1 To continue to generate new knowledge, building off current strengths and capabilities in causal mechanisms and early diagnosis across all three disorders

1.2 To use new knowledge to build national and international partnerships

1.3 To enhance understanding of related origins, symptoms, and responses to treatment among neurodevelopmental disorders within the NeuroDevNet research community, and beyond
Strategic Priorities continued

1. Generate transformative research and high impact projects continued

NeuroDevNet will build on current strengths and capabilities vested in the Network in causal mechanisms and early diagnosis as well as other unique strengths in each of the Network’s major Research Projects.

Unprecedented data collection, including the creation of a cross-Canadian cerebral palsy patient database, two large international cohorts of patients in high-risk families affected by autism, and extensive behavioural data and imaging on FASD will continue to provide the basis for new knowledge, while resources are focused so that knowledge is seamlessly translated into commercialization opportunities, practice and policy change.

Network researchers are expected to seek out national and international partnerships to leverage the funding they receive from NeuroDevNet. A model for identifying and strengthening these links, exists in the framework created by the Network for the stakeholder-driven Community for Brain Development. This alliance of organizations across Canada comes together because of shared interest in brain development and the realization that through collaboration and joint action there is the potential to have a much greater impact on health outcomes than acting alone.

Synergies are being explored among the Network’s three disorders research teams as well as with the Cores. Similar ethics considerations arise, and comparisons between disorders are being made via NeuroDevNet’s shared genetics/epigenetics platform, backed by the Neuroinformatics Core’s capacity to manage and manipulate massive and complex data sets.

Going forward through 2014 and beyond, integration of additional, related disorders and other neurodevelopmental conditions has been identified as a priority for the Network. Specific points of strategic focus for individual disorder Research Projects and Cores include:

**Autism Spectrum Disorder**
- Focusing research on cause in order to translate findings into capacity for earlier diagnosis and improved care
- Determine role of genes and gene/environment interactions in causation
- Broaden research to:
  - (a) explore connections between ASD and other neurodevelopmental disorders and
  - (b) examine pharmacological and other therapeutic interventions

**Cerebral Palsy**
- Continue research focus on cause and early diagnosis
- Develop, sustain, patient data registry and use to support translational research towards best clinical care
- Continue to explore animal model research to move toward human trials and commercial possibilities

**Fetal Alcohol Spectrum Disorder**
- Continue to research early diagnosis using biomarkers (e.g., eye tracking, neuroimaging, epigenetics, genetics) in conjunction with behavioural data to identify children affected by FASD
- Translate this knowledge to best care and therapeutic approaches in FASD
- Continue to build and use patient databases to support translation of research findings towards best clinical care

**Neuroinformatics**
- Address privacy and ethics challenges related to clinical trials and use of patient data within the Network
- Continue development of customized database to increase understanding of genetic and behavioural similarities among neurodevelopmental disorders
- Provide ongoing leadership to the nascent Canadian neuroinformatics community, and help develop training resources to address neuroinformatics skill gaps within and outside the Network

**Neuroethics**
- Address privacy and ethics challenges related to clinical trials and use of patient data
- Provide ongoing ethics guidance for policy and practice related to:
  - a) establishment and utilization of data repositories for research involving children, and
  - b) biomarker research involving children
- Support education and outreach in ethics through journalism internships, and development of a series of webinars on topics related to ethics and neurodevelopmental disorders
Strategic Priorities

2 Translate and leverage new knowledge by expanding new opportunities in valorization, research and stakeholder engagement

Valorization: The development of new products and processes of social and economic value to industry, not-for-profit organizations, and government.

GOALS:
2.1 To define and expand the Network’s valorization opportunities
2.2 To stimulate commercialization activity across all Research Projects

Valorization opportunities have been identified and will continue to be pursued within NeuroDevNet’s current research agenda linked to high value intellectual property and assistive devices and diagnostic tools. Support will be provided to researchers both to increase their awareness of valorization opportunities as well as to assist them in developing and implementing plans to make them available to those who will benefit. Network valorization opportunities will be showcased on a regular basis, including at the Annual Brain Development Conference and partnerships both locally and in other venues.

To facilitate this process, a Valorization Committee has been formed to set priorities and provide expert advice to help guide our project teams. This Committee has identified the top 10 valorization opportunities for the Network and the resources to assist these initiatives.

3 Influence policy and practice utilizing Network generated knowledge

GOALS:
3.1 To strengthen knowledge translation linkages within and across the Network
3.2 To develop and implement an approach to make information available to targeted audiences through success stories of knowledge translation and impacts
3.3 To extend relationships with key receptor communities

NeuroDevNet is now positioned to move new knowledge more quickly and more effectively to targeted audiences. The KT Core will continue to play a leadership role in building relationships, coordinating cross Network initiatives and integrating KT initiatives while providing additional tools and supports within the Research Projects and Cores.

Moving forward, knowledge translation will be integrated in Research Projects from their inception, to encourage uptake by stakeholders, involvement by policymakers, and ultimate benefit of the Network’s findings being available to children and families affected by neurodevelopmental disorders. Partnerships are being sought with organizations with the capacity and capability to influence this process through the ‘Community for Brain Development’ which will link to grass roots focused on service and support.

NeuroDevNet’s contribution and presence will be recognized through KT processes and activities with results showcased in scholarly and social media.

4 Strategically align training with research strengths and emerging issues

GOALS:
4.1 To formalize current multi-sectoral and trans-disciplinary approaches
4.2 To develop a series of new multi-disciplinary offerings, targeting identified strategic gaps
4.3 To strengthen cross-sector partnerships in order to provide an enriched learning experience
Strategic Priorities

4. Strategically align training with research strengths and emerging issues

NeuroDevNet’s commitment is to provide a transdisciplinary training experience in the neurodevelopmental sciences, targeting PhD and post-doctoral students within the network. The trans-disciplinary approach provides young researchers with diverse exposures and interactions within, and beyond, the neurodevelopmental disorder research community. Already this approach has helped to attract top researchers and students to the Network, many of whom have voiced their enthusiasm for this approach.

A training plan and evaluation framework will be developed to enhance the broad range of programs in place to support and enhance the training of Highly Qualified Personnel (HQP).

Moving forward, the intent is to enrich the trainee experience by engaging students more fully in the evolution of NeuroDevNet’s training programs, and to offer training across the full spectrum of the Network’s activities that will broaden their career options, to include potential careers outside of academia. Immediate skill gaps being targeted include knowledge translation, policy engagement and commercialization. The training plan will be a key part of the framing of the renewal application.

Organizational Implications

NeuroDevNet’s success will depend upon distributing appropriate resources within and around the Network, maintaining excellence in Network governance and management processes, and continuously improving the efficiency and effectiveness of NeuroDevNet’s activities and operations. Other priorities include the development of an aligned operating plan and budget; continuing to build brand recognition and engagement, and the recruitment of key individuals into advisory roles on committees.

Looking to 2014 and beyond

There is a sense of urgency associated with moving forward. To keep the Network’s strategic plan dynamic and help monitor risk, an accountability framework together with a monitoring and updating process will be implemented.

The scope of initiatives outlined above, while expected to continue beyond 2014, will need to demonstrate traction to support a strong and successful application for the renewal of the Network. Due in June, 2014, NeuroDevNet’s application will also include scientific proposals selected by the Network’s Research Management Committee and its international Scientific Advisory Board for their scientific merit. The Network is looking to expand engagement in activities in the following priority areas:

- Projects with a focus on neurological conditions presenting in addition to a primary neurodevelopmental diagnosis in children, such as pediatric epilepsy, sleep disorders, or mental health conditions.
- Translational activities with the potential to contribute to earlier diagnosis, therapeutic interventions, and professional practice, new products and services, or public policy.
- Valorization opportunities that produce new products or services for companies, not-for-profit organizations and government.
- Engagement of receptor organizations in making available the results of NeuroDevNet’s innovations to those who can benefit from this information.
- Novel therapeutic interventions for improving the quality of life of children with neurodevelopmental disorders.

In conclusion, this strategic plan epitomizes focus and growth for NeuroDevNet. Harnessing the energy of leading scientists, making strategic choices and decisions, and leveraging resources in search of evidence-informed and pragmatic advances, the Network is reaching for its goal of helping children and families overcome neurodevelopmental disorders.
FOCUS & IMPACT

NeuroDevNet’s Strategic Plan
2012-2014

NeuroDevNet
The University of British Columbia
Child and Family Research Institute
950 W. 28th Avenue
Vancouver, BC V5Z 4H4

www.neurodevnet.ca
604.875.2424 ext 5436

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