2025 Neuropsychology and Cognition Award
RFA & Submission Guidelines

Overview

The Hydrocephalus Association is pleased to continue this award to advance research in neuropsychology and cognition. The award will support projects that address the utility and development of neuropsychological and cognitive assessment tools to:

- understand hydrocephalus phenotypes across the lifespan.
- assess indicators/outcomes related to surgical intervention.
- develop novel and translational applications in preclinical and animal/cellular models.
- guide improvements in patient care and transitions across the life course.

Through this initiative, we aim to address the challenges faced by individuals living with hydrocephalus by advancing our understanding and developing interventions to mitigate the psychological and cognitive impacts of the condition. In the Letter of Intent (LOI), investigators must indicate which priority statement(s) (Appendix A) are addressed by the project.

Eligibility

This award is open to postdoctoral- and faculty-level researchers and clinicians who hold an advanced degree from a relevant field, and are based at an accredited non-profit research or academic institution, research organization, or healthcare facility.

Award Details

Project Period: 12 months
Amount: Applicants may request up to $50,000 for one year. Direct costs only.

One award is available for the 2025 application cycle. This is a non-renewable award for up to one year, with the earliest possible start date in January 2026. This award does not support projects in association with commercial development partners (i.e. for-profit corporation(s)).

Important Dates

- **LOI deadline:** **5:00 PM ET on Friday, May 2, 2025**
- Invitation to submit full proposal: Invite will be sent by May 15, 2025
- **Full application deadline:** **5:00 PM ET on Friday, July 11, 2025**
- Award recipient announced: December 2025
- Earliest start date: January 1, 2026

Contacts: samantha@hydroassoc.org or research@hydroassoc.org

Application Details:

*The Letter of Intent (LOI) components to be submitted in the **WizeHive application portal** include:*

- Sponsoring institution information.
- A summary of the project and impact.
- Identification of the Neuropsychology and Cognition Research Priorities addressed by project (see Appendix A).
- Identification of three potential reviewers.

*The Full Application components to be submitted in the **WizeHive application portal** include:*

- **Overview:** Contact details and other relevant administrative information.
- **Budget:** Proposal Budget.
- **Biographical Sketch: Investigator/Co-Investigator/Key Personnel:** Biographical sketches are required for the Principal Investigator and any mentors, co-investigators, and key personnel. Do not exceed five (5) pages for each Biosketch.
- **Research Plan:** The Research Plan for the proposed project contains an
    - Abstract *(250 word maximum)*
    - Layperson summary *(150 word maximum)*
    - Specific aims *(500 word maximum)*
    - Background and significance *(500 word maximum)*
    - Project description *(1000 word maximum)*
        - Methods and study design
        - Primary and secondary outcome measures
    - Potential Pitfalls *(300 word maximum)*
    - Literature Cited: upload as a Word doc or PDF
    - Supplementary documents *(optional)*
- **Publication Plan:** It is expected that this award will result in at least one peer-reviewed publication. Use this section to describe your plans for publication including target journal, authorship expectations, and timeline. *(250 word maximum)*
- **Resources and Collaborations:** Describe relevant institutional facilities, resources, and collaborations.

All applications should be submitted through the **WizeHive application portal**. Applicants must sign up for an account and complete the eligibility check. Once verified, the Letter of Intent (LOI) or Full Application must be completed by the appropriate deadlines.

For additional information, please contact samantha@hydroassoc.org or research@hydroassoc.org.

Hydrocephalus Association

Appendix A: Neuropsychology and cognition research priorities

See the publication and summary here

Table 1) Research priorities for understanding the neuropsychological phenotypes of hydrocephalus across the lifespan.

Cognitive and Neuropsychological Batteries

1.1 Identify standardized, comprehensive neuropsychological and motor function batteries that can be applied across the lifespan to better characterize cognitive phenotypes associated with various etiologies of hydrocephalus and the developmental periods in which it was acquired.

1.2 Identify neuropsychological batteries capable of distinguishing the effects of hydrocephalus from comorbid conditions that affect cognition.

1.3 Expand the repertoire of assessment tools for neonates and infants to better clarify the profiles of hydrocephalus and provide a foundation for future longitudinal studies.

1.4 Incorporate more expanded, comprehensive neuropsychological batteries in clinical and longitudinal trials to better understand the nuanced cognitive deficits and preserved abilities in those with hydrocephalus.

Neuroimaging and Fluid Biomarkers

1.5 Identify anatomical changes and neural circuitry alterations associated with specific cognitive domains to distinguish from other conditions and predict long-term neuropsychological and functional outcomes in those with hydrocephalus.

1.6 Identify CSF, blood, and other fluid biomarkers that can be correlated with cognitive function that can be used to distinguish from other conditions and predict long-term neuropsychological and functional outcomes in those with hydrocephalus.

Prediction of Developmental Trajectories and Long-term Outcomes

1.7 Evaluate the ecological validity of neuropsychological testing performed during childhood and adolescence and its ability to predict long-term functional outcome for hydrocephalus.

1.8 Systematically assess adults with asymptomatic ventriculomegaly using a comprehensive, uniform neuropsychological battery to better understand the impact on cognitive development over the lifespan.

Table 2) Research priorities for effects of treatment on neuropsychological outcomes

2.1 Assess the long-term impact of different surgical interventions and their timing on cognition and neuropsychological outcomes in children.

2.2 Identify neuropsychological criteria that can be used to decide when or whether the risk/benefit ratio of surgical intervention of hydrocephalus in infants, children, and adults favors monitoring or treatment.

2.3 Develop or utilize existing cognitive surveillance measures that may identify the need for surgical intervention or re-intervention.

2.4 Identify neuroimaging and fluid biomarkers that can predict whether individual patients are likely to benefit from surgical intervention or re-intervention.

2.5 Incorporate long-term cognitive and neuropsychological outcomes in clinical trials of pharmacological treatments or other novel therapies for hydrocephalus.

Table 3) Research priorities for preclinical investigations of the neuropsychological outcomes of hydrocephalus.

3.1 Develop in vitro models to investigate molecular neurodevelopmental biomarkers that are complementary to those identified in animal models.

3.2 Develop and test cell-based therapeutic approaches for the disruption of neural stem cells and neural precursor cells forming the ventricular zone and subventricular, respectively, and correlate this disruption with cognitive and behavioral disturbances.

3.3 Determine the involvement of inflammatory biomarkers, neural cell health markers, and others (genomics, proteomics, lipidomics, microRNA) in CSF and blood in neuropsychological outcomes associated with hydrocephalus.

3.4 Identify and test pharmacological treatment strategies that either replace or supplement surgical intervention to improve the long-term cognitive and neuropsychological outcomes in both small and large animal models of hydrocephalus.

3.5 Develop valid cognitive and behavioral tests that can be used in small and large animal models of hydrocephalus in an unbiased manner.

3.6 Further develop and characterize large animal models of hydrocephalus with brains of similar structural complexity to those of humans to directly assess surgical interventions and outcomes.

3.7 Create batteries of standard behavioral tests and common data elements that can be used to study long-term effects of treated or untreated hydrocephalus in large animal models.

Table 4) Research priorities for the longitudinal care of persons with hydrocephalus

4.1 Develop and evaluate the effectiveness of clinical pathway care models for those with congenital or pediatric-onset hydrocephalus during their transition from living as dependents to independent members of society to ensure that individuals are equipped with the knowledge and resources necessary to navigate demands of advanced schooling and employment and empower them to assume greater responsibility of their own medical care.

4.2 Develop and evaluate the effectiveness of multidisciplinary clinics for adults with hydrocephalus, which incorporate neuropsychological expertise and cognitive data to assist with diagnostic differentials, treatment planning, and long-term monitoring.