TRANSFORM HF | Digital Innovation for Heart Failure Care

SEED GRANTS: 2023 PROGRAM GUIDELINES

Background

TRANSFORM Heart Failure is an interdisciplinary strategic research network that was formed to confront the staggering health, economic, and societal burdens and disparities that exist in access to high-quality heart failure care. New approaches and models of care are needed, with promising indications that technological advances in digital medicine and remote healthcare monitoring will enable proactive, personalized, and decentralized solutions that also empower patients to become more active in their own health.

Our initiative fosters collaboration and integration of various disciplinary research and training approaches: technology innovation and implementation, basic science, heart failure medicine, data analytics and artificial intelligence, health technology assessment, Indigenous health, and engagement of people with lived experience. Together, we aim to create both a translational pipeline of innovative approaches and an interdisciplinary community sharing a mindset and commitment to implement these solutions in a respectful and collaborative fashion appropriate to diverse communities and values.

Seed Grants

TRANSFORM HF is offering a seed grant to encourage, foster, and support members of our community working collaboratively on research and project proposals that align with our initiative's goals and approaches.

One $70,000 grant is available for the 2023 competition, renewable for a second year on successful completion of Y1 deliverables. Total award value is up to $140,000 over two years.

Research Themes:

1. Field-ready point-of-care diagnostics
2. Wearables and embedded sensors / remote monitoring
3. Data science innovation in heart failure prevention, treatment, or care
4. Digital health implementation

Regardless of Research Theme, the project *must* advance health equity and incorporate inclusion, diversity, equity, accessibility and anti-racism (IDEAA).

Note: TRANSFORM HF will also have two $60,000 grants available in the University of Toronto's EMHSeed/XSeed 2024 competition, launching in January 2024.

Duration

February 1st, 2024 – April 30th, 2025 with possibility of renewal for an additional year at $70,000 to April 30th, 2026.

Eligibility

This competition is intended to extend the breadth and reach of the TRANSFORM HF network. As such, proposals must be co-led by two Principal Investigators:

- One PI must be affiliated with the University of Toronto (U of T) and/or institutions within the Toronto Academic Health Science Network (TAHSN).
- The other PI must be affiliated with a university or academic health organization outside the U of T/TAHSN network.

Eligible PIs include all professorial staff eligible to hold research funding at their respective universities or external funding partners. Up to 50% of award funding may be provided to external collaborator/investigator(s) outside U of T/TASHN.

All applicants and collaborators must be members of TRANSFORM HF (to learn about joining the TRANSFORM HF network, please visit our website). Applications by non-members will be disqualified prior to peer review.

Applicants with previous TRANSFORM HF funding must have satisfied all conditions of existing funding as outlined in the Acceptance Form to qualify for additional/new funding.

Application requirements

Please complete the Application Form, also available on the Opportunities page of the TRANSFORM HF website.

Applicants must briefly describe their project, the research theme it aligns with (listed below), collaborators, and its potential impact on the health outcomes and quality of life of people living with heart failure. **Applications must bring together a diversity of perspective and disciplines in developing digital health innovations and projects, deepening and expanding the TRANSFORM HF network and its potential impact.**

Themes of research proposal

Applicants should align their proposal with the most relevant theme to ensure the greatest opportunity for success.

Theme 1: Field-ready point-of-care diagnostics

Several well-established chemical biomarkers for heart failure are commonly measured in blood. As per the Canadian Cardiovascular Society and Canadian Heart Failure Society, measurement of biomarkers in centralized labs is routine clinical practice. Unfortunately, there are disparities in access to heart failure biomarker diagnostics across Canada, with inequities most pronounced in structurally disadvantaged groups and less populated areas. Projects under this research theme should strive to translate diagnostics for biomarkers from lab to field through development of point-of-care devices and portable instrumentation, with the intent to identify cutting-edge new heart failure determinants relying on combinations of markers, potentially improving standards of HF care for all.

Theme 2: Data science innovation in heart failure prevention, treatment, or care.

Leverage data science and statistical techniques (e.g., data mining, data visualization, artificial intelligence and machine learning) using large and complex data sets to enable precise exploration and analysis of the genetic, developmental, behavioural, contextual, environmental, and societal factors of heart health and well-being for individuals and populations.

Theme 3: Wearables and embedded sensors / remote monitoring

A suite of biomarkers and physiological metrics are used in heart failure diagnosis and monitoring. Projects under this theme should focus on translating these biomarkers and metrics from the lab to the field via wearable diagnostic technologies that seamlessly integrate into everyday life, helping keep patients safe at home. This may include smart textiles, mobile apps, and technology that syncs with consumer devices. TRANSFORM HF looks to support the development of novel biosensors with consideration for *all* people living in Canada and integration of such devices into models of care.

Theme 4: Digital health implementation

Many digital health innovations with promising research findings fail to progress to standard of care in clinical practice, often due to implementation barriers given complex, heterogeneous healthcare settings, and resource and capacity limitations. These are magnified in communities that have historically faced systemic challenges to equitable healthcare access. Projects under this research theme should seek to advance the co-development of diagnostic and monitoring devices suited to underserved and remote communities in a breadth of healthcare settings, with the intent to ultimately support the sustained and scaled use of digital health innovations.

Inclusion, Diversity, Equity, Accessibility and Anti-Racism (IDEAA)

Regardless of Research Theme, the project must advance health equity and incorporate IDEAA. This may include exploring and addressing health inequities experienced by First Nations, Inuit, and Métis, including urban Indigenous communities, racialized communities, or other underrepresented communities of individuals. Research *must* include and promote an inclusive, culturally-safe, and meaningful engagement with underrepresented or other groups inequitably affected by heart failure and poorer health outcomes and quality of life. See U of T's VPRI website for definitions and resources on the importance of IDEAA in research and innovation.

Additional considerations for collaboration/project/research proposal development

Teams are encouraged to incorporate sex and gender-based analysis and reporting, patient and community engagement, and Indigenous knowledges and research methods into their projects as appropriate. Such considerations are integral to realizing the vision of TRANSFORM HF, which is built upon a foundation of diversity, health equity, and inclusion.

Sex and gender-based analysis and reporting

Applicants are required to integrate sex and gender-based analysis (SGBA) in their project or research design. Any application that does not incorporate SGBA must provide a rationale for why it would not be relevant to the project. All applicants are strongly encouraged to complete CIHR's Institute of Gender and Health training modules: Online Training Modules.

Patient and community engagement

TRANSFORM HF is committed to engaging patients in their care and in decision-making to improve the quality and safety of care across the hospital. Applicants are required to illustrate how they intend to meaningfully engage patients in their project. Any application that does not engage patients must provide a rationale for why it would not be relevant. TRANSFORM HF can support recruitment of patients, caregivers, and family members if the applicant does not have access.

Community-oriented initiatives must ensure community engagement in the planning, delivery, and evaluation of health programs and technologies. In particular, projects involving Indigenous

organizations and communities must develop meaningful relationships with Indigenous people and communities, ensuring a sense of accountability, reflexive allyship, and "an ability to step aside and allow Indigenous people to lead."[1]

Evaluation criteria

Applications will be assessed against the following criteria:

- **A clear and impactful overarching goal:** High quality research proposal with a clear end goal, such as a key finding, a compelling prototype, or a persuasive data set that paves the way for larger funded projects.
- **Excellence in research:** Project's scientific excellence, novelty, and ability to solve an important, unsolved problem; evidence of established or emerging leadership of research team.
- **Alignment with the research theme and overarching vision and goals of TRANSFORM HF.**
- **Expansion and deepening of the TRANSFORM HF network** and its potential impact beyond TASHN and University of Toronto.
- **Collaboration:** Demonstration of how the project will increase breadth and depth of collaboration/collaborators in the TRANSFORM HF network; extent to which the team represents diverse perspectives and disciplines.
- **Inclusion:** Appropriate and explicit incorporation of SGBAR, patient and community engagement, and EDI as appropriate.
- **Gateway to major funded partnership or translation:** Extent to which project lays foundation for major funding opportunity, partnership, commercialization, or other significant translation of its findings.

Application submission

Please submit the completed Application Form by **December 18, 2023 at 5:00pm EST** as a single PDF document via email to info@transformhf.ca. Receipt of complete/on-time submissions will be acknowledged. Incomplete or late applications will not be accepted.

Applicants are asked to complete an anonymous survey to ensure that our programs include considerations for IDEAA. The questions are voluntary, and the information collected will not be used to evaluate any individual or application. It is collected and held by TRANSFORM HF and shared as de-identified, aggregated information to inform TRANSFORM HF's reporting and best practices.

Consult the TRANSFORM HF website for further information or email info@transformhf.ca with any questions.

Applicants will be notified of the results of the competition in February 2024.

Successful applicants may be featured in TRANSFORM HF communications and reporting, and additional supports to the collaboration may be available as it progresses.

[1] Hyett S, Marjerrison, S, Gabel, C. Improving health research among Indigenous Peoples in Canada. CMAJ 2018 May 22;190:E616-21. doi: 10.1503/cmaj.171538.