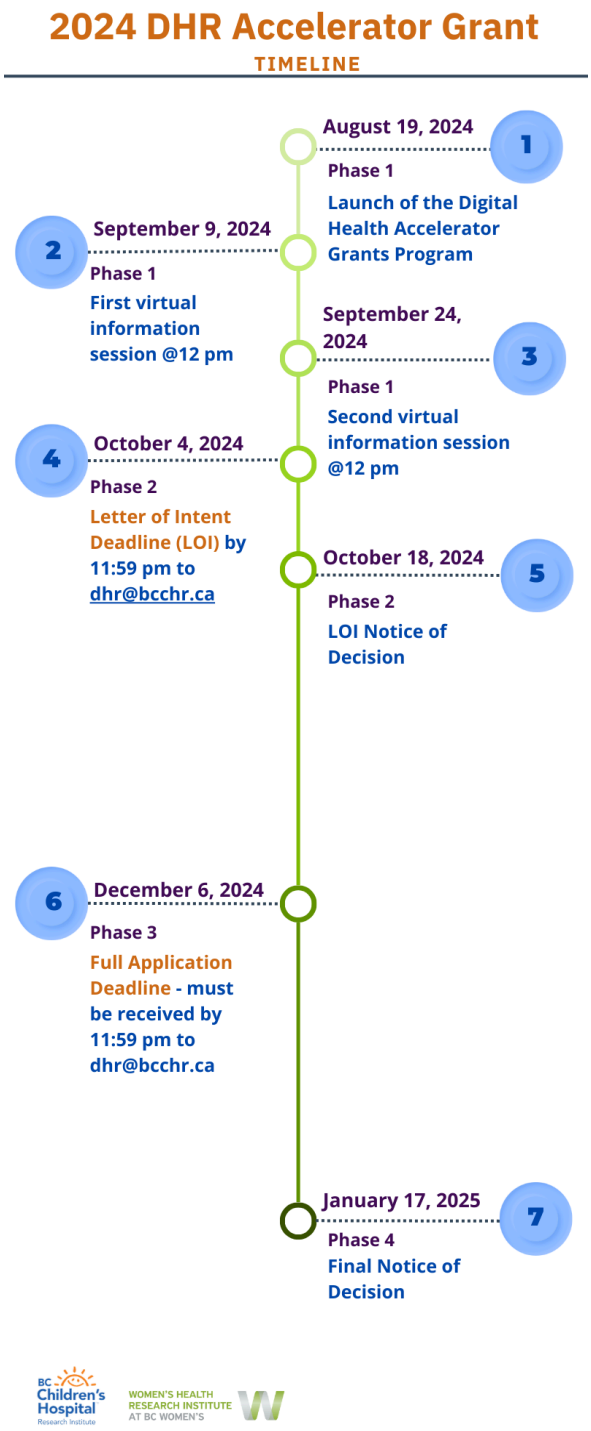
C&W Digital Health Research Accelerator Grant



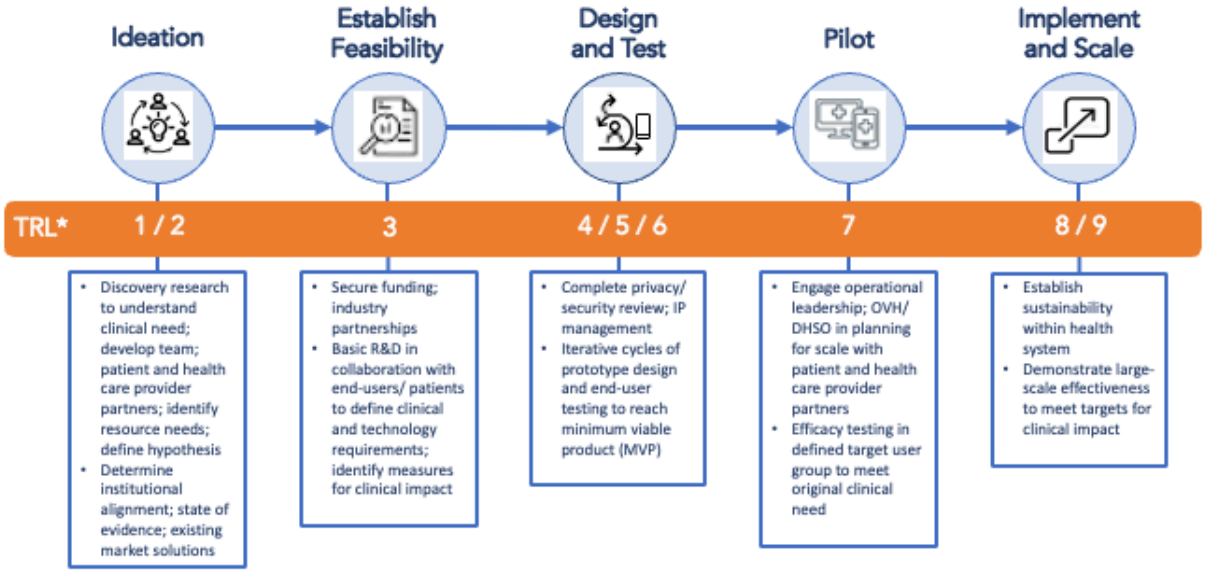
Highlight

- Total funds available for **primary competition**: $300,000 in total (A maximum of $50,000 for each grant for over 18 months, six grants in total)
    - $200,000 for Children's Health focused projects and $100,000 for Women's Health focused projects
    - Priority topic for one award - data mining in Children's health
- **Additional directed call** for partner awards through the Digital Lab at BC Children's and Women's Hospital with total funds available: $150,000 in total ($75,000 cash and $75,000 in-kind)
- Letter of Intent (LOI) Deadline: October 4, 2024, 11:59 pm PDT
- Full Application Deadline: December 6, 2024, 11:59 pm PDT
- Anticipated Final Notice of Decision: January 17, 2025
- Funding Start Date: Grant funds will be released upon applicable ethics approval.

Description

The BC Children's Hospital Research Institute (BCCHR) and Women's Health Research Institute (WHRI) have established Digital Health Research (DHR) as a joint strategic initiative. The CW DHR initiative invites WHRI or BCCHR researchers to submit proposals for the 2024 DHR Accelerator Grant program.

The CW DHR Accelerator Grant is intended to support digital health innovations that will benefit women, children and families. This funding opportunity aims to accelerate digital health solutions towards clinical or community implementation by supporting researchers to develop prototype solutions, test feasibility in the operational context, assemble the required partnerships and teams, develop clinical and/or operational evidence, and create a plan for sustainment and scale-up. These activities are essential for projects to successfully continue on a trajectory from research to adoption at scale. It is hoped that the solutions created through this funding program can be generalizable, repeatable, and have the potential for application to other diseases, patient populations, specialties/departments, and challenges.
In assessing progress to operational implementation, we consider the innovation life cycle and technology readiness levels as shown in Figure 1.



*Technology Readiness Levels

Goal

The goal of the Accelerator Grant is to support investigators through **any stage of product development**. This can include (and is not limited to) idea development, patient and end-user engagement for co-design, prototyping, and usability evaluation of new digital health tools as well as to support the testing, trial, and evaluation of promising solutions during the implementation and commercialization stage. We envision our funds supporting clinicians and researchers with digital health product ideas that need both financial and HR support to further their work.

General Application Requirements

Applicants for funds can apply at any Technology Readiness Level but are required to advance your project's TRL by at least one level from its original state by the end of the funding cycle. All projects of the DHR Accelerator Grant should align with the following criteria:

- Have clear significance for women's, children's or families health, and/or clinicians by targeting one or more of the following impacts:
    - Improve physical or mental health outcomes
    - Improve the healthcare experience for patients
    - Empower patients and provide them agency to become active participants in their own care
    - Improve the experience and satisfaction of clinicians providing care
    - Reduce costs and increase value through other efficiency improvements in service delivery and outcomes
- Accelerate DHR projects towards clinical implementation, adoption, sustainment, and scale

- Provide investigators with the opportunity to conduct collaborative and multi-disciplinary digital health research projects
- Align with at least one of the strategic directions, guiding principles, and objectives mentioned in the BC Digital Health Strategy and/or themes listed in the RAPID (Research Agenda for Perinatal Innovation & Digital health) research agenda.

Patient impact is at the forefront of this DHR Accelerator Grant. Therefore, funded projects will take a patient-centric approach at every stage, from understanding health problems and needs, iteratively designing digital health solutions, planning and conducting research, and designing patient-oriented clinical implementation. Patient and family voices are key: patients and families/ caregivers must be meaningfully included partners in the research and development of solutions. This participatory, inclusive approach will be essential on the roadmap to empower patients and families/caregivers to become active research partners and drivers of their own care.

It is expected that projects and technologies proposed for the DHR Accelerator Grant have already engaged patients and families in earlier design and testing iterations. Further guidance on patient-oriented research can be found on the CIHR Strategy for Patient-Oriented Research website: https://cihr-irsc.gc.ca/e/45851.html

Working with patients/families requires that projects are developed and conducted in an ethically and culturally appropriate manner. Therefore, applicants must be intentional about addressing Equity, Diversity, and Inclusion (EDI) principles by including description of specific initiatives, measures, and actions that enable, empower, and educate patients and families/ caregivers to participate actively, no matter their health, gender, sexuality, race, ethnicity, or socio-cultural/economic status. Further guidance on EDI for researchers can be found on the CIHR Equity, Diversity, and Inclusion Resources website: https://cihr-irsc.gc.ca/e/51709.html

Implementation of new technologies and programs requires engagement, collaboration, and support from various partners and collaborators including clinical, academic, operational, hospital leadership, patients and families, industry partners, and PHSA. **For this reason, we encourage all teams to include partners from across these groups.**

All applicant teams **must** involve a “decision-maker dyad” covering operations and clinical leadership (e.g. two of: clinical operations director, program manager, senior operational leader, and medical director or division head), and, for the full proposal, have project sponsorship from the relevant executive sponsor (e.g. hospital executive director or higher). It is strongly encouraged that industry partners (and any in-kind contributions) be identified or engaged early in the process as well.

This grant is supported by donors to BC Children’s Hospital Foundation and Women’s Health Foundation.

Priority areas in the Accelerator Grant and partner funding opportunities with the Digital Lab

For the 2024 competition, the DHR Accelerator program has identified one priority topic through the Children's health funding stream and three additional priority topics to be funded through partnership with the Digital Lab. All priority topic applications will be reviewed and evaluated using the same application forms and rubric as the primary DHR Accelerator awards.

In the Children's health stream, one award ($50,000) will be given to specifically support a project **using a data-driven approach to generating insights into children's health (Data Mining)**. This projects should have at least one of the following aims:

- Apply *advanced analytics* to extract meaningful information from data to improve the health of children at PoC.
- Provide a more integrated and *predictive system of care* and a more holistic data-driven approach to care.
- *Empower and educate* patients and families in BC to participate as partners, data contributors, and citizen data scientists.
- Exploit *digital technologies to apply predictive systems at the point of care* that enable a more efficient, seamless hospital and home care experience for children across BC.
- Applies a *Learning Health System (LHS) approach* through creation of a data feedback loop to implement, evaluate and improve a predictive system at the point of care
- Describe *health economic impact of LHS* and data-driven point of care application

Investigators submitting a project under this priority area are asked to self-select the priority area on their LOI and will also be automatically considered within the general Children's Health stream.

Additional priority topics are being funded through partnership with the Digital Lab at BC Children's & Women's Hospital. These priority topic awards are open to any investigator or clinician at BCCHR/WHRI or BC Children's & Women's Hospital. Priority topics for are:

1. **Precision Surgery** – goals of the project must be aimed at improving surgical outcomes by including any one or more of the following components:
    a. leveraging computational surgical planning,
    b. advanced image processing,
    c. three-dimensional (3D) printing, and/or
    d. digital intraoperative guidance.
2. **Immersive Technologies** – goals of the project must be aimed at improving patient outcomes through the use of immersive media, including virtual reality (VR), augmented reality (AR), or other advanced multi-modal virtual experience.
3. **Perinatal Health Literacy** – goals of the project must be aimed at improving parental knowledge, motivation, and skills to access, understand, appraise, and apply health information to make decisions related to mother/baby health.

Prospective funding for each partner project through the Digital Lab will be $25k in restricted cash funds (per DHR eligible cost criteria) and $25k in in-kind technical resources from the

Digital Lab. Teams applying to the partner funding opportunities are required to consult with the Digital Lab prior to submission of an LOI. Please contact team@digitallab.org for more details.

Important dates

August 19, 2024: Launch of the Digital Health Accelerator Grants Program
All applicants are encouraged to schedule a 1-hour meeting with the DHR team to discuss their project plan and seek advice.

The DHR team will host two virtual information sessions and Q&A for applicants on the following dates:

- September 9, 2024, at 12 pm
- September 24, 2024, at 12 pm

More information about these sessions, along with dial-in information, can be found on the Hub:https://hub.bcchr.ca/display/SI/Digital+Health+Research+Accelerator+Grant

October 4, 2024: Letter of Intent Deadline
The LOI form must be received via email by 11:59 PM (PST) on October 4, 2024.
Submit LOI to dhr@bcchr.ca.

October 18, 2024: LOI Notice of Decision
Notification of LOI results will occur by October 18, 2024. The top-ranked applicants will be invited to move forward with a full application.

December 6, 2024: Full Application Deadline
The full application package must be received via email by 11:59 PM (PST) on December 6, 2024.
Submit application to dhr@bcchr.ca.

January 17, 2025: Final Notice of Decision
Notification of awards will occur by January 17, 2025, at which point funding will be made available when all conditions of the award are met.

Award Value and Funds Available

The total funds committed for the competition are $300,000.

$200,000 from the BC Children's Hospital Foundation and $100,000 from the Women's Health Foundation. Proposals will be considered for a maximum of $50,000 each. The distribution of awards will be determined based on overall project rankings.

Eligibility

Project teams must include multidisciplinary expertise, as defined below, with early engagement and inclusion of patient/family/caregivers and clinical, operational, and industry partners.

Previous recipients of Accelerator grants from past rounds are eligible to apply. If this new application is related to the previous award project they will be required to provide documentation describing how they achieved deliverables from their first round of funding. Applicants will be ineligible for funding if the proposed project has existing funding from another source (e.g CIHR). The proposed project can be an extension of an existing research project but must be novel and not currently funded by any other source.

Required team composition:

- *Principal Investigator* (PI): The PI must have current Investigator status with the BCCHR or WHRI and hold a university faculty position (e.g. assistant professor, clinical assistant professor, or higher). At least the PI or one of the co-Is must be a clinician (e.g. doctor, nurse, psychologist, etc.). PIs can be collaborators on multiple applications but a PI on only one application. ***For Digital Lab partnership projects PI can include anyone affiliated with BCCHR/WHRI/BCW/BCCH and is not limited to current investigators.**
- *Co-investigator* (co-I): At least one co-I must hold a differentiated skill set and disciplinary perspective. For example, a clinician involved in direct patient care and be from a different professional discipline than the PI.
- *Operations Lead + Medical Lead Dyad (or equivalent roles, e.g.* clinical operations director, program manager, senior operational leader, and medical director or division head*)*: The project team must include both a senior operations leader and a medical leader who are involved in planning and implementation of the project, and who are decision-makers in the clinical environment where solutions are to be implemented. Involvement by such stakeholders directly in the project is essential for successful project implementation.
- *Executive sponsor*: For the full proposal stage, applicants must have an executive sponsor (e.g. BCCH CMO or COO minimum executive director level or higher, etc.) who confirms their support for the project (e.g. letter of support).
- *Patient and family/caregiver representatives:* Teams must involve patients/families for any project proposal that involves a digital health product that impacts patient care or experience, and should use a “human-centered design” approach. Patient and family representatives must be involved in the co-development of research projects, from testing through implementation. Applicants at the LOI stage can describe patient engagement to date, while patient representatives/partners must be listed in the full proposal.

Additional recommended team composition:

- *Other co-applicants* or collaborators from BCCHR/WHRI and other institutions
- *Trainee*: At least one of: undergraduate or graduate student, postdoctoral or clinical fellow, with a clear plan for building that trainee’s knowledge and expertise in digital health and implementation science. The expansion of digital health in the healthcare

system requires that clinicians, researchers, engineers, and others are trained and comfortable with digital health innovations.

Clinical adoption of digital health technologies must address considerations about data security, privacy, and other issues. Therefore, the project team could include:

- *Industry partner:* Engaging industry partners early in the planning phase will allow teams to rapidly prototype technology solutions and tailor them from the beginning, as well as pursue (in-kind) support and contributions, ensuring the success of research projects in the short term and making clinical adoption in the long term a possibility.
- *Health system stakeholder engagement:* It is important to engage with technology stakeholders in our healthcare system (e.g. Provincial Digital Health and Information Services, etc.) early to understand the requirements and evaluation processes on the operational side before planning what technology will be used in the project.

Budget

The DHR program manager is available to support budget development.

Eligible Costs

- Salary support for trainees, staff, and technicians
- Expenses directly associated with project conduct (material, supplies, and services)
- Patient/family recruitment costs and remuneration, as outlined in the CIHR SPOR Patient Partner Appreciation Policy and Protocol
- Database development (cost-recovery) for justified data collection beyond existing services available through BCCHR IT and Data Management teams
- Publication and dissemination expenses

Ineligible Expenses

- Travel and conference expenses (team members, trainees, partners)
- Salary support for investigators (PIs, co-Is, other faculty)

Conditions of Award

Project Term

The project term is expected to be 18 months.

Awards are standalone and not automatically renewable; any unused funds at the end of the term must be returned. However, no-cost extensions will be considered based on submission of a progress report and rationale.

Ethics Approval

Grant funds will be released upon applicable ethics approval. Support for ethics application preparation is available from the Digital Health Program Manager and/or CRSU, if needed (see additional resources).

Follow-on Funding

Awardees are not guaranteed follow-on funding.

Communication Requirements

All DHR Accelerator Grant award recipients must:

- Actively engage the DHR Program Manager as a team member to support progress toward project deliverables
- Provide brief quarterly progress reports to the DHR Team and a final report upon project completion.
- Present their study progress or findings at a minimum of one internal (BCCHR/WHRI) event.
- Acknowledge the BCCHR/WHRI and its digital health strategy in all communications, presentations, and publications related to the project.

Review Process

Proposals will be reviewed by a multidisciplinary selection committee that will include clinicians, researchers, operational partners, industry partners, and patient partners. Applicants should keep this audience in mind and explain the research project clearly.

Additional Resources for Proposal Development and Project Execution

Several additional resources at WHRI/BCCHR and UBC have been identified to support investigators in developing and executing their projects. Please see the additional resource page.

Evaluation Criteria

DHR Accelerator Grant applicants are assessed using **three criteria** (see Table below): 1) Scientific rigor and alignment with BCCHR digital health research objectives; 2) potential impact; and 3) feasibility for implementation and scale.

Note: **a defined sustainability plan is not expected for any project that TRL<=5,** but teams should be able to demonstrate potential for longer-term sustainability when their grant objectives are met.

1. Scientific Rigor	
Need	Is there a therapeutic, operational, patient experience, or service delivery/design need? Is the project rooted in a sizable, measurable, compelling, and identifiable problem and need - has this been properly defined and quantified? Does the team have a strong rationale and background understanding of the problem?
Objectives	Are the objectives specific, measurable, achievable, relevant, and time-bound (SMART)?
Methodology	Are the methods, and analysis plan of the research clear, appropriate, and robust?
Outcome Measures	Are outcome measures clearly defined that are patient-oriented (e.g. clinical outcomes, patient experience/satisfaction, etc.) and/or relevant to achieving improvements in quality as defined by the Quadruple Aim (See [1],[2])
Fit	Is the research a strong fit with the BCCHR digital health research objectives and have clear significance to women's, children's or family health? (See DHR)
Patient Centric	Does the project engage patient voices and include patients as collaborators, partners, and co-developers in a meaningful way? Does the project take a patient-centered design approach when understanding needs, developing solutions, conducting research, and considering a patient-oriented implementation? Does the proposed solution empower patients/families to become active participants and drivers of their own care?
Novelty	Does the project demonstrate novelty in approach, technology, and vision?
Equity, Diversity, and Inclusion	Are equity, diversity, and inclusion objectives and considerations meaningfully included in the proposal? What specific initiatives, actions, and measures will be put in place that ensure equitable benefit from this digital tool? Is the project ethically- and culturally-appropriate, and conducted with this in mind?
2. Potential impact:	
Impact for patients	Are the short-term and long-term impact for patients and families clearly defined? What is the scale of the patient population that this project affects?

[1] Bodenheimer T, Sinsky C. From Triple to Quadruple Aim: Care of the patient requires care of the provider. Ann Fam Med 2014;12:573– 6

[2] https://otn.ca/wp-content/uploads/2019/08/eConsult-Using-the-Quadruple-Aim-Framework-to-Measure-Impact-of-Heath-Technology-Implementation.pdf

Impact on clinical operations	What is the near-term and long-term impact for clinician satisfaction and clinical operations (e.g. quality improvement, safety, workflow efficiency, cost-savings, etc.)?
Impact on research community	What is the short-term and long-term impact for the research community?
Potential for wider uptake	Does this project create a generalizable, repeatable outcome that has potential for application to other diseases, patient populations, specialties/departments, and problems? Does the project have an operational outcome (e.g. improved data access, infrastructure, or platform) that can benefit the wider research or clinical community?
Knowledge Translation Plan	Is there a plan for dissemination of findings for the patient population, research community and clinical operations/decision-maker community?

Feasibility for Success:

Change Management	What is the degree of change needed to improve patient care or health system outcomes through this project, and what is the organizational readiness for this kind of change? Have the necessary partners and decision-makers been engaged to support this change?
Sustainment	Is there potential for attracting additional funding or industry matching? What does long-term scale look like? Is there a strong PHSA business case? Is there a commercial opportunity?
System Alignment	Is there alignment with BC health system priorities? Is there alignment with operational and clinical leadership priorities at the hospital, PHSA, and MoH levels. Is there an executive sponsor already? What other stakeholder support currently exists?
Team and Partners	Does the team have the relevant skills, expertise, capacity, and experience? Does the team have the capacity to lead and manage the project? Are the right partners involved and or identified for project implementation? Does the team have the required networks, access, allies, and influence to create the necessary change? Is there an operational leader involved as a partner?
Feasible Plan	Is there a logical, high-level project plan with a clear sense of where to start? Are the activities feasible and achievable in 18/24 months? Are there clear milestones and metrics defined to assess progress and success, and manage the project throughout? Have risk management and mitigation been well thought out?
Budget	Are budget items appropriate and justified?

How to Apply

Applicants must submit a Letter of Interest (LOI). Please use the LOI template to guide your application.

Letter of Intent Instructions

Please use the LOI Template document and use a maximum of two pages plus one page of references, if needed; anything beyond two pages of project description will not be considered.

Full Proposal Instructions

Please use the appropriate Full Proposal Template document and use a maximum number of pages described for your competition. Anything beyond the defined page limit will not be considered.

The DHR Team is here to support researchers in scoping out a successful project, including planning the research, identifying potential partners (industry, funding, clinical, leadership), and throughout the implementation and scale process. We encourage all applicants to schedule an initial consultation with us before completing and submitting their LOI.

Please submit the completed LOI as an attachment to dhr@bcchr.ca, and feel free to connect with any questions about the program.

Formatting

Please use the following formatting guidelines when preparing both the LOI and the Full Proposal:

- Please submit documents as .pdf or .docx/.doc (Microsoft Word) files
- Letter size paper: 8.5 x 11” (21.2 x 27.5 cm)
- 2 cm margins on all sides
- 11-point font, single-spaced text