

Waterloo Regional Health Network (WRHN) and University of Waterloo

Innovation Challenge Reducing Emergency Department (ED) Wait Times



The Challenge

Background

Like many hospitals across Ontario, Waterloo Regional Health Network (WRHN) faces Emergency Department (ED) wait time challenges. Over the years, our Hospital has implemented various strategies that include, but are not limited to: fast track, introduced a geriatric emergency medicine (GEM) role and advanced screening for at-risk older adults, streamlined triage and registration processes, implemented an electronic health record, and many more strategies aimed at improving patient flow and ED wait times. Despite our efforts, ED wait times for non-admitted patients remain challenging, impacting care outcomes and the patient and provider experience.

WRHN and the University of Waterloo recently formed a partnership, Care Next Coalition, to align the efforts of the Hospital and the University to increase the readiness of our local health-care system to support research and innovation. It brings clinicians, researchers and entrepreneurs together to create educational programming, test drive technological advances, and create integrated care systems to reach people where they are. The coalition harnesses the strength of the Region's public institutions to improve patient experience, improve health outcomes, and transform the health-care system.

WRHN, in partnership with the University of Waterloo, has a rare, unique, and exciting opportunity to lead the way in transforming ED flow across the province. By partnering with innovators, solution developers, and industry partners, we aim to co-design and test innovative system-wide solutions in a carefully designed pilot, ensuring safety, feasibility, and real-world impact that will transform ED flow and inform public policy. Validated, impact-driven solutions will be presented and proposed to the Provincial Government and funding partners for funding and broader implementation.

What is Procurement by Co-Design?

The Innovation Partnership: Procurement by Co-Design Program (IPPCD) introduces an innovation procurement approach that enables health-care providers to procure innovative service and technology solutions using design challenge principles.

In contrast to traditional procurement, providers seek solutions by publicizing a "Challenge Brief" that vendors can respond to. Following vendor selection, providers and selected vendors work together in a design and prototyping phase to co-design and then evaluate solutions, leading to a procurement decision (positive or negative). It allows providers to

collaborate with one or more vendors and work together before a procurement decision is made.

Co-Design Principles

Participants should be willing to follow the co-design principles of:

- **participation:** co-design is a collaborative process in which as many stakeholders as possible have input
- **development:** co-design evolves as a process, maturing and adapting as it takes place
- **co-ownership and power:** co-design involves a transformation of ordinary power relations between stakeholders and aims to generate collective ownership
- **outcomes and intent:** co-design has a practical focus, notwithstanding that unplanned processes and transformations are likely to occur as collateral effects of the process

How does it work?

In contrast to the competitive bidding procurement approach commonly used in the health-care system, this novel procurement approach allows providers to work directly with one or more vendors in a design challenge methodology to design, test, evaluate, then select a final solution for procurement. The approach consists of 3 phases:

- **Initiation**
 - Health-care provider publishes a challenge
 - Vendor responds
 - Shortlisted vendors invited to dialogue day
 - Provider selects vendor(s) to move into the next phase, sign collaboration agreement
- **Design & Prototyping**
 - Provider and vendor(s) collaborate together in a discovery > design > prototype > evaluation cycle
 - After several iterations, a final evaluation is conducted

- **Propose**
 - Favourably evaluated solution(s) are presented and proposed to the Provincial Government and funding partners for funding and broader implementation.
- **Procure**
 - Favourable solutions may be procured at the local or system level

*NOTE: our teams may select multiple vendors to co-design multiple solutions for one challenge during the design and prototype phase.

Problem Statement

Emergency Departments (EDs) continue to serve as the default access point for care, even for ambulatory patients who do not require ED-level resources. Patients lack timely and accessible alternatives such as urgent primary care, specialists and other community services, after-hours services, or virtual care options. This unpredictable demand leads to misalignment between patient arrivals and hospital staffing capacity, contributing to long wait times, care delays, and resource allocation inefficiencies. Patients who delay seeking care due to perceived ED wait times face poor care outcomes, further increasing system strain.

Without a coordinated system-wide approach, EDs will remain overburdened with avoidable visits, delaying access for higher-acuity patients and exacerbating clinical risks associated with delayed treatment and overcrowding. Addressing these gaps requires innovative diversion strategies, improved alignment between demand and staffing, and strengthened integration with community-based care.

Root Causes

- **Coordination and Communication:**
 - Coordination between hospital EDs and community-based care.
 - Disconnect between hospitals and external providers.
 - Lack of communication with community partners regarding ED visits and discharges.
 - Discharge planning and referrals lack real-time coordination.
- **Patient Access and Care Alternatives:**
 - Limited access to after-hours community services and primary care.
 - Many patients rely on EDs due to a lack of community-based urgent care alternatives.

- **Operational Challenges:**
 - Systemic challenges affecting patient flow and case management.
 - Process bottlenecks and space constraints impacting efficiency.
- **Financial and Funding Constraints:**
 - Funding limitations impacting staffing and resources
 - Financial incentives that do not support efficient patient flow
- **Technological and System Integration:**
 - Ineffective use of data analytics for predicting patient volumes
 - Lack of real-time patient flow and triage management tools.
 - Electronic Health Record and referral systems lack seamless integration.
 - Lack of advanced notification (outside of EMS)
- **Accountability and Resource Allocation:**
 - No accountability mechanisms for timely patient follow-up in community care.
 - Challenges with resource allocation and advanced notification (outside of EMS).
- **Patient Navigation and Education:**
 - Limited patient education on appropriate use of ED
 - Limited patient navigation support for those with complex needs

Stakeholder Groups

Patients and families, hospital staff (nurses, physicians, support staff), hospital administration, and community healthcare partners (EMS, primary care providers, walk-in clinics, and specialty clinics).

Challenge Goal

Desired Outcome: Develop a scalable solution (that includes technology, innovative workflows, and/or organizational changes) to effectively manage ED wait times, with the potential to influence public policy.

Expected Impact:

- Alternative options for non-urgent care
- Reduced ED wait times for all patients
- Improved time to physician's initial assessment
- Improved flow and reduced crowding
- Improved integration and communication with community partners

- Optimized resource utilization
- Improved clinical outcomes by minimizing delays in treatment
- Enhanced patient and staff experience
- Improved access to care for minority and vulnerable groups
- Improved community partners' experience in managing urgent matters

Target Audience

- Innovators, solution developers, healthcare technology companies, interdisciplinary teams, and other industry partners interested in health care optimization.

Expertise and Skills

- Expertise in health care operations, digital health tools, emergency management, patient flow dynamics, and technology integration.
- Ability to design scalable and sustainable solutions for health care settings.

Challenge Scope

Within Scope:

- Digital health and/or innovative process/service
- Can be rapidly co-designed and prototyped/tested
- Have minimal or no cost to design and micro-test
- Are suitable for testing in the context of intended use

Examples of suitable solutions:

- Diversion solutions focused on triaging and diverting patients to community resources
- Pre-ED diversion strategies (directing patients to the right level of care before they arrive at the hospital)
- Innovative workflows
- Technology enabled solutions for real-time patient monitoring and flow management
- Innovations focused on improving patient registration and triage
- Real-time patient monitoring solutions
- Solutions addressing communication and collaboration among health care teams
- Funding models and accountability structures for community-based care

Outside Scope:

- Changes requiring extensive structural renovations or significant capital investments

Technical Constraints

Our priority is that any innovative solution aligns with Canadian law. However, we are open to exploring and co-designing all proposals, recognizing their potential to shape public policy.

Evaluation Criteria

Company

Has the company demonstrated the competency to act as a partner? Do they have an innovative vision? Do they have a strong leadership team? Do they have strong references?

Proposed approach

Is the proposed approach to the challenge innovative? Do you agree that it can tackle the challenge proposed? Will it have a significant impact on the end user (staff, patients, etc.)?

Ability to execute

Has the company demonstrated the ability to deliver a solution to other complex challenges? What have been the outcomes of solutions they have implemented?

Ability to produce validation data

Has the company demonstrated their ability and expertise to produce validation data? Have they shared an example of data they have produced for any of their products or prototypes? Is the quality of that data sufficient enough to make a procurement decision?

Experience of project team

Does the team have experience working on innovative solutions? Did the company propose the right type of project team to take on this engagement?

Instructions for Innovators

1. Innovators are expected to collaborate closely with our teams and other vendors to co-design and refine solutions, ensuring alignment with our organizational needs and goals and system-level scalability.
2. Flexibility and adaptability are critical to the success of this initiative. Proposals that lack the willingness to work collaboratively or adjust to feedback will not be considered.

We are open to all ideas that demonstrate potential for meaningful impact and are eager to explore creative solutions that can inform public policy.

How to Apply

Interested Vendors can respond to the Challenge Brief by submitting a Vendor Brief by **May 7, 2025**, 12:00 a.m. (midnight) to innovationchallenge@grhosp.on.ca

The Vendor Brief is a concise document that consists of:

1. Company “Elevator Pitch”
2. Proposed approach to the challenge
3. Example case study
4. Ability to generate validation data
5. Project team
6. References

1. Elevator Pitch

The elevator pitch describes your company concisely and compellingly. While being as brief as possible, you want to make maximum impact, so your audience requests a follow-up call or to be sent more information. Include figures if they simplify how to describe your proposal. It is important to remember that the approach you are proposing may result in a solution different from your current offerings to meet the outcomes. It is important to let the provider know how flexible your approach is, and if it can be adapted to the needs of the clinical setting, it will be used in (upon doing discovery and design with the provider). It's key to keep this pitch concise.

2. Proposed Approach to the Challenge

This section allows the vendor to propose an approach to the provider's challenge. This is the section to shine! Explain your innovative approach and describe any technical assets that might support your proposal.

3. Example Case Study

Use this section to highlight your past experience with implementing innovative solutions. Include your customer's challenge, how your solution met their need, and any outcome metrics from implementing it. Providers also want to understand if the solution was delivered within the budget you estimated, so please include the cost to the customer if available (or a range if you do not have a specific number)

4. Ability to Generate validation data

Our team will want to know your ability to evaluate prototypes and produce validation data. This section allows you to include summaries (or links) to whitepapers, peer-reviewed articles, or clinical trial results summaries. Demonstrate your ability to generate good-quality data to evaluate a minimally viable solution to see how well it can achieve desired outcomes as part of the co-design process.

5. Project Team and Resource Requirements

List your project team that will directly (and indirectly) work on this project and support it. The provider is looking for professional and experienced partners to work with, and this an opportunity to highlight your team's credentials.

6. References

Finally, list any references the provider can use. Ideally, these are past customers with similar challenges to the provider. List contact names, their organization name, their role, and contact info (email/phone).

Incentives to Participate

- Recognition at a prestigious health care innovation event
- Collaboration opportunities with our Hospital, with industry and academic partners, partners
- Access to funding for pilot projects.
- Procurement by co-design opportunity

We look forward to receiving your forward-thinking solutions! For additional questions or to forward your submissions, please email us at: innovationchallenge@grhosp.on.ca

We thank all applicants for their contributions to advancing care. Only shortlisted applicants will be invited to present their innovations to the evaluation team.

Key Dates and Timelines

Phase 1: Launch the Challenge	
April 2025	<ul style="list-style-type: none">○ ED Innovation Challenge launches inviting institutions, vendors, and innovation networks to submit proposals.○ Begin receiving and reviewing submissions against evaluation criteria
Phase 2: Vendor Selection & Evaluation	
May 2025	<ul style="list-style-type: none">○ Submissions close○ Evaluation commences○ Promising solutions are shortlisted to present their innovations to the evaluation team.