

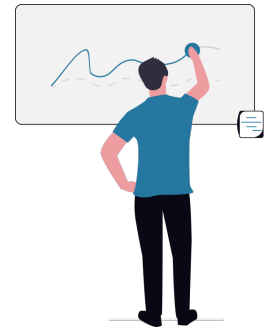
Transforming Heart Failure Care: The Clinical and Economic Case for the Medly® Platform

Medly was developed at one of Canada's top research hospitals, University Health Network (UHN) in Toronto. Medly is a Health Canada-regulated digital therapeutic for heart failure that supports daily remote monitoring, guideline-based medication titration, and timely clinician escalation. More than 30 [peer-reviewed studies](#) demonstrate Medly can generate significant reductions in heart failure-related hospitalizations, faster achievement of Guideline-Directed Medical Therapy (GDMT), and favorable impact on cost-effectiveness.

VITALL Intelligence (VITALL) holds an exclusive license to commercialize Medly and is responsible for product deployment, integration, and support for health systems seeking to adopt the platform. By reducing acute care use and enabling remote triage and management, the Medly solution can help curb demand on hospitals and emergency services – shifting care upstream into outpatient and community settings where it is less costly and more sustainable.

For health system leaders evaluating digital health technologies, Medly represents a unique convergence: a platform backed by years of peer-reviewed clinical research and by real-world implementation data from thousands of patients across multiple hospital sites. Medly has received regulatory authorization from Health Canada and has been granted Breakthrough Device designation by the U.S. Food and Drug Administration (FDA).

The result: A compelling made-in-Canada solution that can deliver better heart failure management care while alleviating system demand from a patient cohort that significantly impacts health systems.



The Human Burden of Heart Failure

Heart failure changes everything about a person's life. Simple activities become exhausting. Breathing grows difficult. And beneath it all runs a constant undercurrent of anxiety: Is today the day I'll end up back in the hospital?

According to the Canadian Heart & Stroke Foundation, over 750,000 people in Canada are living with heart failure, a condition that means far more than a medical diagnosis. It means cancelled plans when fatigue strikes without warning. It means family members watching helplessly, unsure when to worry. It means long waits between clinic appointments, wondering whether subtle changes in symptoms matter or can be safely ignored.

The statistics tell the same story. Nearly 25% of Canadian patients hospitalized for heart failure are readmitted within 30 days.¹ The condition remains the leading cause of hospitalization among adults over 65.² Each hospitalization takes a physical and emotional toll—and too often marks another step in disease progression.



The fundamental challenge is one of visibility and timing. Heart failure patients deteriorate gradually at home, often presenting to emergency departments only after symptoms have progressed significantly. By then, hospitalization is frequently unavoidable, costly, and traumatic. Traditional outpatient follow-up models—with visits spaced weeks or months apart—simply cannot detect early decompensation or support the intensive medication titration protocols that Guideline-Directed Medical Therapy requires.

Beyond Passive Monitoring: What Makes Medly a Digital Therapeutic

The healthcare technology landscape includes many devices and apps that collect patient data—weight scales that transmit readings, blood pressure cuffs that sync to smartphones, symptom trackers that compile information for later review. These tools serve an important purpose, but they share a fundamental limitation: they are passive. They collect information and wait for a busy clinician to notice something concerning.

Medly represents a different category entirely: a digital therapeutic. The distinction matters because it reflects a fundamental difference in what patients actually experience.

With passive monitoring, a patient steps on a scale, the number uploads somewhere, and then... hours or days could go by before anyone has time to review it. By then, the moment for early intervention may have passed.

With Medly, that same patient receives immediate, personalized feedback based on a sophisticated algorithm developed by leading heart failure specialists. The system doesn't just collect data—it interprets it in the context of that individual patient's history, medications, and clinical trajectory. It provides actionable guidance. And when human attention is needed, it ensures the right clinician knows immediately, with all the context required to help.

¹ Canadian Institute for Health Information (CIHI). Hospital Readmissions in Canada, 2021–2022.

² Canadian Institute for Health Information (CIHI). Hospital Stays in Canada, 2023–2024.

How the Platform Works

Each day, the patient's weight, blood pressure, heart rate, and symptoms are input through the Medly mobile app. Data can be entered manually or captured automatically via Bluetooth-connected scales and blood pressure monitors. The proprietary algorithm analyzes these inputs against personalized thresholds established for each patient by the patient's physician, immediately providing actionable guidance on medication, dietary recommendations, or instructions to contact the clinic.

The clinician-facing dashboard presents contextualized patient information rather than raw data streams. Care team members are alerted when a vital sign is out of range, but can also view the patient's current medication list, recent laboratory values, historical trends, and contact information—enabling informed clinical decisions without toggling between systems.

This architecture enables remarkable clinical efficiency. Now, a single Medly-trained nurse can manage as many as 250 patients, compared to conventional care models where 25-100 patients are supported through standard outpatient workflows.



The Medly Platform: Evidence-Based Heart Failure Care

Heart failure places an immense burden on patients and healthcare systems, characterized by high costs, frequent hospital readmissions, and patient anxiety. Medly is an evidence-based digital therapeutic that moves beyond passive monitoring to actively guide patients, enabling clinicians to prevent crises, optimize treatment, and significantly improve outcomes.

The Challenge of Heart Failure



STATISTIC A Widespread Human & Economic Burden

Over 750,000 Canadians have heart failure, with 100,000 new diagnoses each year; these patients utilize a high percentage of hospital resources.



KEY FINDING A Revolving Door of Hospitalizations

According to the Heart & Stroke Foundation, 1-in-5 Canadian HF patients return to hospital within 30 days of last visit.



ISSUE Visibility Gap in Traditional Care

Patients often deteriorate gradually at home, with issues only detected once symptoms become severe.

The Medly Solution: Proven Outcomes



STATISTIC 50% Fewer Heart Failure-Related Hospitalizations

Medly's active monitoring and patient guidance helps prevent crises before they start.



KEY FINDING Achieve Optimal Medication Therapy 60 Days Faster

Several studies indicate fewer than 30% of eligible Canadian HF patients achieve target medication doses. Whereas a 2024 RCT (involving 108 patients) showed 82% of Medly patients reached optimal medical therapy.



ISSUE Innovation Cost-Effectiveness

A 2020 cost-analysis study showed Medly was highly cost-effective, delivering significant clinical value well below standard willingness-to-pay thresholds.

Peer-Reviewed Evidence: What the Research Shows

Medly's extensive [evidence base](#) distinguishes it from competitors relying primarily on observational data or internal outcomes reports. Three significant studies anchor the clinical case for Medly:

1. Keeping Patients Out of the Hospital (JMIR, 2020)

A study of 315 patients using Medly as standard of care at UHN demonstrated:

- 50% reduction in heart failure-related hospitalizations (IRR 0.50; $P < .001$)
- 24% reduction in all-cause hospitalizations (IRR 0.76; $P = .02$)
- 9.8-point improvement in quality-of-life scores—nearly double the clinically meaningful threshold
- 59% decrease in brain natriuretic peptide levels, a key biomarker for heart failure severity

These numbers are not just statistics. They represent real people staying home with their families rather than having to make emergency department visits or spending days in hospital beds.

2. Reaching Better Treatment Faster (JACC: Heart Failure, 2024)

The Medly Titrate randomized controlled trial compared remote medication titration through Medly with usual care for 108 patients with heart failure with reduced ejection fraction:

- 82.1% of Medly patients achieved complete guideline-directed medical therapy optimization vs. 53.8% in usual care ($P = 0.001$)
- Medly patients reached optimal dosing 60 days faster—a clinically significant acceleration given that early GDMT optimization is associated with improved survival
- 45% lower all-cause hospitalization in the intervention arm (IRR 0.55; $P = 0.042$)
- 35% fewer in-person clinic visits

For patients, this means less time in the difficult early phase of treatment adjustment, less travel to appointments, and faster arrival at the medication regimen that will serve them best.

3. Cost-Effectiveness Analysis (JMIR, 2020)

A microsimulation cost-utility analysis modeled 25-year outcomes for 1,000 patients from the Ontario public healthcare payer perspective:

- Incremental cost-effectiveness ratio of \$8,850 per Quality Adjusted Life Year ("QALY")—well below standard willingness-to-pay thresholds
- 0.566 additional QALYs per patient over the analysis horizon
- 90.1% probability of cost-effectiveness at \$50,000/QALY threshold
- Improved cost-effectiveness forecasted by new patient-owned device models could see ICER dropping to \$3,349/QALY

A key takeaway is that investing in Medly is an efficient use of public health dollars. The program is projected to deliver meaningful improvements in patients' quality and length of life while costing far less per unit of benefit than the levels we normally accept.

Medly: Developed and Used by Clinicians

Medly was developed at Toronto's Peter Munk Cardiac Centre by teams led by Dr. Heather Ross, one of Canada's leading heart failure specialists, and Dr. Joseph Cafazzo, Executive Director of Biomedical Engineering at UHN and an expert in healthcare human factors. The platform has been the standard care at UHN since 2016 and supports patients across five Toronto-area hospitals and two Indigenous Health Authorities in Northern Ontario.

The UHN-VITALL Partnership

In December 2025, University Health Network licensed VITALL Intelligence as the exclusive provider of Medly on a commercial basis, creating a dedicated procurement pathway for hospitals and health systems seeking to implement this digital therapeutic. Under this arrangement, UHN will continue its innovation role, while VITALL manages commercial deployments, technical integration, and ongoing support.

VITALL brings established health technology infrastructure including SOC II certification, FHIR compliance for healthcare data exchange, and strong patient consent frameworks. AI-enhanced capabilities currently in development include:

- **Medly Remote Titrate** – Intelligent algorithm recommending safe medication adjustments
- **Medly AI** – Learns from patient data to reduce false alerts and ease clinician workload
- **Medly Conversational AI** – Enables patients to share daily health information by phone in multiple languages
- **Medly Auto-Documentation** – Summarizes patient readings into clinical notes

Bringing Specialist Care to Underserved Communities

Because Medly is built to manage heart failure care in patients' homes—collecting daily vital-sign based guidance and symptom responses and delivering timely guidance—it is particularly well suited for Indigenous and rural populations where access to specialist care is limited. The technology covers the distance and summarizes patient readings into clinical notes.

By enabling continuous, clinician guided monitoring and remote titration of therapy, the platform reduces the need for frequent travel and in-person visits, helps catch deterioration earlier, and supports local care teams in delivering specialist informed care closer to home.

Turnkey Implementation

Overview: VITALL's turnkey implementation places a Medly specialist resource on site for a defined two-month engagement to train staff, onboard an initial patient cohort, and configure clinical workflows. The engagement is designed to transfer operational capability to the client while minimizing clinic burden; after the on-site period, VITALL provides standard SaaS technical support and remote assistance as needed.

On-site clinical enablement: A Medly-trained implementation specialist is embedded at the client site for approximately eight weeks. The specialist trains the staff to manage day-to-day Medly operations, consults on workflow and operational adjustments, documents standard operating procedures and escalation criteria, and leads onboarding of the initial patient cohort.

Initial cohort onboarding: We prioritize onboarding an existing backlog of eligible patients (where available) so the client can focus on care rather than learning a new system. VITALL manages the first wave of enrollments, including device setup, app configuration on patients' smartphones, and first-use checks, to reduce operational lift for clinic teams.

Peripherals and device strategy: VITALL supplies weight scales and blood pressure cuffs for patients who require peripherals while encouraging use of patients' personal smartphones for the Medly application. Equipment can be shipped to the clinic or directly to patients depending on logistics and preference.

Training and knowledge retention: Role-based training materials, recorded sessions, and step-by-step guides are hosted in a digital learning management system (LMS) for ongoing reference, new-hire onboarding, and feature updates.

Hand-off and ongoing support: At the end of the on-site period, VITALL delivers an operational playbook, escalation matrix, and hand-off checklist. Ongoing technical support follows VITALL's SaaS support model for software updates, troubleshooting, and remote assistance.

Positive Impact on Health Systems

Medly is more than a cardiology innovation — it is a system level demand management lever. By targeting the identifiable, high-use cohort of heart failure patients with a proven digital therapeutic, health systems can avoid large volumes of costly inpatient care, free-up bed capacity, reduce ED and clinic demand, and accelerate guideline directed therapy—converting clinical outcomes into measurable financial and operational returns.

Viewing Medly as a System Investment

- **Targeted demand reduction:** The sickest heart failure patients are an identifiable cohort whose characteristics (high rehospitalization rates, frequent ED use, long inpatient stays) make them a high leverage target for interventions that reduce system demand without compromising care.
- **Faster medication optimization:** Guideline-Directed Medical Therapy is one of the strongest predictors of reduced hospitalizations and improved survival, yet only a minority of Canadian heart

failure patients ever reach full GDMT. A published evaluation of Medly showed that 82% of patients achieved optimal therapy, compared with 54% in usual care, and did so significantly faster through daily monitoring and algorithm supported titration.

- **Caregiver impact on reduced hospital visits:** Medly enables patients to receive timely support at home, reducing the risk of deterioration that often leads to emergency care. By ideally preventing crises before they occur, Medly can alleviate the burden placed on family members and caregivers—through fewer urgent disruptions, less time spent navigating hospital visits and reduced financial strain from related expenses.
- **Workforce and throughput benefits:** Centralized, nurse-led Medly workflows and automation can reduce the marginal staffing cost per patient and free specialist time for complex cases, improving throughput across inpatient and outpatient services.
- **Equity and access gains:** Remote titration and monitoring reduce high cost and disruptive travel and medivac needs for rural and Indigenous communities through the delivery of specialist-level care at home.

National-level impact at scale – what it could look like:

Baseline cohort (Canada):

- Canadians diagnosed with Heart Failure: **676,384 patients** (based on CIHI data)
- Estimated most challenged HF patient cohort size (17%): **114,985 patients**
- Annual cohort hospitalizations (1.5/year): **172,478 admissions**
- Average length of stay: **~10 nights**
- Cost per hospitalization: **\$18,000**
- Annual hospitalization cost (cohort): **~\$3.1B**

Medly Impact (based on 50% reduction in HF hospitalizations):

- Admissions avoided: $172,478/2 = 86,239$ **avoided admissions**
- Inpatient nights saved: $86,239 \times 10 = 862,390$ **nights freed annually**
- Direct hospitalization cost avoidance: $86,239 \times \$18,000 = \$1.55B$

In addition, there would be additional savings through cost-avoidance related to:

- Reductions in ED visits
- Reduced clinic visits (observed 35% fewer in-person appointments)
- Reduced medivac missions

Combining these additional avoidances produces **a total annual system avoidance that exceeds \$1.7B, under conservative assumptions.**

Potential Return on Investment (ROI):

Operational equivalence: freeing **862,390 bed nights** annually is the equivalent of continuously freeing **~2,364 bed days per day** across the country—a material capacity gain that can reduce waitlists, ED boarding, and elective care backlogs.

Program cost estimates:

- Per-patient operating cost: \$1,200/year (no capital investment required)
- National program cost (114,985 patients): $114,985 \times \$1,200 = \mathbf{\$138M/year}$

Net effect and estimated annual ROI:

- Gross avoided costs: **~\$1.7B**
- Program spend: **~\$138M/year**
- Net savings: **\$1.56B**
- Approximate ROI: **11x** (gross avoidance ÷ program spend)

Medly converts robust clinical outcomes into system level capacity and financial benefits: by potentially halving heart failure hospitalizations in a high-use cohort, a national deployment could avoid hundreds of thousands of in-patient nights and more than \$1.56B in hospitalization costs annually, while requiring a modest program investment (with no capital expenditure required). **Framed as a demand management strategy rather than a single service innovation, Medly could serve as a practical, evidence-based lever for health systems seeking to free beds, shorten waitlists, and redeploy scarce clinical resources.**

Conclusion: Evidence-Based Care for Heart Failure Patients

Heart failure is a growing reality for more than 750,000 Canadians and the millions of family members and caregivers who support them. The condition cannot be cured, but it can be managed—and how well it is managed determines whether patients spend their days living life to its fullest or merely surviving.

Medly represents a vision of care where patients are not alone with their condition. Where expert guidance is available every day, not just during occasional clinic appointments. Where warning signs are caught early and crises are prevented. Where patients living in remote communities receive specialist-guided care like those living next door to major cardiac centers.

For patients living with heart failure, and for the clinicians dedicated to caring for them, Medly offers what matters most: better outcomes, better quality of life, and a true companion for the journey ahead.

To learn more, visit vitall.com or contact VITALL Intelligence at: medly@vitall.com

Note: All references to dollar values are stated in CAD.

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- The complete list of peer-reviewed studies can be found [here](#).

This white paper reflects VITALL's own views and does not represent the position or endorsement of any affiliated institutions.